Historical Linguistics and the Comparative Study of African Languages
Historical Linguistics and the Comparative Study of African Languages

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Preface

Although the comparative method has been applied to a range of African language families, these have received little coverage in general textbooks. The present monograph was written, first, in order to make the literature on African language families available to a wider public, and to give these languages the proper place they deserve in the comparative study of human language. Unfortunately, many students in African countries do not have access to more recent developments in historical-comparative linguistics or to the literature published on language families in their home countries, due to the sometimes deplorable financial situations at the institutions where they are studying. Furthermore, students interested in the historical comparison of African languages and the comparative method often have to take recourse to textbooks focusing on other parts of the world. Although this is useful in itself, these African languages also have their own story to tell, because of specific genetic and areal properties. This constitutes the second raison d'être for the present monograph. If the historical-comparative study of African languages were not to reveal certain novelties, one might still question the usefulness of another textbook on the comparative method.

An attempt has been made here to present a critical assessment of some current views in historical linguistics and to formulate a kind of research agenda spelling out the specific needs, as seen by the present author, concerning the future investigation of (African) languages. Readers no doubt at times will disagree with the position taken by the present author on certain matters. The interpretation of so-called "mixed languages", "creoles" or aspects of current grammaticalisation theories no doubt is controversial and, to some extent, runs against the (apparent) communis opinio. By explicitly stating my own position and by forwarding arguments for and against alternative positions, the reader should be able to take a stance especially on such controversial matters. Hopefully, these explicit statements in the current volume will also help to stimulate (rather than to kill) the academic debate.

Some readers may observe (or complain) that there is a particularly strong focus on Eastern and Central Africa in this textbook. This is due above all to the primary research experience of the author. Although an attempt has been made to include as many interesting phenomena from other parts of Africa as possible, it is not feasible to give detailed information about each and every language family on the African continent in a study of this size.
The present monograph not only grew out of a need for the production of a textbook on the comparative method that takes Africa as an incredibly rich and diverse area serious, but also out of a psychological need to prove to myself that I am still capable of being creative in some sense. When being immersed in heavy teaching loads, numerous administrative duties and the supervision of theses, next to providing a service to the field as a reviewer of articles, research proposals, or monographs produced by colleagues in the field, one sometimes wonders whether this is all there is to an academic position.

I would like to thank the Philosophische Fakultät of the Universität zu Köln for allowing me to spend part of an inspiring sabbatical between January 2006 and April 2006 at La Trobe University, Melbourne, where a first draft of the present monograph was completed. The support from the Institute for Advanced Study and the Research Centre for Linguistic Typology, La Trobe University, Melbourne, during my stay as a distinguished visiting scholar is also gratefully acknowledged here. R. M. W. (Bob) Dixon and Alexandra (Sasha) Aikhenvald (now at James Cook University, Cairns) deserve special thanks for being such wonderful hosts and for their relentless support over the years. This meant a lot to me, especially at times where I started questioning my academic capabilities. Moreover, the numerous other colleagues I interacted with during my stay in Australia should be thanked here, in particular Keith Allan, Kate Burridge, David Fleck, Randy LaPolla, Frank Lichtenberk, Simon Overall, Tonya Stebbins, Sheena van der Mark, David Watters, Liejiong Xu, Ghil’ad Zuckermann, Siew-Peng Condon, Gilah C. Leder, Julia Anderson, as well as other colleagues in Australia, in particular Nick Evans, for his inspiring academic contributions and for being a mate.

Although I finished a first draft during my stay in Melbourne in 2006, I was not satisfied with the result. Of course, most of us never are, but one has to decide at which point one has reached an acceptable academic level. It took some more time to bring the manuscript to an academic level that was satisfactory to me, but also to reduce the monograph to a publishable size. The initial plan was to write an introduction to comparative linguistics with special focus on Africa. Due to the fact that the original manuscript had to be reduced considerably, the end result was a much more dense presentation of information on different topics, which also requires more extensive basic knowledge of linguistics. As a result, the text probably is no longer suitable as an introduction for undergraduates. Instead, it has become a textbook for more advanced students of linguistics and colleagues working on language families outside of Africa with an interest in a state of the art in African linguistics as seen by the present author.

I would like to express my gratitude to my mentor Paul Newman, who taught me comparative linguistics, when I was an undergraduate student at Leiden University, the Netherlands. It was his inspiring teaching which triggered my intellectual curiosity in the subject in the first place.
Monika Feinen produced the various maps for the present volume. Unfortunately, many of the beautiful maps she created could not be included for reasons of space. I am particularly grateful to Steffen Lorentz, who spent numerous hours solving formatting problems and correcting references. Silke Focke, Meikal Mumin, and Nico Nassenstein helped me in various other respects, in order to get the book published. To all of them I express my deepest gratitude.

I would also like to thank the various (former) colleagues at the Institut für Afrikanistik, University of Cologne for helping to create an academic atmosphere where research is still important.

Last but not least, I would like to express my deeply felt gratitude to Tucker Childs, Bonny Sands, Anne Storch, and Elly van Gelderen for reading the manuscript and for providing numerous insightful and critical comments, and to Kees Vaes (John Benjamins Publishing Company) for his relentless support. It is only because of their encouragement and patience that I managed to bring this project to an end.

Cologne, 2010
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Part I

The comparative method

This monograph is about the historical and comparative study of African languages. Moreover, it deals with the so-called “comparative method”, which was developed initially with respect to the historical study of Indo-European languages, but which has since established itself as a basis for the comparative study of other language families as well. Although as a method it has probably become more sophisticated over the past 150 years or so, specific classical assumptions are still held to be valid by many scholars today. These basic principles of the comparative method will be discussed in Part I. They involve the establishment of lexical and grammatical cognates, the reconstruction of their historical development, techniques for the subclassification of related languages, and the use of language-internal evidence, more specifically the application of so-called “internal reconstruction”.

Whereas Part I is intended as an elementary introduction to the comparative method, based on data which is primarily, though not uniquely, from African language families, Part II addresses language contact phenomena. Part III then deals with the relationship between comparative linguistics and other disciplines.

Although the present monograph is intended as an advanced course book in historical linguistics, it was decided not to add questions at the end of each chapter, as is sometimes done. After having started formulating such questions, it was concluded by the present author that readers (both teachers and students) should decide for themselves which issues are central or peripheral to them. Also, no exercises were added, mainly for reasons of space. It is hoped that the examples presented in different chapters present a sufficient basis as an introduction. With respect to these examples it should be noted (for example, in the typological survey of common sound changes in Chapter 2), that it is not possible in a monograph of the present size to repeat the evidence various authors have given for their reconstructions. Readers are referred to the original sources quoted in these various sections in order to be able to check for themselves whether they find the actual evidence convincing. Additional exercises and comparative data may be found in Cowan (1971), Anttila (1989) or Crowley (1997). Furthermore, extensive data sheets on different African language families that could be used as exercises can be found in, for example, Boyeldieu (2000), Capo (1991), Cloarec-Heiss (1978), Hedinger (1987), Jakobi (To appear), Moñino (1995), Nanfah (2003), or Sambiéni (2005).
Chapter 1
Explaining similarities

1.1 The introduction of historical-comparative linguistics in an African context
1.2 Sound correspondences and reconstructions
1.3 Additional methodological considerations

Historical linguistics as a concept has come to be used in a number of ways. First, in referring to a discipline investigating the development of single languages from an earlier to a later point in time, e.g., two or more stages of Ancient Egyptian, the language of Pharaonic times, whose written records date back four and a half millennia, and which probably became extinct as a spoken language (known as Coptic) several centuries ago.

A second way in which the term historical linguistics has come to be used is as a short hand for historical-comparative linguistics — more specifically the comparative study of genetically related languages, hence the alternative term genetic linguistics. This is the way in which the term is used in the present study. In historical-comparative linguistics, or simply comparative linguistics, one reconstructs “upstream”, i.e., one works backwards from today’s languages in order to establish genetic relationships and in order to reconstruct earlier stages by studying collateral relationships. Even though as a discipline historical (or diachronic) linguistics grew out of philology, one does not necessarily depend on written documents or texts in order to be able to reconstruct historical changes in languages, as should become clear from the following chapters. What is needed to begin with are solid analyses of individual languages.

This chapter sets out to list a number of reasons why languages may manifest similarities in their lexical and grammatical structures. After a discussion of chance, sound symbolism, borrowing and shared inheritance, basic principles of the comparative method are explained. As a first step, these involve setting up sound correspondences between cognate roots in languages assumed to be genetically related, and reconstructing historical changes in these forms.
1.1 The introduction of historical-comparative linguistics in an African context

The 17th century saw the beginning of systematic synchronic accounts of African languages. In 1635, the Italian Franciscan priest Arcangelo Carradori, who was based in Girgeh, Upper Egypt, produced an Italian-Nubian lexicon containing more than 7000 words from Kenuzi Nubian. As early as 1659, the first grammar of a Bantu language, Kongo, was produced by Brusciotto. In subsequent years, the first grammars of other African languages appeared, e.g. a grammar of the Ethiopian Semitic language Ge'ez by Ludolf (1661), and a grammar of Amharic by the same author (Ludolf 1698). However, it was only towards the end of the 18th century that in Europe the fashion arose of gathering wordlists in languages for comparative purposes. For example, the glossary in Latin of vocabularies in two hundred Asian and European languages, *Glossarium Comparativum linguarum Totius Orbis* (1787–1789), compiled by Peter Pallas, dates from this period. The project was sponsored by the Empress Catherine the Great of Russia, and appeared in revised editions in Russian between 1790 and 1791. The glossary also contained information from 30 African languages. A collection of vocabularies of some 24 languages of West Africa was compiled by Oldendorp in the West Indies as early as 1777 (Hair 1963: 13).

Von Schlözer is often credited with having recognised, and named, the Semitic family in 1781. However, as observed by Ruhlen (1987: 77), the affinity of Hebrew, Arabic, and Aramaic had been recognised for centuries by Jewish and Islamic scholars, and this knowledge was published in Western Europe as early as 1538 (Postel 1538). Ludolf, who had written grammars of Ge'ez and Amharic, recognised the extension of the Semitic family into East Africa. A number of other language families as we know them today were established during the 18th century, e.g. Finno-Ugric (or Finno-Ugaritic), which was recognised as a linguistic entity by Gyārmathi (1799).

The so-called comparative method is often assumed to have been initiated by Sir William Jones, a British judge who was based in Calcutta in the British colony India. In a famous lecture he pointed towards the systematic relation between Sanskrit and the better known languages of Latin and Greek in terms of their lexicon and grammar; his hypothesis on the common historical origin of these languages was published in *Asiatic Researches* (1788).

The 19th century saw the commencement of more extensive comparative studies of African languages. Balbi was probably the first scholar to aim at an overall classification of African languages, connecting the so-called Bushman languages with Nama. *Mithridates, oder allgemeine Sprachenkunde* by Adelung and Vater, which appeared in four volumes between 1806 and 1817, contained the first hints at possible linguistic comparability and the relationship between several African languages.
With respect to the comparative study of African languages south of the Sahara, the German missionary Sigismund Wilhelm Koelle is probably to be credited for being one of the founders of this academic discipline through the publication of his *Polyglotta Africana* (1854). Koelle came to the (then) British colony of Sierra Leone in 1847 as an agent of the Church Missionary Society. He was next sent to the headquarters of this missionary organisation in Freetown, where he stayed between 1850 and 1852. Koelle left Freetown in 1853, and moved to London, where he completed a 1200 page manuscript for the printer. As observed by Hair (1963: 13), Koelle may have taken the idea for his title from a study *Asia Polyglotta*, which was published in 1823 by Klaproth. Hair (1963: 13) further notes that a number of other authors published short wordlists of West African languages during this era, e.g. Kilham (1828), Appleyard (1847), and Clarke (1848). However, none of these studies could compare in depth, size and thoroughness to the 156 languages covered by Koelle, who collected an average of 300 words for each of these. Koelle had the opportunity to work with speakers from so many different African languages which was due mainly to the fact that the neighbouring country of Liberia had become the (sometimes temporary) new home for liberated slaves dumped off by the British in the area. The remainder of the speakers interviewed by Koelle (who also collected their life histories) were mainly traders or seamen.

On the basis of a systematic comparison of the lexicon, the grammar and simple sentences of these languages, Koelle was able to find intersecting patterns of phonological similarity, and arrived at the conclusion that several of the languages investigated were genetically related. The twelve units postulated by him are repeated here for convenience (whereby the twelfth group in actual fact consists of languages for which no obvious genetic links could be established at the time):

I. North-west Atlantic Languages (“distinguishing themselves, like those of South Africa, by Prefixal Changes or an Initial Inflection”)
II. North-western High-Sudan Family or Mandéŋa Family of languages
III. Upper Guinea Languages or Middle-Coast Languages
IV. North-Eastern High Sudan Languages
V. Niger-Delta Languages
VI. Niger-Dshadda Languages, or Núpë Group
VII. Central African Languages
VIII. Atam Languages
IX. Mókó Languages
X. Kôn'gó N'góla languages
XI. South-Eastern Languages
XII. Unclassified and Isolated Languages
A sample of languages from Koelle’s *Polyglotta Africana* classified as members of Group IV, North-Eastern High Sudan languages, is presented in Table 1.

**Table 1. Data on languages from Koelle’s Group IV**

<table>
<thead>
<tr>
<th>English</th>
<th>‘one’</th>
<th>‘two’</th>
<th>‘three’</th>
<th>‘head’</th>
<th>‘hair’</th>
<th>‘face’</th>
<th>‘forehead’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Móse</td>
<td>yimre</td>
<td>yimbo</td>
<td>tá wo</td>
<td>zúru</td>
<td>kóawdo</td>
<td>nén’ga</td>
<td>dé’ri’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(manzáuru, fozúru)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dsélana</td>
<td>n’ínera</td>
<td>báli</td>
<td>Báta</td>
<td>zoh, pl. zi</td>
<td>zlh pl. Zir</td>
<td>níonur</td>
<td>séboadar</td>
</tr>
<tr>
<td>Gúrësa</td>
<td>wúnyi</td>
<td>bësa</td>
<td>ñúta</td>
<td>su</td>
<td>pl. súsa</td>
<td>nimbie</td>
<td>dëre</td>
</tr>
<tr>
<td></td>
<td>n’kála</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gúrma</td>
<td>lé</td>
<td>lé &amp; nlé</td>
<td>t̀eemail</td>
<td>yũli</td>
<td>ti-yúdi et kóviti</td>
<td>kánun’ga</td>
<td>yúttúi</td>
</tr>
<tr>
<td>Légba</td>
<td>kądêm</td>
<td>nábela</td>
<td>púmbóarára &amp; níbóarára</td>
<td>nyóro</td>
<td>nyó &amp; nyóyí</td>
<td>ésa</td>
<td>tógu</td>
</tr>
<tr>
<td>Káure</td>
<td>kądum</td>
<td>nále</td>
<td>nádéso</td>
<td>Nyóro</td>
<td>nyóyí &amp; nyóyí</td>
<td>ésa</td>
<td>tidi &amp; tidé</td>
</tr>
<tr>
<td>Kiámha</td>
<td>kúdóm</td>
<td>némwé</td>
<td>nàódaró</td>
<td>kúdóyó</td>
<td>nyézì</td>
<td>(mànyóz, nyànyóz)</td>
<td>énsàdé</td>
</tr>
<tr>
<td>Kóáma</td>
<td>ndian’</td>
<td>léa</td>
<td>téré</td>
<td>nyún’</td>
<td>nyóposé</td>
<td>sía</td>
<td>tule</td>
</tr>
<tr>
<td>Bágílan</td>
<td>dian’</td>
<td>léa</td>
<td>tóre</td>
<td>nyo’ méñyo’</td>
<td>nyúpon</td>
<td>pl. nyúpóze</td>
<td>sín’a</td>
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<tr>
<td>Kásm</td>
<td>kálo</td>
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<td>nìta</td>
<td>yíru</td>
<td>fye</td>
<td>lya</td>
<td>tile</td>
</tr>
<tr>
<td>Yúla</td>
<td>kálo</td>
<td>nile</td>
<td>nito &amp; ntóa</td>
<td>yíru</td>
<td>yíra</td>
<td>pl. yía</td>
<td>túli, pl. túlía</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(ámú yíru, nímu yíru)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

So what were Koelle’s intuitions based on? When comparing words between two randomly selected languages, one may always find a similarity in a number of forms. The classic case sometimes mentioned among Africanists (probably going back to Gregersen 1977:84) is that between Hausa and German.

<table>
<thead>
<tr>
<th>Hausa</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>leebèé</td>
<td>Lippe</td>
</tr>
<tr>
<td>hannuu</td>
<td>Hand</td>
</tr>
<tr>
<td>karfii</td>
<td>Kraft</td>
</tr>
</tbody>
</table>

Most of the time, so-called similarities are in the same category as the presumed common words between Hausa and German. Given the finite number of sounds we find cross-linguistically, one will often come across a few such similarities between the six thousand plus languages still spoken today if one looks at larger data sets. This is due
to chance. Once one goes beyond this brief list and starts comparing other words, e.g. for body parts, numerals or verbs like ‘eat’, ‘drink’, ‘go’, one does not find any similarity in form and meaning between Hausa and German:

<table>
<thead>
<tr>
<th>Hausa</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>jìkìi</td>
<td>Körper</td>
</tr>
<tr>
<td>shaà</td>
<td>trinken</td>
</tr>
<tr>
<td>biyu</td>
<td>zwei</td>
</tr>
</tbody>
</table>

Apart from chance, usually involving a small number of lexical items, there is a second reason why arbitrarily chosen languages may show some similarity in specific words without any historical reason, namely sound symbolism. Onomatopoetic words belong to this category of words whose form/meaning relationship is motivated, i.e. is not arbitrary. These may be names for animals producing specific sounds, or verbs describing the sounds particular animals make. Swahili *kuku* for ‘fowl, chicken’, or the verb form *kokola* for the sounds this animal may produce (*cackle* in English), belong to this category. Also, words like *papa* or *mama* in English and their parallels in Swahili *mama* or *baba* belong to this category. A third reason why two or more languages may manifest similarities is due to borrowing. Borrowing and shared inheritance involve historical processes to be accounted for by way of the comparative method. An important methodological issue consequently involves distinguishing borrowing from genetic inheritance.

Linguistic departments around the world occasionally receive letters (or e-mails these days) from laymen who claim to have found some interesting similarities between language X, for example in South America, and language Y in a different part of the world. It is usually enough to point out the parallel situation between Hausa and Germanic, i.e. to refer to chance resemblances. However, if one finds large numbers of forms which are similar in form and meaning between two or more languages, and if these words are part of so-called basic vocabulary, other explanations are required. Borrowing would be one possible explanation, but this usually occurs in “culture words” and less commonly in fundamental vocabulary. Due to the fact that concepts like eating or drinking are basic, the general assumption is that most languages will have a word for these, and so there is no immediate reason for borrowing the corresponding words from another language – although as we shall see below in Chapter 8, there are sometimes problems with this assumption.

2. Note that in the examples from Hausa and German above the orthography of these languages has been used. In modern comparative linguistics we are not comparing letters, but sound units (phonemes) and sounds.
For many words in languages, the relation between form and meaning is arbitrary (non-iconic). Thus, when learning the word for 'head' in Hausa we find kâi, whereas in Swahili it is referred to by way of a rather different form, kichwa. When two or more languages show similarities in form and meaning in a range of basic words, an explanation other than borrowing is needed. Koelle noticed that in various basic words in African languages which were compared by him, a strong similarity in form and meaning could be observed. The list of words compared by him included numerals, body part terminology, and attributive concepts like 'good' or 'bad'. Grammatical features, in particular involving bound morphemes which show similarities in form and meaning, are even better indicators of genetic relationship or genetic affinity because they are not easily borrowed, as we know today. Interestingly, Koelle (1854) also included grammatical comparisons in his comparative survey, e.g. verbal conjugations in different languages such as 'I go', 'I come', 'I lie down' etc. or phrases like 'I drink water', 'I eat rice', 'I do not play'. This we may interpret as an initial attempt to discern grammatical (next to lexical) similarities between languages.

Research in the decades following Koelle's seminal publication in 1854 confirmed his conclusions that the lexical and grammatical similarities observed between different groups of languages were due neither to chance nor to borrowing. Languages classified as Group IV are now considered to be part of the Gur language family (also referred to as Voltaique by French-speaking Africanists); Köhler (1964) gives a detailed account of the Gur languages identified by Koelle (1854). Moreover, as other scholars discovered during the 19th century, not only do we find similarities between languages that are genetically related, i.e. belong to the same language family, we can also establish systematic correspondences between these languages.

From the brief description above we may summarise the most important methodological considerations as follows. Arbitrariness of sound-meaning connections in words, except in nursery words and words involving sound symbolism, is a fundamental property of linguistic signs. If there are considerable numbers of resemblances between two or more languages in spite of this arbitrariness of sound-meaning relations, a historical interpretation is necessary: Either borrowing or a common genetic origin is involved. Resemblances in fundamental vocabulary and grammatical resemblances in form and meaning are of particular significance in this respect. Apart from the number of resemblances, there is another quantitative aspect involved. Not all sound-meaning similarities are equally important. The longer formerly similar words are, the less likely it is that chance is involved. Moreover, if we find similar suppletive forms in two or more languages, the chances are high that these are a reflex of a genetic relationship. For example, languages classified as Germanic within Indo-European have a suppletive (and therefore unpredictable) alternation for one adjectival pair expressing comparison (superlative): good/better in English, goed/beter in Dutch, gut/besser in German, or god/bättre in Swedish.
1.2 Sound correspondences and reconstructions

When comparing vocabularies as well as grammatical features between several languages, one may be able to detect a historical relationship, as Koelle did in his pioneering work. However, there is more to this exercise than identifying “look alikes”. If we take the Gur language family as a basis, or more specifically one group of languages within this family showing a particularly close affinity with each other in their lexical and grammatical structure, it turns out we are able to set up systematic correspondences between these languages. Sambiéni (2005) undertakes this task for a group of Gur languages called the Oti-Volta-Oriental cluster. As a first step, the author presents an inventory of the vowel and consonant phonemes of these languages. In Table 2, adapted from Sambiéni (2005: 33), shaded blocks indicate differences in consonant inventories between these languages.

Once a synchronic inventory of structural sound units (phonemes) and their phonetic realisation in individual languages has been made, the next step would be to set up a systematic comparison of basic vocabulary, in order to arrive at an inventory of all sound correspondences occurring between the set of languages.

**Table 2. Consonant inventories in Oti-Volta Oriental (Gur)**

<table>
<thead>
<tr>
<th></th>
<th>Biali</th>
<th>Ditammarí</th>
<th>Naténi</th>
<th>Waama</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>b</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>t</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>d</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>c</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>k</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>kp</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>m</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>n</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>ñ</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
</tr>
<tr>
<td>ñ</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>ñ</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>+</td>
</tr>
<tr>
<td>f</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>s</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>g(y)</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>h</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
</tr>
<tr>
<td>l</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>r</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>w</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>y</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>
Items with identical or similar shape and meaning, identified in particular through a comparison of basic vocabulary, are called cognates. They are conveniently ordered in such a way that correspondences for segments (or suprasegmental units for that matter) become obvious. Compare, for example, the consonants in stem-initial position in Table 3.

Table 3. Cognate sets in Oti-Volta Oriental (Gur)

<table>
<thead>
<tr>
<th>Bia</th>
<th>Dita</th>
<th>Nate</th>
<th>Waa</th>
</tr>
</thead>
<tbody>
<tr>
<td>year</td>
<td>byēn-ī</td>
<td>dī-bē-nī</td>
<td>bēn-nī</td>
</tr>
<tr>
<td>attach</td>
<td>-</td>
<td>bō-o-</td>
<td>bō-o-ā</td>
</tr>
<tr>
<td>arm</td>
<td>bā-γā-ħū</td>
<td>kā-bā-kū</td>
<td>bā-kū</td>
</tr>
<tr>
<td>goat</td>
<td>bwōm-wā-γāj</td>
<td>tā-būānī-tā</td>
<td>bī-nī-tā</td>
</tr>
<tr>
<td>ask</td>
<td>bēē-sē</td>
<td>bē-kā</td>
<td>bē-kā</td>
</tr>
<tr>
<td>child</td>
<td>bū-γā</td>
<td>dā-bī-rā</td>
<td>bī-tā</td>
</tr>
<tr>
<td>grain</td>
<td>bū-γ</td>
<td>bū-</td>
<td>bū-</td>
</tr>
<tr>
<td>try</td>
<td>bē-ī</td>
<td>bē-nā</td>
<td>bēn</td>
</tr>
<tr>
<td>friend</td>
<td>dwō-p-ū</td>
<td>dā-p-ū</td>
<td>dōō-b-ū</td>
</tr>
<tr>
<td>quiver</td>
<td>dwā-γ-ī</td>
<td>dī-dōō</td>
<td>dō-kē-rī</td>
</tr>
<tr>
<td>sing</td>
<td>-</td>
<td>diēn-tā</td>
<td>dēēn-o-</td>
</tr>
<tr>
<td>get used to</td>
<td>mān-s-ā</td>
<td>mān-tā-rā</td>
<td>mān-dā</td>
</tr>
<tr>
<td>build</td>
<td>mē-ī</td>
<td>māà</td>
<td>mā-li</td>
</tr>
<tr>
<td>excrement</td>
<td>mīn-dū</td>
<td>tī-mīn-ti</td>
<td>mīn-di</td>
</tr>
<tr>
<td>iron</td>
<td>mā-tū</td>
<td>kū-mā-ri-kū</td>
<td>māā-kū</td>
</tr>
<tr>
<td>grass</td>
<td>mwō-hū</td>
<td>kū-mū-ri-kū</td>
<td>mī-kū</td>
</tr>
<tr>
<td>fight</td>
<td>-</td>
<td>mā</td>
<td>māā</td>
</tr>
<tr>
<td>thin</td>
<td>myē-sū</td>
<td>-</td>
<td>mē-hī</td>
</tr>
<tr>
<td>glanders</td>
<td>myā-tū</td>
<td>ti-miē-ti</td>
<td>mī-ti</td>
</tr>
<tr>
<td>swallow</td>
<td>nīm</td>
<td>nī-tōō</td>
<td>nī-tā</td>
</tr>
<tr>
<td>cattle, ox</td>
<td>nā-fō</td>
<td>fā-nāā-fā</td>
<td>nā-fā</td>
</tr>
<tr>
<td>mouth</td>
<td>nū-i</td>
<td>dī-nūū</td>
<td>nū-ri</td>
</tr>
<tr>
<td>eye</td>
<td>nō-γ-ō</td>
<td>fā-nūān-fā</td>
<td>nōn-fā</td>
</tr>
<tr>
<td>bird</td>
<td>nē-gē</td>
<td>tă-mā-tă</td>
<td>nē-tā</td>
</tr>
</tbody>
</table>

It is useful from a methodological point of view to order lexemes for comparison according to the syntactic category to which they belong. It could be the case that a language uses only suffixes for nouns, whereas in verbs prefixes and suffixes are allowed. This is a common pattern, for example, in Cushitic languages. The alternating positions...
for root-initial consonants for nouns, as opposed to verbs, is sometimes relevant for the conditioning of specific sound shifts. In the case of the Gur languages above, this apparently was not relevant, and accordingly lexemes were not ordered on the basis of categorical distinctions by Sambiéni (2005).

As the list above further shows, it is important to understand the morphological structure of the languages one intends to compare in order to be able to identify the common lexical items, or roots, for systematic comparison. Not only do languages change their sound structures over time, their morphological (and syntactic) systems may also be subject to restructuring. Consequently, one first tries to identify the lexical root, i.e. the smallest meaningful unit stripped of morphological elements like affixes and clitics. These morphological elements can also, and should also, be compared in a systematic matter. However, this is done best once phonological changes in lexical roots are reasonably well understood.

Let us examine some of the preparatory "handwork" in order to see what kind of work is needed for the establishment of regular sound correspondences, as in the examples from Gur languages above. For an effective comparative project it is important to understand the phonological structure as well as the phonetic realisation of the phonemes and the morphological structure of individual languages. In practice, one has to be prepared for a number of potential problems. For example, not all relevant data may be available for a specific language, or a particular lexeme may not be cognate because it replaced the original form. This is what the empty blocks marked with a hyphen in Table 3 represent. On the basis of cognate roots presented in Table 3, recurring regular sound correspondences can be set up; the corresponding starred form marks the reconstructed proto-form (based on the discussion in Sambiéni 2005: 184–190).

### Table 4. Correspondence sets in Oti-Volta-Oriental (Gur)

<table>
<thead>
<tr>
<th></th>
<th>Biali</th>
<th>Ditammari</th>
<th>Naténi</th>
<th>Waama</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>b</em></td>
<td><em>b</em></td>
<td><em>b</em></td>
<td><em>b</em></td>
<td><em>b</em></td>
</tr>
<tr>
<td><em>d</em></td>
<td><em>d</em></td>
<td><em>d</em></td>
<td><em>d</em></td>
<td><em>d</em></td>
</tr>
<tr>
<td><em>m</em></td>
<td><em>m</em></td>
<td><em>m</em></td>
<td><em>m</em></td>
<td><em>m</em></td>
</tr>
<tr>
<td><em>n</em></td>
<td><em>n</em></td>
<td><em>n</em></td>
<td><em>n</em></td>
<td><em>n</em></td>
</tr>
</tbody>
</table>

The easiest hypothesis for the first correspondence set, involving voiced bilabial stops, is of course to assume that no changes occurred in the initial consonant position for these cognates. One may call this the economy principle. From a methodological point of view it is always good to start, if possible, with correspondence sets where no variation occurs, i.e. where the sound units compared are identical. The correspondence sets for the bilabial and alveolar nasals also suggest that these remained unchanged.
Once lexemes have been ordered according to different correspondence sets for segments, as in the examples above, it may turn out that one has a partially overlapping correspondence set, i.e. a set sharing one phoneme in language A, but two in a related language B. From the inventory in Table 2, we can already see that these four Gur languages have slightly different consonant inventories. We observe, for example, that Biali and Waama also have a palatal nasal, whereas Ditammari and Naténi do not. Given the fact that all four languages also have a palatal approximant (written as \( y \)), the palatal nasal is either an innovation in Biali and Waama, or it was lost in Ditammari and Naténi. A comparison of lexical cognates should provide an answer to this puzzle (data derived from Sambiéni 2005:201–202).

| Table 5. Correspondence sets for palatal consonants in Oti-Volta Oriental (Gur) |
|---------------------------------|--------|--------|--------|--------|
| glosses                         | Biali  | Ditammari | Naténi | Waama  |
| drink                           | \( n\ddot{a} \) | \( y\ddot{a} \) | \( y\ddot{a} \) | \( y\ddot{a}-m\ddot{a} \) |
| know                            | \( n\ddot{a} \) | \( y\ddot{a} \) | \( y\ddot{a}-l\ddot{a} \) | \( y\ddot{i}m-m\ddot{a} \) |
| head                            | \( y\ddot{w}o-i \) | \( d\dddot{i}-\dddot{y}uu-\ddot{a} \) | \( y\dddot{u}-r\dddot{i} \) | \( y\ddot{a}-t\ddot{a} \) |
| hair                            | \( y\ddot{w}o-hu \) | \( k\dddot{u}-y\dddot{u}-r\dddot{i} \) | \( y\dddot{u}-k\ddot{u} \) | \( y\gamma-s\gamma \) |

The principle “majority rules” can sometimes be applied to cases where only one of the languages deviates. However, as some changes are very common, languages may undergo these independently of one another. As the cognates for ‘head’ and ‘hair’ above show, there are cognate roots where we find a palatal approximant (or glide) in root-initial position in all four languages. At the same time, we find a second correspondence set, as in the entries for ‘drink’ and ‘know’, where Biali has a palatal nasal and the other three languages have a palatal approximant. We are thus left with two potential explanations: The system as found in Biali either reflects a more archaic stage, i.e. \( n \) constitutes a retention, or it is due to an innovation. It turns out that the presence of the palatal nasal in Biali can be predicted historically (though not synchronically) from the presence of nasality on a following vowel (or sometimes a nasal consonant following this vowel, a situation essentially retained in the other three languages). It follows that the nasal consonant \( n \) in Biali developed through anticipation by the palatal approximant of nasalisation on the following vowel: \( *y\gamma-v > \dddot{y}v > n\gamma \) (Sambiéni 2005:178). The symbol \( > \) expresses “historically changed into”, whereas the symbol \( < \) expresses “historically derives from”. As we shall see later (in particular in Chapter 13), Sambiéni (2005:201) points out that the correspondences sets for these consonants are irregular in Waama (though not in the examples above), the second language with a palatal nasal, which is why this language is not further discussed here. The question why and how such irregularities may come about in languages is addressed in Chapter 2.4.
this kind of change involving alternations between nasalised vowels and neighbouring oral consonants is very common in West African languages. In other words, \( \mathfrak{n} \) was innovated in Biali through a split, whereby \( *y \) shifted to \( \mathfrak{n} \) when nasality occurred on a following segment, whereas it remained unchanged elsewhere. The alternative process whereby two sound units are no longer phonologically distinctive is called merger.

The basic steps in the application of the comparative method may now be summarised as follows:

- Select the most probable cognates (lexical roots) in order to be able to set up sound correspondences.
- Set up correspondence sets, also for those cases where there is no apparent variation between languages.
- Start out from the most straightforward cases with identical sound units in cognates. These can be assumed to represent (unchanged) reflexes of the original sound unit.
- Specify the position within the root (initial, medial, final) for the consonants and vowels being compared, as this may turn out to be relevant for the conditioning of specific sound changes.
- Order these correspondences according to phonetic and phonological similarity.
- Check whether distinct reflexes occur in identical environments, or, alternatively, whether they are in complementary distribution with some other sound unit.
- Reconstruct phonemes for different positions within the root.

These sequences represent the logical steps in the reconstruction of the proto-language, the common ancestor from which a group of related languages emerged, and should not necessarily be applied mechanically in just this order. In practice, one often moves between these stages. Also, a number of heuristic principles play a role. As we shall see in the next chapter, specific sound changes are very common (“natural”). This experience often helps us to develop a first intuition about the direction of change. However, the most important point is that the arguments for specific reconstructions are pursued logically.

There are potential pitfalls when working out sound correspondences and innovations. For example, one may be missing conditioning factors for specific sound shifts, thereby multiplying the number of reconstructed contrasts. Another problem encountered in comparative work concerns gaps in the material, either because the forms are not clearly cognate, or because they could be cognate but do not seem to fit in with well-attested, regular sound correspondences. These irregularities or exceptions to established sound changes, however, can be approached in a systematic way, as shown in Chapter 2.
The observation that sound correspondences between genetically related languages are regular was an important methodological advance initially derived from the study of Indo-European languages, and later confirmed through the study of other language families, regardless of whether or not these languages were written. This regularity allows one to reconstruct historical stages. The comparative method was developed by the so-called Neogrammarians (Junggrammatiker in German, also sometimes referred to as the methods of the Leipziger School, after the name of the university town in Germany, Leipzig, where various scholars were based). Their methods are central to the first seven chapters of the present monograph.

The most important innovation in the application of the method in the 20th century concerned the distinction between phonetics and phonology. Before embarking upon this important distinction (in Chapter 2), let us have a closer look at another group of languages assumed to constitute a language family, namely Bantu. This will help us acquire some additional insights into the comparative method, and also help us understand the relevance of the distinction between phonetics and phonology for the application of the method. In the following examples we will also introduce some additional, complicating factors, involving more dramatic sound changes, morphophonological complications, (minor) semantic changes, and a first identification of borrowings.

1.3 Additional methodological considerations

When Wilhelm Bleek (1827–1875), the German-born missionary and linguist, started his activities in Natal, South Africa, he also became aware of systematic similarities between languages spoken in the area. For these languages, he coined the term “Bantu”, after the common word for ‘people, human beings’ in these languages. Bantu languages typically use noun-class prefixes (rather than suffixes, as in Gur), and Bleek (1862, 1969) concentrated on Bantu languages in Southern Africa. However, research on other languages since has shown that the Bantu family stretches out over a vast area between Cameroon in the West and Kenya in the east, and the area south of this zone. Table 6 presents some lexical cognates among a number of Bantu languages. Data for Bobangi are based on Whitehead (1899), for Kinyarwanda on Coupez et al. (2005), for Luba-Kasai

4. The influential 20th century linguist Leonard Bloomfield, who was a student in Leipzig at one point, introduced these concepts into American structuralism. He applied the comparative method to Central Algonquian languages in North America; see Chapters 18–27 of his classic, Language (Bloomfield 1933).

5. Note that earlier investigators had already been alluding to a common ancestry for some languages now considered to be part of Bantu; see Nurse and Philippson (2003a) for a historical survey of Bantu studies.

Because of the high number of cognates in basic vocabulary, a relatedness hypothesis (with an ancestral language as the common proto-language) as well as a regularity hypothesis (with cognate sets and correspondence sets established on the basis of reflexes in the daughter languages) is the most plausible historical explanation for the structural similarities between these languages.

Table 6. Cognate sets in Bantu

<table>
<thead>
<tr>
<th></th>
<th>Bobangi</th>
<th>Kinyarwanda</th>
<th>Luba-Kasai</th>
<th>Nyamwezi</th>
<th>Swahili</th>
<th>Zulu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>count</td>
<td>-bal-</td>
<td>-bar-</td>
<td>-bal-</td>
<td>(-hesabu)</td>
<td>-bal-</td>
</tr>
<tr>
<td>2</td>
<td>shine</td>
<td>-bâl-</td>
<td>(-angar-)</td>
<td>-bal-</td>
<td>-bal-</td>
<td>-bal-</td>
</tr>
<tr>
<td>3</td>
<td>singe</td>
<td>-bab-ql-</td>
<td>-bab-</td>
<td>-bab-</td>
<td>-</td>
<td>(-unguz-) (-hamal-)</td>
</tr>
<tr>
<td>4</td>
<td>courtyard place of ground</td>
<td>-banza</td>
<td>-baandza</td>
<td>-banza</td>
<td>-</td>
<td>-wanja</td>
</tr>
<tr>
<td>5</td>
<td>be(come)</td>
<td>-b-</td>
<td>(-di)</td>
<td>-</td>
<td>wa</td>
<td>b-</td>
</tr>
<tr>
<td>6</td>
<td>break</td>
<td>-bun-</td>
<td>-vun-</td>
<td>-vung- 'fold'</td>
<td>-bun-zik-</td>
<td>-vun-jik</td>
</tr>
<tr>
<td>7</td>
<td>rain</td>
<td>-bula</td>
<td>-vura</td>
<td>-vul-</td>
<td>( -phul-)</td>
<td>-vua</td>
</tr>
<tr>
<td>8</td>
<td>ask</td>
<td>-</td>
<td>(-saba)</td>
<td>(-eel-)</td>
<td>-fouj-</td>
<td>-uliz-</td>
</tr>
<tr>
<td>9</td>
<td>mould</td>
<td>(-y*m)</td>
<td>-buumb-</td>
<td>-bumb-</td>
<td>-bumb-</td>
<td>-bumb-</td>
</tr>
<tr>
<td>10</td>
<td>kill</td>
<td>- (-iec-)</td>
<td>(-ship-)</td>
<td>-bolag-</td>
<td>-i-</td>
<td>-bulal-</td>
</tr>
<tr>
<td>11</td>
<td>excrement</td>
<td>-vyi</td>
<td>(-fi )</td>
<td>(-fii)</td>
<td>-vi</td>
<td>-vi</td>
</tr>
<tr>
<td>12</td>
<td>thigh</td>
<td>-biero</td>
<td>-belo</td>
<td>(-taango)</td>
<td>-weo</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>stone</td>
<td>-buye</td>
<td>-bwe</td>
<td>-we</td>
<td>-te'e</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>bad</td>
<td>-bê</td>
<td>-bi</td>
<td>-bii</td>
<td>(-baya)</td>
<td>-bi</td>
</tr>
<tr>
<td>15</td>
<td>become rotten</td>
<td>-bälè</td>
<td>-bor-</td>
<td>-bol-</td>
<td>-oz-</td>
<td>-bol-</td>
</tr>
<tr>
<td>16</td>
<td>two</td>
<td>-bâlê</td>
<td>-biri-</td>
<td>-bidi</td>
<td>-bild-</td>
<td>-wili</td>
</tr>
<tr>
<td>17</td>
<td>arm</td>
<td>-bokô</td>
<td>-boko</td>
<td>-boko</td>
<td>-boko 'hand'</td>
<td>(-kono)</td>
</tr>
<tr>
<td>18</td>
<td>boil up</td>
<td>-bir-</td>
<td>-bil-</td>
<td>-</td>
<td>(-chemka)</td>
<td>-bîl-</td>
</tr>
<tr>
<td>19</td>
<td>body</td>
<td>(-zôf*)</td>
<td>-biri-</td>
<td>-bidi</td>
<td>-bild-</td>
<td>-wili</td>
</tr>
<tr>
<td>20</td>
<td>see</td>
<td>-bon-</td>
<td>-bon-</td>
<td>-mon-</td>
<td>-bôn-</td>
<td>-on-</td>
</tr>
</tbody>
</table>

When comparing the root for 'count' above, it is immediately clear that the Swahili form does not fit in. First, unlike most Swahili verbs it does not end in -a, which is already indicative of it being a borrowing, more specifically a borrowing from Arabic; also, its tri-consonantal root structure is reminiscent of its Semitic origin. Because the lexical roots in the related languages are cognate, and because the sound correspondences involved in these forms are regular, they are still included in the correspondence sets in Table 7. Sometimes it is not immediately clear whether specific
forms in two or more languages are cognate, as with the root for ‘shoulder’ in Bobangi. Once a more extensive corpus has been investigated, however, it usually becomes clear on the basis of recurring, and therefore regular, sound correspondences whether we are dealing with a cognate root or not. The quality of the data of course is also a crucial issue from a methodological point of view. There are times, however, where words in a specific language simply are not available to the comparativist, or where the data are not up to modern standards (as with the Bobangi source above).

On the basis of the cognate forms above, we can begin to set up regular sound correspondences between these languages, whereby Swahili turns out to be the language with the most dramatic historical sound changes. Let us therefore concentrate on this language below. The set of cognates in Table 6 allows us to set up the correspondences for root-initial consonants summarised in Table 7.

Given the fact that at least four languages have a bilabial stop in initial position in the various cognate roots shown in Table 7, the original sound unit was probably a stop as well. There is also internal evidence from morphophonemic alternations in languages like Swahili that the original consonant was a stop. In this language, *b was retained after a nasal (as shown by the examples in Table 8), whereas it was modified in other positions.

| Table 7. Correspondence sets between Bantu languages for bilabials |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Reconstructed form | Bobangi | Kinyarwanda | Luba-Kasai | Nyamwezi | Swahili | Zulu |
| 1, 2, 3, 4, 5, 12, 13, 15, 16, 17, 19 | *b- | b- | b- | b- | b- | b- |
| 6, 7, 11 | *b- | b- | v- | v- | b- (-m- if a nasal follows) | b- |
| 8, 9, 10, 15, 20 | *b- | b- | b- | b- | b- | b- |

| Table 8. Bilabial stops after nasals in Swahili |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Bobangi | Kinyarwanda | Luba-Kasai | Nyamwezi | Swahili | Zulu |
| 1 two | -biri | -bidi | -bili | m-bili | -bili |
| 2 dog | -bwa | -bwa | bwa, -waa | m-bwa | -d3a |
| 3 goat | -boli | (-hene) | -boli | -boli, -bili | m-buzi | -buzi |
| 4 shoulder | -leki (?) | -bega | -bega | m-bega | (-hlobhe) |
| 5 penis | - | -bolo | -bolo | m-bow | -bol |
| 6 mosquito | -bu | -bu | -buw | m-bu | (-miyane) |
| 7 unripe | -besu | -bisi | -bisi | m-bichi | (-nqavie-thiwe) |
Before the central vowel a and the front vowel e (as in 2, 4, 12), *b changed to w (*b > w). Synchronously, b and w cannot be treated as variants (allophones) of one and the same phoneme in Swahili, since they occur in identical environments, as in the word *saba ‘seven’ (a borrowing from Arabic) versus sawa ‘equal, the same’. In other words, a split occurred whereby *b shifted to w and merged with another existing sound unit (phoneme) before the central vowel a and the front vowel e.

Table 9. Correspondence sets between Swahili and Nyamwezi for vowels

<table>
<thead>
<tr>
<th>Swahili</th>
<th>Nyamwezi</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>i ~ i(i)</td>
<td>-zima</td>
<td>-zimá ‘extinguish’</td>
</tr>
<tr>
<td></td>
<td>-vimba</td>
<td>-visión ‘thatch’</td>
</tr>
<tr>
<td></td>
<td>-vimba</td>
<td>-visióná ‘swell’</td>
</tr>
<tr>
<td></td>
<td>-inda</td>
<td>-íinda ‘guard’</td>
</tr>
<tr>
<td>i ~ i(i)</td>
<td>-iia</td>
<td>-iíla ‘cry’</td>
</tr>
<tr>
<td></td>
<td>-imba</td>
<td>-ímá ‘sing’</td>
</tr>
<tr>
<td></td>
<td>-pima</td>
<td>-píma ‘measure’</td>
</tr>
<tr>
<td>e ~ e(e)</td>
<td>-chekea</td>
<td>-seka ‘laugh’</td>
</tr>
<tr>
<td></td>
<td>-leca</td>
<td>-léla ‘bring up’</td>
</tr>
<tr>
<td></td>
<td>-leta</td>
<td>-lééta ‘bring’</td>
</tr>
<tr>
<td>a ~ a(a)</td>
<td>-anza</td>
<td>-ándya ‘begin’</td>
</tr>
<tr>
<td></td>
<td>-washaa</td>
<td>-áchá ‘burn, light’</td>
</tr>
<tr>
<td></td>
<td>-fa</td>
<td>-fáá ‘die’</td>
</tr>
<tr>
<td>o ~ o(o)</td>
<td>-ona</td>
<td>-óna ‘see’</td>
</tr>
<tr>
<td></td>
<td>-poa</td>
<td>-póla ‘become cool’</td>
</tr>
<tr>
<td></td>
<td>-ota</td>
<td>-óota ‘dream’</td>
</tr>
<tr>
<td>u ~ u(u)</td>
<td>-uma</td>
<td>-úmaá ‘send’</td>
</tr>
<tr>
<td></td>
<td>-umba</td>
<td>-úmbá ‘mould, create’</td>
</tr>
<tr>
<td></td>
<td>-kaa</td>
<td>-kolaá ‘grow’</td>
</tr>
<tr>
<td>u ~ u(u)</td>
<td>-uma</td>
<td>-umá ‘bite’</td>
</tr>
<tr>
<td></td>
<td>-nuka</td>
<td>-nuupa ‘stink’</td>
</tr>
<tr>
<td></td>
<td>-futa</td>
<td>-futa ‘wipe, rub’</td>
</tr>
</tbody>
</table>

Before the central vowel a and the front vowel e (as in 2, 4, 12), *b changed to w (*b > w). Synchronously, b and w cannot be treated as variants (allophones) of one and the same phoneme in Swahili, since they occur in identical environments, as in the word *saba ‘seven’ (a borrowing from Arabic) versus sawa ‘equal, the same’. In other words, a split occurred whereby *b shifted to w and merged with another existing sound unit (phoneme) before the central vowel a and the front vowel e.
Before a back vowel \( o \) *b shifted to \( \phi \) (i.e. was lost), as shown in Examples 15 and 20. The cognate forms in 8, 9 and 10 suggest that this rule extended to another back vowel, \( u \). However, the cognate roots in 6 and 7 contract this hypothesis, at least at first sight. These forms suggest that a shift *b > v occurred before a high back vowel \( u \). A closer look at cognate forms in, for example, Nyamwezi shows that in this language we only find a vowel \( u \) in the cognate forms 6 and 7, whereas in the cognate roots in 8, 9 and 10 Nyamwezi has a vowel \( o \). As additional cognates show (illustrated in Table 9 below), Nyamwezi has retained a vowel distinction between \( u \) and \( o \) which was lost in Swahili.

The seven vowels of Nyamwezi thus correspond to five-vowels in Swahili; moreover, whereas Nyamwezi has a distinctive vowel length, Swahili does not. (Data on Swahili is based on Johnson 1971, and that for Nyamwezi is based on Maganga and Schadeberg 1992.) There are two (alternative) hypotheses that could explain the observed structural differences between the five-vowel and the seven-vowel system in these two Bantu languages. One possibility is that a merger occurred in Swahili, as a result of which two open high vowel units (*i and *o) shifted to and merged with *i and *u, respectively. Consequently, the situation in Nyamwezi would represent the older situation. If a split had occurred in Nyamwezi, whereby *e split into e and i and *o split into o and u, one should be able to specify an environment (e.g. from neighbouring segments). In that case, the Swahili system would represent the older situation. How do we decide between the first two logical options, an original five-vowel or a seven-vowel system? As a general principle, if a split occurs, we should be able to find a conditioning factor. The alternative (and first option), that of a merger, does not require such a conditioning factor. The third option, namely that neither of the two represents the original situation should only be invoked once it is clear that the first two cannot account for the existing situation. Applying this economy principle follows from an old scientific principle, known as Occam’s Razor, after the Medieval philosopher Occam who stated that entities in an argument are not to be multiplied beyond necessity (entia non sunt multiplicanda praeter necessitate).

Since it is not possible to find a conditioning factor for a so-called split in Nyamwezi, the alternative, namely a merger of vowel distinctions in Swahili, is the logical alternative, hence:

\[
*_{i} > i \quad *_{u} > u
\]

Whereas vowel length is not distinctive before nasals, it is contrastive elsewhere in Nyamwezi. Historically, no conditioning can be found for vowel lengthening in these other positions in Nyamwezi; the distinction between short and long vowels again must be a retention, whereas Swahili lost the contrast. The conclusions arrived at,
namely that the seven-vowel system as well as vowel length in Nyamwezi reflect the older or more archaic stage, is confirmed by evidence from other Bantu languages; the issue of vowel length in Bantu is further discussed in Meeussen (1979). The structural aspect of the historical change is reflected by the fact that both the front and the back high vowel shifted, and also that vowel length was lost for all vowels in Swahili.6

We are now, finally, in a position where we are beginning to understand the changes which root-initial \( ^\ast b \) underwent historically in Swahili. Apparently, \( ^\ast b \) shifted to \( v \) when followed by a high close vowel (\( ^\ast i \) or \( ^\ast u \)) in Swahili, as in ‘break’ (6) and ‘rain’ (Table 7) or ‘thatch’ (Table 9) above, but not when followed by an open high vowel (\( ^\ast i \) or \( ^\ast o \)), as in ‘ask’ (8), ‘mould’ (9) or ‘kill’ (Table 8). Although it is not immediately obvious from the root for ‘excrement’ (11 in Table 7) that the initial consonant was a voiced bilabial stop also historically, a systematic comparison of additional roots with a high close front vowel in these Bantu languages shows that the Swahili reflex is regular, as shown, for example, by the cognate roots for ‘swell’ and ‘thatch’ in Table 9 above. Swahili is a language marking stress on the penultimate vowel in a word, whereas Nyamwezi is a tonal language with two registers, high (marked with \( \acute{\} \)) and low (unmarked in the examples above). The cognate forms in Nyamwezi and Swahili strongly suggest that this tonal contrast goes back to their common ancestor, and that this system was replaced by a stress system in Swahili. This preliminary conclusion, which is confirmed by comparative evidence from numerous other Bantu languages, is based on the fact that no conditioning factor can be found for its emergence historically in Nyamwezi, whereas the situation in Swahili can be explained as a case of neutralisation of such a contrast historically; tonal phenomena are discussed in more detail in Chapter 2.

Due to the merger of the (front and back) open and close vowels, both \( b \) and \( v \) now occur before \( i \) and \( u \). Consequently, \( b \) and \( v \) are distinct phonemes in Swahili. This is a phenomenon we will observe again and again below; what starts as allophonic variation for specific consonants or vowels may become unpredictable (i.e. may phonologise) as a result of subsequent changes in neighbouring segments.

Sound change usually starts with the development of allophonic variation in segments in specific environments. For example, in Nyamwezi intervocalic \( \beta \) alternates with \( b \) after a nasal; the Nyamwezi root for ‘rain’ occurs after a nasal prefix (\( m-bul\acute{\} \)), and thus is part of a regular correspondence set. This also applies to Swahili, where the root -\( wil\) after a vowel alternates with -\( bili \) after a nasal. A shift towards a fricative in prevocalic or inter-vocalic position, as in Nyamwezi, is a common sound change cross-linguistically. In Kinywarda, the root-initial consonant in the examples above is

6. Meinhof (1899, 1906) is one of the pioneer studies of comparative Bantu, next to Guthrie (1967–1971) and Meeussen (1980); the latter was published posthumously, but had been circulating among Bantuists for several years before it appeared.
also realised as a voiced bilabial fricative. Because it is in complementary distribution with a voiced stop elsewhere (e.g. after a nasal), Coupez et al. (2005) treat the bilabial fricative in Kinyarwanda as a variant (allophone) of the latter, and, consequently, use the symbol  in order to represent this structural sound unit. In Zulu, the bilabial stop is slightly implosive intervocically; after a nasal, however, it is realised as a plosive. In other words, implosion is a redundant rather than a contrastive phonetic detail of the stop. Nevertheless, such information can be important since sound changes usually start with allophonic variation in individual sounds.

It is fundamentally important to have information on the realisation of phonemes, more specifically their allophonic distribution, also for another reason: These may reflect earlier phonetic properties of the segments involved or, alternatively, they may reflect phonological contrasts which were lost. Implosion is the phonetic norm for the bilabial stop in geographically distant languages like Zulu (South Africa) or Tunen (Cameroon). Consequently, they may already have been slightly implosive in Proto-Bantu, but there is no evidence that Proto-Bantu had a phonological distinction between plosive and implosive stops.

For obvious methodological reasons we start our comparison with forms that have identical or near-identical meanings. If we were to initially allow ourselves too much freedom in terms of acceptable semantic variation when comparing forms, we could easily get lost in a plethora of forms and corresponding meanings. Also, semantic change is a poorly studied domain of language change, as we shall see in Chapter 5, and so our knowledge about what constitutes a plausible semantic shift is still limited. Once correspondence sets have been established, however, additional material may be brought in. Thus, the Swahili word for ‘breast’,  (also ‘milk’), does not appear to be cognate. There is, however, a form which fits in quite well also in terms of its semantics, namely  ‘in front of’.

As these above examples show, reconstructing historical scenarios can be intricate. The recurrence of a particular correspondence set is of crucial importance in such endeavours. How many witnesses are required to ensure that a presumed correspondence set is regular? There is no straightforward answer to this, other than “the more the better”. The great Indo-Europeanist Meillet (1937: 340) formulated “the three witness” requirement. A correspondence set which is attested in three or four lexical roots belonging to a basic lexicon obviously is less well-established than one which occurs fifteen times. Also, the length of words plays a role since the chances of finding similar forms between two languages in words of three of four syllables is smaller than in monosyllabic forms.

The fact that in Swahili the two vowels *i and *u shifted to and merged with the high vowels *i and *u suggests that the former vowels were high, rather than mid vowels, originally. This is also the assumption commonly held by Bantuists, who have developed a special set of symbols to express this:
Formal similarity between lexical roots in related languages is sometimes misleading. The crucial point is to establish recurrent, and thereby regular, correspondences, not just similarities between forms. An elegant illustration of this comparative pitfall is formed in comparative data sets for Chadic. Newman and Newman Ma (1966) and Newman (1977) applied the comparative method to this language family, and established a range of regular sound correspondences as well as innovations. From these, it also became clear that a number of lexical forms which look similar in specific Chadic languages in fact are not cognate. Thus, Hausa *wutaa* and Ga’anda *waata* ‘fire’ are formally similar, but they are not cognate. For similar reasons, because the forms do not fit in with regular sound correspondences between these languages, French *feu* and German *Feuer* for ‘fire’ are not cognate. The latter is cognate with forms in other Germanic languages like Dutch (*vuur*), or more distantly related Indo-European languages like Greek *pur* and Armenian *hur*. The form in French has cognates in Spanish (*fuego*) or Italian (*fuoco*), i.e. it goes back to a different lexeme with a word-medial velar consonant. These latter languages thus have words for ‘fire’ which are cognate with *feu* in French.

According to Newman and Newman Ma (1966), the following roots in two Chadic languages are cognate because they can be related to each other by way of regular sound correspondences.

<table>
<thead>
<tr>
<th>Hausa</th>
<th>Kanakuru</th>
</tr>
</thead>
<tbody>
<tr>
<td>soya</td>
<td>wuri</td>
</tr>
</tbody>
</table>

The crucial point here is that there is a regular correspondence between Hausa and Kanakuru *w*. Similarly, the fact that Margi *psar* and Tera *wuzn* ‘grass’ are cognate (i.e. go back to a common ancestral form) may not be immediately obvious. “However, if one looks at these languages plus a dozen other Chadic languages such as Bole, Gude, Kotoko and Ngizim, and, for contrast, at words from a few non-Chadic languages such as Kanuri and Fulani, intersecting patterns of lexical similarity emerge such that the relationship between Tera and Margi becomes evident” (Newman 2000a: 263). The forms are historically related (cognate) because they can be derived through regular sound shifts from a common proto-form. Sound units do not change overnight, and so what we observe between Hausa and Kanakuru, or between Margi and Tera is the endpoint of a sequence of changes. Language changes normally occur through a succession of restricted steps, namely subtle sound changes. The end result, however, may be correspondence sets between rather distinct sound changes whose historical link only becomes obvious once other related languages are taken into account.
The standard classification of African languages as proposed by Greenberg (1963) is based, not on the comparative method, but on mass comparison, a method further discussed in Chapters 3 and 14. According to Greenberg, the languages spoken on the African continent can be grouped into four phyla. Considerable work using the historical-comparative method, however, has been carried out on smaller units all of which were assumed by Greenberg (1963) to be part of the four hypothesised language phyla. These latter groups, rather than the larger phyla proposed by Greenberg, play a central role in the following chapters. For ease of reference, these are listed in Appendix I, together with a range of linguistic isolates. We will begin by addressing the question of why some sound changes are more common than others.
Chapter 2

Explaining sound change

2.1 Some common types of segmental changes
2.2 Tonal changes
2.3 Sound change and its link with syllable structure and word structure
2.4 Structural consequences of sound change
2.5 What does it mean to explain sound changes?
2.6 Explaining exceptions

When specific languages are thought to be genetically related, because of systematic and recurrent form-meaning similarities in a large number of lexical roots in particular involving basic vocabulary as well as grammatical morphemes, it is usually possible to set up regular sound correspondences between segments in cognate forms. Moreover, as illustrated in the preceding chapter, specific sound changes may be reconstructed as a next step. Experience has shown not only that similar principles of regular sound change apply to language after language, but also that similar types of sound changes occur again and again in different parts of the world. Some of these more widespread structural changes in sound systems are illustrated next.

2.1 Some common types of segmental changes

In the comparative data from Oti-Volta (Gur) languages above, we saw that a root-initial approximant became a nasal whenever a nasalised vowel followed in the same root. Experienced comparative linguists would immediately state that such a change, whereby a consonant changes its manner of articulation before another segment is a “natural sound change”. The characterisation “natural” is somewhat of a tautology, because if such a change occurs in human languages, it is “natural” by definition; what
one is actually saying is that nature tends towards the natural. However, some sound changes are more common than others, and it is this experience presumably which has led scholars to talk about “naturalness” for some sound changes. An unnatural sound change, then, would involve a rare type, requiring a language-specific explanation. Let us have a look at the more common sound shifts first.

In the comparison of cognate roots for a group of Bantu languages in Chapter 1, it was concluded that the original root-initial consonant in roots like ‘count’, ‘shine’, ‘two’ and ‘rib’ was probably a bilabial stop, rather than a fricative. Although caution is in order, as a sound change needs to be established (“proven”) through the comparative method, experienced researchers in comparative linguistics probably would immediately have gone for this option rather than any other, e.g. assuming a shift from a sonorant or fricative towards a stop. This is due to a common experience that the weakening of consonants between vowels, also known as lenition, is well attested cross-linguistically as a “natural” sound change. Westermann (1927: 181–85), for example, already pointed towards such processes for Mande:

\[
{kun} \quad \text{‘head’} \quad \rightarrow \quad \text{kun} \quad \text{Mandingo} \\
\rightarrow \quad \text{xuni} \quad \text{Susu} \\
\rightarrow \quad \text{wu(n)} \quad \text{Kpelle}
\]

The following instances of lenition involve a change in manner of articulation from total occlusion to friction, because the two articulators became separated; this, in turn may be followed by a further distancing between the two articulators (e.g. the lips, or the tongue and the alveolar ridge etc.). For the voiceless obstruents (i.e. plosives plus fricatives) voicing may occur as an intermediate step. Alternatively, or in combination with this voicing stage, stops may become affricates first (\(p > pf, t > ts\) etc.).

\[
\begin{array}{ccc}
\text{plosive} & \rightarrow & \text{fricative} & \rightarrow & \text{approximant} \\
p & \phi / f & h \\
b & \beta / v & w \\
t & \theta / s & h \\
d & \delta / z & j \\
c & j / s & j \\
j & z & j \\
k & x & h \\
g & y & j \\
\end{array}
\]

Alternatively, a voiced alveolar stop may become a lateral (\(l\)), for example, a conversion known as lambdacism, or it may develop into \(r\). Stops like \(k\), \(q\) or \(g\) may also develop into a glottal stop \(ʔ\) (sometimes called debuccalisation, i.e. removal of activity from the mouth). Voiceless approximants are relatively rare or marked cross-linguistically, and
so again this historical sound change involving manner of articulation with voicing is very common in languages. Approximants like $h$, $w$ and $j$ often represent the final stage in a change from a fricative (or stop) towards the loss of a segment.

Intervocalic voicing of voiceless stops and subsequent weakening of such consonants appears to be a permanent rule, i.e. a rule which re-occurs again and again at different points in time, e.g. in language groups such as the Eastern Sudanic branch within Nilo-Saharan. In the following examples from the Surmic branch within Eastern Sudanic, Murle and Baale constitute the innovating language (Yigezu 2001: 245).

<table>
<thead>
<tr>
<th>Language</th>
<th>Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murle</td>
<td>kéβer</td>
<td>'eye'</td>
</tr>
<tr>
<td>Didinga</td>
<td>kéβeri</td>
<td>'eye'</td>
</tr>
<tr>
<td>Narim</td>
<td>kébere</td>
<td>'eye'</td>
</tr>
<tr>
<td>Baale</td>
<td>keere</td>
<td>'eye'</td>
</tr>
</tbody>
</table>

Whereas lenition processes are widely attested cross-linguistically, the inverse process nevertheless appears to be attested as well. Thus, in Lebanese Arabic, the original Arabic dental fricatives $\theta$ and $\delta$ shifted to and merged with $t$ and $d$ respectively. The latter process is presumably favoured by a dental (as against an alveolar) point of articulation for such stops. This inverse process, involving consonantal **strengthening**, is also known as **fortition**.

Sasse (1974/1975, 1979) reconstructs two distinct phonemes $\ast d$ and $\ast z$ for Proto-Eastern Cushitic. Whereas Proto-Eastern Cushitic (PEC) $\ast d$ remained unaltered in all branches of modern Eastern Cushitic, $\ast z$ was either changed into $d$ or $z$ in the modern languages: “PEC $\ast d$ and $\ast z$ have merged into a single $d$ […] in most Saho dialects and Afar, Northern Somali, Baiso, Macro-Oromo […]”, according to Sasse (1979: 15).

In Bantu languages, the **fricativisation** (or **spirantisation**, as it is often called in Bantu studies) is often conditioned by the close high vowels $i$ and $u$ (commonly written as $\ast i$ and $\ast u$ in comparative Bantu studies). These vowels also triggered a shift in articulation point for the preceding consonant in Bantu languages like Swahili, as we saw in Chapter 1. The articulatory motivation for this appears to be a shift in tongue position whereby the new point of articulation approaches that of the vowel. Compare the following historical sound shifts in a number of Bantu languages (based on Bostoen 2005: 202; morpheme boundaries added), e.g. involving a shift $\ast pi > fi > si$.

---

7. Defining the notion of markedness in general terms is not so easy, but a number of criteria have been applied, such as the frequency of occurrence in a particular language or cross-linguistically; alternatively, or in addition, the relative age at which a particular sound is acquired by children may be used as a criterion. Languages like Ewe have both a bilabial and a labio-dental fricative, but the latter is the most common one of the two cross-linguistically.
Historical Linguistics and the Comparative Study of African Languages

*-pigò ‘kidney’ (Proto-Bantu)

m-pigò ‘kidney’ (Kimbu)

> figò ‘kidney’ (Swahili)

> en-sigo ‘kidney’ (Luganda)

*-piɡa ‘firestone’ (Proto-Bantu)

> ama-piga ‘firestone’ (Kimbu)

> figa ‘firestone’ (Swahili)

> es-siga ‘firestone’ (Luganda)

Similar processes have been reconstructed for related language families, e.g. Jukunoid, by Storch (1999).

If stops tend to be weakened intervocically or before specific vowels, where do stops come from? One common source for single stops in languages appears to be from double stops that became simplified, e.g. *bb > b, or *kk > k etc. Examples of this may be found in the historical phonology of Cushitic languages; for example, in the following degemination processes reconstructed for West-Rift Southern Cushitic by Kießling (2002) in a classical contribution using the comparative method:

Pre-West Rift to Proto-West Rift

‘folit’ > ‘folit’ ‘dig’

*xayya > ‘xaya’ ‘he comes’

*hhaddoo > ‘hhaddo’ ‘sticks’

*slifoo > ‘slifo’ ‘lips’

Kießling (2002) as well as Kießling and Mous (2003) present detailed historical accounts of the phonological development of Southern Cushitic languages in general, thereby illustrating a wide range of historical sound changes.

Cluster reduction may also involve consonants with different points or manner of articulation which become simplified. Thus, simplifications of labial-velar (or labio-velar) stops, such as gb > b or kp > p, are rather common in West African languages. Kastenholz (1996: 152) refers to such processes in Western Mande languages. In Looma, for example, the reflex of Proto-Southwest-Mande *kp is ɓ, whereas in Mende the original sound unit has become voiced:

<table>
<thead>
<tr>
<th>Looma</th>
<th>Mende</th>
</tr>
</thead>
<tbody>
<tr>
<td>-dɔ́ɓɔ́-dɔ́ɡ</td>
<td>-dɔ́ɡbɔ́</td>
</tr>
</tbody>
</table>
| -dɔ́ba | -dɔ́gbɔ́ | ‘wilderness’
|        |        | ‘press’

Furthermore, where do double or geminated stops come from? They in turn may result from a kind of assimilation process involving adjacent consonants with different points or manner of articulation adapting or assimilating to each other. These assimilation processes may be partial or complete in nature. Such modifications can
again be observed in Cushitic languages. Sasse (1979) reconstructs a number of such processes in the historical development of Eastern Cushitic, whereby obstruents, more specifically voiceless and voiced stops as well as fricatives, became nasal before a following nasal.8

\[
\begin{align*}
*gatn- & \quad \text{‘rainy season’ (Proto-Eastern Cushitic)} \\
> & \quad gann-a \quad \text{‘rainy season’ (Oromo)} \\
*lak’m- & \quad \text{‘neck’ (Proto-Eastern Cushitic)} \\
> & \quad lumm-ee \quad \text{‘neck of ox’ (Oromo)}
\end{align*}
\]

From such historical-comparative evidence in a range of distinct language families, it may be concluded that sound changes are cyclical in nature. Thus, sequences of distinct consonants may assimilate, i.e. change from heterorganic to homorganic clusters (i.e. having the same point of articulation), or they may become identical. This in turn may be followed by a simplification or reduction (degemination). In the case of stops, fricativisation may be a next step in the historical development due to an articulatory mechanism whereby segments uttered earlier anticipate part or all of the features of a later segment. But sound changes can only be established on a post hoc basis. In other words, once they have occurred, we may be able to reconstruct their origin; we can never predict them. Moreover, one always needs to prove specific sound changes, one cannot simply assume them.

Assimilation, or dissimilation processes for that matter, are either regressive (anticipatory) or progressive (perseverative) in nature. An example of the former type of assimilation, involving a change in a segment preceding another segment, has already been illustrated in the Eastern Cushitic examples for ‘rainy season’ and ‘neck’ above. The following example from Western Nilotic Shilluk (Dimmendaal 1988:8) showing progressive assimilation, i.e. a change in a segment before another segment, also makes clear that such segments need not be adjacent:

\[
\begin{align*}
\text{Proto-Western Nilotic} & \quad *tm \quad \text{‘breast’} \\
\text{Shilluk} & \quad tm \quad \text{‘breast’}
\end{align*}
\]

Because the dental stop, as the historical conditioner for the assimilation rule, was lost in some environments (due to fusion with other consonants or deletion), the dental nasal in Shilluk is no longer predictable as an allophone of the alveolar nasal, i.e. it now has phonemic status.

Alternatively, both preceding and following segments may be relevant, as with “Meinhof’s rule”, a rule involving nasalisation of a stop preceded and followed by a

---

8. See also Stroomer (1987) for a synchronic account of morphophonemic alternations in three southern Oromo dialects.
nasal consonant in Bantu (Meeussen 1963), and a change also attested in the Jukunoid language Icen (Shimizu 1980:28):

**Proto-Jukunoid** \*byín > m-mi ‘faeces’

The reconstruction of the original word-final nasal is based on comparative evidence from other Central Jukunoid languages where this nasal was retained. It is this final nasal which caused the assimilation of \*b > m. This example also shows that the original conditioning for a particular sound shift may disappear in the course of history, only being retrievable because it was retained in related languages.

As shown by Hyman (1995) for the Bantu language Yaka, the triggering nasal consonant is not necessarily in the immediately preceding syllable. This kind of “transvocalic” nasal consonant harmony is widespread within Bantu. Thus, the applicative suffix -Vd- (with -V- representing an underspecified vowel), is realised as [-Vn-] when added to a verb root with an initial nasal consonant: -miituk-Vd- → -miituk-in ‘sulk for’.

Dissimilation or assimilation as a process may occur when the same feature is distinctive at another position (usually) within a word. Such segments may be adjacent, but distant dissimilation (with other segments intervening) is another common phenomenon whereby specific sequences of consonants or vowels, e.g. sequences of laryngalised consonants, become modified. Hayward (1988) describes so-called sibilant harmony in Omotic.

It should be kept in mind that the changes illustrated above exemplify common processes, but these are not the only ways in which such consonants may develop. For example, the simplification of consonant clusters or geminate consonants may be compensated for by lengthening an adjacent vowel instead. This change occurred in different dialects of Arabic, e.g. in Algeria, as shown by Grand’Henry (1972:15):

\*rāt > raas ‘head’ \*fār > faar ‘mouse’

Similar changes occurred in southern representatives of Ethiopian Semitic, where loss of gemination in languages like Harare resulted in the lengthening of the preceding vowel. An example of this is Ge‘ez ḍḥqās ‘grow’ and the corresponding form with a simplified consonant cluster preceded by a long vowel, leeqa in Harare (Beniam Mitiku, personal communication). What we find in such modifications in sound structure is a temporal compensation for the duration of the mora of the lost segment.

Instead of being simplified, voiced geminate stops may develop into implosives, as more recent research has shown. Yigezu (2001:188) proposes such a shift for intervocalic geminate stops in Southwestern Surmic, a group of closely related languages belonging to the Surmic branch within Eastern Sudanic (Nilo-Saharan). Thus: \*bb > b, \*dd > d, \*γγ > ɠ. The following examples illustrate this innovation in Didinga:
Chapter 2. Explaining sound change

Didinga | Baale |
---|---|
*i-gor-iy-it* | *ugäyü-ya* | ‘thief’ |
*aburi* | *a-bbiyi* | ‘(it is) hot’ |

In Baale, there is in fact an alternation synchronically between such consonants, as shown in the following singular/plural alternations for the imperative (data with the present author):

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>düyó</em></td>
<td><em>uddayé</em> ~ <em>udayé</em></td>
</tr>
</tbody>
</table>

As pointed out by Woldemariam (2004:15), the alveolar implosive *ɗ* in the Omotic language Haro is freely interchangeable with the alveolar ejective *t’, for example in *harado* ‘termite’, alternatively *harat’o*. Such alternations suggest that there may also be a link historically between (voiced) implosives and (voiceless) ejectives, as alternative types of glottalised consonants.

Lloret (1995) has argued that *ɗ* in Oromo is a reflex of Proto-Eastern Cushitic *ɗ* as well as of an earlier sequence of *t’* and *t’*; the latter probably developed via a stage *ʔ* *t* and *t’, as Proto-Eastern Cushitic *t’* shifted to a glottal stop *ʔ* in Oromo.

**Rhotacism** (or rhotacisation) is a common sound change affecting coronal (alveolar, post-alveolar and prepalatal) fricatives. Thus, *s* may become *r*, often through an intermediate voicing stage (*z*, *ʑ*) or by way of a retroflex (voiced) *ɽ* or (voiceless) *ɽ*. This change occurred in Germanic languages (as in German *ver-lieren*, which is cognate with English *lose*) and a range of other language families. Compare the following cognates from Nilotic, showing an innovation *s > r* in Western Nilotic (Dimmendaal 1988):

<table>
<thead>
<tr>
<th>Proto-Nilotic</th>
<th>Dho Alur; Western Nilotic</th>
<th>Pakoot; Southern Nilotic</th>
<th>Shilluk</th>
<th>Pakoot; Southern Nilotic</th>
<th>Proto-Western Nilotic</th>
<th>Kipsikiis; Southern Nilotic</th>
<th>Turkana; Eastern Nilotic</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>sud</em></td>
<td>‘rub’</td>
<td>(Proto-Nilotic)</td>
<td>(Dho Alur; Western Nilotic)</td>
<td>(Pakoot; Southern Nilotic)</td>
<td>(Shilluk)</td>
<td>(Pakoot; Southern Nilotic)</td>
<td>(Turkana; Eastern Nilotic)</td>
</tr>
<tr>
<td>&gt; <em>rudɔ</em></td>
<td>‘rub’</td>
<td>Nilotic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; <em>sute</em></td>
<td>‘rub’</td>
<td>Pakoot; Southern Nilotic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>suɔc</em></td>
<td><em>rɔc</em></td>
<td>‘stop up, stuff cracks with rags’</td>
<td>Shilluk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; <em>suɔtɔ</em></td>
<td>‘prop up, support’</td>
<td>Pakoot; Southern Nilotic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>sac</em></td>
<td><em>er</em></td>
<td>(Proto-Nilotic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; <em>ract</em></td>
<td>‘sin’</td>
<td>(Proto-Western Nilotic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; <em>saac</em></td>
<td>‘seduce’</td>
<td>Nilotic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; <em>sec</em></td>
<td><em>sin, err</em></td>
<td>(Turkana; Eastern Nilotic)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research so far has thus shown that there may be multiple origins for specific sound changes, but also that sounds or sequences of sounds may develop in different directions. In this sense, it is also wrong to speak of “sound laws”, as there is no (so-called
nomothetic\(^9\) necessity for specific sounds to change the way they do. Such “laws” are therefore not to be understood in the sense physicists use such terms (e.g. Newton’s Law of Universal Gravity). Nevertheless, following a tradition in the study of Indo-European languages, it has also become fashionable in the comparative study of African languages and languages in other parts of the world to name certain sound changes after the scholars who discovered them. Thus, Indo-European specialists refer to Grimm’s Law, a set of sound changes which occurred between Proto-Indo-European and Proto-Germanic, involving a change of (fortis) voiceless stops to fricatives, of voiced unaspirated stops to corresponding voiceless stops, and of voiced aspirated stops to (voiced) unaspirated stops. These changes are illustrated in the following examples from Sanskrit (where the stops were retained) and Gothic, the extinct East Germanic language (data derived from Collinge 1985:63):\(^{10}\)

<table>
<thead>
<tr>
<th>Sanskrit</th>
<th>Gothic</th>
</tr>
</thead>
<tbody>
<tr>
<td>madhya</td>
<td>midjis</td>
</tr>
<tr>
<td>dasa</td>
<td>taihun</td>
</tr>
<tr>
<td>traya</td>
<td>freis</td>
</tr>
</tbody>
</table>

Another scholar, Verner (1876) added a refinement or further conditioning to these historical sound changes. He showed that only consonants protected by an inherited preceding accented remained voiceless (hence Verner’s Law). Thus, in Old English the voiceless sounds occurred in those cases where the Sanskrit accent was on the immediately preceding syllable; the voiced sound occurred when the Sanskrit accent (and the original Indo-European) accent occurred elsewhere in the word. This contrast in accent position disappeared from English, thereby obscuring the original conditioning, which could only be reconstructed from the contrast still attested in some Indo-European languages. (Note that PIE \(^*e\) and \(^*o\) shifted to \(a\) in Sanskrit.)

<table>
<thead>
<tr>
<th>PIE</th>
<th>Sanskrit</th>
<th>Old English</th>
</tr>
</thead>
<tbody>
<tr>
<td>(^*bhra:tr)</td>
<td>bhra:tar</td>
<td>brother</td>
</tr>
<tr>
<td>(^*poe:tr)</td>
<td>pita:</td>
<td>fæder</td>
</tr>
</tbody>
</table>

The tradition emerging from Indo-European studies to name certain sound changes after the scholar who discovered these was copied in comparative Bantu studies, for example, as with Meinhof’s Rule or Law above. Dahl’s Law (quoted in Meinhof 1904: 299, and based on research on the northeast Savanna Bantu language Nyamwezi by the missionary Edmund Dahl) states that the first of two voiceless obstruents dissimilates

---


10. Grimm referred to the units he compared as “letters” rather than “sounds”; the former being used at the time as a concept for the written shape (figura) as well as the spoken sound (potestas) associated with it (cf. Abercrombie 1949).
and becomes voiced. The following examples from the neighbouring Bantu language Taita contrast with the earlier stage still attested in Swahili (where c has been replaced by ch in the examples below, following the Swahili orthography):

<table>
<thead>
<tr>
<th>Proto-Bantu</th>
<th>Taita</th>
<th>Swahili</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-piça</td>
<td>-visa</td>
<td>-ficha</td>
</tr>
<tr>
<td>*-ikuta</td>
<td>-guta</td>
<td>-kucha</td>
</tr>
</tbody>
</table>

This historical dissimilation (rather than assimilation) rule is common in eastern Bantu languages.

A further example concerns Katupha's Law in Bantu languages. Katupha (1983) refers to certain constraints on the choice of voiceless aspirated stops in successive syllables within a stem in Makhuwa, where the first consonant in a sequence of two aspirates becomes a plain stop. Schadeberg (1999) consequently refers to this deaspiration rule as Katupha's Law. Historically, the aspirated stops in Makhuwa derive from prenasalised voiceless stops (*mp > ph, *nt > th, *nc > th, *nk > kh) and voiceless stops before a high closed vowel:

*-piça > -phitha > -pitha > vitha 'hide' (tr.)

Schadeberg (1999) further points out that there is probably a historical link between Katupha's Law and Dahl's Law, the former reducing the first in a sequence of two aspirated stops to a plain voiceless stop, and the second changing such stops into voiced ones.

Using notions of “naturalness” as a heuristic device only works to a certain extent when comparing Khoisan languages (an areal grouping of languages in Southern Africa), because here we find a rather unique class of consonants, i.e. clicks. Nevertheless, Voßen (1997) manages to establish regular sound correspondences between clicks in Central Khoisan languages by application of exactly the same principles as used for other language families. The establishment of regular sound correspondences in cognate forms, and the positing of sound shifts, results in hypotheses about the restructuring of consonant systems, such as the following (Voßen 1997: 285):

Proto-Khoe *≠ > Proto-Khoekhoe *≠ > Proto-Non-Khoekhoe *≠ > Proto-West-Khoe *≠ > Proto-East-Khoe *c

Similarly, the corresponding voiced palatal click in Proto-North-Khoe was inherited unchanged in Proto-West-Khoe, but became an egressive *j in Proto-East-Khoe. Güldemann and Vossen (2000: 107) refer to so-called “strength oscillation” (lenition and fortition) of the first consonant in a stem in their comparative account of Khoisan languages. See also Traill (1975) and Honken (1998) for further details.
Notions of naturalness in the end involve statistical observations on common versus less common sound changes. Blust (1991: 144) mentions *t > k as a recurrent change in Austronesian languages, and points out that “it appears to be rare in human languages generally.” Although such changes indeed do not appear to be that common cross-linguistically, they do occur, for example, in the Cologne dialect of German. Here, word-final *t historically shifted to k (examples represented with orthographic symbols):

<table>
<thead>
<tr>
<th>Standard German</th>
<th>Cologne dialect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hund [hun]</td>
<td>Hunk [hunk]</td>
</tr>
<tr>
<td>Seite [sait]</td>
<td>Sick [sik]</td>
</tr>
<tr>
<td>Zeit [tsait]</td>
<td>Zick [tsik]</td>
</tr>
</tbody>
</table>

‘dog’
‘side’
‘time’

A less common sound change, described by Maddieson (1987), involves the development of linguolabial stops, nasals, and fricatives (i.e. consonants articulated by placing the tongue tip or blade against the upper lip) in languages in northernVanuatu (Pacific); historically, these developed from labials (Blust 1991: 146). Olson and Reiman (2009) report a linguo-labial stop for Bijago, a language spoken in Guinea-Bissau. As these and other cases help to show, there is probably a gliding scale involving a continuum between highly common (“natural”) and very rare (“unnatural”) sound changes.

Common vowel changes involve the diphthongisation (or breaking) of long or short vowels (monophthongs). Andersen (2006) shows that these processes were common in the historical development of Western Nilotic languages. Thus, in Mabaan a range of short and long vowels reconstruable for Proto-Western Nilotic were changed into diphthongs:

<table>
<thead>
<tr>
<th>Proto-Western Nilotic</th>
<th>Mabaan</th>
</tr>
</thead>
<tbody>
<tr>
<td>*i &gt; ie</td>
<td></td>
</tr>
<tr>
<td>*u &gt; ua</td>
<td></td>
</tr>
<tr>
<td>*ɛ &gt; ie</td>
<td></td>
</tr>
<tr>
<td>*ɔ &gt; ua</td>
<td></td>
</tr>
<tr>
<td>*ii &gt; iie</td>
<td></td>
</tr>
<tr>
<td>*uu &gt; uua</td>
<td></td>
</tr>
<tr>
<td>*ɛɛ &gt; iie</td>
<td></td>
</tr>
<tr>
<td>*ɔɔ &gt; uua</td>
<td></td>
</tr>
</tbody>
</table>

Mabaan is also one of the few languages cross-linguistically that makes a phonological distinction between short and long diphthongs. Diphthongisation of vowels as a process appears to be particularly common with lexical roots as against affixes. It remains to be determined whether this is related to stress placement on the lexical core element (as a strong metrical position), or some other process.
Loss (or ellipsis) of vowel length is attested as a historical innovation in another branch of the Nilotic family, Eastern Nilotic (Dimmendaal 1988:13). Eastern Nilotic languages like Turkana do have phonetically long vowels, but these are due to a later development, namely the loss of intervocalic (ambisyllabic) consonants. The following root for ‘locust’ and its reflexes in two Eastern Nilotic languages illustrate this.

\[
\begin{align*}
* & -\text{mayat} & \text{Proto-Eastern Nilotic} \\
 & > \text{mayat} & \text{Bari} \\
 & > -\text{maas}-e & \text{Turkana}
\end{align*}
\]

This conversion of vowels in disyllabic forms (as in the original root for ‘locust’ above) into monosyllabic long monophthongs (as in the Turkana reflex above) is also known as contraction. It seems that when such a process occurs historically in a language, this language develops a mora-counting system, rather than having syllable-based phonological rules (Dimmendaal 1983a, 1987).

Instead of diphthongisation, monophthongisation may occur, e.g. *ou > (u)u or *ei > (i)i. Alternatively, assimilation in terms of vowel height, rounding or degree of fronting or backness may occur with vowels. Rounding harmony appears to be widespread in a range of languages between Ethiopia in the east and Chad in the west, possibly extending further towards the west. The following examples with a harmonising nominal-class prefix in Tima, a Niger-Congo language spoken in the Nuba Mountains, illustrate this feature.

\[
\begin{align*}
k\text{o-}løŋ & \quad \text{‘thigh’} \\
k\text{i-}b\text{iŋ} & \quad \text{‘friend’} \\
k\text{i-}b\text{iŋ} & \quad \text{‘fiction’}
\end{align*}
\]

These examples show again that segments need not be adjacent in order to be able to influence each other. Morphophonemic phenomena of the type illustrated for Tima above sometimes are summarised under the German term Ablaut, a concept which may be further subdivided into metaphony (qualitative alternation, as in the examples above) or apophony (quantitative alternation); the latter phenomenon is found in English verb alternations (sing versus sang) or noun alternations (goose versus geese).

Assimilation or dissimilation in terms of manner or place of articulation may take place not only between vowels or between consonants, but also between consonants and vowels.\footnote{We use the suffix -isation in order to describe any change in place or manner of articulation, for example, pharyngalisation (e.g. *k\text{a} > q\text{a}) or velarisation: *t\text{d} > d\text{d}, as well as nasalisation (*a\text{n} > ã). Gerhardt (1989:366–367) uses the terms palatalisation, velarisation and labialisation to describe changes in the point of articulation in Plateau languages caused by a lost front or back vowel prefix, e.g. twa ‘bow’ in Kaningkom from u-\text{t}a, as still found in Nindem.} For example, unpacking, or the creation of affricates, in particular of
palatals, is common before high front vowels cross-linguistically: *c > tʃ, *j > dʒ. Palatalisation, in particular of velar and alveolar consonants due to the presence of neighbouring front vowels (i, i, e, ɛ) is also widespread. Sasse (1979) presents examples for Eastern Cushitic:

\[ *\text{kebeel-} \quad \text{‘leopard’} \quad \text{(Proto-Eastern Cushitic)} \]
\[ > \text{sabeel} \quad \text{‘leopard’} \quad \text{(Somali)} \]


Segments in bound functional morphemes do not necessarily undergo the same modification as in lexical roots or stems, i.e. the former may undergo separate modifications, but the two types of morphemes may of course undergo parallel changes. The common detransitivisation (essive) marker -is- in Eastern Nilotic and Southern Nilotic (Proto-Southern Nilotic *-i:sya; Rottland (1982:245) also has a reflex in Western Nilotic languages, thus showing that the change *s > r also applied to affixes. Compare the form of this marker in Western Nilotic Alur (Dimmendaal 1995a):

\[ l\text{wo} \quad ‘\text{call, pronounce’} \]
\[ l\text{wo}-\text{iri} \quad ‘\text{be called, pronounced repeatedly’} \]

Whereas historical sound changes may find their origin in natural assimilation or dis-similation processes between segments, they may lose their “natural” basis as a result of subsequent changes. The latter, in other words, may obliterate the original phonetic basis for the change. This may be illustrated with the following examples from a number of Central Sudanic languages, where we find extreme cases of segmental reduction. In Lendu, *CV sequences involving a fricative as initial consonant (or a complex consonant ending in s, z) have absorbed the following high front vowel *ʊ (Dimmendaal 1986; Kutsch Lojenga 1989).

\[
\begin{array}{ll}
\text{Ngiti} & \text{Lendu} \\
\text{adzi} & [adzz] \quad ‘\text{earth’} \\
\text{irr} & [irr] \quad ‘\text{grass’} \\
\end{array}
\]

In Ngiti, i never surfaces after s, z or r. Consequently, so-called vowelless syllables in this language must be interpreted as having an underlying vowel i. Whereas the absorption is still predictable in Ngiti, it can no longer be predicted in the closely related language Lendu. Here, only one of the two types of vowelless syllables (involving i and ɪ) can be analyzed this way. Thus, ɪ is not pronounced after s, z or r: liri ‘dove’ is pronounced as [lirr] (Kutsch Lojenga 1989:121). However, due to a sound shift in Lendu whereby *e shifted to and merged with *ɪ (as in the word for ‘dog’ below), the occurrence of this vowel is no longer fully predictable:
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Ngiti    Lendu
\[\text{ɪ}b\text{ɪ} \quad \text{bi} \quad \text{‘buffalo’}\]
\[\text{ɪ}t\text{sɛ} \quad \text{tsɛ} \quad \text{‘dog’}\]

Changes whereby “noisy” fricatives absorb a high front vowel are more common cross-linguistically; they also occur, for example, in modern Standard (Mandarin) Chinese. Note, however, that \text{s}, \text{z} and \text{r} in Ngiti (or Lendu) form a class conditioning the realisation of high front vowels, but \text{s} and \text{z} are fricatives, whereas \text{r} is a trill. Most probably, however, \text{r} historically resulted from a fricative \text{*z}. This pronunciation is still attested in cognate forms in related languages like Avokaya. Apparently, a shift in phonetic norm occurred for this consonant in Lendu and Ngiti, resulting in the emergence of a class which no longer constitutes a natural grouping, \text{s}, \text{z} and \text{r}. What started as a natural change therefore, may lose its natural basis, and thus lead towards an “unnatural” phonological class synchronically.

2.2 Tonal changes

Just as specific segmental changes are common, so are specific tonal modifications. Let us therefore go through some of the better known changes, after having clarified a number of terminological issues.

Tone relates to frequency or pitch height, whereas stress involves amplitude or intensity. Most African languages south of the Sahara are register-tone languages, rather than contour-tone languages, i.e. phonetically complex (falling or rising) tones in these languages can usually be analysed as sequences of register tones. The number of registers may vary between two, three, four or five (Clements and Rialland 2008). Prototypically, languages with two distinctive registers (high versus low) have down-drift (or automatic downstep), a key-lowering phenomenon which tends to be absent in languages with more than two distinctive levels, although there are exceptions. Thus, in Yala Ikom (Armstrong 1968) or Ga’anda (Newman Ma 1971) one finds three distinctive levels as well as downdrift.

There are also non-tonal languages on the African continent. Moreover, there are transitional systems, i.e. some languages are marginally tonal. Amha (1996) describes such a system for Wolaitta, an Omotic language with tone accent, in which the high tone-accent may occur in different positions of the word.

\begin{align*}
\text{zaré} & \quad \text{‘lizard’} & \text{leehé} & \quad \text{‘pumpkin’} \\
\text{záre} & \quad \text{‘relative’} & \text{boóra} & \quad \text{‘ox’}
\end{align*}

Whereas underived nouns carry one high tone accent per word, morphologically complex verbs may carry more than one high tone in Wolaitta. Inflectional and derivational
process may also cause a shift of the original tone or result in the presence of more than one high tone-accent in a word.

\[ \text{dooná} \quad \text{‘mouth’} \quad \text{doonaámá} \quad \text{‘talkative one’} \]

Depending on the number of suffixes or enclitics co-occurring with the nominal or verbal stem, each bound morpheme may thus carry and indeed keep its inherent (high or low) tone. As these tones show up in unpredictable environments, one has to accept that the Omotic language Wolaitta is marginally tonal in parts of its grammar (Amha 1996).

Omotic languages like Dizi or Sheko have three distinct tone levels, and Bench(‘non) even five; the Bench(‘non) system can be partially explained as a result of morphological (segmental) reduction, as argued by Wedekind (1985), who also shows that similar “hotbeds” with tonally complex languages are found in different parts of West Africa. More generally, there is a link between the number of tonal registers and segmental structure. Thus, languages with more than three tone levels tend to have reduced segmental (word) structures. It is not clear whether Proto-Omotic was tonal, marginally tonal, or a language with an accentual system.

How do non-tonal languages become tonal? And how do tonal languages develop non-tonal properties? In an important collection of studies on this subject (Fromkin 1978), several processes are described leading to tonogenesis as well as tonal reduction. Hombert et al. (1979) show that the fundamental frequency (i.e. the F0 frequency roughly between 80 and 250 Herz) on vowels is higher following voiceless consonants than voiced ones. This appears to have been an important conditioning factor in the historical development of tone systems in Chadic (Wolff 1983). Ruelland (1992) describes similar phenomena for the Min-daore dialect of Tupuri, an Adamawa language spoken in Chad, where voiced consonants as against voiceless and implosive consonants affect the tone on the following vowel in the same syllable. In this language, high vowels behave differently from non-high vowels. Thus, with the optative or imperative mood the tone on a high vowel is high and mid on a non-high vowel after an initial voiceless or implosive consonant. After an initial voiced consonant, the tone pattern on the vowel is low-high with high vowels and low-mid with non-high vowels:

\[ \text{sēē} \quad \text{‘walk’} \quad \text{jō} \quad \text{‘drink’} \quad \text{ɗuú} \quad \text{‘pound’} \quad \text{ɗuú} \quad \text{‘touch’} \]

Once such a contrast between two consonants is lost (through a merger) in a specific language while the distinction in frequency is maintained, tonal distinctions on vowels become unpredictable, i.e. phonologically distinctive. The loss of voicing distinctions with plosives in the Tikem dialect of Tupuri has resulted in the phonologisation of low-mid contrasts. The following examples from Elders (2006: 61) illustrate interesting tonal variation for the Kebi-Benue subgroup within Adamawa:
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Table 10. Cognates between Lugbara and Northern Madi

<table>
<thead>
<tr>
<th>Western Lugbara</th>
<th>Eastern Lugbara</th>
<th>Northern Madi</th>
</tr>
</thead>
<tbody>
<tr>
<td>èrì</td>
<td>ìrì</td>
<td>èrì</td>
</tr>
<tr>
<td>dì</td>
<td>ì</td>
<td>dì</td>
</tr>
<tr>
<td>pà</td>
<td>pà</td>
<td>pà</td>
</tr>
<tr>
<td>sí</td>
<td>sí</td>
<td>sí</td>
</tr>
<tr>
<td>dzò</td>
<td>dzò</td>
<td>zò</td>
</tr>
<tr>
<td>ɔ̀ɗrì</td>
<td>ɔ̀ɗrì</td>
<td>üdwé</td>
</tr>
</tbody>
</table>

According to Boyd (1989:203), this development probably resulted from contact with neighbouring Chadic languages.

One phonetic feature resulting in the emergence of additional tone levels again relates to consonants. As probably first described by Ansre (1961) for the Kwa language Ewe, this language distinguishes between two tone levels (high and non-high) structurally, but a third tonal level occurs phonetically as a result of the effect of voiced obstruents, so-called depressor consonants, on the tonal register on the following vowel. Such consonantal influence is also known to occur in Zulu and a number of other languages, and was probably first discovered for languages in Asia (e.g. Edkins 1864 for Chinese languages). Each time the conditioning for such changes is lost, an additional distinctive tonal register is created. This also appears to have happened in the eastern variety of Mangbetu, a Central Sudanic language of Uganda and Zaire (Congo). Andersen (1986) shows that both high and extra high tones in Western Lugbara correspond to high in Eastern Lugbara and in closely related languages, such as Southern Madi.

12. Gbeto (2002) presents a historical investigation of the role these consonants played in the tonogenesis of other Niger-Congo languages.
Tonal downstepping, more specifically non-automatic downstep, is common in particular in African languages with two register tones, and usually results from the non-realisation of a low tone between two high tones, e.g. as a result of tonal simplification rules. The Nilotic language Luo distinguishes between a high and a low tone at the structural level. As is common in other African languages with two registers, down-drift (automatic downstep) occurs, resulting in the gradual lowering of sequences of high and low tones in an utterance. Falling tones in Luo can be analysed as sequences of high plus low. Word-final falling low tones in Luo, for example, are simplified and become high before a following high tone, with the deleted (or delinked) low causing (non-automatic) downstepping on the following high tone. There are additional processes resulting in tone levels phonetically in Luo, as shown by Tucker (1994: 43–63), including upstepping – a dissimilation process resulting from a simplification or contraction of HLH sequences (Tucker 1994: 46).

{o-dí:} \(\tilde{o} \; d-\tilde{e}\) ‘let him go with it’

Whereas Luo allows for a certain degree of “compression” of tones (such as falling and rising tones on monosyllables), it clearly avoids this outcome in general, either by dissimilation (e.g. through upstepping) or by way of tonal spreading, e.g. through shift of the second part of a falling or rising tone onto a following syllable.  

It is a well-known fact that vowels or consonants may condition tonal height, but the inverse process, where tonal configurations condition vowel quality, also occurs. In the Nilotic cluster Teso-Turkana, word-final vowels with a complex tone remain voiced before pause, but the same vowels are de-voiced whenever they carry a single tone and the latter is opposite to the tone on the preceding vowel (Dimmendaal and Breedveld 1986). Just as non-tonal languages may become tonal, languages with distinctive tone (or pitch) levels may become non-tonal. Such systems are found in eastern and southeastern Bantu languages, and seem to result from restrictions on the occurrence of high tones within a word. Tonal reduction and the development of restricted tone systems, leaving one prosodically prominent syllable per word, have been described by Schadeberg (1973) for Kinga and by Voorhoeve (1973) for Safwa (both Bantu languages spoken in Tanzania). Another property of Bantu languages involves so-called indirect correspondences for, and thereby indirect reflexes of, original vowel length contrasts. Thus, in Bantu languages like Shambala, Venda, Tswana or Xhosa tonal phenomena are a reflex of original vowel length (Meeussen 1973: 17).

---

13. Ladd (1996) makes a typological distinction between compressing and truncating languages with respect to intonation in terms of prosodic systems. Although his discussions revolve around languages using stress accent systems, it would be interesting to know to what extent this typology also applies to languages with tonal systems.
One common tonal rule in Bantu languages is called Meeussen’s Law (Goldsmith 1984). It involves the deletion of a high tone before another high, a modification which is best interpreted as a dissimilation, according to Hyman (2004). Such an increase of constraints on possible tone patterns, e.g. concerning the distribution of high tones, may occur to an extent where only one high pitch may show up in a word. Such a system is only one step away from a system using stress, e.g. when the high tone prominence (involving pitch) is reinterpreted as prominence caused by intensity (amplitude). Additional tonal phenomena in Bantu, such as high-tone spreading or shifting (also attested in a range of other African language families) are discussed in Kissebirth and Odden (2003), Philippson (2003) as well as Nurse and Philippson (2003b).

In the case of Ewe above, we observed so-called vertical assimilation of tonal height. Alternatively, horizontal assimilation or tonal spreading (in particular of high tones across following syllables) may occur. Hyman (1978) formulates a number of common historical tone rules. As with segmental changes, these typically involve assimilation and dissimilation. Hyman (1978: 261) argues that tones are often desynchronised with respect to their original syllabic support, thereby resulting in assimilations and absorptions. Schuh (1978) presents a summary of natural tone rules from a synchronic point of view. Kaji (2005) is a more recent collection of studies of tonal phenomena, also in terms of their historical developments.

Comparative tonal studies are still relatively rare for African language families. Boyeldieu (2000) is one of the few detailed comparative accounts for the Sara-Bongo-Bagirmi group within Central Sudanic (Nilo-Saharan). Synchronically, these languages differ in terms of the number of tonal registers, between two and four. On the basis of a comparison of several hundred cognate nominal and verbal forms and the reconstruction of historical tone rules such as high-tone and low-tone spreading, Boyeldieu (2000: 109) arrives at a reconstruction of an original system with two distinct tone levels, high and low, showing, for example, that the extra low level in Yulu resulted from depressor consonants (Boyeldieu 2000: 160). Another detailed historical account of tonal developments can be found in Elderkin (2004) on Central Khoisan languages. As this brief discussion has shown, a number of “natural” changes in tone systems have been identified, but there is still much to be learned from future studies in comparative tonology.

### 2.3 Sound change and its link with syllable structure and word structure

So far we have been looking at individual segments and the kind of influence they may undergo from neighbouring segments. However, it is clear from historical sound changes that conceptual units larger than the segment play a role as well in speech production. One such notion is the syllable. The importance of this unit is also for speech
perception – has been known for quite some time. Syllables as speech units are built around a sonorous core element, the nucleus, preceded by an onset, and followed by a so-called coda. Theoreticians disagree as to whether the coda and the nucleus form a branching note or not, but this point should not concern us here.

As shown by Vennemann (1988), there are both language-specific and more universal, preferred syllable structures. On the basis of a cross-linguistic typological study, Vennemann (1988) and Restle and Vennemann (2001: 1312) arrived at a so-called sonority hierarchy:

- growing consonantal strength
  - voiceless plosives
  - voiced plosives
  - voiceless fricatives
  - voiced fricatives
  - nasals
  - lateral liquids (l-sounds)
  - central liquids (r-sounds)
- high vowels
- central vowels
- low vowels

The well-attested coda weakening in the Chadic language Hausa is related to preferred syllable structures. The so-called Klinghenheben’s Law in Standard Hausa as spoken, for example, in Kano (Klinghenheben 1927/28) in fact involved different changes which occurred at different historical stages: systematic weakening of syllable-final obstruents (i.e. consonants in coda position) followed by an abutting consonant into sonorants or glides, and second, application of the rule in word-final position, as stated by Newman (2000b: 230). Also, the change probably started with velar consonants, and then spread to alveolar and labial consonants by way of phonetic analogy (Schuh 1974: 96)

- hauni < *haḡni ‘left’ (cf. the doublet hagu-n)
- wàtâu < *wàtâk ‘that is to say’ (cf. Western Hausa wàtâkà)
- biyàr < *biyat ‘five’ (other Hausa dialects: biyat)
- tauna < *tamna ‘chew’ (cf. other Hausa dialects: tamna)
The changes which occurred in the historical development of Hausa show not only that the position within a word may be relevant for the conditioning of a sound change, but also the position within a syllable.

The intervocalic weakening (and voicing) processes discussed at the beginning of this chapter may also be syllable-based; more specifically, it may be the ambisyllabic position of these consonants which causes the lenition.

Knowledge of the importance of syllabic constraints also allows us to understand a number of other phenomena. In different Cushitic languages, one finds a metathesis rule affecting the sequencing of juxtaposed consonants. Such a rule is found, for example, in the Eastern Cushitic language Alaaba (Schneider-Blum 2006), where a sequence of stop plus nasal is changed into nasal plus stop.\footnote{14}

\begin{align*}
\text{ʔa} & \text{meet-nóom(i)} \rightarrow \text{a} \text{meentóom(i)} \\
\text{come-1PL:PERF} & \text{‘we came’}
\end{align*}

The head of a syllable is better the higher its consonant strength and the coda is better the lower its consonantal strength. The metathesis has exactly this effect of optimizing sonority hierarchies.

When such metathesised forms become lexicalised, the result is an irregular sound change, as the following comparative set for the word for ‘eye’ from a number of Surmic languages shows.

\begin{tabular}{ll}
Murle & \text{kebere} & ‘eye’ \\
Baale & \text{keere} & ‘eye’ \\
Méen & \text{kabar} & ‘eye’ \\
Yidinit & \text{kerbo} & ‘eye’
\end{tabular}

The form closest to the original form (*\text{keber-} ‘eye, seed’) has been retained in Murle, whereas in the closely related Baale language intervocalic weakening and subsequent loss occurred. A form similar to Murle \text{kebere} is found in the distantly related Méen language. However, in another language belonging to the same subgroup as Méen (Southeastern Surmic), Yidinit, a metathesised form occurs. Consequently, an irregular sound correspondence can be observed, because root-final \text{r} is absent in this form in Yidinit, whereas in non-metathesised forms it has been retained.

Similar phenomena can be observed in the development of some Daju (Nilo-Saharan) languages; compare the example in Sila (Thelwall 1981: 98):

\begin{itemize}
\item[14.] The name “Mel” for a group of Atlantic languages is based on the common root for ‘tongue’, \text{mel}, and is also assumed to be a metathesised form of the root *\text{lem} (Wilson 2007: 37).
This phenomenon appears to be more common cross-linguistically. Hock (1991: 115–116) points out that “…metathesis may also serve to eliminate clusters which do not conform to the preferred ordering of segments within syllables in terms of the sonority hierarchy”. The author gives examples from the prehistory of Modern Persian (“asru > asr > ars”).

**Haplology** is the term used to describe the loss of a syllable (or syllable onset) before or after a phonetically similar or identical syllable. In the Nilotic language cluster Teso-Turkana we find such a rule synchronically. The interesting aspect of the rule in the Teso-Turkana cluster is the tonal conditioning in this language. Thus, in a sequence of two syllables with identical consonant plus vowel sequences within a word, haplology occurs when their tones are opposite (Dimmendaal 1983a: 47–48), as shown in various derived forms.

\[
\begin{align*}
    e-\text{cúc-ut} & \rightarrow e-\text{écut} & \text{‘kind of tree’} \\
    lʊ-\text{ka-bob-òk} & \rightarrow lʊ-\text{kaabòk} & \text{‘the sweet ones’}
\end{align*}
\]

Within Nilotic, one tends to find the maximum number of contrasts with consonants root-initially, which may or may not coincide with word-initial position. On the other hand, neutralisation of contrasts (e.g. between voiced and voiceless consonants) tends to occur elsewhere in the word (e.g. word-internally or word-finally), or the distribution of specific segments in these other positions may be defective. It remains to be determined to what extent this distributional property or cross-linguistic preference follows from preferred syllable and/or word structures.

A number of historical processes appear to be word-level phenomena. The following table (adapted from Trask 1996) summarises these phenomena.

<table>
<thead>
<tr>
<th></th>
<th>word-initially</th>
<th>word-medially</th>
<th>word-finally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addition</td>
<td>prothesis</td>
<td>epenthesis</td>
<td>anaptyxis, paragoge</td>
</tr>
<tr>
<td>Removal</td>
<td>aphaeresis</td>
<td>syncope</td>
<td>apocope</td>
</tr>
</tbody>
</table>

**Prothesis** involves the addition of an initial segment, as in *eskola* ‘school’ in Basque, from Latin *schola* (Anderson 1973: 70). **Aphaeresis** (loss or removal) of an initial segment (usually a vowel) is attested as well, for example in pidginised or creolised versions of English or French in Africa. Thus, in Nigerian Pidgin we find a form *tanda* corresponding to Standard English *stand*, or *tori* corresponding to *story*. Also compare French *éplucher* ‘peel’, which has a reflex *plise* in Créole Réunionnais. The same French-based creole has words like *laparej* ‘appearance’, which derives from French...
appareil, or dlo 'water', deriving from the word eau in French. These cases should not be treated as cases of prothesis, since the presence of dl in the word for water is due to a morphological, rather than phonological, reinterpretation of the definiteness markers de l? in French.

Processes like epenthesis (also known as svarabhakti), in particular of the high front vowel (i, ɨ) and syncope, the loss of a word-internal (usually unaccentuated) vowel, are to be understood as adaptations towards preferred syllable structures. Anaptyxis (also called excrescence or consonant epenthesis), or word-final stop insertion, as in Modern English (a)midth from Middle English middes, appears to be less common, as is paragoge, the adding of a vowel. The word-final position is relatively “vulnerable”, in terms of both production and perception, and so apocope is more common in this part of the word.

The role of syllable structure and the structure of phonological words, and differences between languages in this respect, is particularly prominent when comparing pidginised and creolised varieties of languages and African youth languages based on French and English (see also Chapter 9). If speakers with different primary languages acquire such contact languages, they tend to impose the same structural conditions on the latter. Compare Nigerian Pidgin English han and the corresponding British or American English form hand. Anaptyxis occurs in the Swahili youth language Sheng (spoken in Nairobi, Kenya), e.g. in dogi ‘dog’, or fagi from English fag (cigarette)’ (Ferrari to appear).

Phonological changes may also cross word boundaries, if these involve frequently used collocations, e.g. of noun plus demonstrative, or noun plus definiteness marker. Reinterpretations may thus occur as to what constitutes a word or two words.

The survey above presents only a fragment of widely established sound changes; others will be presented in the following chapters. This list of common sound changes serves as a device which should help to make probabilistic predictions on sound change. Obviously, these are meant not to predict changes in the future, but in order to develop intuitions, as we can only post-dict, not pre-dict.

2.4 Structural consequences of sound change

Structuralist linguistics, which came to be established as an essentially non-historical discipline at the beginning of the 20th century, also had an impact on the comparative method. It became clear that it is not only sounds that change whenever a shift in phonetic norms occurs in a language, but also sound systems, i.e. the configuration of distinctive sound units or phonemes being realised by a range of sounds or sound types (allophones). Although the Russian linguist N. S. Trubetzkoy, who started publishing at the beginning of the 20th century, is sometimes credited as being the
founder of phonology, actual phonemic theory dates back to the 19th century. One of the earliest accounts was by the Polish linguist J. Baudouin de Courtenay, who made use of this concept as early as 1881 (Kortlandt 1972: 19). The various ways in which sound changes may affect the overall phonological structure of language are central to the present section.

Phonological systems change, once the distribution of consonants or vowels and the contexts where they are contrastive becomes affected. For example, voicing contrasts may disappear for stops in word-final position when voiced stops merge with their corresponding voiceless counterparts in this position (but not elsewhere). This type of change is referred to as primary split, since it does not result in new phonological units. It is also referred to as conditioned merger.

Formerly allophonic variants of a phoneme, however, may lose their conditioning context due to additional sound changes. As a result, they would occur in unpredictable environments. Compare the following common historical spirantisation rule in the Bantu language Luba (Bostoen 2008: 311), where stops were fricativised before the close high vowels i, u historically. Whereas this probably was an allophonic realisation rule for these stops originally, a subsequent shift of the vowels of the second opening grade ɪ and ʊ towards i and u respectively, resulted in a phonological contrast between stops and fricatives, since the fricativisation is no longer predictable from a synchronic point of view:

<table>
<thead>
<tr>
<th>Proto-Bantu</th>
<th>Luba</th>
</tr>
</thead>
<tbody>
<tr>
<td>*-bùd-</td>
<td>-vul-</td>
</tr>
<tr>
<td>*-bòd-</td>
<td>-bùl-</td>
</tr>
<tr>
<td>*-bitá</td>
<td>m-vitá</td>
</tr>
<tr>
<td>*-bitd-</td>
<td>-bil-</td>
</tr>
</tbody>
</table>

We refer to this process, whereby new distinctive sound units come about in a language as a result of a conditioned split, as secondary split or phonologisation.

Because of the interaction between the two rules (one affecting consonants, the other affecting vowels) in Luba and a range of other Bantu languages, there has been a discussion among Bantuists whether this type of change is to be interpreted as a chain shift, involving either a push chain or a pull chain. Push chain changes are internally-motivated processes taking into account the structure as well as the function of the phonological system. They make use of the pressure of threatening mergers of specific segments as a conditioning factor of change, i.e. avoidance of mergers is at stake. A merger is bound to lead to some degree of homophony in lexical and grammatical forms, leaving lexical replacement as an alternative. The alternative process, a pull chain or drag chain, leads to a refilling of open spaces resulting from an earlier shift.
One of the first authors reporting on such phenomena in languages was probably Martinet (1955), who referred to these as châines de propulsion (hence push chain in English) and châines de traction (hence drag chain). The perceptual basis for push chain and drag chain changes may be maximal use of the acoustic space by making segments as distinct from each other as possible, thereby avoiding merger. Moreover, the most economical system is one whereby the maximal number of contrasts occurs with the minimal number of features. In a way, this principle is in conflict with or in dialectic opposition to another principle of languages illustrated extensively above, namely the importance of syntagmatic relations, as manifested in assimilation or dissimilation rules between adjacent or neighbouring segments.

One phenomenon which has been explained along such lines of reasoning is the spirantisation of stops and the 7-to-5 vowel merger which tend to co-occur in Bantu. The former historical rule is attested in a wide range of Bantu languages, for example in Luganda:

<table>
<thead>
<tr>
<th>Proto-Bantu</th>
<th>Luganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p, *b</td>
<td>w, b</td>
</tr>
<tr>
<td>*t, *d</td>
<td>t, l</td>
</tr>
<tr>
<td>*k, *g</td>
<td>k, g</td>
</tr>
</tbody>
</table>

Almost all languages in which such a shift is attested also underwent a subsequent reduction from a (Proto-Bantu) 7-vowel system to a 5-vowel system through a merger of *[i]/*[i] > i, and *[u]/*[u] > u. The vowel merger is not attested in languages which did not undergo spirantisation historically. Nevertheless, Schadeberg (1995) argues that spirantisation and the 7 > 5 vowel merger in Bantu are not chained, but are each motivated without direct reference to the other; instead, areal spread is seen as the major reason for their wide-spread co-occurrence. One reason for this conclusion is the fact that there are Bantu languages which have undergone spirantisation but not the 7-to-5 vowel shift. As the two processes do not necessarily co-occur, no push-chain or “escape” effect can be posited, i.e. a potential merger of vowels triggering spirantisation. Spirantisation results in “the emergence of new segments, not a gap, and the second one, 7 > 5, is a merger and does nothing to create a more balanced system”, according to Schadeberg (1995:79). A drag-chain explanation is even less likely, according to the same author. Nevertheless, the introduction of strident fricative consonants results in additional (phonetic) distinctions in the consonant system, and thereby in lexical distinctiveness. Although the areal dimension of the rule in Bantu is obvious, it could still be argued that the change had its origin in a newly created redundancy (phonetic distinctiveness) resulting from the spirantisation rule. This, in turn, allowed for a slackening of phonetic norms in the pronunciation of vowels, ultimately resulting
in the merger of the closed and half-open vowels. However, even if this hypothesis is correct, the same case also shows that this is not a necessary change, as alternative developments are attested, e.g. no changes in the vowel system.

As this case study may show, the question as to what extent functionalism plays a role in language systems, both synchronically and diachronically, remains a matter of dispute. The Neogrammarian view, also represented in the work of modern phoneticians like John Ohala is that sound change is phonetically determined and basically mechanical. The only relevant observation to be made, according to this position, is that preserving the capacity to transmit meaning is at stake, and so if the information-carrying capacity is threatened, repair strategies (as a kind of adjustment) may be in order.

The opposite of a split, merger, which involves the loss of a distinction between two (or more) phonemes, may also be conditional or unconditional, i.e. it may involve a complete or a partial falling together of specific units in all environments. In modern Standard German, the voiceless velar fricative phoneme \( x \) is fronted to palatal \( [\mathfrak{c}] \) in the environment of front vowels; elsewhere, it is realised as \([x]\). In the Cologne dialect of German, the fronting proceeded towards the post-alveolar position, i.e. \( *[\mathfrak{c}] \) became \([\mathfrak{f}] \) in the same environment. A phoneme / occurs both in Standard German and in the Cologne dialect. As a result of the shift \( *x > *[\mathfrak{c}] > [\mathfrak{f}] \) in the latter variety, a reorganisation of the phonological system took place, whereby a former allophone of \( x \) merged with an existing phoneme \( [\mathfrak{f}] \), in other words, a rephonologisation occurred.

**Deph phonologisation** involves the complete loss of a phonological distinction. In the Teso-Turkana cluster of Eastern Nilotic, implosive stops \( *[^b] \) and \( *[^d] \) merged with corresponding plosive stops \( ^b \) and \( ^d \); Dimmendaal 1995a), as the following cognates with Bari, where the distinction was retained, illustrates:

<table>
<thead>
<tr>
<th>Bari</th>
<th>Turkana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>bɔk</strong></td>
<td>‘dig out’</td>
</tr>
<tr>
<td><strong>bela</strong></td>
<td>‘split’</td>
</tr>
<tr>
<td><strong>bar</strong></td>
<td>‘carry in addition’</td>
</tr>
<tr>
<td><strong>baɲa</strong></td>
<td>‘clear away’</td>
</tr>
<tr>
<td><strong>bɔk</strong></td>
<td>‘dig, excavate’</td>
</tr>
<tr>
<td><strong>bel</strong></td>
<td>‘split, shatter’</td>
</tr>
<tr>
<td><strong>bar</strong></td>
<td>‘thrive, prosper’</td>
</tr>
<tr>
<td><strong>baɲ</strong></td>
<td>‘shear, shave’</td>
</tr>
</tbody>
</table>

Languages may lose the distinction between specific sound units at the structural (phonological) level, but sometimes they keep such a distinction at the phonetic level, i.e. in predictable environments. In Maasai, a language belonging to the same Eastern Nilotic subgroup as the Teso-Turkana cluster, these voiced stops are slightly implosive after nasals, for example, whereas in other positions they are realised as plain plosive stops.

Alternatively to splits and mergers, we may find **rotation** (also called shift), i.e. a situation where distinctions are being maintained, for example in vowel systems, but the phonetic norms for these vowels change. These changes are common in the vocalic systems of Germanic languages.
As pointed out above, an important question which investigators of historical sound changes have asked themselves is whether phonetic changes are blind to the system. The phonetician John Ohala, who made important discoveries concerning the natural phonetic basis behind sound changes as we shall see below, has warned against invoking such explanations where the phonetic or psychological motivation is lacking. Nevertheless, there is some evidence that sounds do not undergo change without motivation. The cross-linguistic study of Advanced Tongue Root ([ATR])-harmony, a phenomenon attested in languages ranging from Ethiopia all the way towards Senegal, suggests that sound changes are not entirely blind to the system.\textsuperscript{15} Dimmendaal (2002) shows that in the Teso-Lotuko-Maa (or “Non-Bari”) group within Eastern Nilotic the tenth vowel â, the [+Advanced Tongue Root] counterpart of [−Advanced Tongue Root] has shifted to and merged with *a in roots:

\begin{center}
\begin{tabular}{lll}
Bari & Maasai & \\
\hline
lǎm & -ilǎm & ‘curse’ \\
nāk & -nak & ‘suck’ \\
laŋ & -laŋ & ‘cross’ \\
tagw-ōk & en-tawwō & ‘calf, heifer’ \\
\end{tabular}
\end{center}

However, in suffixes *i shifted to and merged with [-ATR] *ɔ or [+ATR] *o depending on the language. In Maasai, for example, *ā shifted to and merged with *o.\textsuperscript{16} Thus, whereas in Bari the vowels in the suffix expressing movement away from the deictic center alternate between a and â, they alternate between a and o in Maasai.

\begin{center}
\begin{tabular}{lll}
Bari: & \\
bar-ara & ‘carry away in addition’ (root: bar ‘carry in addition’) \\
dun-ārā & ‘cut away’ (root: dun ‘cut’) \\
\hline
Maasai: & \\
-nok-ar & ‘bury, cover away’ (root: nok) \\
-ibuk-or & ‘pour away’ (root: -ibuk) \\
\end{tabular}
\end{center}

If changes were entirely blind to the system, such a split between vowels in roots and in affixes should not occur. The split in Maasai and other members of the Teso-Lotuko-Maa cluster resulted in a preservation of ATR alternations in affixes. A similar claim concerning structure preservation is made by Kiparsky (2003: 326–330).

In the 1960s and 70s, phonological theory was dominated by the Generative paradigm, which also had an impact on analyses in historical linguistics. Central to

\textsuperscript{15} ???

\textsuperscript{16} The [+ATR] counterpart of a is sometimes written as ɔ or ʌ in the discussion of vowel harmony systems.
the Generative model was a rule-based approach. Thus, the innovation described for Bantu languages above and involving the fricativisation of stops would be a case of rule addition. Alternatively, rule loss, or rule inversion (the reinterpretation of original surface forms as underlying forms) may occur. One interesting notion developed within the Generative framework concerned so-called feeding and bleeding rules. It was common within this model to view phonological systems in terms of ordered rules. When a rule A precedes rule B and applications of rule A create additional strings that undergo rule B, it may be said that A feeds B. We thus see that the output of one change served as the input of the other, i.e. “feeds” it. Kiparsky (1982) has argued that linguistic change tends to favour feeding relations of rules, maximising their application (or fullest utilisation in the grammar), also minimising opacity (or maximising transparency) and bleeding another rule if its application deprives this rule of potential inputs. A transparency principle should explain why reanalysis took place. It requires derivations to be minimally complex and initial, and underlying structures to be “close” to their respective surface structures.

The purpose of diachronic phonology and the interpretation of innovations should indeed be to understand change not only in terms of a system undergoing it, but also in terms of the system that gave rise to it. It has been observed by different authors that sometimes rules seem to be working in the same direction, i.e. that a specific conspiracy can be observed, as with the development of open-syllables in Slavic languages. Contrary to Proto-Indo-European, early Slavic permitted only open syllables. A range of processes which served to convert other syllable types “into open syllables included syllable-final consonant loss, vowel-liquid metathesis, resyllabification, and word-final consonant loss or anaptyxis” (Hock 1991: 161). Such teleological explanations for a range of restructuring phenomena leading towards a specific result are to be treated with care, unless one can identify a clear causal mechanism such as language contact.

If we treat phonemes as bundles of features organised in patterns, we can observe how the modification of one feature in a system may affect a group of segments. It is not necessarily individual sounds that are changing, but sets of sounds sharing specific distinctive features and phonetic realisation properties. Whereas the merger of *s/*s/*ă with a, e, ă, or o, or the shift of *t to i or e, and *u to u or o, is common in a range of Niger-Congo and Nilo-Saharan languages with Advanced Tongue Root ([ATR])

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17. See McMahon (1994) for a more elaborate discussion of this terminology. The ultimate explanatory value of this approach was rather low, as it only constituted a new descriptive device, stating in exact terms what the change looked like, without trying to understand why such changes happened in the first place.

18. More recently, Optimality Theory has established itself as an influential theory for the analysis of language within various domains. The impact of this model on historical linguistics still needs to be established.
harmony, another kind of restructuring has been illustrated by Andersen (2006). The author describes an interesting case of – what superficially looks like – a flip flop rule in the Western Nilotic language Jumjum, which belongs to the Burun-Mabaan cluster within this Nilotic branch. Compare the following correspondence sets, showing opposite [ATR] values in cognate roots between Jumjum and the closely related language Mayak.

<table>
<thead>
<tr>
<th>Jumjum</th>
<th>Mayak</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>wìil</td>
<td>wìil</td>
<td>‘tail’</td>
</tr>
<tr>
<td>búuy</td>
<td>bùur</td>
<td>‘shoulder’</td>
</tr>
<tr>
<td>pìk</td>
<td>pìi</td>
<td>‘water’</td>
</tr>
<tr>
<td>lùom</td>
<td>lúum</td>
<td>‘grass’</td>
</tr>
</tbody>
</table>

How could such a change have come about? Obviously, a flip flop or swapping rule is extremely unlikely, unless speakers sit together and decide, for example, that as of today (or tomorrow) all words with \( \text{i} \) should be pronounced with \( \text{i} \), and vice versa. Andersen (2006) shows by way of an extensive comparison of cognate sets and regular sound correspondences that Proto-Western Nilotic high [+ATR] vowels \( *i \) and \( *u \) first shifted and merged with mid [+ATR] vowels \( *e \) and \( *o \) (possibly through an intermediate stage of diphthongisation, \( *ie > e \) and \( *uo/*ua > o \)) in Jumjum. Next, the original slot was filled by a shift of high [−ATR] vowels \( *ɪ \) and \( *ʊ \) to high [+ATR] vowels \( i \) and \( u \). During a subsequent change, \( *e \) and \( *o \) became \( i \) and \( u \) respectively.

Another case, showing how a chain of subtle changes may result in considerable structural differences between relatively closely related languages, comes from a group of languages belonging to the Comoe group within Kwa. When comparing the roots for ‘pass’ in Abure, \( ɲɪ \), and in Anyi-Baule, where we find \( sɛ \), it is not immediately obvious that one is dealing with cognate forms. Only an investigation of regular sound correspondences between the two languages helps to solve this analytical problem. As it turns out, root-initial \( h/w/y \) in Abure and \( h \) in the closely related language Betibe correspond to \( s \) in more distantly related languages like Anyi-Bawule and Akan or the Guang languages; \( w \) occurs before rounded vowels, \( y \) before high front vowels, and \( h \) occurs elsewhere in Abure. (Data provided by the late John M. Stewart.)

Table 11. Cognate sets in Comoe (Kwa)

<table>
<thead>
<tr>
<th>Betibe</th>
<th>Abure</th>
<th>Anyi</th>
<th>Baule</th>
<th>Akan</th>
<th>Larteh</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-he</td>
<td>e-ye</td>
<td>si</td>
<td>si</td>
<td>si</td>
<td>ɔ-ɔi</td>
</tr>
<tr>
<td>ɔ-ko</td>
<td>ɔ-wo</td>
<td>su</td>
<td>su</td>
<td>-</td>
<td>su</td>
</tr>
<tr>
<td>hũ</td>
<td>ɲũ</td>
<td>sũ</td>
<td>sũ</td>
<td>sũ</td>
<td>sũ</td>
</tr>
<tr>
<td>hĩ</td>
<td>ɲĩ</td>
<td>s̥</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>u-ũũũũ</td>
<td>o-ŋũ</td>
<td>-</td>
<td>-</td>
<td>e-ɔ̃m</td>
<td>-</td>
</tr>
</tbody>
</table>
The most plausible hypothesis, as it only requires a subtle chain of phonetic changes, is to posit the occurrence of a common sound change \( *s > *h \) in the common ancestor of Betibe and Abure (as an innovation). In Abure, a subsequent change must have occurred changing the approximant into a nasal before a nasal vowel (due to the anticipation of nasality on the glide). Thus \( (*s >) h > y \) before oral vowels, \( (*s >) *y > n \) before an unrounded nasal vowel, and \( (*s >) *w > η \) before a rounded nasal vowel. Interestingly, the newly formed nasals resulting from the primary split did not result in a merger with existing nasals; instead, the original nasals were turned into nasalised sonorants, as the following examples show:

<table>
<thead>
<tr>
<th>Betibe</th>
<th>Abure</th>
</tr>
</thead>
<tbody>
<tr>
<td>e-nɨ̃</td>
<td>e-ʃɨ̃-e ‘mother’</td>
</tr>
<tr>
<td>ɲ̃</td>
<td>ɲ̃     ‘drink’</td>
</tr>
</tbody>
</table>

In other words, a chain shift appears to have occurred in Abure, whereby margins of security (maximising the efficiency of communication) were maintained in the system; for additional details, the interested reader is referred to Snider (1990).

2.5 What does it mean to explain sound changes?

The concept of explanation can be understood in a number of ways. If one manages to establish historical sound changes for one or more languages, one has explained the origin of specific sound units (phonemes) and their phonetic realisations. This is one type of explanation. However, one may take the analysis one step further, and ask oneself the question: Why is it that certain sound changes are so common? This issue, which we may refer to as the actuation problem, and which involves not only classifying the sound change but also understanding its phonetic basis, is addressed briefly below. There is a third type of explanation, related to the so-called transition problem: Who initiates specific innovations, whether phonetic (phonological), lexical or grammatical, and how do such innovations spread across a speech community? This important question is taken up again in Chapter 7.

One obvious question to ask of course is: Why is it that certain sound changes are so frequent and, consequently, so “natural”? The phonetic basis for sound changes is still a relatively poorly understand domain of comparative linguistics. But some progress has been made over the past few decades, in particular through the work of the phonetician John Ohala, a scholar whose work is characterised by an integration of phonetic studies with historical phonology. Moreover, Ohala (1981) has emphasised the important role of the listener (as against the speaker) for our understanding of sound change; see also Hansson (2008) for a survey.
As Ohala (1993) points out, each time we as speakers of a specific language produce a particular word, there is minor variation – for example, related to the speed with which a word is pronounced. The variation with the same speaker, as well as between different speakers, depends on the phonetic environment, speech rate, or level of loudness, for example. As further observed by Ohala (1993: 239), there is “tremendous variability that exists in what we regard as the ‘same’ events in speech, whether this sameness be phones, syllables, or words […]. The typically short list of ‘allophones’ given in traditional phonemic inventories of languages does not begin to give the whole story of the amount of variation present in speech. It is from this pool of variation that sound change is drawn”.

Early investigators of Indo-European languages already noticed that changes come about through subtle shifts, which themselves are the result of changes in phonetic norms. However, rather than assuming that language is a ‘bag of tricks’ where everything goes, the scholarly work of the phonetician John Ohala has shown that there are specific articulatory as well as acoustic properties of speech sounds which may lead to a reinterpretation of sound systems by speakers. Ohala does not deny that sound changes may be caused by other factors – for example, “spelling pronunciation, paradigm regularisation, and fashion, which are language and culture-specific” (Ohala 1993: 238). Spelling pronunciation, i.e. replacement of the pronunciation of a given word by one which is suggested by its spelling, is found in English ‘often’ [ɔfǝn], whereas the inherited form should rather be [ɔf(ǝ)n] (Hock 1991: 465). This phenomenon plays a role in particular where written languages are well-established. However, there are also a range of widespread sound changes which emerge from more universal physiological and psychological factors. Let us have a closer look at one such property common as an areal feature in a range of languages in West Africa, namely the nasalisation of vowels before nasal consonants.

Phenomena such as metathesis and haplology, as discussed above, suggest that some changes are production-related. However, there is also evidence for perception-related changes. Speakers apparently can factor out the predictable acoustic effects of adjacent sounds they hear. “Another way of describing such behaviour is to say that listeners normalise or correct the speech signal in order to arrive at the pronunciation intended by the speaker minus any added contextual perturbations” (Ohala 1993: 245), thereby preventing the sound change in a way. But if speakers fail to correct such “perturbations” in the speech signal which are caused by the phonological environment, such results of the speech production process become part of the pronunciation norm. This phenomenon is referred to as hypocorrection change by Ohala (1993).

The common cross-linguistic process of affrication of stops before high vowels and the spreading of vowel harmony (or assimilation processes in general) would be an instance of hypocorrection.
As pointed out by Hansson (2008: 865), “there are two ways in which listeners may be mistaken in their decoding of the acoustic signal: by failing to correct for a contextual effect, or by over-correcting, attributing an intrinsic property to contextual influence.” This latter phenomenon would be an instance of hypercorrection. “In situations where the context provides a plausible source for some phonetic property of a segment’s realisation, the listener may erroneously ‘undo’ this aspect of the segment” (Hansson 2008: 865), who mentions a case in Classical Greek, where *lukwos ‘wolf’ became lukos, because speakers interpreted the labialisation on k to coarticularatory influence from the following rounded vowel. The inverse process, whereby labialisation as a redundant feature of grave consonants before rounded back vowels is reinterpreted as a distinctive property, is presumably also possible.

Secondary articulation features, such as aspiration, retroflexion, pharyngealisation, or labialisation, create an ambiguity as to where the feature is distinctive and where it is fortuitous. Note, for example, that the secondary nature is evident from the fact that only languages with relatively large consonant inventories, as found in the Khoisan area for example, tend to make use of these features at the structural-phonological level. They are auditorily less salient than, say, voicing.

The commonly observed process in a wide range of languages in West Africa involving nasalisation of vowels consonants before nasals as an assimilation process would involve hypocorrection, because hearers fail to correct the acoustic signal. The phoneme sequence VN may be realised as [V˜(N)]. Once speakers start interpreting the nasalisation of the vowel as an inherent property of this vowel, the following nasal may be (mis)interpreted as a superfluous element and it may no longer be pronounced; at this point, (new) nasal vowel phonemes have been created: [V˜] > (phonological) V.

Dahl’s Law, involving the voicing of the first of two voiceless obstruents as a dissimilation process would be a case of hypercorrective change. However, Ohala (1993: 253–254) contends that “the eventual resolution of the putative cases of voicing dissimilation […] would show that [VOICE] was not involved”. Indeed, the solution proposed in Schadeberg (1999: 393) involves deaspiration of voiceless aspirated stops in successive syllables within a stem as the primary process (also known as Katupha’s Law in Bantu studies) as the historical basis for Dahl’s law. First, a simplification of a sequence of two marked (aspirated) consonants occurs by unmarking one of its members. The new Dahl’s Law then maximises the phonetic difference between aspirated and non-aspirated voiceless stops by adding voice to the latter class of consonants.

The following common sound change may serve as a further example of perception-based language change. It involves the transition between onset and nucleus, rather than between nucleus and coda. Ohala (1981: 188) discusses the reconstructed Proto-Bantu root for ‘dog’, *-bua, which is -bya in Shona. The fricative in the latter reflex is explained as a dissimilatory change. Listeners learn that speakers may distort
clusters of sounds by assimilation, and consequently "work out corrective rules to help disentangle the intended pronunciation", as McMahon (1994:16) puts it. Here, presumably speakers assumed the bilabial stop had distorted the next sound, and in order to undo the labial component, turned the w-sound into a velar sound when pronouncing the word themselves. This "undoing" of a supposed (non-existent) assimilation thus resulted in a hypercorrection.

As these exemplary cases may show, finding acoustic and articulatory explanations for the common sound changes introduced above still has high priority. Related phenomena, whereby *kw becomes kp and *gw becomes gb, are attested in Nilotic languages, as shown in Chapter 8. Hock (1986:583–584) makes reference to, what appears to be, a similar historical process of hardening in Pre-Armenian, involving Proto-Indo-European *dw-, which has a reflex in Armenian rk, the latter sequence coming about through a range of subtle intermediate steps: *dw- > *tg- > *tk- > *rk- > erk-. As a result, good cognates can be established which are not immediately obvious otherwise, i.e. if one does not know about sound correspondences, e.g. between the form for ‘two’ in Greek, duo, and the Armenian form erku.

To show that explanatory arguments sometimes can be taken to the next level of abstraction, one could have a closer look at some of the articulatory mechanisms involved in speech production. As argued by Löfqvist et al. (1989) quoted in Ohala (1993:240), "during voiceless stops there is a higher contraction rate for the cricothyroid muscles in the larynx, the chief tensor muscle and the one most directly involved in regulating the F[undamental]F[requency] of voice. This increased tension of the vocal cords may serve to ensure the voicelessness of the stops by stiffening the vocal cords. The concomitant FO difference on the following vowel is therefore probably a fortuitous consequence of this activity directed towards maintaining the voicelessness of the consonant [...]”.

As should be clear from this discussion, explanations can be found at different levels of analysis and abstraction. This may also be the point where it is useful to ask the question to what extent reconstructions are simply abstract constructs or formulas. The difference of opinion held between scholars is that of a realistic versus a formulaic approach (Fox 1995:9–12). Some have argued that symbols reconstructed on the basis of sound correspondences are simply formulaic representations, rather than historical sound units. However, that position does not make any sense. It is characteristic of any scientific method that the proposed analyses provide a still incomplete picture of (a former) reality. The comparative method is no exception to this. Consequently, reconstructed phoneme inventories sometimes need to be modified. But if we take the series of sound correspondences for the group of Gur languages we started with in Chapter 1 as a basis, for example, it is obvious that the series of bilabial nasals as synchronic reflexes in all likelihood goes back to an original *m, in the same way that a
series of voiced bilabial stops probably goes back to *b. It would be naive to look upon such symbols like *m or *b as being merely algebraic representations or symbols. If this is the position one wants to take, one might as well use *% and *$ as original symbols representing the sound correspondence set. Of course, synchronic phonological systems also constitute abstracted entities to some extent. But this does not necessarily mean that they are simply a construct. There is no sense in using arbitrary symbols, simply because they are meaningless. The purpose must indeed be to ascribe historical reality and phonetic and phonological properties to the reconstructed symbols.

In almost any historical-comparative study one will come across so-called exceptions to proclaimed sound shifts. Newman (1995), for example, points out that establishing regular correspondences “is not an easy task […] lexical loss, semantic change, and the effects of morphologically conditioned changes and phonological erosion so distort the evidence that it is almost impossible to establish recurrent and regular phonological correspondences.” These as well as a few other complicating factors will be discussed next.

2.6 Explaining exceptions

Sound changes may be unconditioned or conditioned, e.g. a particular sound may only shift to another sound in a certain environment, as the Neogrammarian pioneers of the 19th century already knew. The discovery of historical rules applying across the board in Indo-European languages studied at the time, i.e. the so-called Ausnahmslosigkeit (“Exceptionless-ness”) of specific sound changes, led to the view that all words fulfilling certain specified conditions would undergo the change. But there are a number of factors, related to language-internal and external (contact) factors, potentially causing complications, as early publications by Neogrammarians like Rask (e.g. 1818) on Icelandic had already shown. These so-called exceptions to historical sound changes (the “10% picture” involving a number of “disturbing factors”, as some have phrased it) need to be accounted for separately. Most of these irregularities are non-phonetic in nature.

One factor, which does appear to have its basis in phonetics, relates to sporadic change in individual words as a result of fast speech. As many readers may know from their own experience, the pronunciation of names for villages or towns in local dialects often differs from that used by speakers of related dialects. Thus, the Swiss town Zürich is called [tsyri], rather than [tsyriç] in the local dialect; the loss of the final consonant appears to be unique to this word and does not follow from a more general sound shift. Similarly, the name Addis Ababa is often reduced to Addis Aba in spoken Amharic (Beniam Mitiku, personal communication).

The same principle of shortening applies to basic and non-basic vocabulary with a high frequency of use. There are numerous examples of this in language after language.
Thus, the broad Australian English is known as *Strine* (from “Australian”) in Australia. As shown by Yigezu (2001), intervocalic weakening and subsequent loss of consonants is a common and permanent process in Surmic languages. Sometimes such a change is found in individual words only. Compare the following example from the Surmic language Baale, where the intervocalic stop is missing in the plural form only:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>kaba</strong></td>
<td><strong>kaa-ssá</strong></td>
</tr>
</tbody>
</table>

‘knife’

Apparently, high frequency words tend to undergo greater reduction in speech than less frequently used words, causing sporadic changes in individual words.

A second potential cause for irregularities in sound change relates to sound symbolism. For many words in languages an arbitrary relation between form and meaning can be established. It is exactly because of this arbitrariness that similarities in form and meaning for specific words between languages need to be explained, either through borrowing or common genetic origin, as stated above. It is the arbitrariness principle which lies at the basis of the comparative method. But there is also **iconicity** in languages, more specifically imagic iconicity (as opposed to diagrammatic iconicity, which is more of a grammatical phenomenon). Specific words may be onomatopoetic in terms of their form, i.e. they express by way of crude imitation speech-external events; this phenomenon is sometimes called primary sound symbolism (cf. Malkiel 1990). Alternatively, their structure deviates from the canonical shape of words in a specific language, which also makes them motivated (iconic), a phenomenon known as secondary sound symbolism. Thus, ideophonic words in languages may allow for sequences of consonants (or vowels) not found elsewhere in the language, as shown for Hausa in the next paragraph.

Research by Diffloth (e.g. 1976) on the languages of Southeast Asia has shown that sounds in expressive words may be exempted from specific sound changes. Though still relatively poorly studied and understood, there is some evidence that parallel cases may be found in African languages. There is some initial evidence from African languages that expressive words (which may include onomatopoetic words) sometimes are impervious to sound change. In Western Nilotic Alur, for example, the voiced implosive stop *ɓ* shifted to and merged with *b*. Nevertheless, the implosive stop is still found in ideophonic words (Dimmendaal 1995a). Newman (2000b: 242–249) gives an elegant illustration of this lexical exclusion in Standard (Kano) Hausa. Klinghenheben’s Law (a cluster of rules resulting in syllable-final weakening of stops to sonorants in preconsonantal position, as we saw earlier) apparently did not apply to ideophones in this language. Consequently, the latter may end in obstruents (as in *tsaf* ‘neatly, completely’ or *tsit* ‘in complete silence’). Apart from morpho-semantic inhibitance, irregularities may come about as a result of phonetic symbolism. Compare English *peep* [piɪp], which by regular sound change
from Middle English *pipen* should have become *pipe* [payp] (Hock 1991: 50). As a result, these words constitute exceptions to specific sound changes. Alternatively, irregularities may come about as a result of borrowing, which is another reason why one may still find specific sounds or sound units which disappeared elsewhere in a language as a result of regular sound changes.

A further (language-internal) factor, causing complications when trying to establish sound correspondences between cognate forms in related languages, relates to taboo. Treis (2005) describes such a case for Kambaata, a Highland East Cushitic language in Ethiopia, where a phenomenon known as ballishsha occurs. In the narrowest sense, ballishsha refers to a group of lexemes that are exclusively used by married women as a sign of respect towards their parents-in-law. The avoidance system encompasses all aspects of the respectful behaviour that a married woman traditionally observes in deference to her in-laws: Avoidance of their names and words similar to their names as well as physical avoidance. Such systems are more common in languages in the area, and presumably have been used by speech communities for many generations; in Kambaata, this avoidance system is now vanishing, in particular in urban areas.

As shown by Treis (2005) through a comparison of Kambaata lexemes with cognate forms in other Highland East Cushitic languages (Hadiyya and Sidaama), there has been a sound shift *d > z* in Kambaata:

<table>
<thead>
<tr>
<th>Sidaama</th>
<th>Kambaata</th>
</tr>
</thead>
<tbody>
<tr>
<td>daguččo</td>
<td>zagishšú</td>
</tr>
<tr>
<td>dar-</td>
<td>zar</td>
</tr>
</tbody>
</table>

‘cedar tree’ ‘tear’

But alveolar stops in ballishsha words were not affected by this shift. Thus, the ballishsha word *daadaamu* ‘water’ historically derives from the verb root *daaad: ‘flow’, which has a reflex *zaaz- in normal Kambaata.*

There is a considerable degree of similarity between the word taboo as practised traditionally in Kambaata culture and the word taboo known as hlonipha, as practised traditionally among Nguni and Southern Sotho peoples in Southern Africa (Treis 2006). As well as avoiding the names of the father-in-law and other males’ affines, a Nguni woman may also not mention words based on the same root or root syllables as their names. This is much like the avoidance language used among the Kambaata; the major difference only being that *hlonipha* is triggered by the names of male affines only, whereas in Kambaata it is the names of the father-in-law as well as the mother-in-law which cause ballishsha. The strategies that are (or were rather, as these customs are disappearing now) applied by Nguni women to avoid a prohibited word are quite similar to the Kambaata strategies: Phonological modification, synonyms, derived words, neologisms, archaisms, and loans. Van Rooyen (1968: 39) mentions such a case in Zulu, where the word *umsebe ‘ray of light’ becomes umkebe in the hlonipa.
register; historically, the non-palatalised form is an archaism; see also Herbert (1986, 1990: 127–30). Substitution of sounds is a well-known strategy of lexical manipulation for taboo words. Compare the tabooistic distortion, i.e. deliberate alteration of the phonological structure, of shoot for the tabooed word shit in English.

Deliberate language change is not a well-researched phenomenon within the field of African linguistics. More extensive data on this phenomenon presumably will lead to a deeper understanding not only of its sociological background, but also of its consequences for historical changes in languages. Storch (to appear) constitutes a pioneering study in this respect.

Apart from these phonetically-based clues and social-psychological factors potentially causing complications, there is a well-established structural strategy applied by speakers to language structures, known as analogy. This phenomenon is discussed in more detail in Chapter 4. However, it is introduced here in order to present a listing of common factors complicating the operation of regular sound change.

Analogy appears to have played a role in the restructuring of some verb stems in the Nilotic language Teso. Here, an interesting phonological adjustment occurs when the causative is added to a verb root with an initial sequence consonant plus glide:

-\text{-it}\text{-aw} \rightarrow \text{-itw}\text{-aw} 'use, cause to work'
-\text{-ite-}\text{g}\text{wel} \rightarrow \text{-itw}\text{gel} 'cause to buy, sell'

This metathesis rule, involving a transposition of segments, was probably prompted by analogy with the much more common -CGVCVC verb root pattern, whereas -CVCGVC roots are extremely rare. Compare, for example: \text{-bwan}\text{-e} 'ride a horse', or \text{-bwol}\text{-el} 'wail' in Teso. Trask (1996: 107) points towards a case in the history of English, where \text{w} was lost historically after \text{s} and before \text{o}; hence sword [s\text{warf}]. (Note that the \text{w} has been retained in the spelling.) So why is \text{w} still pronounced in forms like swore and swollen? Either the existence of related forms like swear and swell prevented the regular sound change from affecting this form, in which case analogical maintenance occurred, or alternatively the change did occur, but analogical restoration (by the analogy with swear and swell) occurred.

Dialect mixture is another cause for potential complications when trying to set up sound correspondences. Standard Swahili, based on the dialect of Zanzibar, is generally believed to be a Southern dialect of the Swahili dialect chain. But in a number of lexemes, we find reflexes that are reminiscent of Northern Swahili. For example, the verbal stem for ‘want’ in Standard Swahili is \text{-t}\text{aka}, rather than \text{-ch}\text{aka} (as in other Southern dialects).

Similar sporadic changes occur in a number of other Bantu languages, e.g. with the stems for ‘three’ and ‘five, as shown by Stappers (1965), as a result of their frequent use in combination with the agreement prefix for class 10, \text{i-}. The presence of the preceding
high front vowel triggered the fricativisation and subsequent reanalysis of the basic form of the stem. In languages where there is no regular sound shift *t > s.

There is a lot more to be said about analogy. But this interesting domain of language behaviour is understood best once some principles of morphological reanalysis (discussed in Chapter 4) have become clear.

It is clear from comparative work on different languages so far, that there is a certain link between the amount of data and the establishment of regularities in correspondences. Complications are to be expected as this is in the nature of human language. However, the number of exceptions or complications due to language-internal causes usually should not grow exponentially with the amount of data studied. There may also be language-external reasons for irregularities, e.g. as a result of dialect mixture, as pointed out above. Because forms between dialects are often very similar, one might not immediately recognise a specific form as being due to borrowing from a closely related dialect; only complications in the sound correspondences might provide a hint.

In the discussion so far, we have referred to language families and subgroups within these families as if these were given entities. But on the basis of which criteria does one in fact arrive at such groupings or subclassifications for languages? Or, phrased differently, why do scholars assume that certain languages are more closely related to each other than to others? The answer to this question will be given in the next chapter.
Chapter 3

Classification and subclassification techniques

3.1 Shared innovations
3.2 Lexicostatistics
3.3 Mass comparison
3.4 The comparative study of African language families: A brief summary

Resemblances in morphological structure and basic vocabulary between specific languages sometimes are so striking that a common ancestry remains the most likely explanation. Once genetic relatedness has been posited as the most plausible hypothesis for the grammatical and lexical affinity observable between a set of languages, one may start determining the exact nature of the relationship. With three or more languages that are assumed to be genetically related, the question arises what the genetic relationship looks like. Of course, the higher the number of related languages involved, the more logical possibilities there are for representing their affinity. Ever since the birth of comparative linguistics some 150 years ago, a number of techniques have been developed to this end. The standard procedure is by way of family trees or arboreal schemata representing the closeness or distance of genetic relationships. Deciding on the most plausible and probable family-tree representation is what subclassification or subgrouping involves.

The family tree, as an abstract representation of relationships and common origin, was probably first introduced into linguistics by the Indo-Europeanist Schleicher (1861, 1869, 1873). Similar classificatory techniques had of course been used in evolutionary biology by Darwin (1859), whose methods Schleicher used.

When we view a language family as a kind of biological organism, the descendants of an ancestral language, or proto-language, may be referred to as daughter languages; and if we want to further the analogy with kinship terminology, we may call languages belonging to the same subgroup (or subfamily) sister languages. Next to the notion of family, higher level genetic units such as phylum are sometimes used. An even higher
level grouping may be referred to as super-phylum or stock (corresponding to taxon in evolutionary biology). The positing of language families and subgroups in principle are based on so-called shared innovations, a technique explained below. Apart from this standard classification technique, lexicostatistics and mass comparison are other techniques that have been used. These are also discussed below.

3.1 Shared innovations

Every change in a language or language variety (dialect) constitutes an innovation. The classical method for arriving at a tree-type of family representation for genetically-related languages, which is still held to be valid by most scholars and is still widely used as the most accurate method today, involves the use of the Neogrammarian principle of shared innovations. When two or more genetically related languages underwent the same kind of historical change, whether phonological, lexical or grammatical (i.e. morphological or syntactic) in nature, the change may have occurred independently in each of them; alternatively, it may have occurred only once, namely in their common ancestor, i.e. before these languages emerged as separate and independent languages. In the preceding chapter, different historical sound changes were illustrated for groups of genetically-related languages. How does one decide which of the historical scenarios applied in a particular language group is the most plausible one? The present chapter provides some rules of thumb for this decision-making process.

In his historical-comparative study of the Southern Nilotic branch within Nilotic, Rottland (1982) applies the classical method of subgrouping, by setting up sound correspondences between languages assumed to be related, given their close lexical and grammatical affinity. After a description of phonological and morphological properties of each individual language, the author sets up sound correspondences on the basis of cognate roots identified by him. Next, sound changes are established and the question is raised whether these are shared by one or more languages. For example, a consonant \( r \) in Northern Marakwet and \( x \) in Päkot corresponds to \( y \) in the same position in Nandi or Kipsikiis (as well as a number of other languages).

<table>
<thead>
<tr>
<th>Language</th>
<th>Sound</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Marakwet</td>
<td>ra</td>
<td>‘bad’</td>
</tr>
<tr>
<td>Päkot</td>
<td>xaʔ</td>
<td>‘bad’</td>
</tr>
<tr>
<td>Nandi</td>
<td>ya-</td>
<td>‘bad’</td>
</tr>
<tr>
<td>Kipsikiis</td>
<td>ya</td>
<td>‘bad’</td>
</tr>
</tbody>
</table>

More generally, one finds a palatal glide (approximant) in root-initial, root-medial and root-final position in Nandi and Kipsikiis where Northern Marakwet has a trill and Päkot has a velar fricative:
Northern Marakwet  \textit{kart} \quad \text{‘cold’} \\
Päkot  \textit{kaxt} \quad \text{‘cold’} \\
Nandi  \textit{kayt-} \quad \text{‘cold’} \\
Kipsikiis  \textit{kayt-} \quad \text{‘cold’} \\
Northern Marakwet  \textit{rxr} \quad \text{‘cook’} \\
Päkot  \textit{xxr} \quad \text{‘cook’} \\
Nandi  \textit{yxr} \quad \text{‘cook’} \\
Kipsikiis  \textit{yxr} \quad \text{‘cook’}

Apart from these correspondence sets, cognate forms occur where either a glide (\textit{y}) or a trill \textit{r} is found in all four languages:

Northern Marakwet  \textit{rat} \quad \text{‘tie’} \\
Päkot  \textit{rat} \quad \text{‘tie’} \\
Nandi  \textit{rat} \quad \text{‘tie’} \\
Kipsikiis  \textit{rat} \quad \text{‘tie’} \\
Northern Marakwet  \textit{ydt} \quad \text{‘open, disclose’} \\
Päkot  \textit{ydt} \quad \text{‘open, disclose’} \\
Nandi  \textit{ydt} \quad \text{‘open, disclose’} \\
Kipsikiis  \textit{ydt} \quad \text{‘open, disclose’}

As the consonant \textit{x} in Northern Marakwet and \textit{r} Päkot cannot be shown to have resulted (through a split) from \textit{y} in ‘cold’ or ‘throat’, they must go back to a different original consonant in these cognate forms. The original consonant in ‘throat’ and ‘cold’ could not have been \textit{r} either, since we have correspondence sets for ‘tie’ (and other examples not listed here). The consonant in Northern Marakwet and Päkot thus must go back to a different consonant, and the glide in Nandi and Kipsikiis must be an innovation. The root for ‘throat’ is reconstructed as \textit{*morok}, whereas ‘cold’ is reconstructed as \textit{*kari} by Rottland. The velar fricative phoneme \textit{x} in Päkot is pronounced as a voiced fricative [\textit{ɣ}]. Rottland (1982: 219) concludes that the proto-phoneme \textit{*x} may have been a voiced palatalised liquid which developed into a palatal approximant in languages like Nandi and Kipsikiis. This hypothesis gains additional plausibility from the fact that elsewhere in Nilotic in cognate roots with this reconstructed phoneme a trilled \textit{r} occurs. This would also make the reconstructed proto-system for Southern Nilotic symmetrical, in that the alveolar and palatal lateral had a corresponding alveolar and palatal liquid (Rottland 1982: 231):

\begin{itemize}
\item \textbf{Northern Marakwet} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Päkot} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Nandi} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Kipsikiis} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Northern Marakwet} \quad \textit{ydt} \quad \text{‘open, disclose’} \\
\item \textbf{Päkot} \quad \textit{ydt} \quad \text{‘open, disclose’} \\
\item \textbf{Nandi} \quad \textit{ydt} \quad \text{‘open, disclose’} \\
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\item \textbf{Päkot} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Nandi} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Kipsikiis} \quad \textit{rat} \quad \text{‘tie’} \\
\item \textbf{Northern Marakwet} \quad \textit{ydt} \quad \text{‘open, disclose’} \\
\item \textbf{Päkot} \quad \textit{ydt} \quad \text{‘open, disclose’} \\
\item \textbf{Nandi} \quad \textit{ydt} \quad \text{‘open, disclose’} \\
\item \textbf{Kipsikiis} \quad \textit{ydt} \quad \text{‘open, disclose’}
\end{itemize}

\textbf{19.} Rottland (1982) places \textit{*R}, in the palatal slot, presumably because it became a palatal approximant in some languages. But the fact that it developed into a velar fricative in Päkot and its merger with \textit{*r} in Northern Marakwet suggest that originally it may have been a uvular trill.
The reconstructed historical scenario leads to the conclusion that a shift *r > y occurred in Nandi as well as Kipsikiis. There are two ways in which this situation may have come about. Possibly both Nandi and Kipsikiis underwent this innovation independently from each other. Alternatively, the similarity is the result of a shared innovation which occurred only once, namely in their common ancestor before Nandi and Kipsikiis emerged as separate languages.

How do we decide between these two options? There are some general heuristic principles guiding the decision process. First, the less common a particular innovation is cross-linguistically, the less probable it is that the change occurred independently in two or more languages. Also, the more specific a phonetic modification is in terms of its environment or conditioning, the less likely it is that a particular change occurred independently. Unconditioned (regular) sound changes have less value in this regard, as the probability of an independent innovation is higher. Identical sporadic (and therefore irregular) changes in two or more languages are particularly important as diagnostic features for shared innovations. Such changes may be phonetic (phonological) in nature, but also morphological. A good example of this may be found in the Germanic branch of Indo-European. Whereas the common strategy for forming superlatives with adjectives is by way of a suffixation in these languages (or by way of a separate word meaning ‘more’), the superlative for good is suppletive, e.g. better in English or besser in German, as we saw above. Finally, the more identical (or near-identical) innovations one manages to establish between two or more languages, the lesser the chance that these occurred independently. The sharing of a whole series of changes, i.e. the cumulative assembling of arguments pointing in the same direction, is thus of greater cogency for subgrouping.

Rottland (1982: 266) arrives at a four-way branching for the Kalenjin cluster within Southern Nilotic, and furthermore assumes that Nandi and Kipsikiis form a genetic subunit (branch) together with Marakwet as well as Keyo and Tüken, whereas Páokot constitutes a separate branch within Kalenjin. Rottland’s arguments for this genetic subgrouping of Kalenjin and Southern Nilotic as a whole are based on phonological, lexical and morphological innovations as well as lexicostatistical calculations (a method explained below). Innovations in general may be phonological (phonetic), lexical, morphological, or syntactic in nature; they may also involve shared changes in meaning or in pragmatic structures, i.e. the way in which information packaging is structured in a language.
An elegant exemplification of the comparative method using shared innovations for subgrouping is provided by Vossen (1982) for the Eastern Nilotic branch within Nilotic. The modern tripartite division of the Nilotic language family into an Eastern Nilotic, a Southern Nilotic and a Western Nilotic branch goes back essentially to Köhler’s (1948) doctoral dissertation, which was supervised by a leading Africanist of his day, Diedrich Westermann. One important feature shared by Eastern Nilotic, as opposed to other Nilotic, languages, is the distinction between masculine and feminine gender as an obligatory inflectional property of nouns in the former; in Western and Southern Nilotic gender marking is found as a derivational strategy for certain nouns only.

As shown by Vossen (1982: 316–319), a number of lexical innovations support the dichotomy of Eastern Nilotic into a so-called Bari group and a Non-Bari group:

<table>
<thead>
<tr>
<th>Bari group</th>
<th>Ongamo-Maa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lotuxo-Maa</td>
<td>Lotuxo</td>
</tr>
<tr>
<td>Non-Bari group</td>
<td>Teso-Turkana</td>
</tr>
</tbody>
</table>

![Figure 1. The subclassification of eastern Nilotic according to Vossen (1982)](image)

The proposed binary split between a Bari group and a Non-Bari group is further motivated by a number of shared phonological innovations, e.g. the loss of glottalisation as a distinctive (phonological) feature with consonants in the Non-Bari group (as in the verbal root ‘beat severely’ below), or the loss of the low [+ATR] vowel *ä (Dimmendaal 1988, 1995a, 2002). The loss of the causative prefix *i/-i- in the Bari group (as in ‘beat severely’ below) again sets this group apart historically from the remaining Eastern Nilotic languages. Compare the following cognates, whereby Turkana stands for all members of the Non-Bari group, and Bari proper stands for the languages belonging to the Bari group:

<table>
<thead>
<tr>
<th>Turkana (Non-Bari)</th>
<th>Bari (Bari group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-lɔk</td>
<td>-lɔk</td>
</tr>
<tr>
<td>-rem</td>
<td>-rem</td>
</tr>
<tr>
<td>-ɗoŋ</td>
<td>-ɗoŋ</td>
</tr>
<tr>
<td>-pɪr</td>
<td>-pɪr</td>
</tr>
</tbody>
</table>

Why does one claim that the Bari group lost the prefix *i-, rather than claim that Turkana (Non-Bari) and other members of the non-Bari group innovated the prefix? First, the prefixal element *i- is no longer productive in the Non-Bari group; this already suggests one is dealing with an archaism. Second, the same prefix is found as a productive
causative marker outside Eastern Nilotic, e.g. in Southern Nilotic. In other words, so-called external evidence, i.e. comparative evidence from related languages outside the genetic (sub)unit being considered, plays a role as well in determining the direction of change. The same high front vowel is attested as a causative marker in cognate verbs outside Nilotic in a range of Nilo-Saharan languages, and probably dates back to the earliest stages of Nilo-Saharan, as well as outside (Dimmendaal 1983b). The problem of subgrouping thus is the recognition of the existence of a set of changes common to a particular subgroup which has occurred between the period of divergence of the family as a whole and that of the subgroup in question.

So-called retentions are important for reconstructions. However, they do not tell us anything about the subclassification of a group of genetically related languages as they do not require a common or shared historical development. Shared retentions (or shared archaisms, as they are sometimes called) may be retained independently in language after language, and consequently are unvalued clues in this respect. This also means that languages showing phonological or lexical similarities are not necessarily more closely related. Shared obsolescence of specific morphological properties can be of some significance for subgrouping when connected with a functional replacement by another morphological strategy.

It has turned out to be notoriously difficult for another language family, Bantu, to arrive at a subclassification based on notions of shared phonological, lexical and grammatical innovations. Some of the reasons for this are further examined in the chapter on language contact phenomena, Chapter 8. Nevertheless, also in the case of Bantu there are innovations pointing towards specific subgroupings. Compare the following widespread reflexes for the root for 'head'.

<table>
<thead>
<tr>
<th>Language</th>
<th>Reflex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nen</td>
<td>mo-łó</td>
</tr>
<tr>
<td>Boma</td>
<td>mu-tfá</td>
</tr>
<tr>
<td>Luba-Kasai</td>
<td>mu-tu</td>
</tr>
<tr>
<td>Lingala</td>
<td>mo-tó</td>
</tr>
<tr>
<td>Ganda</td>
<td>omu-twé</td>
</tr>
<tr>
<td>Nyamwezi</td>
<td>m-twéé</td>
</tr>
</tbody>
</table>

The root-initial lateral l in Nen corresponds regularly to t in languages like Luba or Nyamwezi. Consequently, the hypothesised shift of *t > l in Nen is regular and provides the easiest explanation for the observed divergence between these Bantu languages. We thus have a widespread lexical root in Bantu for 'head' whose original Proto-Bantu form has been reconstructed as *-tue by Meeussen (1980). There is external evidence, i.e. evidence from more distantly related languages outside Bantu, that this lexical root dates back much further in history. Similar roots are mentioned by Greenberg (1963: 19) in his set of 49 presumed lexical cognates with widespread reflexes across Niger-Congo (the family or phylum to which Bantu belongs). In the examples below,
(historical) morpheme boundaries are indicated, in order to show the original root, even though synchronically these words are mono-morphemic.

Twi $e$-$tí$
Yoruba $o$-$rì$

Twi belongs to the Kwa group within Niger-Congo, whereas Yoruba is widely held to be a member of the Benue-Congo branch within Niger-Congo (with Bantu forming a subgroup within Benue-Congo). There is, in other words, evidence that the widespread root for ‘head’ in Bantu pre-dates the emergence of this latter Niger-Congo subgroup. Consequently, lexical roots in Bantu languages which are not cognate with these forms above, or rather, which are not reflexes of the original Proto-Bantu root, must constitute innovations. In a number of Eastern Bantu languages, for example, we find a historically unrelated root.

Swahili $ki$-$chwa$
Pokomo $ki$-$tswa$

These languages are indeed assumed to form a genetic subgroup within Bantu, known as Sabaki (which includes a number of other languages; Nurse and Hinnebusch 1993). Similarly, in southern Africa there is a group of Bantu languages which appears to constitute a genetic unit within Bantu, known as the Nguni group, as suggested, for example, by the following lexical innovation for ‘head’.

Shona $m$-$sòrò$
Venda $ľhôhô$
N. Sotho $hłôgô$
Zulu (ikhanda)

Given regular sound correspondences between these languages, the forms in Shona, Venda and Northern Sotho must be cognate; there is no evidence that this lexical root can be derived (through regular sound changes) from the Proto-Bantu form *-tue. Whereas there is no evidence that Zulu shares this innovation, because it has a different root for ‘head’, this language nevertheless must be part of the Nguni cluster, because it is otherwise grammatically and lexically extremely close in particular to languages like Venda.

Whereas innovations of the type illustrated for the two smaller Bantu subgroups above can be found throughout the Bantu area, attempts to arrive at a genetic subgrouping for Bantu as a whole on the basis of shared lexical innovations have turned out to be quite complicated. In his mixture of areal and genetic groupings, Guthrie (1967–1971) consequently assigned languages to specific zones. Nen belongs to zone A (where it is labeled A44) Boma to B82, Lingala to C36, Luba-Kasai to L31, Luganda to E15, and Nyamwezi to F22. The fifteen “zones”, indicated by letters between A and
S by Guthrie, are geographically contiguous clusters of such referential zones without any claim as to their genetic status. As pointed out by Schadeberg (1995: 77), “[i]n Bantuist parlance, “groups”, referred to as A10, A20…S.60, are small ensembles of up to ten rather similar languages with a weak claim to being closely related.”

Map 1. The spreading and classification of Bantu

Nurse and Philippson (2003a) investigate around thirty phonological and morphological (rather than lexical) properties as potential diagnostic features. They further emphasise the value of Guthrie’s grouping into zones as a referential, but not a genetic, grouping. Of Guthrie’s fifteen zones, not a single one survives as a self-standing historical unit when using the more classical comparative method, as Nurse and Philippson
(2003a) observe. For example, with respect to zone F, F10 (the Tongwe group), F23 (the Sumbwa language), F25 (Bungu), and F33-34 (Langi and Mbugwe) are taken out, because of doubts about their internal consistency and/or external allegiance. For zone P, P30 (the Makua group) is taken out, and N10 (the Manda group) is added. The N10 group is taken out of zone N, because all other languages assumed to be part of this group “have undergone Bantu Spirantisation (BS), have five short vowels, have no or restricted tonal distinctions, have lost *-a(n)ga [imperfective suffix; GJD] and *-ile [anterior/past suffix; GJD], have reduced their tense distinctions (e.g. have only a single past tense), and have 1sg. ti-; some of these are shared with various combinations of their neighbours” (Nurse and Philippson 2003a: 171).

On the basis of presumed shared innovations such as the ones listed above, Nurse and Philippson arrive at a new subclassification of Bantu into Western (Forest) and Eastern (Northeastern Savannah); this classification is visualised by way of a thick vertical line in Map 1. At the same time, they point out that boundaries of some of the proposed groupings are not absolute. “[G]roups have cores while features diffuse across peripheries, making firm boundaries hard to determine at a stance of several millennia” (Nurse and Philippson 2003a: 173). In their classification four major groupings are distinguished:

- Western (containing the languages of Zones A, B, C, H40, K40, L10, L30-40, parts of M60, possibly some or all of D10-30, and other H and K)
  - Forest (a subset of Western: A, B, C, parts of parts of H, and D10-30)
  - Westcentral (another subset of Western, comprising K10-30-40, L20, L60, R20-30-40, R10?, and parts of H and D10-30)
- Northeastern Savannah (E50, E60/E74a, (northern) F21-22, F33-34, J, NEC, G60 (and maybe G50, Rufiji-Ruvuma, M10-20-30)

The classification by Nurse and Philippson (2003a) constitutes the first systematic subclassification of Bantu based on the comparative method, more specifically based on shared innovations. This raises the question of what the status is of historical reconstructions by influential Bantu specialists like Guthrie (1967–1971). More specifically, is it possible to reconstruct lexical forms without knowing the exact subclassification of a language family? Yes, but the historical level for which a specific (lexical or grammatical) morpheme can be reconstructed is more difficult to determine in such cases. Moreover, we may fail to distinguish between different historical stages concerning morphological developments, as the following discussion should make clear.

20. As pointed out by Gerard Philippson (personal communication), similar problems occur with respect to languages grouped under zone D by Guthrie. Languages like Lega (D25) or Nyanga (D43), for example, are probably more closely related to Northeastern Savannah Bantu.
In his so-called “two-stage method” for Bantu, Guthrie (1967–1971) distinguished two stages or sequential steps. As a first step (“stage one”) regular correspondences are established between the languages compared; on the basis of this, Guthrie (1967–1971) arrives at a set of around 2000 common forms as non-historical constructs combining words from different languages with identical meanings and – this is the crucial point – regular sound correspondences. These belong to what is called “Common Bantu.” The fact that several lexical entries occur more than once already shows that we are not dealing with historical reconstructions in the sense understood within the comparative method. Schadeberg (2003: 153) discusses the following Comparative Series (CS) from Guthrie (1967–1971) in order to illustrate this point:

<table>
<thead>
<tr>
<th>CS</th>
<th>Root Form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1243</td>
<td>*-kutu</td>
<td>‘ear’</td>
</tr>
<tr>
<td>1801</td>
<td>*-tuy</td>
<td>‘ear’</td>
</tr>
<tr>
<td>1809</td>
<td>*-túè</td>
<td>‘ear’</td>
</tr>
<tr>
<td>1813</td>
<td>*-túi</td>
<td>‘ear’</td>
</tr>
<tr>
<td>1950</td>
<td>*-yatú</td>
<td>‘ear’</td>
</tr>
</tbody>
</table>

Guthrie’s starred forms thus represent a symbolisation of a whole set of recurrent patterns. CS 1243, for example, is attested in a number of languages in zone G, H, M, N, and P. CS 1801 derives from correspondences between languages in zones A, B, C, D, E, F, H, L, as well as Z; the latter zone covers the Tiv group and the Ekoid group. CS 1809 involves a second root vowel, assumed by Guthrie to have been added by analogy with the root for ‘head,’ *-túè. It has reflexes in a few languages belonging to zones A, D and L. The other CS with a second vowel, CS 1813, is based on reflexes in zones A, B, C, D, E, G, K, L, M, R Guthrie calls such clusters of synonymous Comparative Series “osculant” clusters. Forms marked additionally with a cross (†) are “multivalent” in the terminology of Guthrie, i.e. they can be entered in more than one Comparative Series because one or more of the patterns in its shape belongs equally to more than one recurrent set. Note that in all instances, Guthrie’s starred forms are based on regular correspondences between groups of languages for the initial root-consonant as well as the following vowels.

Languages with deviant forms (e.g. morphologically derived, semantically shifted forms or otherwise irregular forms) are filtered out at “stage one”, and are not available for reconstruction at “stage two” in Guthrie’s method. This second stage consequently involves languages which have passed this test so to speak, hence their characterisation as “test languages”. The more than 2,100 lexical roots presented as Guthrie’s comparative series (CS) and the starred forms of Common Bantu should therefore not be confused with historical reconstructions, because in a strict sense they are not. From these some 600 actual reconstructions are derived at “stage two”, but these are seen as historical speculations by Guthrie.
Meeussen (1973) expresses criticism concerning the comparative method as used in Guthrie (1967–1971), whose monumental contributions to the comparative study of Bantu languages is nevertheless acknowledged.\(^{21}\) Meeussen (1973) discusses eleven such methodological issues, which are phonological, grammatical and lexical in nature, and the interested reader is referred to the original source for a full discussion. One phonological aspect discussed by Meeussen (1973) concerns the osculance discussed above. In a two-stage comparative method it is extremely difficult to obtain more than the observations and conclusions as made by Guthrie: “In an adequately developed one-stage method one is led to try and make full use of all kinds of data in order to reduce as much as possible the variations found between similar correspondences”.\(^{22}\) Schadeberg (2003) shows what such reasoning, taking into account knowledge about phonology and grammar, could look like in the case of ‘ear’. The element -\( *k\_\_t\_ \) in CS 1243 above, for example, is the result of the incorporation of this former noun-class prefix. Given its widespread distribution and the fact that (as with the root for ‘head’) its origin cannot be predicted, the second root vowel must be original. Schadeberg (2003: 153) therefore claims that “the superior reconstruction is \( *k\_\_t\_i \) (classes 15/6), from which the other forms are derivable by regular sound change and by morphological reanalysis”.\(^{22}\) Although languages usually manifest some variation, it is rather unlikely that the original language had that many different terms for ‘ear’ (or any other entry occurring several times as a Comparative Series in Guthrie’s study).

When lexical roots and grammatical properties are attested in a wide range of Bantu languages, they are likely to go back to Proto-Bantu, in particular taking into account the genetically more diverse northwestern area of Bantu (zones A, B, C) as well as in languages from the eastern and southeastern Bantu zones. The great Bantuist Meeussen was fully aware of these conditions; moreover, he was also fully aware of the wider genetic links of Bantu as part of the Benue-Congo branch within Niger-Congo, i.e. of potential external evidence for lexical and grammatical roots. Meeussen (1980) presents Proto-Bantu lexical reconstructions in the sense understood within the comparative method. Where possible, his Proto-Bantu reconstructions are used in the present study rather than the comparative series listed in Guthrie (1967–1971), also with respect to grammatical reconstructions (for these see Meeussen 1967).

As we shall see later, the family tree as a metaphorical representation of genetic relationship within the comparative method has been criticised on a number of counts.

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\(^{21}\) The contributions by Meeussen were always concise and to the point, reflecting a deep insight and understanding of Bantu language structures and their historical origin (as the present author, who took classes on comparative Bantu with Meeussen as an undergraduate student, experienced).

\(^{22}\) Note that Schadeberg (2003) writes \( y \) (in the symbolism used by Guthrie and Meeussen) as \( u, u \) as \( o, i \) as \( i \), and \( i \) as \( i \).
Indeed, the tree model represents an abstraction to some extent, which consequently has its shortcomings. As a model it basically represents historical divergence as a result of innovations, whether shared or not. But we know that apart from divergence, there is convergence between languages, i.e. genetically related as well as unrelated languages may also copy features from each other.

A second point of criticism of the comparative method concerns the fact that we normally are not able to reconstruct internal (dialectal) variation for proto-languages. But languages are almost never homogeneous. Even if we can reconstruct some variation, we cannot be sure that this variation was part of the reconstructed proto-language, or whether it reflects subsequent stages, where different languages had already emerged.

It is sometimes argued that the reconstruction of the common ancestor of the Romance languages on the basis of the comparative evidence does not result in the reconstruction of Latin as we know it from written sources, and so there must be something wrong with the comparative method. But this appears to be due to another reason. The modern Romance languages probably developed from a Vulgar ("plebs") Latin spoken by the majority of those who colonised the regions where Romance languages are spoken today, and which thus was not identical with the Latin used in most written texts. It is true, however, that when a property is lost in all daughter languages, it is no longer possible to retrieve full details of the original system. Consequently, a potentially incomplete picture may emerge. But this of course is true for any historical research, regardless of the model of representation or the method one chooses.

A more serious type of criticism, as it affects the basic premises of the method, concerns the question whether the family tree model constitutes the only correct representation of genetic relationship. As should become clear from the discussion in Chapters 7 and 8, dialects as well as genetically related languages may influence each
other. In other words, there is not only divergence (as represented in a family tree), but also convergence between dialects and related languages. What the potential consequences of this are for the family tree as a (metaphorical) representation, is best understood once convergence phenomena have been illustrated. It should suffice here to state the present author’s position on this issue, namely that the family tree is robust enough to be able to cope with such complications. Alternative models, however, are further discussed in Chapter 12.

The genetic unity of language families like Indo-European is beyond any reasonable doubt. Also, lower-level units like Germanic, Romance, or Celtic are well-established. But there is considerable disagreement about higher-level subgroupings. For example, do the Romance and Celtic languages form a genetic subgroup within this family? The situation is not any different for African language families. The genetic unity of the Afroasiatic phylum is widely accepted, and so are lower-level subgroupings like Berber, Ancient Egyptian and Semitic. But the question whether these in turn form a larger unit as opposed to Cushitic and/or Omotic within this phylum, for example, divides scholars. The frequency with which subclassifications involving intermediate levels for Afroasiatic, or any of the other African phyla replace each other, is indicative of the uncertainties associated with such exercises. One important reason for this appears to be lack of (sufficient) evidence for shared innovations at deeper historical levels. There have been attempts to use an alternative method, lexicostatistics, to arrive at more detailed subclassifications. But as the next section should make clear, this method itself is rather controversial.

### 3.2 Lexicostatistics

In their comparative studies of Eastern Nilotic and Southern Nilotic languages respectively, Vossen (1982) and Rottland (1982) both use an additional classificatory method in order to arrive at a proper understanding of internal genetic relationships, namely lexicostatistics. This statistical method, which has also been applied by various other Africanists, was developed in the 1950s mainly by an anthropological linguist and specialist of Amerindian languages, Swadesh (e.g. 1950), as a parallel to a specific method used in archaeology, namely the radio-carbon dating (C14) method.\(^{23}\) Linguists had been looking for similarly accurate methods for the dating of languages, and the time they had split off from related languages. This is how lexicostatistics was born. Through

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\(^{23}\) This method makes use of specific laws of physics: A certain isotope of carbon (carbon-14) is absorbed by living organisms, and decays after their deaths; the rate with which this decay occurs is relatively fixed. Consequently, such organic material can be dated relatively accurately.
an investigation of languages for which ancient written sources were available and therefore covering a certain time span, such as Ancient Egyptian, Latin and its modern Romance descendants or English in its various historical stages, an attempt was made to determine the number of retentions particularly in basic vocabulary, over a period of 1000 years. The most important premise of the lexico-statistic method is the assumption that the rate of change, or more specifically the rate of replacement, in the basic vocabulary of a language is more or less constant across languages.

Swadesh (1950) put forward a specific algorithm for deriving the time scale for vocabulary loss:

\[ t = \frac{\log c}{2 \log r} \]

Here \( t \) represents the elapsed time (in millennia), calculated on the basis of percentage of shared cognates between two languages. If these share about 70 per cent of their basic vocabulary, the percentage of shared cognates \( c \) is 0.7. The original rate of rate of retention \( r \) for the so-called Swadesh wordlist (of 100 or 200 basic words) was estimated at around 86 per cent, i.e. after 1000 years around 86 per cent of the core vocabulary is still retained. Thus, \( r = 0.86 \). This would result in the following figures:

\[ t = \frac{\log 0.7}{2 \log 0.86} = \frac{-0.357}{2(-0.151)} = 1.182 \]

The resulting figure represents the period elapsed ever since the two languages split (1.182 years in this case). Scholars using this method have often left out languages sharing 90% or more of their basic vocabulary from consideration in lexicostatistic countings, because, it is argued, they are too similar to allow graded assessments of relative similarity. The upper 80 figures usually apply to dialects of one and the same language. Values below 20% are often left out of consideration as well because there are too few cognate words for statistical evaluations.

If the rate of change, i.e. vocabulary loss, is indeed relatively constant, one should be able to derive a family tree. After all, for each pair of languages one should be able to determine the number of innovations. In actual practice, the application of the method turns out to be more complex. First, calculations do not always result in a uniform tree diagram. Compare the following percentages between three hypothetical languages reflecting the percentage of cognates these languages share.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>50</td>
<td>-</td>
</tr>
</tbody>
</table>

\[ A \quad B \quad C \]
Here, A and B share the highest cognate rate, 70. The rate between B and C is 50 percent, and between A and C 30. If we choose the smallest genetic distance (as reflected in the percentage), we would take the so-called Nearest Neighbour (NN) for our calculations. If we were to take the largest distance (between A and C, namely 30), we would take the Furthest Neighbour (FN) as a basis. If we were to choose the average distance, we would get $50 + 30 = 80$ divided by $2 = 40$. Consequently, a lexicostatistic method taking this potential complication into account works with a so-called group average or branch average. When calculating the individual distances between languages from one group and the languages from the other group one may arrive at a hierarchical cluster analysis.

Another intricacy involved in the application of the lexicostatistic method concerns cognation judgements, as the earliest applicants of the method were aware of. Whether word x in language a, and word y in language b, are historically related, i.e. cognate, can only be established on impressionistic grounds, since one’s judgement is based on what constitute “look-alikes”.

The principled assumption in lexicostatistics is that there is a direct proportional relation between the number of innovations and the time elapsed since two languages diverged from each other. Sometimes, a distinction is made between lexicostatistics and glottochronology. With the latter method, not only the percentage of vocabulary retention for languages is assumed to be constant, but it is also claimed that the dates of differentiation between genetically related languages can be determined. But of course lexicostatistics and glottochronology cannot be separated from each other. Claiming that one accepts the validity of lexicostatistics, but not that of glottochronology, does not make sense. After all, if the rate of change is not constant, no tree can be deducted; if the rate of change is regular, it should also be possible to arrive at an absolute dating.

Criticism of the basic premise that language changes at a constant rate was already expressed soon after the method was introduced. The most serious problem involves the assumption that the rate of change in languages can be averaged. Old Norse and Modern Icelandic share 96% cognates; this would produce a glottochronological time depth of 258 years, according to Bergsland and Vogt (1962), which is known to be wrong; the two languages diverged at a much earlier period in time. French and Italian share around 83 percent basic vocabulary, which yields a separation date of A.D. 1586, a time when the languages had already been distinct for perhaps a thousand years (Trask 1996: 364). Compare also Kastenholz (1996: 35–38) for a critical assessment of lexicostatistical results with respect to Mande. The most thorough and detailed criticism of lexicostatistics as a historical method probably is to be found in Blust (2000).
The idea that similar systematic rules might apply to the historical development of languages, however ingenious it may have been at the time of its initiation, is misguided. Nevertheless, lexicostatistics is sometimes used as a “quick method”. Whereas most scholars today seem to be aware that the premise about the constant replacement rate does not hold, many still like to use lexicostatistics, as a “convenient” method. Applying the comparative method by establishing shared innovations and a corresponding sub-classification can after all be a time-consuming enterprise. For example, Pasch (1986: 377), in her study of the Mba group within Ubangi, uses lexicostatistics as a supplementary method to the more traditional comparative method.

In spite of the criticisms, linguists continue to use the method, though mostly combined with the comparative method, also presumably because of the elegant mathematical nature of the lexicostatistical model. A group of researchers from the Musée Royal de l’Afrique Centrale in Tervuren (Belgium) and the School of Oriental and African Studies of the University of London developed a slightly modified wordlist in their lexicostatistic sub-classification of Bantu. Thus, instead of ‘I, thou, we; these languages may have more extensive sets (dualis, inclusive-exclusive) which may also involve bound morphemes or free independent morphemes (with the two forms not necessarily being cognate). Also, grammatical categories are not crucial in this modified list. (Colour terms may be rendered through adjectives in English, but as stative verbs in an African language.) Given these (and other) modifications, the so-called “Tervuren list” is more appropriately characterised as a “meaning list”, rather than a wordlist.

Even if one treats lexicostatistics as a stochastic (probabilistic) model rather than a deterministic one, it should be kept in mind that the basic premise that the average rate of replacement of core vocabulary over a millennium is relatively constant is not supported by empirical facts. People live under different social conditions. Obviously, the internal dynamics of languages (e.g. taboo as a factor) as well as multilingualism (language contact) affect the rates. Moreover, any single replacement can be lost in subsequent periods of time.

How well-established is the classification of African language families like Afroasiatic or Niger-Congo in fact? And, how solid is our current knowledge about the subclassification of these families? As the following brief survey should make clear, it is extremely difficult to arrive at convincing subgroupings for deeper time levels on the basis of the comparative method, and there is also controversy about the genetic affiliation of specific language groups. Several lower-level units on the other hand have come to be accepted as valid genetic groupings.
3.3 Mass comparison

Mass comparison, or multilateral comparison, was already applied by Koelle (1854), as we saw in Chapter 1. But within an African context it is best known through the scholarly work one of the most prolific Africanists and linguists of the 20th century, the late Joseph H. Greenberg. In a series of articles on the genetic classification of African languages published between 1949 and 1954 in the *Southwestern Journal of Anthropology*, and reprinted in book form in 1955, Greenberg divided the languages spoken on the African continent into sixteen distinct groups (excluding Malagasy, spoken in Madagascar, which belongs to the Austronesian family).

I. Niger-Congo
II. Songhay
III. Central Sudanic
IV. Central Saharan
V. Eastern Sudanic
VI. Afroasiatic
VII. Click
VIII. Maban
IX. Mimi
X. Fur
XI. Temainian
XII. Kordofanian
XIII. Koman
XIV. Berta
XV. Kunama
XVI. Nyangiya

Mass comparison was a method for discovering valid relationships, i.e. a discovery procedure, "especially intended to probe remote relationships; it was never meant to be a formal method for providing proof", as observed by Greenberg in an interview with Paul Newman (Newman 1995: 9).

How does one reduce the interference of accidental similarities or borrowing when applying mass comparison as a method? First, by comparing words that are not borrowed easily, namely essential (core) vocabulary (body part terminology like 'drink' or 'eat'). Moreover, by taking into account a large number of words, rather than individual word pairs, a pattern (of cognacy) should emerge. Finally, and this is why the method involves multilateral comparison, a range of languages should be compared. The greater the number of languages compared, the less significant the role played by chance is. If the degree of similarity is greater than chance, genetic relationship becomes a likely hypothesis.24 Such multilateral comparisons, in contrast to the comparative method, thus involve probabilistic methods of investigation.

According to Newman (1995: 19), "[t]he three key elements in Greenberg’s approach were: (a) focusing clearly on evidence leading to a historical/genetic

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24. Ringe (1992) has pointed out that factors such as the frequency and the distribution of phonemes in a particular language must be taken into account as well.
classification as opposed to data relating to questions of language typology or language contact; (b) eliminating the misleading "noise" provided by racial and cultural considerations, and (c) developing a broad "wide-angle" perspective comparing a large number of languages together rather than proceeding pair-wise in a step-by-step fashion. A short digression into the history of African language classification shows why these elements in Greenberg's scientific work were quintessential for the development of the field.

The languages of Southern Africa had been divided into two groups, Bantu (Kaffern-Familie) and a Nama-Bushman family, by Lichtenstein (1808) who used essentially typological criteria, such as the presence of classes versus gender, or clicks. After Champollion had published his *Précis du système hieroglyphique* (1824), containing the decipherment of hieroglyphic Egyptian, others set out to point out similarities between this language and the Semitic languages known at the time. Renan (1855) may have been the first author to use the term Hamitic (from Ham, the second son of Noah). He considered languages such as Oromo (then called Galla) and Saho-Afar to be "sub-Semitic" (Hayward 2000: 84). Thus, at the beginning of the second half of the 19th century, Hamito-Semitic, Bantu, and a Nama-Bushman group had been recognised.

A professor of Sanskrit and comparative linguistics at the University of Vienna, Friedrich Müller, set out to classify the languages of the world in four volumes published between 1876 and 1888. With respect to the African continent, Müller arrived at a six-fold classification in which racial and typological features of languages played an important role. His Hamito-Semitic grouping included Berber and the Cushitic languages known at the time. Müller further distinguished between Nuba-Fula, Negro, Bantu, and Nama-Bushman.

Lepsius, a contemporary of Müller, arrived at a three-way classification of African languages in versions of his classification between 1863 and 1880. Typological criteria again played an important role in his grouping. According to Lepsius, Bantu (constituting a so-called Southern zone) as a genetic group used prefixes, whereas Hamitic and Semitic languages (so-called languages of the Northern Zone) used suffixes and had gender distinctions, contrary to Bantu. Based on the dominant hypotheses of those days that languages develop from morphologically complex into more reduced systems, Bantu languages were assumed to represent an original stage, whereas languages of the so-called Middle Zone were assumed to be a mixture of Bantu-languages (Bāntu-Negersprachen) and Hamitic languages further to the north, so-called "Mixed-Negro languages" (Misch-Negersprachen). This Middle Zone contained "proto-African" languages and infiltrating Asian languages, but also Bushman and Hottentot.

Cust (1887) was influenced by the classificatory work of Müller. He distinguished between a Semitic and a Bantu family as genetic units, as well as a Hamitic group, a
Nuba-Fula group, a Negro group and a Hottentot-Bushman group; the classificatory notion "group" referred to a typological (or geographical) clustering, rather than a genetic unit with a common origin.

Typological features and physical anthropological or cultural attributes of speakers thus played a role in many of the 19th century endeavours concerning the genetic classification and subgrouping of African languages. The gradually emerging concept of language mixture was defended most vigorously in Meinhof (1912), Die Sprachen der Hamiten (The Languages of the Hamites). It was claimed that Nilo-Hamitic languages were Hamitic languages spoken in the Nile valley. Meinhof (1912: 211–25) took Maasai as an example to illustrate his claims on language mixture; the latter was claimed to represent an ancient "pre-Hamitic" form influenced by Sudanic languages. (The term Sudanic as a linguistic label had been proposed by Westermann (1911); see below.) The presence of gender distinctions in languages such as Maasai, a typological feature also found in languages then called Hamitic, played an important role in this taxonomy.25 Fulani (in West Africa) represented a survival of archaic Hamitic, Bantu was a mixture of a Fulani-like language and Western Sudanic languages, whereas so-called Hottentot had a Hamitic base influenced by Bushman. The extent and meaning of the presumed "Hamitic component" in Maasai and other languages was to become a major issue in the next few decades. Meinhof in fact became one of the most influential propagators of the Hamitic ideology. At the same time, he was the founding father of the historical-comparative study of Bantu languages, and thereby the first scholar to apply the comparative method to an African language family, e.g. in Meinhof (1899, 1906). His important contributions in the latter domain are still acknowledged today.

As Meinhof’s student, Westermann, noted, eastern representatives of the so-called Sudanic languages matched badly with the rest. This led Westermann (1912: 33) to a postulation of three groups of Sudan(ic) languages: Western Sudanic, Central Sudanic, and Eastern Sudanic. Western Sudanic consisted of six families, according to Westermann (1927): Benue-Cross, Kwa, Gur, Mandingo Togo Restsprachen and West Atlantic. The statements on the nature of these relationships as understood by Diedrich Westermann are somewhat ambiguous, as pointed out by Miehe (1991: 5), since Westermann (1927: 5–6) referred to languages which possess "altererbten Gemeinbesitz" (ancient, inherited common features) in terms of sound structure, morphology and grammar. Whether he believed this was due to some extent to influence in Kwa-languages (which had no or restricted noun-class systems) from languages with noun-class systems cannot be excluded since Westermann (1927: 3) used the word “eingedrungen” (infiltrated).

Another author who made his contribution to the classification of African languages before Joseph Greenberg started his seminal work was the French scholar Maurice Delafosse. Delafosse (1924) arrived at a classification of African languages into 16 groups, classifying Songhay with Mande plus Dogon in a Nigero-Senegalais Group, for example.

In a revised classification, Westermann (1940) arrived at a modified classification of languages on the African continent. Next to Nama and Bushman, he distinguished between Hamito-Semitic and so-called Negro languages (Negersprachen): Nilotic, Bantu, and Sudanic, with the latter in turn divided into Nigritic, Mande, and Semi-Bantu. It was not until 1949 that Westermann made less ambiguous statements about the obvious genetic relationship between and common origin of the so-called Western Sudanic languages and Bantu, based on the lexicon, formal (grammatical) features and sound changes.

Greenberg initiated his classificatory work on African languages in the late 1940s and early 1950s when he established, amongst others, a Macro-Sudanic family, consisting of Eastern Sudanic, Central Sudanic, Berta and Kunama; Macro-Sudanic was subsequently renamed Chari-Nile, after the two major rivers in the area.

A further contribution of Greenberg consisted of the classification of Chadic languages as members of a phylum until then usually referred to by the name Hamito-Semitic. Greenberg argued in favour of the label Afroasiatic for this phylum, as there is no evidence that Semitic forms a coordinate branch with the remaining, so-called Hamitic group. The genetic diversity between the latter groups – or even within Chadic or Cushitic – is much bigger than within Semitic. Also, “Hamitic” as a concept had developed racist connotations during preceding decades, in particular after Meinhof’s (1912) publication of Die Sprachen der Hamiten, which constituted a mixture of genetic and typological as well as (physical) anthropological criteria. Hamitic languages, according to Meinhof, originally were spoken by stock-keeping peoples of Caucasian stock. Because of these racial (and racist) overtones of earlier classificatory attempts, the term Hamito-Semitic was replaced by Afroasiatic.26 Greenberg pointed out that typological criteria (language type) and genetic criteria (form/meaning relationships) should not be mixed. He also presented clear cut evidence for a genetic relationship between Western Sudanic and Bantu. This newly established family was called Niger-Congo by Greenberg (1955).

As argued by Newman (1995: 5), “Greenberg’s success in the African area was due not to the development of new techniques […], but rather to the elaboration of an insightful and productive scientific viewpoint”. Greenberg was aware of the fact

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26. Delafosse (1914) already used the term ”Afro-asiatique”, although Chadic was not included in this subgrouping at the time. The term ”Hamito-Semitic” or ”Semito-Hamitic” is still commonly used among scholars from Eastern Europe (Takács 1999).
Chapter 3. Classification and subclassification techniques

that some of the earlier classificatory work had become beset by a confusion between language, culture and race. Debunking the linguistic foundations of the Hamitic hypothesis and related issues thus became one of his primary aims.

Greenberg (1955) also attacked the unity of the “Sudanic” concept. Instead, he postulated a Niger-Congo family (essentially covering Westermann’s Western Sudanic languages) with Bantu as a relatively recent, low-level offshoot of a more extended family, Benue-Congo, one of the six primary branches of Niger-Congo, which consisted of the following subgroups:

1. Atlantic
2. Voltaic
3. Mande
4. Kwa
5. Benue-Congo
6. Adamawa-Eastern

In his 1963 classification, Greenberg added a group of languages spoken in the Nuba Mountains, in Sudan, and known by the name Kordofanian to his Niger-Congo family. This phylum was called Niger-Kordofanian.

Based on a judicious evaluation of the available data, Greenberg (1963) also pulled together several disparate groups considered to be linguistic isolates in his 1955 classification and known primarily through the pioneering work of Tucker and Bryan (1956), into a new phylum called Nilo-Saharan of which Chari-Nile (formerly called Macro-Sudanic) formed the core, with Songai (or Songay), Saharan, Maban plus Mimi, For (or Fur), and Koman as additional primary branches. These had been treated as isolated families or languages in his 1955 classification, as shown in Table 12.

One further modification proposed in Greenberg (1955) was the establishment of a language family termed “Click languages”. This phylum, which was renamed Khoisan in Greenberg (1963) after the name Khoi used by people known as Hottentots in earlier literature, and their name for the Bushman, San. Khoisan consisted of Northern, Central and Southern Khoisan, and also included two languages in Tanzania, Hadza and Sandawe. In this way, his 1955 grouping into sixteen families or phyla was reduced to four in his 1963 classification.

Scholars from the School of Oriental and African Studies, University of London, had been rather critical of Greenberg’s attempts to develop a new genetic classification ever since his first publications on the subject in the 1950s. However, the criticism continued after the publication of Greenberg (1963). The Bantu specialist Malcolm Guthrie in fact assumed that Bantu was not genetically related to languages in West Africa. Also, scholars like A. N. Tucker and Margaret Bryan in their classificatory work (Tucker and Bryan 1956), assumed a much higher degree of genetic diversity.
in north-eastern Africa. In their survey of West African languages, Westermann and Bryan (1970) also arrived at a higher number of distinct and unrelated language families. They distinguished between language groups (related languages or dialect clusters) and larger units (the widest genetic unit posited); so-called single units belonged to a language unit, while not sufficiently related to any other to form part of a language group. The result was a genetic classification into more than twenty units and isolates, also grouped along typological features such as “class languages” or “non-class languages”, all of which had been treated by Greenberg (1963) as members of the Niger-Congo phylum.

It is easier to assess our current state of knowledge once additional features relevant for subclassification techniques and the historical developments of languages have been discussed, such as the role of morphosyntactic changes or areal contact. The issue of Greenberg’s ”long-range comparisons”, and language phyla proposed on the basis of this method is therefore taken up again in Chapter 14.

<table>
<thead>
<tr>
<th>Table 12. The subclassification of Nilo-Saharan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenberg 1955</td>
</tr>
<tr>
<td>Songhay (II)</td>
</tr>
<tr>
<td>Central Saharan (III)</td>
</tr>
<tr>
<td>Maban (VIII)</td>
</tr>
<tr>
<td>Mimi (IX)</td>
</tr>
<tr>
<td>Fur (X)</td>
</tr>
<tr>
<td>Nyangiyani (XVI)</td>
</tr>
<tr>
<td>Taiminian (XI)</td>
</tr>
<tr>
<td>Nubian</td>
</tr>
<tr>
<td>Beir-Didinga</td>
</tr>
<tr>
<td>Barea</td>
</tr>
<tr>
<td>Tapi</td>
</tr>
<tr>
<td>Nyimang</td>
</tr>
<tr>
<td>Merarit</td>
</tr>
<tr>
<td>Dagu</td>
</tr>
<tr>
<td>Nilotic</td>
</tr>
<tr>
<td>Great Lakes</td>
</tr>
<tr>
<td>Central Sudanic (III)</td>
</tr>
<tr>
<td>Berta (XIV)</td>
</tr>
<tr>
<td>Kunama (XV)</td>
</tr>
<tr>
<td>Koman (XIII)</td>
</tr>
<tr>
<td>Eastern (V)</td>
</tr>
<tr>
<td>Sudanic</td>
</tr>
<tr>
<td>Macro-Sudanic</td>
</tr>
<tr>
<td>Chari-Nile</td>
</tr>
</tbody>
</table>
The history of language classifications in an African context is an interesting one, also in the light of colonialism and theories of language evolution, and obviously deserves more space than can be allotted to it in the present monograph. Irvine (2008), for example, gives an interesting account of the study of African languages in the colonial era. The reader interested in further details on the classificatory history of African language is referred to this interesting contribution as well as Gregersen (1977: 87–105) and the detailed account by Doneux and Rey (2003), Childs (2003) as well as Campbell and Poser (2009: 120–145). We shall first investigate the question to what extent the comparative method has been used with respect to different language families on the African continent.

3.4 The comparative study of African language families: A brief summary

As pointed out by Newman (1970: 39), “[t]he proof of genetic relationship does not depend on the demonstration of historical sound laws. Rather, the discovery of sound laws and the reconstruction of linguistic history normally emerge from the careful comparison of languages already presumed to be related”. As we saw in the preceding section, Greenberg’s method of mass comparison provided a new and important impetus to the overall grouping of the roughly 2000 languages spoken on the African continent. His classification constituted a hallmark in a tradition of genetic classification going back at least a century. To what extent, then, has the unity of these African language families been confirmed on the basis of the more classical (Neogrammarian) methods of shared (phonological and morphological) innovations or other methods instead?

Hayward (2000: 74) states that “Afroasiatic […] is probably the least controversial of the four phyla of languages proposed by Greenberg for the African continent”. The genetic unity of Berber, Chadic, Egyptian and Semitic is well-established. Controversy occurred over the question of whether Greenberg’s grouping of so-called Cushitic languages. According to Greenberg (1963), the latter branch of Afroasiatic consists of: (1) Northern Cushitic, (2) Central Cushitic, (3) Eastern Cushitic, (4) Western Cushitic, and (5) Southern Cushitic. However, in a sequel to Greenberg’s classification, Fleming (1969) proposed to excise one group then called West Cushitic from Cushitic and to accord it the status of a separate primary branch within Afroasiatic, called Omotic (after a major river in the area, the Omo). The position of Northern Cushitic (Beja), and more specifically the question whether it should be excluded from Cushitic as well, forming an earlier branch of Afroasiatic like Omotic, also remains a contentious issue.

The historical-comparative study of Semitic languages has a long tradition. Data on these languages are attested in written form from a very early date, more specifically in texts in Eblaite and Akkadian appearing from around the middle of the third
millennium BC. Important contributions on the comparative study of Semitic are Wright (1891), Cohen (1947), Moscati (1969) as well as Lipinski (2001). Updated synchronous and diachronic studies of this branch are presented in Hetzron (1997) as well as Bender, Takács and Appleyard (2003), where this phylum is referred to as “Afrasian”.

Berber consists of a group of relatively closely related languages (or lects) within Afroasiatic, whose internal relations and historical development have been studied, amongst others, by Chaker (1995), Kossmann (1999), Naït-Zerrad (1999) and different authors in the collection edited by Ibriszimow, Voßen and Stroomer (2006). See also Orel and Stolbova (1995) and the collection of articles in Frajzyngier (to appear).

Different sub-branches of Cushitic have been studied using the comparative method. Thus, Sasse (1979) presents a first approximation of the consonant system of Proto-Eastern Cushitic, whereas subgroups within the latter such as Lowland East Cushitic are reconstructed in Black (1974); Hudson (1989) investigates Highland East Cushitic, Appleyard (2006) studies the Agaw (Central Cushitic) languages, whereas Kießling and Mous (2003) provide an in-depth study of Southern Cushitic.

Newman and Newman Ma (1966) and Newman (1977) constitute the first detailed historical account using the comparative method of the phonological development of Chadic languages. Newman (1977) arrives at a four-way distinction between West Chadic, Biu-Mandara, East Chadic, and an isolated branch formed by the Masa group, using shared innovations as criteria. For example, a historical change *hl > *l is posited as a shared innovation of West Chadic A (as one of the two subbranches of West Chadic). An additional, shared innovation of West Chadic A was a shift of *s > s (thus involving a merger of two formerly distinct sound units). In addition, West Chadic A as a genetic subgrouping is motivated by common lexical innovations, *wuti ‘fire’ (replacing Proto-Chadic *aku /*akwa), and *bulu ‘two’ (replacing Proto-Chadic *sǝr). In the Biu-Mandara branch, *s shifted to and merged with *hl, whereas *b became *v (Newman 1977: 13–16). Newman (1977) further includes 150 Chadic etymologies. Additional comparative data on the Chadic branch within Afroasiatic are presented in Kraft (1981), Jungraithmayr, Shimizu, and Knowlton (1981), Jungraithmayr and Ibriszimow (1994), and Stolbova (1996). Newman (2006) presents an update of the state of the art within comparative Chadic.

First approaches towards the comparative study of Omotic can be found in Hayward (1990, 1998). A scholar who has also been prolific in the comparative study of Nilo-Saharan languages, M. Lionel Bender, also investigated Omotic (Bender 2003).

Whereas Greenberg’s (1963) stipulation of Afroasiatic, Niger-Congo, and Nilo-Saharan as language phyla has met with increasing consent over the past decades, Khoisan is viewed by most specialists for these languages as a label for an areal, rather than a genetic, grouping. Whereas Northern, Central, and Southern Khoisan each appear to be well-established groups of genetically related languages, their
interrelationship is widely disputed. Also, the Hadza language in Tanzania is widely held to be a linguistic isolate, rather than a member of a Khoisan phylum. Compare the following classification by Güldemann and Vossen (2000):

1. Non-Khoe
   1.1. Ju (Northern Khoisan)
   1.2. !Ui-Taa (Southern Khoisan)
   1.3. ≠Hõã (isolate, genetically unassigned)
2. Khoe (Central Khoisan)
   2.1. Khoekhoe
   2.2. Kalahari Khoe
3. Sandawe
4. Kwadi
5. Hadza

In the present study, the geographically oriented labels Northern, Central and Southern Khoisan are retained, rather than the names containing clicks, because of their attractiveness as mnemonic devices.

Laying to rest Meinhof’s ill-founded hypothesis on the “Hamitic” affiliation of Khoe-khoe was probably Greenberg’s most important contribution to Khoisan studies, as argued by Güldemann (2008a). Voßen (1997) presents the first historical study of Central Khoisan languages (of which Khoekhoe is a member) using the comparative method. The results of his contribution have been taken up by Güldemann and Elderkin (to appear) for a systematic lexical and grammatical comparison with the (now extinct) Kwadi language in Angola, as well as with Sandawe in Tanzania. The authors arrive at the conclusion that there is considerable evidence for a genetic relationship between Kwadi and the Khoe language group, i.e. Central Khoisan. Evidence for the proclaimed genealogical link involves formal similarities in the person-gender-number marking and lexical correspondences, as the following examples help to illustrate.27

<table>
<thead>
<tr>
<th>Proto-Khoe</th>
<th>Kwadi</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>pa</em></td>
<td>pa</td>
</tr>
<tr>
<td><em>pi</em></td>
<td>pi-/bi-</td>
</tr>
<tr>
<td><em>kum</em></td>
<td>kum</td>
</tr>
<tr>
<td><em>kx’a</em></td>
<td>k’a</td>
</tr>
<tr>
<td><em>lui</em></td>
<td>lui</td>
</tr>
<tr>
<td><em>’ao</em></td>
<td>’o</td>
</tr>
</tbody>
</table>

27. The decipherment of Hittite in fact, after much controversy as to its Indo-European character, was possible on the basis of survivals in only a few words of grammatical elements that were productive elsewhere.
Regular correspondences between Khoe languages and Kwadi also lead the authors to conclude that the lateral click was lost in the latter:

<table>
<thead>
<tr>
<th>Proto-Khoe</th>
<th>Kwadi</th>
</tr>
</thead>
<tbody>
<tr>
<td>ǀǀ au</td>
<td>'au</td>
</tr>
<tr>
<td>ǀǀ xobe, *?xode</td>
<td>xoe</td>
</tr>
</tbody>
</table>

An original click replacement of *! > k, still reflected through variation within the Khoe group synchronically, was completed in Kwadi where the stop subsequently became a fricative:

<table>
<thead>
<tr>
<th>Proto-Khoe</th>
<th>Kwadi</th>
</tr>
</thead>
<tbody>
<tr>
<td>*!am, kam</td>
<td>xami</td>
</tr>
<tr>
<td>*!a, *ka</td>
<td>xa, xe</td>
</tr>
</tbody>
</table>

The lexical and grammatical reconstructions arrived at for their common ancestor, Proto-Khoe-Kwadi, have been used by the same author for a comparison with Sandawe. Again, the formal similarity of the person-number-gender markers of the two linguistic units is striking.

<table>
<thead>
<tr>
<th>Sandawe</th>
<th>Proto-Khoe-Kwadi</th>
</tr>
</thead>
<tbody>
<tr>
<td>tsi</td>
<td>*ti</td>
</tr>
<tr>
<td>ha</td>
<td>*sa</td>
</tr>
<tr>
<td>he</td>
<td>*xa</td>
</tr>
</tbody>
</table>

Additional formal similarities between Khoe-Kwadi and Sandawe occur in the demonstrative system as well as in their verbal morphology. Güldemann and Elderkin (to appear) consequently call the hypothesis for a common genetic origin “promising”.

It is sometimes claimed that Nilo-Saharan is the least well established phylum on the African continent (compare, for example, Bender 2000: 43 for such a statement). There is a widespread consensus among scholars that Eastern Sudanic constitutes a valid subgrouping within Nilo-Saharan, but scholars differ in their assessment of the wider affiliation of Eastern Sudanic, and the question whether groups like Coman plus Gumuz, Kuliak (Rub) or Songhay are part of the Nilo-Saharan phylum. Considerable work has been done on lower-level units within Eastern Sudanic, in particular on Nilotic (Rottland 1982; Vossen 1982; Dimmendaal 1988; Andersen 1990). Nilotic's closest relative, Surmic, has been investigated from a historical-comparative point of view by Yigezu (2001). Comparative studies have also been carried out for other Eastern Sudanic groups, e.g. Thelwall (1981) on Daju, or Bender (1998b) on Jebel. With respect to the Tama group, Edgar (1991) has initiated historical comparison using Neogrammarian methods. Bender (2005) is a first attempt to arrive at a better understanding of the historical development of Eastern Sudanic as a major subgroup of the Nilo-Saharan phylum.
Chapter 3. Classification and subclassification techniques

The Kuliak (Rub) languages, also grouped under the Eastern Sudanic branch by Greenberg (1963), have been investigated from a comparative point of view by Heine (1976a). For the Saharan branch, a number of comparative studies also exist, e.g. Cyffer (1996). Tucker (1967) is still a rich source for comparative data on Central Sudanic. The historical development of Central Sudanic languages has been investigated, amongst others, by Thayer (1976) and Boyeldieu (2000). Bender (1994) constitutes a first attempt to arrive at a reconstruction of lexical and grammatical features of the Coman group plus Gumuz. What is needed, however, in order to make further progress in our understanding of the historical development of these languages and their wider genetic affiliations are detailed synchronic studies of the extant members of Coman and of Gumuz.

As argued by Greenberg (1955, repeated in his 1963 publication), Bantu constitutes a subgroup within the Benue-Congo branch within Niger-Congo. With over 700 languages, Benue-Congo constitutes the largest subgroup within the Niger-Congo phylum. Greenberg (1963: 8–9) divided the Benue-Congo branch into four subgroups: (1) Plateau, (2) Jukunoid, (3) Cross River, (4) Bantoid. The latter contains languages and language clusters like Tiv, Bitare, Batu, Ndoro, Mambila, Bute, and Bantu proper. Bantu is thus claimed to constitute a subgroup of a subgroup which itself is part of a subgroup within Niger-Congo. One shared lexical innovation assumed to be common to Bantoid is a form *ana for ‘child’ (Greenberg 1963: 32). The common Niger-Congo root for ‘child’ outside Bantoid is a form bi or vi, e.g. bi in Fulani, vi in Ewe, bvi in Ndogo. The latter root is still found incorporated in a verbal stem meaning ‘give birth’ in Bantu, represented as vi-ala by Greenberg (1963: 35), and reconstructed as *bi-ad-a by Meeussen 1980).

In the years following Greenberg’s seminal contributions, an effort was made to collect more detailed information on different Benue-Congo languages, e.g. in Williamson and Shimizu (1968), and Kropp-Dakubu (1977). In addition, research teams such as the Benue-Congo Working Group were set up in the 1970s, which aimed at a more exact subgrouping for Benue-Congo internally as well as its position with respect to the Kwa branch within Niger-Congo. During this period, new data also became available on Benue-Congo languages in the border area between Cameroon and Nigeria. The Grassfields Bantu Working Group tried to find criteria to distinguish Bantu proper (or Narrow Bantu) from non-Bantu (Semi-Bantu) Benue-Congo languages. One of the criteria used by Greenberg (1963) in defining Bantu as a subgroup within Benue-Congo and the larger Niger-Congo phylum was the innovation of nasality in nominal prefixes: innovation in classes 1, 3 (*u → *mu-), 4 (*i → *mi-), thereby rupturing the formal parallelism between the noun prefixes and the concords. Consequently, the presence of such prefixes with a nasal could be considered as a sufficient test for classifying a language as Bantu as opposed to Semi-Bantu or an
even more distantly related member. De Wolf (1971), in his reconstructions of Proto-
Benue-Congo noun classes, did not question the validity of Greenberg’s claims, and
reconstructed nominal prefixes without nasal consonants, except for the class used for
liquids and collectives, *ma-. This latter class is assumed by him to have merged with
a noun class *a- (> *ma) in Bantu. Miehe (1991), however, shows the situation is far
more complex, because other more distantly related and geographically distant groups
within Benue-Congo and Kwa also have nasal segments, including prenasalised initial
consonants, in their noun class inventories. Miehe (1991: 27–51) also gives a detailed
account of the research history after Greenberg (1963), discussing how publications
by Crabb (1965) on Ekoid, a Semi-Bantu language group with nasal prefixes, and The
Benue-Congo Working Group, as well as the Grassfields Bantu Working Group, not
only led to the conclusion that the border between Bantu and non-Bantu languages
was impossible to establish, but in her extensive survey she also shows that nasals in
noun-class prefixes are extremely widespread in Benue-Congo and Kwa. In an ex-
emplary and scholarly precise study, which was based on an extensive survey of the
literature on virtually all Benue-Congo and Kwa subgroups (pp. 52–356), Miehe (1991)
shows that prefix nasals (in particular those in the plural noun classes) as found in
Bantu are old, although there has been a gradual erosion or dismantling of the nasal
affixes. In a parallel study on noun classes in Gur languages, Miehe and Winkelmann
(2007) show that several noun class markers with nasals can in fact be reconstructed
for Proto-Gur, i.e. another primary branch of Niger-Congo. The origin of this phenom-
emon and its possible link with the presence of nasality as a suprasegmental feature
of vowels in Niger-Congo (an issue which is also addressed by Miehe 1991: 337–356),
remains an interesting puzzle for future research.

What the elaboration upon the historical-comparative study of noun classes in
Niger-Congo above should make clear is that one finds well-defined lower-level groups,
but arriving at subclassifications for deeper historical levels on the basis of shared in-
novations – whether lexical or grammatical in nature – are often problematic. This also
applies to the division between Benue-Congo and Kwa. Languages or language clusters
such as Yoruba, Nupe, Idoma, Igbo or Ijo were assumed to be members of (Eastern)
Kwa in Greenberg (1963), but have been reclassified as Benue-Congo since, hence
the label New Benue-Congo, which is sometimes used for this Niger-Congo branch;
the remaining group of languages assumed to be part of Kwa by Greenberg are some-
times referred to as New Kwa (Childs 2003: 42). Many Kwa languages are characterised
by reduced (or petrified) noun-class systems, a feature also attested in neighbouring
Benue-Congo clusters like Yoruba or Nupe. It is presumably this typological similarity
which led Greenberg to treat the latter as members of the Kwa rather than the Benue-
Congo branch originally.
In a general survey of the major subgroups within Niger-Congo edited by Bendor-Samuel (1989), Williamson (1989a: 21) presents the following subclassification for Niger-Congo:

![Diagram: The subclassification of Niger-Congo according to Williamson (1989a)]

**Figure 2.** The subclassification of Niger-Congo according to Williamson (1989a)

In her chapter on Benue-Congo, Williamson (1989b: 269) divides the (New) Benue-Congo subgroup into eleven branches, pointing out that the divisions are in general clearly delimited, with the exception of Cross River and Platoid whose internal unity is uncertain.

![Diagram: The subclassification of Benue-Congo according to Williamson (1989b)]

**Figure 3.** The subclassification of Benue-Congo according to Williamson (1989b)

Several of these units within Benue-Congo have been investigated by different authors with the help of Neogrammarian techniques. Thus, the Defoid cluster is studied in Capo (1989), whereas Edoid is investigated from a comparative perspective in Elugbe.

The Kainji group has been separated from Greenberg’s Plateau by Gerhardt (1983), one of the rare comparative studies of Plateau languages. Platoid as a subgrouping proposed by Williamson (1989b: 269) consists of Greenberg’s Plateau groups 2 to 7 plus Jukunoid. Shimizu (1980), Storch (1999) and Prischneeg (2008) are among the few comparative studies on Jukun languages. In the same volume edited by Bendor-Samuel, Watters (1989) elaborates on the genetic position of the Bantoid branch. He points out (p. 402) that Bantoid as a subgroup is based on lexical affinity as well as a sound shift *p > w. Watters and Leroy (1989) arrive at the following subclassification for this Benue-Congo branch:

![Figure 4. The subclassification of Bantoid according to Watters and Leroy (1989)](image)

It is not clear what the actual subgroups of Non-Narrow Bantu are within this genetic unit. Watters and Leroy (1989) list the following groups as members of Non-Narrow Bantu within Southern Bantu: Tivoid, Jarawan, Mbe languages, Ekoid, Mamfe, Beboid, Wide Grassfields, Tikar language, Ndemi language and Mbaam. Their subgrouping is based to some extent on the presence or absence of specific noun classes (Watters and Leroy 1989: 441–443); much of the data on noun-class systems in Bantoid on which this knowledge is based was published in Hyman and Voorhoeve (1980). It is further noted that it is not clear whether the Tivoid subgroup is part of Northern or the Non-Narrow branch of Southern Bantu. Moreover, it is not clear what the various subgroups of Guthrie’s Zone A are, and what their place is within Non-Narrow and Narrow-Bantu. “The search for commonly shared innovations or features that might link two or more branches remains problematic”, as observed by Watters and Leroy (1989: 437).
Chapter 3. Classification and subclassification techniques

The historical reconstruction of Benue-Congo is still in its infant stages. Apart from the study of De Wolf (1971), who compared the noun-class systems of the various sub-groups, there are more recent studies like Babaev (2008), who reconstructs the development of person marking in the Benue-Congo branch.

Marchese (1989:121) points out with respect to another Niger-Congo subgroup that “[t]he internal classification of Kru, though incomplete, seems somewhat clearer than its status within Niger-Congo.” The division between Eastern Kru and Western Kru which was first proposed in Delafosse (1904) is based on phonological, lexical and grammatical differences. Phonological differences include a correspondence set between \( t \) in Eastern Kru and \( s \) in Western Kru:

<table>
<thead>
<tr>
<th>Eastern</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dida</td>
<td>Nyabwa</td>
</tr>
<tr>
<td>tre</td>
<td>se</td>
</tr>
<tr>
<td>Godie</td>
<td>Knobo</td>
</tr>
<tr>
<td>tle</td>
<td>ser</td>
</tr>
</tbody>
</table>

Grammatical distinctions include the use of a nominal suffix -a to express the imperfective aspect in Western Kru languages, whereas Eastern Kru languages use a verbal suffix --e (Marchese 1989:122).

The Gur (Voltaic) family within Niger-Congo has been studied from a comparative point of view by Prost (1964), and Manessy (e.g. 1975, 1979). Naden (1989:151), in his survey of Gur, points out that “[i]n view of the wide spread of these languages and their questionable unity as a group, it is impossible to make generalisations about Gur”.

Jungraithmayr (1968–69) probably was the first author who pointed towards closer links between Gur and Adamawa within the Niger-Congo phylum. Boyd (1974) and Elders (2006) are informative sources on the historical-comparative study of Adamawa languages. Greenberg (1963:9) put the Adamawa languages as well as a so-called Eastern group into one subgroup of Niger-Congo. Delafosse (1924) had used the name “oubangien” for this family, and Samarin (1971) thus renamed this branch Adamawa-Ubangi. Whereas more evidence has been put forward in recent years for the affiliation of Adamawa with Niger-Congo, in particular with the Gur group, the genetic status of Ubanguian, classified as the Eastern branch of Adamawa-Eastern in Greenberg (1963), remains problematic. Cloarec-Heiss (1978) is one of the rare comparative studies on Ubanguian. Based on the lexical comparisons of Moñino (1988), Boyd (1989:192) proposes the following subgrouping for Ubanguian:

1. Gbaya
2. A. Gbanda
   B. Ngbandi
   C. I. Sere
      II. a. Ngbaka
           b. Mba
3. Zande
Moñino (1995) and the collection of articles in Boyd (1995) on verbal derivation in Ubangian languages are among the few more recent historical-comparative studies on these languages, more specifically the Gbaya group, whereas Thomas (1963) gives a detailed account of Ngbaka.

Similar questions concerning the genetic status have been raised with respect to the Dogon cluster in Mali, which had been placed within the Gur family in earlier studies (e.g. Sebeok 1971). The survey of Dogon by Bendor-Samuel, Olsen and White (1989) is included in the volume on Niger-Congo edited by Bendor-Samuel (1989), but the authors contend that “[i]t is better […] to treat Dogon as an isolate within Volta-Congo until further evidence clarifies its status” (p. 169). 28 Jeffrey Heath, who already produced a range of detailed descriptions of languages belonging to the Songhay cluster, recently initiated in-depth studies of Dogon lects.

The inclusion by Greenberg of a group of languages spoken in the Nuba Mountains of central Sudan, which have come to be known under the name Kordofanian, into a larger phylum termed Niger-Kordofanian by Greenberg (1963) and subsequently renamed Niger-Congo by Williamson (1989a), has received wide acceptance among scholars. Greenberg based his interpretations on the pioneering descriptive work by Stevenson (e.g. 1956–1957).

Greenberg (1963) assumed that the Kordofanian branch consists of five subgroups: Koalib, Tegali, Talodi, Tumtum, and Katla. According to Schadeberg (1981a), the Kadu(gli) group should be excised from Kordofanian, or Niger-Congo, and be included in the substantial search for Nilo-Saharan affiliation. He further proposed the following names for the remaining four groups:

- Heiban (Greenberg’s Koalib group)
- Talodi
- Rashad (Greenberg’s Tegali group)
- Katla

Figure 5. The subclassification of Kordofanian according to Schadeberg (1981a)

More recent research by the present author on some of these languages has made clear that the four remaining subgroups manifest more internal diversity than assumed by Greenberg or Schadeberg, although their affiliation to Niger-Congo is beyond any reasonable doubt. Not only do they have reflexes of widespread, cognate noun-class markers as found across Niger-Congo, several of them also manifest an amazingly detailed

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28. The term Volta-Congo refers to a genetic subgrouping within Niger-Congo illustrated in Figure 2 above.
formal identity in their verbal derivational morphology to, for example, Proto-Bantu. Whether this is due to the fact that Bantu (or Benue-Congo) and these languages in the Nuba Mountains are closely related, or rather because these languages and other language groups in the peripheral zones of Niger-Congo (such as Atlantic) are more conservative in their morphological structure, remains to be determined. Nevertheless, the Katla and Rashad differ considerably from the two Kordofanian language clusters Heiban and Talodi. Also, although the Katla group does have a noun-class system, several of the actual forms do not appear to be cognate with those reconstructed for the two Kordofanian subgroups Heiban and Talodi by Schadeberg (1981a, 1981b). In actual fact, there appears to be more grammatical evidence for a closer genetic affiliation between the Katla plus Rashad group and Niger-Congo subgroups like Benue-Congo and Kwa (Dimmendaal in preparation). Schadeberg (1981b, 1981c) presents the first comparative study of two of the four proclaimed Kordofanian groups, the Heiban group and the Talodi group, using classical Neogrammian methods. For the other two branches, assumed by Greenberg to be part of Kordofanian by Greenberg, the Katla group and the Rashad group, no comparative studies have been published yet.

The name West Atlantic, as used in Greenberg (1963), was shortened to Atlantic by Doneux (1975) in his detailed comparative study of this branch of Greenberg’s Niger-Kordofanian. Whether Atlantic indeed constitutes a genetic subgrouping within Niger-Congo, or rather three distinct early Niger-Congo branches, remains a matter of dispute. Wilson (2007) retains the classification of Atlantic into three groups as presented in Greenberg (1963):

I. Northern Atlantic
   A. Senegambia
   B. Cangin
   C. Bak
   D. East Senegal-Guinea
   E. Nalu

II. Bijago

III. Southern Atlantic
   A. Sua
   B. Mel
   C. Limba

Bijago (Bijogo) is the most isolated language within Atlantic in this respect, according to Wilson (2007: 36), who further points out (p. 36) that “a closer look at their lexical relationships reveals […] an almost total absence of roots common to the whole group. In view of this astonishing diversity one must agree in principle to the suggestion by BENNETT & STERK (1977) that the split(s) between the subgroups of “Atlantic”
is/are very ancient" Apart from Klingenheben’s classical contribution (Klingenheben 1924–1925), more recent studies such as Wilson (2007) and the comparative study by Pozdniakov and Segerer (2004) on Atlantic are mentioned here.

Ijoid, a group of languages spoken in the Niger-Delta (Nigeria) and the Defaka language form a well-defined genetic unit, but their wider genetic affiliations again need to be reconsidered. Williamson (1971) discusses the Benue-Congo languages together with Ijoid, but from the discussion it is clear that she does not assume that these neighbouring groups are closely related in any sense, although (as expected) they do share prosodic features (nasalised vowels, ATR harmony) and syntactic features like serial verbs. The only grammatical evidence adduced in favour of a genetic affiliation between Benue-Congo (Niger-Congo) and Ijoid is a grammatical prefix *a*- occurring in a number of Ijo dialects, which Williamson (1971: 283) assumes to be cognate with the plural noun-class prefix *a*- in Niger-Congo. Jenewari (1989), in his typological overview of Ijoid and Defaka also assumes that these languages are part of the Niger-Congo family (following Greenberg 1963), but no supporting evidence is presented. Given the paucity of grammatical evidence, Dimmendaal (2008a) prefers to treat Ijoid plus Defaka as another language family whose wider genetic affiliations need to be reconsidered.

Whereas Mande is also treated as a Niger-Congo subgroup by Greenberg (1963) and Williamson (1989a) in her survey of Niger-Congo subgrouping, the present author again prefers to treat this language family as an independent genetic grouping, as in fact a number of other scholars have done in the past, e.g. Mukarovsky (1968). Compared to several other African language families, the historical-comparative investigation of Mande is still poorly developed. Dwyer (1989) presents a survey of the state of the art concerning its synchronic and diachronic investigation. Vydrine (2004) investigates the genetic and areal properties of Mande languages; Kastenholz (1996) gives a detailed survey of West Mande, using the comparative method. There is also a collection of studies on Mande (as well as comparative Bantu) edited by Bostoen and Maniacky (2005).

In the discussion below only well-established lower-level genetic units are used to illustrate historical-comparative issues. The validity of larger genetic groupings and remote genetic relationships is only taken up again in Chapter 14.
Chapter 4

Morphosyntactic changes

4.1 Morphological innovations and subclassification
4.2 More on analogy
4.3 Other types of morphological reinterpretations
4.4 Syntactic reconstruction

Subgrouping on the basis of shared innovations may be motivated by a set of phonological innovations, as we saw above. But it may equally well, as we shall see below, or in some cases even preferably so, be based on morphosyntactic changes. Parallel to our discussion of phonetic and phonological changes and their natural basis in the preceding chapters, we will begin by investigating the methodology behind the reconstruction of morphological changes. Next, we shall ask ourselves: What are "natural" morphological and syntactic changes?

4.1 Morphological innovations and subclassification

In his subgrouping of the Eastern Nilotic branch within Nilotic, Vossen (1982) not only uses phonological innovations as criteria for subgrouping, but he also points towards a range of lexical as well as grammatical innovations which are shared by certain Eastern Nilotic languages but not by others. The emergence of (masculine and feminine) gender marking as an inflectional property of nouns is an innovation of the Eastern Nilotic branch within Nilotic, and thus provides one criterion on the basis of which Eastern Nilotic is argued to constitute a genetic subgroup. Within the group of languages grouped under Eastern Nilotic on the basis of this inflectional property, the marking system is covert in the Bari group, i.e. gender is shown only on attributes modifying the noun, such as adjectives, not on the noun itself. Compare Bari proper as described by Spagnolo (1933:62):
Eastern Nilotic languages belonging to the so-called Non-Bari group use an overt system also marking the inherent gender on the noun itself. As this latter innovation coincides with a range of additional morphological innovations common to these latter languages, Vossen (1982) takes all of these to be shared morphological innovations, thereby arriving at a basic dichotomy for Eastern Nilotic between a Bari group and a Non-Bari group. Compare one representative from the Non-Bari group, Maasai (as described by Tucker and Mpaayei 1955: 3):

Eastern Nilotic languages distinguish between masculine and feminine gender (as well as neuter gender in the Teso-Turkana group) as an inflectional category of the noun. Southern and Western Nilotic languages, on the other hand, have gender marking as a derivational category expressing natural sex for certain nouns (in particular those referring to names of animals) as well as for personal names. Compare the Lango names ò-cèn (masculine)/à-cèn (feminine) ‘second of twins’ (from cèn ‘behind, back’) (Noonan 1992: 77). This pattern for naming also exists in Eastern Nilotic languages such as Maasai, but here the masculine/feminine distinction is an obligatory inflectional property of virtually all nouns (Payne 1998). Accordingly, there must be

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29. The question how and why such gender markers develop from nominal modifiers into gender markers on the noun itself is an issue taken up again in Chapter 13.
historical processes leading to the reinterpretation of their respective morphological status. These phenomena do not invalidate the distinction, but rather force us to look for mechanisms that can help explain the reinterpretation of derivational markers as inflectional markers or vice versa.

Subgrouping on the basis of shared phonological innovations is sometimes hazardous sometimes. One reason for this is the fact that sound changes may easily spread across language boundaries (or different dialects), especially if people are multilingual. In such situations an investigation of morphological or morphosyntactic innovations as an alternative or additional strategy may still provide a clue as to which languages are more closely related and thus form a genetic subgroup. This may be illustrated with examples from Semitic languages. Here, the classic comparative study of sound correspondences yields partly ambiguous results. Phonological correspondences are often regular, and so are innovations, but the actual changes nevertheless do not lead to a uniform family tree. Proto-Semitic *θ was retained as such in Classical Arabic, but shifted to / in Akkadian and Hebrew; in Ethiopian Semitic languages */f/ (from */θ/) next shifted to s. The latter change (/f > s) also occurred in Classical Arabic. However, Arabic did not share the shift */θ > /f. Moreover, Akkadian, Hebrew and Ethiopian Semitic – but not Classical Arabic – underwent a sound shift */ð > z; Classical Arabic retained */ð. But again, Classical Arabic shares another sound shift with Ethiopian Semitic languages, */s > /f/ This additional fricative in Proto-Semitic was retained in Hebrew and is written with a separate orthographic symbol in Ancient Hebrew. (There are also reflexes of this fricative in Semitic languages of the Arabian Peninsula, such as Soqotri.) */s has a reflex / in Ethiopian Semitic and Arabic, but also in Akkadian. Compare also Lieberman (1991) on the issue of regularity of sound change in Semitic.

Whereas some of the historical sound shifts in Semitic are shared between Arabic and Ethiopian Semitic, others are shared between Ethiopian Semitic and Hebrew or Akkadian. It is therefore notoriously difficult in the case of Semitic to arrive at a uniform subclassification on the basis of shared phonological innovations. Consequently, specialists for Semitic have disagreed as to the correct subgrouping. The traditional subgrouping of this family (e.g. Moscati 1969; Ullendorf 1970) is based on cultural and geographical principles, as pointed out in Hetzron (1976).

Although the phonological evidence for shared innovations is inconclusive in Semitic, shared morphological or morpholexical innovation does in fact provide important clues for its genetic subgrouping, as shown by Hetzron (1976). Common experience has taught us that changes in morphological systems are less subject to borrowing or areal diffusion than phonological innovations. This led Hetzron (1976) to
investigate the verb system in Semitic. Contrary to the situation found with phonological innovations, specific innovations in the verb system do indeed point unambiguously towards a uniform subgrouping. Before embarking upon this classification, we will have a closer look at another methodological point raised by Hetzron (1976), the principle of archaic heterogeneity. This principle states that in cognate systems (paradigms) in related languages the system with the highest degree of formal heterogeneity normally reflects the more archaic system, unless conditions for an innovation can be given. The operation of this principle may be illustrated on the basis of alternative subject-marking strategies in three Semitic languages, or language clusters in Semitic:

<table>
<thead>
<tr>
<th>Akkadian</th>
<th>Arabic</th>
<th>Ethiopian Semitic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>-(a-)ku</td>
<td>-tu</td>
</tr>
<tr>
<td>2sg:m</td>
<td>-(a-)ta</td>
<td>-ta</td>
</tr>
</tbody>
</table>

As shown here, the highest degree of heterogeneity is found in Akkadian (because of the differences in consonants as well as in vowels). As no phonological reason can be adduced for this, it must be assumed that the heterogeneity is old. Consequently, the common proto-forms (coinciding with Proto-Semitic) for the first person singular and the second person singular masculine probably were *-ku and *-ta, respectively.

The reflexes in (classical) Arabic and Ethiopian Semitic languages illustrate a well-attested process operating within paradigms, whereby one or more forms are remodelled on the basis of other forms from the same paradigm – in this case the use of pronominal subject marking on conjugated verbs. This phenomenon is known as analogy (or a relation of similarity), in this case analogical levelling. The change of *a > u in Arabic, and of *t > k in Ethiopian Semitic, is not part of a regular sound change, but instead is motivated by a tendency towards paradigm coherence.

When taking these and other morphological innovations in Semitic into account, an alternative family tree emerges. Hetzron (1976, 1997: 6–13) provides a succinct account of the various morphological (as well as some phonological) innovations supporting the subclassification of Semitic, including some further modifications compared to the more classical groupings by Moscati (1969) and others. Thus, suffix conjugation for person in past tense paradigms is a shared innovation of West Semitic, as is the innovation of a prohibitive marker *’al(a) ‘don’t’. One further important consequence of the use of morphological innovations is the reclassification of Arabic as a Northwest Semitic, rather than as a Southeast Semitic, language. In this new subgrouping, Arabic constitutes a subgroup (now usually called Central Semitic) together with Northwest Semitic languages. Central Semitic innovated a non-geminate prefix conjugation for Non-Past, and generalised suffixes with t in suffix conjugations; South Semitic generalised person-marking suffixes beginning with k, amongst others.
Chapter 4. Morphosyntactic changes

Various authors in fact have come to the conclusion that grammar is more resistant to change than the lexicon is, and because of this stability, that morphological innovations are more significant for subclassification than phonological innovations are. Cyffer (1996: 60), for example, points out that "[t]he Saharan languages have changed their lexicon considerably over the past, not only by means of time, but also by intensive contact with other languages [in the wider Lake Chad area; GJD]. On the other hand grammatical structures have been by far more resistant […]".31

The presence of irregular or suppletive alternations in related languages is an important diagnostic feature for genetic subgrouping, as stated by Greenberg (1957: 51). Across Nilotic, for example, we find a suppletive singular/plural alternation for 'cow' (Greenberg 1963: 88). A similar irregular alternation is found in three other subgroups of Eastern Sudanic, the branch of Nilo-Saharan to which Nilotic belongs.

<table>
<thead>
<tr>
<th>Table 13. Irregular forms for 'cow' in Eastern Sudanic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>singular</strong></td>
</tr>
<tr>
<td>Proto-Nilotic</td>
</tr>
<tr>
<td>Temein</td>
</tr>
<tr>
<td>Daju of Lagowa (Daju group)</td>
</tr>
<tr>
<td>Majang (Surmic)</td>
</tr>
<tr>
<td>Gaam (Eastern Jebel)</td>
</tr>
</tbody>
</table>

31. Mikkola (1999) does not appear to be aware of this phenomenon in Saharan; since his Nilo-Saharan comparisons are essentially based on lexical items, the same author excludes Saharan from Nilo-Saharan as understood by Greenberg (1963). However, Mikkola (1999: 136) does assume that these languages are related at a deeper historical level, which also includes Kadu, Koman, and Niger-Congo.
The reconstructed form for Proto-Nilotic above is based on Dimmendaal (1988: 36), whereas data on Daju of Lagowa and Temein are based on the author’s fieldnotes; the Majang (Surmic) form derives from Unseth (1988: 77). The irregular singular/plural alternation for ‘cow’ in four Eastern Sudanic groups (Nilotic, Temein, Daju, and Surmic) strongly suggests that they form a genetic subgroup (called Southern Eastern Sudanic in Dimmendaal 2007).

Whether Gaam and other Eastern Jebel languages shared the innovation of an irregular singular/plural alternation is not clear; the form in the latter itself probably is related to the plural form in Nilotic, Surmic, Temein and Daju.

Once phonological changes are reasonably well understood as a result of a systematic comparison of lexemes, we may extend the comparison by looking at grammatical or function morphemes. Reflexes for the latter are to be accounted for on the basis of regular sound changes already established, and/or dynamic processes inherent to morphological changes, such as analogical change as an important instantiation of historical reinterpretations. The widespread distribution of a range of cognate nominal class prefixes in Bantu, for example, allows for the reconstruction of the following set of Proto-Bantu noun-class prefixes, according to Meeussen (1967). The numbering of these forms follows a common practice in comparative Bantu studies developed by Bleek (1862, 1869) and Meinhof (1932), namely using criteria such as singular/plural (or singulative/collective) pairings and the form of agreement markers on nominal modifiers as well as subject and object marking on verbs. These and the discovery of additional classes in Bantu led Meeussen (1967) to reconstruct the following noun-class prefixes (NP), enumerative prefixes (EP, i.e. prefixes used with numerals as modifiers), and pronominal prefixes (PP). The bars/dashes (–) in Table 14 indicate identity with the form given in the preceding column.

In languages like Swahili, the number of noun classes has become reduced as a result of the loss of specific, initial consonants in nominal prefixes. For example, classes 11 and 14 merged:

\[
\begin{align*}
*bu- & \rightarrow u- \\
*du- & \rightarrow u-
\end{align*}
\]

Proto-Bantu class 15 *ku- has a reflex ku- in modern Swahili, which functions only to introduce verb infinitives. Although Swahili no longer uses this class prefix with nouns, there is indirect evidence that at an earlier stage it did. The Proto-Bantu word for ‘armpit’, *ku-jápa (Meeussen 1980), also has a reflex in Swahili, kwAPA ‘armpit’. However, in Swahili the element kw- is no longer recognised as a class prefix with nouns. Instead, this original affix has been reinterpreted as an inherent part of the root, i.e. petrification occurred. Moreover, as shown by the agreement marking for this noun (li-, rather than ku-), the word for ‘armpit’ has been reinterpreted as a member of another noun...
class. Its function as a noun class marker presumably became obsolete, because the set of nouns belonging to the \textit{ku}– class was relatively small. The absorption of a morpheme into another morpheme is also known as morphologisation.\textsuperscript{32} Bantu languages in fact are replete with such "formal extensions", in particular in their verbal systems.

Bantu languages like Nyamwezi use the same prefix with a small number of nouns, mainly referring to body parts, e.g. \textit{ku-}\textit{oko} 'hand'. In accordance with the principle of archaic heterogeneity (i.e., since there is no way in which the conjugation of a small set of nouns in Nyamwezi can be predicted otherwise historically), the conclusion is that the situation in this language represents the more archaic situation. Also, external

\textsuperscript{32} The term morphologisation is also used as a label to refer to change from an autonomous word to an affix ("desyntactisation"), and second, in order to characterise morphophonological innovations which ceased to be part of the regular and phonological set of rules in a language but nevertheless remain as signals of morphological structure.
evidence from subgroups elsewhere in Benue-Congo (the Niger-Congo subgroup of which Bantu is a part) show that *\( ku- \) is an old noun-class prefix (De Wolff 1971). De Wolf (1971: 55–56) in fact reconstructs this noun-class prefix for a much earlier stage in the development of Niger-Congo, Proto-Benue-Congo, e.g. for the following nouns:

\[
\begin{align*}
*ku-boko & \quad \text{‘arm/hand’} \\
*ku-tuŋi & \quad \text{‘ear’}
\end{align*}
\]

In his Bantu grammatical reconstructions, Meeussen (1967) posits this nominal class prefix *\( ku- \) for body parts such as *\( -boko \) ‘arm’ *\( -tuŋi \) ‘ear’. The loss of the velar nasal in Proto-Bantu probably is an innovation of the Bantu subgroup within Benue-Congo, according to Dimmendaal (1978: 233).

Akin to morphologisation is a historical process known as lexicalisation, a state whereby a morphological process has lost its productivity leaving individual items in the lexicon.33

Sometimes an archaic and an innovated form coexist next to each other with a slight difference in meaning. In Standard Swahili, one finds alternations such as the following:

\[
\begin{align*}
n-chi & \quad \text{‘land’} \\
\text{chi-}ni & \quad \text{‘underneath, below’} \\
\text{nchi-}ni & \quad \text{‘in/on the land’}
\end{align*}
\]

In Standard Swahili, the (homorganic nasal) noun class prefix \( N \) was lost historically before root-initial voiceless stops in roots consisting of two (or more) syllables or moraic units. (In coastal varieties of Swahili in Tanzania, the initial voiceless stop or affricate is still slightly aspirated in such cases.) The nasal prefix was retained as a syllabic unit in monosyllabic roots, as in \( n-chi \) (\( \text{ɲ} \text{ ci} \) ‘land’ above. The locative form is expressed by way of a suffix -\( ni \) in Swahili. The lexicalised prepositional form resulted from the loss of the nasal before a voiceless stop (\( < *n-chi-\text{ni} \) as a regular phonological change of disyllabic (or bimoraic) units. The form \( n-chi-\text{ni} \) was formed by analogy with other nouns (e.g. \( m-begu \) ‘seed’, \( m-begu-\text{ni} \) ‘in the seed’). Such doublets may also come about as a result of borrowing of a cognate form from a genetically related language, as with two and duo in English, the latter form a borrowing from Latin, being cognate historically with the form in English.

Archaisms often tend to survive in less basic constructions, as Koch (1996: 219) observes, and consequently tend to be found in parts of the grammar that are less subject to communicative dynamism, and thereby to innovations, such as verb forms

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33. Lexicalisation as a historical linguistic concept (as well as the various other ways in which the term has been used in linguistics) is discussed in considerable detail by Brinton and Traugott (2005).
in dependent (rather than main) clauses, or negated (as against affirmative) constructions. Archaisms may also be found in idiomatic constructions, proverbs, ritualised language or ancient songs in languages. Alternatively, they may be manifested in basic vocabulary, e.g. nominal or verbal forms acquired at an early stage by children, because of their high frequency, and thus simply remembered (often as irregular forms), rather than being part of a productive and regular system of alternations in a language.

4.2 More on analogy

Analogical levelling within a paradigm is one way in which the degree of alternation between affixes may be reduced. By contrast, the anticipating character of speech production may lead to an assimilation or dissimilation of adjacent segments and thereby to the emergence of new alternations. This in turn may lead to the emergence of new segments at the phonetic or phonological level, as shown in Chapter 2. One potential outcome of such syntagmatically motivated changes is the emergence of allomorphy or the extension of an existing system of allomorphy. The following examples from Eastern Nilotic Turkana illustrate this point, where we find reflexes of a widespread causative prefix reconstructable for Proto-Eastern Nilotic as *-it? (Dimmendaal 1983b: 198). The second vowel of the causative prefix in Turkana completely assimilates to the first vowel of the verb root. As part of a more general set of morphophonemic rules in the language, the second vowel of the causative prefix is deleted immediately before another vowel in the following verb root; in addition, the alveolar stop becomes a fricative before a high front vowel (as in ‘feed’).

<table>
<thead>
<tr>
<th>root</th>
<th>causative form</th>
</tr>
</thead>
<tbody>
<tr>
<td>-lep</td>
<td>‘milk’</td>
</tr>
<tr>
<td>-rot</td>
<td>‘check’</td>
</tr>
<tr>
<td>-ɪmʊj</td>
<td>‘eat’</td>
</tr>
<tr>
<td>-ite-lep</td>
<td>‘cause to milk’</td>
</tr>
<tr>
<td>-ito-rot</td>
<td>‘cause to check’</td>
</tr>
<tr>
<td>-is-ɪmʊj</td>
<td>‘feed (cause to eat)’ (&lt;-iss-ɪmʊj)</td>
</tr>
</tbody>
</table>

When comparing the synchronic variants for this causative marker across the Teso-Turkana group, the cluster of closely related languages and dialects within Eastern Nilotic to which Turkana belongs, one observes different degrees of allomorphy. Novelli (1985) describes a similar set of morphophonemic rules for another lect within the same cluster, Karimojong. But he also notes that in Karimojong the vowel assimilation rule is optional with stative verbs. This suggests that the spreading of the vowel assimilation rule was or is related to frequency, which presumably is lower with stative verb roots than with roots expressing a dynamic meaning. In other words, such stative causative construction are only gradually affected by the vowel assimilation rule by analogy with more frequently used causative verb forms with a dynamic meaning. Examples from Karimojong:
In Turkana, this allomorphy rule whereby the second vowel of the causative marker completely assimilates to the first vowel of the following verb root has become generalised as an obligatory lexical-phonological rule; as in -tt-didɪŋ for 'cause to be narrow'.

As these examples show, assimilation to following segments in the morpheme marking the causative has led to an increase in the number of allomorphs. Phrased differently, syntagmatic changes frequently result in morphological complications at the paradigmatic level. This phenomenon is also known as Sturtevant's Paradox, and the name comes from the linguist who stated this principle: “Sound change is regular, but produces irregularity; analogy is irregular, but produces regularity” (compare Trask 1996: 108). What one may observe as a consequence of the latter process in language after language is the process of paradigmatic levelling, i.e. a reduction in the degree of allomorphy.

In an important contribution, Hale (1973) has shown how the Polynesian (Austronesian) language Maori developed a number of allomorphs as a result of a phonetic simplification rule. Historically, word-final stops were deleted. However, the same consonants were retained whenever another suffix, for example a passive suffix -i-a, followed. As a result, the passive now is manifested through a range of allomorphs (-ti-a, -ki-a etc.). From a synchronic point of view, it no longer makes sense to treat the consonant showing up with, for example, passives as part of the preceding root. Consonant-final words do not fit in with the general word structure of Maori today, which prefers open syllables word-finally. Also, some words never have a passive form, which would imply that they are structurally indeterminate if one were to take the consonant to be part of the basic root. Consequently, the syntagmatic simplification rule (word-final consonant deletion) is a historical rather than a synchronic rule resulting in a complication of the morphological system. What is interesting, however, is that speakers now tend to use one of the historical allomorphs, -ti-a, as the regular passive (Hale 1973: 417–418). Presumably, this form has a high frequency. Consequently, other verbs (with historically different final consonants) may be formed by analogy with these forms. In other words, analogical (or paradigmatic) levelling restores the transparency of the system. This way, lexical derivations are minimally complex and initial underlying structures remain close to their respective surface structures. The remodelling of rare or unusual structures after more common, more frequently used or more transparent forms is widespread cross-linguistically.
A similar phenomenon may be observed in the Surmic language Baale (Dimmendaal 2001a). Speakers of this South-western Surmic language have been in close contact with speakers of two South-eastern Surmic languages, Chai and Tirma, with whom they form one ethnic group known as Suri or Surma. These languages avoid consonant-final words. Baale is closely related to a cluster known as Didinga-Murle where consonant-final words are very common. In Baale, word-final consonants were lost before a pause, probably as a result of convergence towards the neighbouring Chai and Tirma languages. However, the same consonants (here represented as ‘C’) which are no longer pronounced in word-final position were retained whenever a suffix followed. With nominal morphology this resulted in a range of new allomorphs for plural marking (Dimmendaal 2000a, 2001a).

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>kaalátō</td>
<td>kaala-t-tá ‘shin’</td>
</tr>
<tr>
<td>agātō</td>
<td>aga-t-ta ‘tongue’</td>
</tr>
<tr>
<td>horó-c</td>
<td>horo-c-ca ‘cheek’</td>
</tr>
<tr>
<td>mele-kō</td>
<td>mele-k-ká ‘axe’</td>
</tr>
</tbody>
</table>

Productive markers usually apply to larger sets of words, and thus are available for the creation of new forms in languages. One test case for the productivity of certain morphological markers in Baale is, for example, the use of inflectional or derivational markers in recent borrowings. In vowel-final nouns borrowed from Amharic, morpho-phonemic alternations do not provide any clue for the hidden or floating consonant. What Baale speakers do in such cases is add a plural suffix -ta, by analogy with the most productively used variant of the plural suffix. In other words, as in the Maori case discussed above, one type of alternation is taken as basic, and other forms are modelled after this highly productive pattern. Again, an extremely important property of language and a cause of language change manifests itself here, namely analogy.

Words with a high frequency of use in day-to-day interaction often undergo sporadic changes resulting in irregular forms. On the other hand, they also appear to be more resistant to analogical changes (restoring regularity) than less frequently used forms. This may be due to the fact that high frequency words are acquired at an early age. Germanic languages like English have irregular (so-called ”strong”) verbs, many of which are quite old in Indo-European, but at the same time these are quite resistant to analogical levelling. Nevertheless, one or two may become regular with every new generation of speakers, as with the verb ‘help’:

<table>
<thead>
<tr>
<th>1st singular present</th>
<th>Old English</th>
<th>Modern English</th>
</tr>
</thead>
<tbody>
<tr>
<td>help-e</td>
<td>help</td>
<td></td>
</tr>
<tr>
<td>healp</td>
<td>help-ed</td>
<td></td>
</tr>
</tbody>
</table>
In Modern Dutch, one still finds the corresponding irregular form for the first person singular preterite (past), *ik hielp* (versus the present tense form *ik help*); also, Modern Dutch has retained the irregular vowel alternation in the past participle form, *geholpen*.

The reason why these verbs tend to be stable in spite of their irregular conjugation probably has to do with the fact that they are acquired at an early age by children, as many of them are part of the basic vocabulary (e.g. the verbs *go, see, come*). Consequently, such forms are simply memorised rather than being produced “on-line” through the application of a productive and regular rule morphological rule as with so-called “weak” verbs (forming the past with the suffix -ed).

A presumably parallel case of analogical restructuring concerns the formation of perfectives in Bantu languages. Although in general these languages tend to avoid fusion of morphemes, the perfective constitutes an interesting exception to this typological property. Bastin (1983) has shown that most of these alternations are extremely old, probably predating proto-Bantu. Compare the following examples from Yao, where a reflex -il-e occurs as well as a range of irregular stem alternations resulting from a merger of the root with this (former) suffix (Ngunga 1998)

<table>
<thead>
<tr>
<th>Root</th>
<th>Perfective form</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-vin-</td>
<td>-vin-il-e</td>
<td>‘dance(d)’</td>
</tr>
<tr>
<td>-ciim</td>
<td>-ciim-il-e</td>
<td>‘pant(ed)’</td>
</tr>
<tr>
<td>-lōông-</td>
<td>-lōonj-il-e</td>
<td>‘pack(ed)’</td>
</tr>
<tr>
<td>-lōlān-</td>
<td>-lōlēn-e</td>
<td>‘look(ed at one another)’</td>
</tr>
</tbody>
</table>

The historical conditions for these changes in Yao and other Bantu languages are complex. They depended on, among other things, the size of the base form, the final consonant or the vowel preceding the base form or syllable length. Although analogical levelling (resulting in a reduction of the degree of alternation) can be observed in individual Bantu languages, the imbrication, i.e. the fusion of the perfective suffix with the verb stem, is remarkably stable across the family.34 Aspect tends to be intimately associated with the inherent meaning or Aktionsart of verb stems. As a corollary, aspect markers often occur immediately next to the root; this iconicity principle in turn may easily lead towards an interaction of the two morphemes, e.g. to fusion. As perfective (versus imperfective) alternations are frequently used, they may be easily remembered or stored and, as a result, be retained over generations without necessarily being subject to levelling processes.

It is sometimes claimed that languages tend to follow a one meaning–one form pattern. But some languages seem to have little problems with one meaning–many

---

34. The term imbrication is derived from a Latin verb *imbricare*, ‘to form like a roof or gutter tile’ (i.e. overlapping, or represented as if overlapping).
forms as a principle. This pattern is very common, for example, in Nilo-Saharan languages. Although analogical levelling does play a role in these languages too, many of them often allow for a plethora of forms, which are only phonologically conditioned to a certain extent.

A second type of analogy (in addition to levelling) involves a reinterpretation, whereby a twofold morphological marker tends to replace one that is single. Following the spirit of the law, forms which are ‘clearly’ or ‘overtly’ marked tend to be preferred in analogical change (Hock 1991: 212). This process is called analogical extension. This appears to have been the origin of alliterative forms in Standard Swahili involving a pronoun plus the quantifier -ote ‘all’ (Thilo C. Schadeberg, personal communication). As is common with languages with noun classes, the modifier is inflected with an agreement marker whose shape depends on the noun class the noun it modifies belongs to. Thus:

\[
\begin{align*}
\text{wa-\text{tu w-ote}} & \quad \text{‘all people’} \\
\text{vi-\text{tu vy-ote}} & \quad \text{‘all things’}
\end{align*}
\]

The third person plural pronoun ‘they’ patterns along with the class to which the word for ‘people’ belongs, thus, wao w-ote ‘all of them’. Historically, this also applied to the first and second person pronoun. However, the agreement marker for the first and second person pronoun underwent a change whereby the agreement started alliterating with the pronoun:

\[
\begin{align*}
\ast \text{sisi w-ote} & \quad > \quad \text{sisi sote} & \quad \text{‘we all / all of us’} \\
\ast \text{nyinyi w-ote} & \quad > \quad \text{nyinyi nyote} & \quad \text{‘you all / all of you’}
\end{align*}
\]

Such a case of proportional analogy frequently involves four-term analogies of the form a : b = c : d.

The reanalysis of the Arabic borrowing kitāb (plural kutub) in Swahili as ki-tabu (plural vi-tabu) by analogy with existing Swahili nouns starting with a prefix ki-, is best analysed as an example of so-called non-proportional analogy. The latter usually involves sporadic changes. But as pointed out by Campbell (2004: 113), the distinction between the two types of analogy-based reanalysis, proportional and non-proportional analogy, is not always clear. For an extensive discussion of different types of analogy-based restructuring the interested reader is referred to the relevant sections in Hock (1991), Anttila (2003), Campbell (2003), or Lass (1997).

A further case of non-proportional analogy, involving analogical levelling and semantic affinity, concerns changes in closed lexical and grammatical paradigms such as kinship terminology, demonstrative systems or colour terms; lower numerals tend to be affected by this tendency as well. Also, words which are antonyms of each other may become phonetically similar to each other, without losing their distinct identity.
Historical Linguistics and the Comparative Study of African Languages

Proto-Indo-European Latin

\*kʷe̞tu̞ōr ‘four’ quattuor ‘four’
\*penkwe ‘five’ quinque ‘five’

Such modifications result in greater paradigm coherence. At the same time, the change results in an irregular (sporadic) sound change, occurring in individual items in the lexicon, which consequently cannot be accounted for by general sound-changing rules of the language in question. This latter effect, presumably, is the reason why such a change is sometimes called a contamination. Such evaluative terms, however, are to be avoided in scientific terminology.

A so-called immediate model in the same speech context as the thing that changes exists for analogical changes with lower numerals above, or with days of the week, i.e. for forms which are frequently cited in sequences. A non-immediate model for analogical changes on the other hand appears to play a role with relations in absentia such as personal pronouns, e.g. the subject affixes in Semitic languages illustrated above, or the development of so-called augments in Bantu, as shown next.

Meeussen (1967: 96–99) reconstructs so-called augments or pre-prefixes for Proto-Bantu, probably involving a partial pre-doubling of nominal prefixes:

\*j\* (Class 1 *\*mu-\*)
\*g\* (Class 3 *\*mu-\*)
\*g\*i (Class 4 *\*mi-\*)
\*d\*i (Class 5 *\*i\*)
\*g\*a (Class 6 *\*ma-\*)
\*j\*i (Class 9 *\*n-\*)
\*\* (Class 10 *\*n-\*)

The exact form and historical development of these markers in combination with all noun-class markers is investigated in de Blois (1970). As argued by de Blois (1970: 152), historically the augment probably had a determinative function. In various Bantu languages the element developed different senses or it turned into a petrified nominal prefix element. Also compare the discussion in Katamba (2003), who discusses additional semantic properties of noun classes in Bantu. In various Bantu languages one finds the following reflexes:

i- before prefixes of classes 4, (5), 7, 8, 9, (10)
a- before prefixes of classes 2, 6, 12, 16
u- before prefixes of classes 1, 3, 11, 13, 14, 15, 17, 18

But in Bantu languages like Nilyamba, this pattern *i, *a, *u has been reduced to a pattern i-i-u (de Blois 1970: 101), hence u-munthu/i-anthu ‘person’. In Ronga, the a pattern has been generalised (with virtually no exceptions) regardless of the noun class a word
Chapter 4. Morphosyntactic changes

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belongs to (de Blois 1970: 105). Occasionally, there is an indirect reflex of the original augment (called "latent augment" by de Blois). In Shona, for example, the original augment shows up on a connective (genitive marker) preceding the noun (de Blois 1970: 108); in other words, in this language paradigmatic displacement occurred.

banga r-o mufundisi ‘the teacher’s knife’
zwigaro zw-e minda ‘the garden-chairs’

In still other Bantu languages, e.g. Buyu, the connective marker only carries a tonal trace added to the connective (genitive marker) in associative constructions (de Blois 1970: 108).

Analogical levelling may also play a role with respect to prosodic structures. Whereas noun-class prefixes are reconstructed with a low tone for Proto-Bantu (Meeussen 1967), the tones of the augments or pre-prefixes probably were low for the singular classes 1 and 9, and high for the other noun-class prefixes. In various Bantu languages, however, the tones of class 1 and class 9 augment prefixes have become high as well, presumably by analogy with the inherent tones of the other augments, which most likely had a higher frequency because they were far more numerous.

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Analogy also plays an important role with respect to a number of widespread phonological phenomena across the African continent, e.g. the restructuring of vowel harmony processes. Vowel harmony of the cross-height, usually involving a set of five [-ATR] vowels (ɪ, ɛ, a, ɔ and u) as well as five [+ATR] vowels (i, e, ǝ, o, u) in its most classic form, is found in an area ranging from Senegal in the west to Ethiopia in the east. Whereas in many West African languages with ATR-harmony it is common to find lexical roots controlling the ATR features of affixes (or clitics), in eastern Africa one finds either this system or a system governed by feature control, more specifically [+ATR] morphemes (affixes as well as lexical roots) triggering harmony on vowels in adjacent morphemes (Dimmendaal 2002).

In an interesting contribution on the Nilotic language Alur, Kutsch Lojenga (1991) has shown that there is variation between speakers in the way specific suffixes are treated, either as dominant (+ATR) suffixes, or as suffixes alternating between [-ATR] (after [-ATR] root vowels) and [+ATR] (after [+ATR] root vowels), for example with the root \( \text{wəŋ} \) ‘eye’.

\( \text{weŋ}-i \) or: \( \text{wəŋ}-i \) ‘your eye’

Historically it is clear that the non-alternating [+ATR] form for the second person singular possessive is a retention, i.e. that feature control occurred. The latter situation is still found in closely related languages like Lango, where the second person pronominal possessive marker is always [+ATR] i.

\( \text{wəŋ} \) ‘eye’, \( \text{weŋ}-i \) ‘your eye’
The suffixal forms now alternating between [+ATR] and [−ATR] with some Alur speakers are the forms which have become generalised in closely related languages like Luo:

\[
\text{way} \quad \text{‘eye’} \quad \text{way}-\text{t} \quad \text{‘your eye’}
\]

The syntagmatic aspect of (cross-height) vowel harmony is often emphasised; in other words, co-occurrence restrictions within a word are claimed to be central to the system. The importance of the paradigmatic dimension of vowel harmony may not be immediately obvious from synchronic analyses. But it becomes evident from historical changes in vowel harmony systems. The consequence of this type of historical reinterpretation is an increase in allomorphy in the suffixal system. Where feature control dominates the system, the phonological dimension gains; where the root control principle dominates, it is morphology that gains as lexical morphemes retain their inherent phonological properties. As argued in Dimmendaal (2002), there appears to be some correlation between general word structure and the tendency towards either root control or feature control, for example in Nilotic languages. Thus, Southern Nilotic languages, with their tendency towards feature control, tend to have rich and complex morphological systems, allowing for a series of affixes. In Western Nilotic languages, with more reduced morphological systems, root control tends to dominate. The reinterpretations again seem to be governed by principles of analogy – in this case the behaviour of other (alternating) suffixes. Thus, in a system where many suffixes are already weak, i.e. adapt their [ATR] vowel quality to that of the preceding root, suffixes deviating from this pattern may also start alternating (Dimmendaal 2002).

Next to analogical extension and levelling, a third type of analogical restructuring occurs (already introduced above): Paradigmatic displacement, i.e. the shift of a contrast from its original position to another point, either inside or outside the paradigm per se. Schuh (1980) illustrates this phenomenon on the basis of a comparison between different Chadic languages. Thus, in Bolanci we find a contrast in vowels in object pronouns, whereas in Bele they all contain a vowel -a- (tones not marked):

<table>
<thead>
<tr>
<th></th>
<th>Bolanci</th>
<th>Bele</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG:O</td>
<td>-n-aa-</td>
<td>-na-</td>
</tr>
<tr>
<td>2SG:O:M</td>
<td>-k-aa-</td>
<td>-ka-</td>
</tr>
<tr>
<td>2SG:O:F</td>
<td>-s-aa-</td>
<td>-s-aa-</td>
</tr>
<tr>
<td>3SG:O:M</td>
<td>-ni-</td>
<td>-ni-</td>
</tr>
<tr>
<td>3SG:O:F</td>
<td>-taa-</td>
<td>-taa-</td>
</tr>
</tbody>
</table>

The principle of archaic heterogeneity leads to the conclusion that the Bolanci system above represents an older stage. Interestingly, however, the original vowel contrasts which have been levelled out in the set of object pronouns in Bele have been shifted onto the following perfect marker (-ηV < *ko):
4.3 Other types of morphological reinterpretations

Analogy is widely assumed to play a central and crucial role in the historical re-structuring of morphological systems. But there are a number of other morphological restructuring processes as well.

One kind of process akin to analogy formation involves the assumption by speakers of morphological composition in words which are not morphologically complex in the source language. The English borrowing school is se-kole in the Bantu language Setswana, with a corresponding plural di-kole (Janson 2002: 48). The Arabic word for ‘book’ kitaab was also reinterpreted as a noun containing a prefix, namely ki- (by analogy with other nouns having the same initial syllable), in Swahili. Since Swahili does not allow words ending in a consonant, a vowel u was added as well. The plural of such nouns in Swahili is formed by a prefix vi-, hence ki-tabu/vi-tabu ‘book/books’. Another interesting example of morphological reanalysis is the Swahili word ki-rusi for ‘virus’, and the corresponding plural form vi-rusi.

Akin to this kind of reinterpretation is a process known as folk etymology, which involves the “identification” of part of a word (or a word in a complex phonological word) as an element carrying meaning, as in English sparrowgrass, which is sometimes used instead of asparagus. There does not seem to be a principled difference between this kind of lexical reanalysis and the grammatical reanalysis above; consequently, both may be interpreted as instances of folk etymology.

A related process, called back formation, involves the identification of a lexical or grammatical base by analogy with productive paradigmatic alternations. This has occurred in the case of edit < editor in English, presumably by analogy with alternations such as write/writer. Another example comes from Swahili, where the English borrowing ‘virus’ is rendered as vi-rusi, with the corresponding singular form being ki-rusi, as we saw above. At the same time one observes that Bantu languages, which in general are characterised by opulent morphologies, do quite well with so-called empty morphs synchronically (Dimmendaal 2000b: 182). Compare the following example with the empty morph -ik- in the Bantu language Shi (Polak-Bynon 1975: 150–151), which is formerly identical to a productive neutro-passive suffix -ik-.

\[-s\text{unik-} \quad \text{‘push’ (‘-sun- not attested)}
\-p\text{ash-ik-} \quad \text{‘be possible’ (‘-pash- ‘be able’)}\]
It is sometimes useful, not only from a synchronic, descriptive point of view but also for historical comparison, to set up such a hypothetical formal affix or empty morph, since the presence of such morphs may condition specific phonological rules in the root, parallel to cases where a separate affix can in fact be identified on semantic grounds.

Other morphological phenomena which are historically relevant involve word formation processes such as clipping, as in the English words math from mathematics, or lab from laboratory. Newman (2000b: 421) describes such a process with respect to Hausa personal names, as in Dije < Hâdzà. Another process concerns blending between two forms with identical or similar meaning, as in English smog, from smoke + fog.

For the kind of blending illustrated above, a non-immediate form is available (in the semantic field to which these lexemes belong). Fusion may be analysed as a kind of affix blending, involving immediate forms, often resulting in the creation of portmanteau morphemes. Thus, when a morpheme marking gender and one marking case fuse, the resulting morpheme is an exponent of both sememes. This phenomenon is widespread in Cushitic and Omotic languages, where such portmanteau morphemes may also fuse with definiteness markers.

These phenomena are best interpreted as instantiations of economy principles in languages. Rather than marking each and every sememe separately and explicitly, which would result in iconicity, it may also suffice to simply mark the fact that there is a distinction with some other paradigmatic form (e.g. feminine Nominative as against feminine Absolutive), whenever ambiguity is to be avoided. Also, marking only one of two contrasting forms (e.g. marking one of the contrasting case forms by way of zero, as with the third person form as against first or second person in conjugated verbs) exemplifies the operation of economy principles in languages.

The term contamination is sometimes used for sound changes triggered by affinity with other words in the same semantic field. This kind of analogical change is found in the English word female from femelle (/fiym/) after its semantic opposite, male.

The morphological process known as contraction occurs in the Swahili slang Sheng, from Swahili and English. The use of acronyms is also popular as a word formation strategy in youth languages like Nouchi (Abidjan), where ADO is used to refer to the neighbouring country Burkina Faso. The acronym derives from Alassane Dramane Ouattara, the name of a politician in the Ivory Coast seen by many as a spokesmen or lobby for people in the northern part of the country, many of whom come from Burkina Faso (Fabian Heerbaart, personal communication). Such morphological modifications appear to be particularly common in youth languages in modern African cities.

When ellipsis occurs, the seemingly redundant parts of morphologically complex forms are eliminated; these may be either discontinuous morphemes or adjacent forms. One of the best known Indo-European cases is the formal reduction in negation
marking in French. In colloquial French it is common to drop the first part, \textit{ne}, in the negation marking collocation \textit{ne?pas} (from an emphatic form \textit{ne passus}, ‘not a step’ historically); similarly, less frequently used collocations, such as \textit{ne?plus}, become \textit{plus} etc. (Labov 1994:597) points towards a phenomenon called probability matching which we use as a generalised learning device. “Throughout a long history of variable relation of non → ne → n → 0, the role of \textit{pas} in identifying the negative sentences was forced into high relief by the process of probability matching [i.e. in matching the probability of production of \textit{ne}; GJD]” (Labov 1994:597).

\textbf{Neologisms} simply involve the coining of new words, such as \textit{blurb}, coined by the American comedian Gelet Burgess in 1907, or the word \textit{gas}, coined by van Helmont in the 17th century, after the Greek word for ‘chaos’, \textit{khaos}. It remains to be determined to what extent these and other processes discussed above play a role as morphological restructuring processes – for example, with lexical modernisation in codified languages as used in educational systems in different African countries.

There is some evidence that taboo on the use of specific words may also affect morphological systems. Compare the following examples from a group of Eastern Cushitic languages, based on Treis (2006). In contrast to e.g. Hadiyya and Sidaama, Kambaata has demonstratives which grammaticalised into gender markers on nouns. Almost all common nouns and place names in Kambaata carry an obligatory suffix -\textit{ta} if they are feminine, or an optional, already eroded, suffix -\textit{ha}, if they are masculine. Compare the following cognates based on Anbessa (1987:48–49).

\begin{tabular}{lll}
Sidaama & Kambaata \\
maxine & maxini-\textit{ta} & ‘salt’ \\
anga & anga-\textit{ta} & ‘hand’
\end{tabular}

However, in Kambaata, there is a special vocabulary used when talking to parents-in-law. These include nouns which lack gender suffixes. They probably represent an older stage of the language, when gender was not yet overtly marked on the noun.

4.4 Syntactic reconstruction

Neogrammarian work in the 19th century was oriented towards the comparative study of morphology and, later on, towards the study of sound change in Indo-European. In addition, the Neogrammarians reflected upon the historical development of word order in this family. Some Indo-European language groups, e.g. Celtic, were known to be verb-initial, while others had SVO word order or were verb-second. Still others, including those for which ancient documents were available, such as Latin or Sanskrit, were verb-final. Delbrück and Windisch (1878) claimed that the position of the finite verb in Proto-Indo-European also was sentence-final. Wackernagel (1892) added an
important observation that particles and pronouns must have occurred in second position (in this respective order). Collinge (1985: 218) states that "Wackernagel himself […] gives credit to Delbrück for discovering the rule […]". This typological property, also attested in various other language families, has come to be known since as Wackernagel’s Law. As pointed out by Hock (1991: vi), “under scholars like Delbrück, the Neogrammarians produced an impressive amount of research […] in historical syntax, especially regarding word order and the use of cases and other morphological categories. This syntactic interest, however, proved to be relatively short-lived”.

Why is it so notoriously difficult to reconstruct syntactic properties? There are probably a number of reasons for this. First, genetically related languages may vary in their constituent order, as the Indo-European case already illustrates. At the same time we observe that variation between languages usually involves alternative positions for the verb within a clause (initial, second, or final). Consequently, languages probably belonged to one of these types (although they need not be “consistent” in this respect, of course). Compared to the kind of variation one finds cross-linguistically with phonological or morphological systems, syntactic variation thus tends to be rather restricted. This situation combined with the fact that word order (constituent order) may change relatively fast, especially in language contact situations, complicates the reconstruction of word order change. The following case may help to further illustrate these points.

As with comparative phonological and morphological studies, one first needs to describe the synchronic distribution of constituent order within subgroups established on the basis of shared (phonological and morphological) innovations. But establishing basic and derived constituent order in a language sometimes is not easy. There may not be just one basic order, as constituent order may be strongly governed by pragmatic principles (e.g. topic and focus marking in a clause) in a language. Within the Western Nilotic branch of Nilotic, for example, one finds languages with SVO order (e.g. those belonging to Southern Lwoo, such as Luo or Acholi), with OVS order (the two languages constituting Northern Lwoo, Anywa and Päri), whereas languages belonging to the Dinka-Nuer cluster within Western Nilotic are best characterised as verb-second languages, whereby the constituent immediately preceding the verb (constituting the topic) may be occupied by the subject or any other constituent; alternatively, this position may be empty, i.e. verb-initial structures may occur. The Burun language group within Western Nilotic is essentially verb-final. This shows that even within a relatively closely related group of languages, one already finds considerable variation. When comparing the syntactic structure of Western Nilotic languages with structures found in the two other branches of Nilotic, Eastern Nilotic and Southern Nilotic, one finds less dramatic variation. Constituent order in Eastern Nilotic as well as Southern Nilotic languages varies between SVO and VSO/VOS. Sometimes, external evidence may be used (as in phonological and morphological reconstruction) in order to establish the
most plausible historical scenario. But this argument is not so easy to apply to Nilotic either. Within the language group most closely related to Nilotic, namely the Surmic family within Eastern Sudanic (Nilo-Saharan), one finds a similar degree of variation between verb-initial, verb-second and verb-final languages. It consequently becomes difficult to argue in favour of the one or the other hypothesis simply on the basis of the synchronic distribution of alternative constituent order systems.

In the case of Semitic, sources dating back at least 4000 years point towards a verb-initial structure for the earliest stages of this family. The verb-final word order in the extinct language Akkadian is usually assumed to be the result of areal contact with a linguistic isolate spoken in the same area, Sumerian, which had a similar structure (Deutscher 2009). A verb-final syntax is also attested in Ethiopian Semitic. But the oldest sources for these Semitic languages, e.g. for Géez (the earliest inscriptions in this language probably dating back more than two millennia) again show remnants of an earlier verb-initial structure. This restructuring of Ethiopian Semitic languages towards a verb-final-structure, probably under the influence of neighbouring Cushitic and Omotic languages, is taken up again in Chapters 8 (on borrowing) and 13 (on language typology).

Apart from areal contact, syntactic restructuring may be triggered by language-internal processes – for example, the reanalysis of structures by analogy with other existing structures, Mous (2005) argues that analogy played a role in the history of the Bantu language Nen (Tunen), a member of the Mbam cluster (zone A, Cameroon) within Bantu. More specifically, Mous (2005) discusses the origin of OV constituent order in Nen, which contrasts with the SVO order common in most other Bantu languages. OV word order does occur in a number of neighbouring Mbam Bantu languages, but “Nen is unique among its closest relatives to have extensive Object-Verb word order” (Mous 2005: 412), although objects (still) follow the verb in imperative clauses. The pronominal subject marker plus tense complex together constitute a separate word in languages in this area, unlike in many other Bantu languages where these markers are attached to the verb. The position of the object does not depend on the tense-aspect-mood marker in Nen. The object in preverbal position carries assertive (or complement) focus (Mous 2005: 419), whereas the post-verbal position developed the pragmatic function of contrastive focus marking (Mous 2005: 423).

\[
\begin{align*}
\text{më-ndò} & \quad \text{bòniàkà nê} \\
\text{1sg:pro} & \quad \text{yams eat} \\
\text{‘I am eating yams’} \\
\text{më-ndò} & \quad \text{nê à bòniàk} \\
\text{1sg:pro} & \quad \text{eat contr yams} \\
\text{‘what I am eating is yams’}
\end{align*}
\]
Objects precede infinitive verbs in different Bantu languages belonging to zones A, B, C as well as Ekoid (Southern Bantoid). The object and infinitive verb are preceded either by a locative particle or a formally identical infinitive marker; these complement phrases are preceded by (auxiliary) verbs.

\begin{itemize}
  \item \textbf{Punu (B43)}: Infinitive Object \textasciitilde Object Infinitive
  \item \textbf{Buja (C37)}: Preposition Infinitive Object \textasciitilde Preposition Object Infinitive
\end{itemize}

Mous (2005: 422) further points out that pronominal objects commonly precede the verb in Mbam Bantu languages, the cluster to which Nen belongs; the same pre-verbal position may also be filled by an adverb or repeated subject pronoun. The author further contends (p. 423) that these constructions constituted the historical origin for the generalisation of OV order, whereby O could also be a full (nominal) object (or object noun phrase) in Nen. Areal influence from more distantly related Bantoid languages with OV order (e.g. Aghem, Ejagham, Tikar) may have played a role as an external factor triggering word order change in Nen and other Mbam languages (Mous 2005: 424).

A shift in markedness from an erstwhile marked structure involving special word order and used for special purposes (such as focus marking) into an unmarked structure as a result of the increased use of such a construction, is probably a widespread cause for syntactic restructuring. What the Nen case further shows is that constituent order apparently can change relatively fast. As with morphological change, syntactic reanalysis may occur where more than one analysis is possible. Such reinterpretations consequently emerge from the internal dynamics of the system.

Apart from syntactic reanalysis triggered by analogy and shifts in markedness, syntactic restructuring has been argued to be geared by grammaticalisation processes. This latter mechanism is explained in the following chapter after a review of semantic changes, and further elaborated upon as a historical process in Chapter 13.
Chapter 5

Semantic change

5.1 Stating the problem
A few decades ago, a fascinating study was published on the Proto-Bantu etymon *-bánjá by Grégoire (1976), who reconstructs this lexical root on the basis of its widespread attestation in Bantu; moreover, the various formal reflexes of this reconstructed root can be accounted for on the basis of regular sound shifts from Proto-Bantu.35 Grégoire reconstructs its original meaning in Proto-Bantu as 'land prepared for building', as this is the meaning attested in a wide range of Bantu languages belonging to different zones, e.g. D, F, G, J and M. But apart from this meaning we find a variety of other meanings synchronically in Bantu. Grégoire (1976) shows how these changes in the referential meaning of this Proto-Bantu form must have developed by way of subtle intermediate steps. She posits semantic shifts from 'land prepared for building' to 'site of the house' (as in Mongo, zone C) and subsequently 'family branch' (as in Bolia, zone C) or 'village where the chief resides' (as in Mbala, zone H), and 'cemetery' (as in Kikongo, zone H). The original noun stem probably took a class 7 noun-class prefix (*ki-). These shifts in meaning are best understood as extensions of its original meaning, whereby shifts towards other noun classes also resulted in additional shades in meaning. Thus, its reallocation in class 11 (Proto-Bantu *du-) coincides with the development of the meaning 'court' or 'trial'. This phenomenon is known as the “autonomous use of noun classes” in the study of Bantu languages.

35. The word etymon derives from the Greek word for 'true', in the sense of original or true meaning of a word.
The modifications in the referential domain posited by Grégoire (1976) present an elegant illustration of more common changes in languages as a result of shifts in the referential meaning of words. As shown below, these shifts are instances of specific types of metaphorical and metonymic changes which are more common cross-linguistically. Nevertheless, no one so far appears to have succeeded in developing a general theory of semantic change along similar lines as that for historical phonology or morphology. Just as many authors of synchronic studies of languages tend to shy away from semantics, historical linguists often feel uncomfortable dealing with this domain as well. Many comparativists writing handbooks on the comparative method essentially avoid the issue, or devote only a few pages to the topic of semantic change. This is probably not a coincidence. Expressing and interpreting meaning is what language is all about ultimately. But this domain also constitutes the most intricate part, in particular from a cross-linguistic point of view. The laws of semantic developments apparently are not as obvious as sound changes, morphological restructuring, or syntactic changes. Anttila (1989: 229) points out in this respect that "there are no exact rules for handling semantic change; the final factor here is necessarily the common sense and the experience of the individual scholar". One complicating factor in the development of a general theory of language change is due to the fact that culture-specific recontextualisations sometimes play a role. Thus, the Dutch word for 'shop', winkel, is cognate with Winkel in the closely related language German, where it means 'corner'. Historically, this extension may be understood from the fact that during medieval times (but also later) merchants selling products outside on the street used to have their own 'corner' (i.e. Winkel). The word subsequently came to be used as a description for 'shop', through an identification of the referent (the thing referred to) by something associated with it, i.e. through metonymic extension. Tracing the rationale behind such reinterpretations often requires knowledge of specific cultures, as the examples from Grégoire (1976) also help to illustrate. Clearly, then, there is a cognitive as well as a culture-specific dimension to semantic change.

In the 1820s the classicist Reisig set up a discipline which he called semasiology, aiming at an investigation of the conditions governing the development of meaning in words (cf. Kronasser 1952: 29). Bréal (1897), a pioneer of his days, probably introduced the term semantics, as well as concepts still relevant in lexical-semantic studies today, such as synonymy and homonymy. One property of the lexicon thus concerns synonymy, the existence of different phonological words which have very similar (or some might claim, the same) meanings, e.g. large and big. Total (as against near) synonymy is probably rare, as there usually is "some semantic differentiation in terms of the linguistic, social, or cultural contexts in which two words can be used" (Hock 1991: 283). Such domains may be subject to reinterpretations by speakers and hearers, thereby resulting in a decrease or increase of the referential domain of words.
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The lexicon does not consist simply of a list of lexemes or words. What we find instead is a listing organised in a network with lexical relations.36 Lexemes thus are organised into semantic fields, as probably stated explicitly for the first time in Trier (1931). Some of these semantic relations are ordered according to partonymic relations. A hyponym, for example, includes the meaning of a more general word. The latter may take over the role of hypernym (or superordinate) or vice versa. Compare the English word fowl (Old English *fugol) for a type of bird, and its cognate in German, Vogel, for ‘bird (in general),’ which represents the older meaning. Or English deer, which once meant ‘animal (in general),’ as it still does in related languages like Dutch (dier) or German (Tier), and its narrower meaning, that of ‘cervine animal’ in English.

A further characteristic of the lexicon in many languages is the fact that one and the same (phonological) word may cover a range of related senses, a phenomenon known as polysemy. This common property of languages may be interpreted as another manifestation of the economy principle in language. Both the synonymous and the polysemous nature of specific words create space for reinterpretation, multiple interpretation, or occasionally, misinterpretation.

Languages also allow for a certain degree of homonymy, i.e. unrelated senses of the same phonological word. Most of the time we can cope with such ambiguities, because contexts and knowledge about the world in which we live usually help to disambiguate such words.

From a formal point of view, reinterpretations as manifestations of semantic change involve either a narrowing (specialisation, restriction) or a widening (broadening, or less precise, generalisation) of meanings. The English word meat, for example, has cognates elsewhere in Germanic. Thus, in Swedish a cognate form mat is found, meaning ‘food.’ This was the old Germanic word for ‘food,’ which in English came to mean a specific type of food. What this example illustrates is a decrease in, or narrowing down of, the referential domain for a specific word. Alternatively, with widening the extension is increased, but the “intention” is reduced as it becomes applicable to more things but telling us less about them.

Wilkins (1996:269) observes that “[i]t is important to realise that all semantic changes within a speech community involve polysemy at their beginning point or at their endpoint”. Heine (1997:82) refers to this transitional phase of polysemy as the stage of overlap. Two meanings may co-exist for some time, possibly not simultaneously with all members of a speech community. Furthermore, parallel to the pool of variation found in phonology or morphology, this variation sets the basis for reinterpretations of different kinds. Such “bridging contexts”, as Evans and Wilkins

36. It has been suggested, e.g by Lakoff (1987), that for many words there are also proto-typical and less good representatives (e.g. for ‘bird’). The relevance of such semantic networks is not further explored here.
(2000: 550) call the phase where meaning B is only contextually implicated but not yet lexicalised as a distinct sense, sometimes result from inferences drawn from culture-specific encyclopedic knowledge, according to the same authors (p. 580). In other cases they appear to result from more general cognitive strategies we use as speakers (and hearers), as research in cognitive semantics has shown over the past few decades. The semantic, as against the formal, nature of this widening or narrowing process is central to the next section.

5.2 Metaphors and metonymy

The Greek philosopher Aristotle already distinguished between words which have their meaning by nature (phýsei) through an intrinsic correspondence between form and meaning, and arbitrary signs based on social convention (or thései, as it was called by the ancient Greeks). The former are discussed below, the latter are central to Section 5.3.

Whereas considerable progress has been made in our understanding of historical changes in phonological and morphological systems, the diachronic study of semantic restructuring in general, and in African languages in particular, is still in its infant stages. We do know, however, that metaphors play an important role in the grammaticalisation and regrammaticalisation of morphemes. A metaphor is the application to one thing of a name belonging to another, as Aristotle put it in De Arte Poetica. The family tree representing genetic relationships is a language metaphor, as are the diagramming relations within sentences. There are good reasons to believe that these cognitive phenomena play a role within the lexicon as well.

In an important study using the semantic field ‘parts of a person’ as a basis, Wilkins (1996) shows that there are indeed natural tendencies of semantic change involving core vocabulary. The author compares 41 entries using data from Dravidian, Bantu, Indo-European, and Tibeto-Burman languages. Interestingly, approximately 70% of the recorded changes patterned into cross-linguistic natural tendencies. Of the remaining 30%, several were clearly culture-specific changes (Wilkins 1996: 272). According to the same author, there are five natural tendencies, of which only the first one is assumed to be unidirectional (expressed by way of an arrow, →). Thus, as the first chain of semantic change shows, a word originally meaning ‘navel’ may develop, via a chain of subtle semantic shifts into a word meaning ‘person’ in the course of its history.

1. Visible person-part > the visible whole of which it is a part (‘navel’ → ‘belly’ → ‘trunk’ → ‘body’ → ‘person’).

2. Person-part > spatially contiguous person part within the same whole (‘belly’ ↔ ‘chest’, or ‘skull’ ↔ ‘brain’).
3. Terms referring to parts of the upper body > parts of the lower body and vice versa. ('elbow' ↔ 'knee').
4. Term for an animal part > person part ('beak' ↔ 'face').
5. Verbal action involving the use of a particular person part > that person part ('walk' → 'leg'; 'hold' → 'hand').

Wilkins (1996) does not make this point, but it is clear from typological studies, e.g. by Andersen (1978), that languages tend to have more terms for the upper part of the body than for the lower part, and more terms for the front part of the body than for the back. Consequently, an additional cognitive principle may manifest itself here: Words for cognitively prominent body parts may come to be used for cognitively less prominent ones. Thus, in the Western Nilotic language Päri we find waŋ-um lit. 'eye-nose' for 'nostril'. In the Eastern Nilotic language Turkana 'foot sole' is described as the 'heart of leg', etao a kejo. Moreover, the lower a term occurs within this partonymic hierarchy, the higher the chances that such expressions for body parts are expressed by way of morphologically complex forms. Visual features as well as spatial proximity play an important role in the semantic expressions used for these and other lexemes involving metaphors (e.g. in expressions for shape) as well as metonymic extensions or associations.

Wilkins (1996) adds an important and enlightening observation to his taxonomy of semantic changes through the use of concepts like **intrafield** and **interfield changes**. Intrafield changes involve changes belonging to the same semantic field (mapping of perception and cognition); interfield changes, on the other hand, involve changes in meaning of different semantic fields. This results in the following four types of changes:

1. **Intrafield metonymic changes**, for example 'finger' → 'hand'.
2. **Intrafield metaphoric changes**: 'cheeks' → 'buttocks'.
3. **Interfield metonymic changes**: 'slap' → 'palm (of hand)'.
4. **Interfield metaphoric change**: 'boiled rice' → 'brain'

With intrafield metonymic changes, semantic extensions stand in a contiguity relationship with the original term. Thus, a change from 'eye' to 'face' is common cross-linguistically. Compare Western Nilotic Dinka: nyin 'eye', nyin raan 'face (lit. eye of a person').

Another case is the common extension of 'tongue' or 'mouth' to 'language'. Compare Latin *lingua* for 'tongue' as well as 'language', or the parallel strategy in the Nilotic language Bari, where the Proto-Nilotic root *-u tok* 'mouth' has a reflex *kotok* (the initial k- being a reflex of a locative marker, as body part terminology often tends to be used in a locative sense). The Bantu term *-dimi* for 'tongue' also has reflexes meaning

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37. (The word metaphor, from Greek *metaphor*ón, refers to transference, whereas *metónomia* refers to the transformation of a name.)
‘language’ synchronically in a range of languages, e.g. -limi in Zulu. The Proto-Bantu term itself may reflect an ancient interfield metaphorical change. In the distantly related Niger-Congo language Timia (classified as Kordofanian in Greenberg 1963), the root -lem means ‘lick’, whereas the suffix is an archaic agentive marker, hence ‘the licker’ or ‘instrument for licking’ for ‘tongue’.

**Synecdochic change** (from *synedokh* ‘inclusion’), i.e. the use of the whole to denote a part, or the use of a part to denote the whole, is also a common process which may be interpreted as a special kind of metonymic extension. Compare the shift from Proto-Bantu *-yádá ‘fingernail’* to ‘finger’ in Gikuyu, also involving the autonomous use of noun classes: ke-ara ‘finger’ and ro-ara ‘fingernail.

Intrafield metonymic change is also widespread with body part terminology, as in the metaphorical extension for ‘wrist’ as ‘neck-of-hand’ in Hausa, wíyá-ř hánnúú. Anthropomorphic projection is common in fact with body part terminology, e.g. with ‘boss of the hand’ for ‘thumb’ in such distinct languages as Amharic and Igbo (Andersen 1978). Similarly, ‘toe’ may be represented through intrafield metaphorical extension as ‘child of the foot’ in Yoruba, or ‘mother/father/parent of the hand’ in Gikuyu; the same extension is attested in such genetically distinct languages as Standard Chinese, Quechua and Lakhota. Finally, a widespread metaphor involving an intrafield change concerns the word for ‘child’, which often has the additional meaning ‘fruit (of a tree)’ across Africa. Another metaphorical extension, common in particular in Niger-Congo languages, but also attested in neighbouring languages belonging to other phyla (compare Heine and Leyew 2008), concerns the extension from ‘animal’ to ‘meat’.

As an example of an interfield metonymic change, Wilkins (1996) mentions the link between ‘slap’ and ‘palm (of hand)’. Lamberti (1993:27) reports the use of the word for ‘hand’, kushu, in order to express ‘give’ in elevated (respectful) speech in the Omotic language Yemsa. Presumably, there is some morphological (i.e. derivational) procedure involved in such changes as well, at least historically, linking the physical activity and the person or instrument performing the action.

Intrafield metonymic changes would seem to be particularly common with respect to animal names. Circumscription in the case of psychological factors such as fear, propriety, delicacy, or decency, is known from Indo-European languages – for example, in the word for ‘bear’, which is found in Lithuanian as lokys ‘he who licks’, or Old English bera from the word for ‘brown’ (Hoenigswald 1960: 65). In African languages, words for ‘snake’ may be rendered as ‘biter’ through interfield metonymic change from a nominalised construction. Alternatively, the word for ‘snake’ may be derived through intrafield metaphorical extension from the word for ‘rope’.38 Kleinewillinghöfer

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38. The Bantuist Meeussen once argued that there is a link historically in Niger-Congo between ‘bite’ and ‘male person, man’ (i.e. ‘the biter’ in Niger-Congo (Meeussen; lecture notes 1973)). Compare the formal similarity between the two lexical roots in numerous languages belonging to this phylum.
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(1995: 127) mentions the circumscription ‘thing which smells’ for ‘ant’ in Longuda; the lexical replacement occurred apparently after somebody named ‘ant’ died.

The meaning of some words in English resulted from metonymic extension as applied to their inventor’s name (e.g. sandwich, after its inventor the 4th Earl of Sandwich, John Montague, or his cook probably) or from the discoverer of units (volt, ohm).39

As shown in Andersen (1978), specific metaphors are preferred in the case of body part terminology, and thereby as innovations in this realm. Thus, it is common to associate the shape of the eye with that of a kernel (of a fruit). Alternatively, a stone or pebble may serve as the source for metaphorical transfer. The widespread word for ‘seed’ in Surmic languages also means ‘eye’. Obviously, visual shape plays an important role here. Although there may be cross-linguistic tendencies rooted in our cognitive system, one always has to be careful with claims about unidirectionality. In the Nilotic language Bari the meaning of the archaic word for ‘eye’ in Nilotic (‘wanj; Dimmendaal 1988: 40) has been extended, for example, through an interfield metaphoric change, to ‘fruit’ (rather than the other way round), as in kJuan lu ködìní ‘fruit’ (lit. ‘eye-of-tree’). In fact, interfield changes of this type appear to be common in Bari:

\[
\begin{align*}
\text{kume} & \rightarrow \text{nekenet} \\
\text{nose} & \rightarrow \text{gen} \text{ rope} \\
\text{‘rope end’} & \\
\text{mokosi} & \rightarrow \text{ti} \text{ kɔβɔ} \\
\text{legs} & \rightarrow \text{gen} \text{ sun} \\
\text{‘sun beams’} & \\
\text{kwe} & \rightarrow \text{ma} \text{ mere} \\
\text{head} & \rightarrow \text{gen} \text{ mountain} \\
\text{‘top of a mountain’} &
\end{align*}
\]

The human body itself constitutes a popular source for interfield metaphoric changes. Thus, in the Nilotic language Pâri, words for specific parts of a house are based on body part terminology. Compare:

\[
\begin{align*}
\text{wanj} & \rightarrow \text{otto} \\
\text{ear} & \rightarrow \text{house} \\
\text{‘window’} & \\
\text{ko} & \rightarrow \text{otto} \\
\text{breast} & \rightarrow \text{house} \\
\text{‘wall’} &
\end{align*}
\]

39. See also Lakoff and Johnson (1980) for a survey of different types of metaphors and metonymic extension. Hock (1991) also considers hyperbole (exaggeration, Greek hyperbolē ‘excess’), litote (understatement, from Greek litōtēs ‘smoothness, plainness’) and euphemism to be subtypes of metaphors.
Image expansion, as against the alternative process image reduction, for body part terminology towards the description of objects or landscapes, or positions relative to those objects in order to specify the search domain for these objects, is common cross-linguistically. This tendency towards anthropomorphic projections was already observed by the 18th-century philosopher Giambattista Vico, according to Ullmann (1963: 241). As shown in the survey by Brown (1983), such extensions are also commonly used to express cardinal directions. Compare also Dimmendaal and Rottland (1996) for examples from Nilotic and Surmic languages.

Clearly, culture-specific experiences also play an important role in interfield metaphorical extensions. In a nomadic pastoral culture, we may expect to find different metaphors being conventionalised from those in an agricultural society, because of what is meaningful to people on a day-to-day basis. For Proto-Nilotic, a root *pɔɔl ‘cloud’ can be reconstructed, based on reflexes in two of the three branches (Dimmendaal 1988: 35):

*pɔɔl ‘cloud’ (Proto-Kalenjin; Southern Nilotic)
*pool ‘cloud’ (Proto-Western Nilotic)

This root does not appear to be attested in Eastern Nilotic. In one representative of this later branch, Bari, we find a reflex of another Proto-Nilotic root dık meaning ‘coagulated, clotted (of milk)’ with the following meaning:

diko ‘cloud’
dık-to ‘be covered with rain clouds’

This semantic change is best explained through (interfield) metaphorical extension, using daily experience of a predominantly pastoral people (dealing with the consistency of milk) as a source for the description of a sky covered with similar clods.

5.3 Grammaticalisation theories

In the discussion of semantic changes above we saw that body part terminology frequently plays a role in structures involving metaphors and metonymy. Body part terminology and anthropomorphic projection in general, plays an important role, for example, in the expression of location cross-linguistically; see Dingemanse (2009) for an interesting interpretation.

Whereas many Bantu languages use special prefixes or proclitics in order to express location or direction with nouns, languages like Swahili and other eastern and southern Bantu languages use an enclitic marker (i)ni, as in Swahili nyumba ‘house’, nyumba-ni ‘in/towards the house’, in addition to the (inherited Proto-Bantu) locative classes, or instead of the latter. Samsom and Schadeberg (1994) argue that this marker
is etymologically related to the nominal root -ini ’liver’, which is still attested in Swahili and other Bantu languages). Such grammatical markers emerging from lexical items are also referred to as grams.

Body part terminology is indeed commonly used cross-linguistically to specify the search domain for objects. Thus, ‘head’ may be used to express ‘on top of’, or ‘face’ may come to express ‘in front of’ etc. When historically free forms develop into bound forms through cliticisation and subsequent affixation, the phonological (and phonetic) substance of the form may also become reduced (e.g. *-ini > -ni ’), and the inherent meaning may be modified as well; for further historical and typological interpretation of grammaticalisation phenomena in Bantu, see Güldemann (1999, 2003).

Such reinterpretations of lexemes, affecting the morphosyntactic, semantic and phonological status of words or morphemes, is commonly referred to as grammaticalisation, a term probably introduced by Meillet (1912: 131), who used the French term ”grammaticalisation” to describe ”le passage d’un mot autonome au rôle d’élément grammatical”, i.e. the shift of an independent word to the status/role of a grammatical element.

Grammaticalisation or grammaticisation theories have become a popular topic of research in historical-comparative linguistics over the past two decades. But the tradition itself is at least two hundred years old. Étienne Bonnot de Condillac (1746, quoted in Heine 2003: 575) already argued, for example, ”that tense suffixes and other verbal inflections can be traced back to independent words”. 19th century scholars like Franz Bopp, Georg von der Gabelentz, Wilhelm von Humboldt and 20th century scholars like Antoine Meillet already pointed towards a range of grammaticalisation phenomena; see Heine (2003) for a more extensive historical survey. Langacker (1977: 106–107) describes human language as a compacting machine in this respect:

"It would not be entirely inappropriate to regard languages…as gigantic expression-compacting machines….The machine does whatever it can to wear down the expressions fed into it. It fades metaphors by standardizing them and using them over and over again. It attacks expressions of all kinds by phonetic erosion. It bleaches lexical items of most of their semantic contents and forces them into service as grammatical markers. It chips away at the boundaries between elements and crushes them together into smaller units."

Current grammaticalisation theories make extensive use of metaphors derived from geological studies, e.g. erosion, the wearing down of a morpheme. This metaphorical representation may be seen as a modern variant of August Wilhelm von Schlegel’s

40. Alternatively, the marker goes back to an ancient locative verb *ni in Benue-Congo (Anne Storch, personal communication).
"Papier-geldtheorie" (paper money theory), according to which words lose semantic value or specificity, in order to be used in more general contexts.\(^{41}\)

The Africanist Bernd Heine directed a research team on grammaticalisation from the 1980s onwards, and it primarily derived its data and conclusions from African languages. In one of the first publications emerging from this research project, Heine, Claude and Hühnemeyer (1991), a model is presented in which metonymic and metaphorically-based changes play a central role. Thus, concrete expressions as a source or vehicle may come to be used in new contexts, often with more abstract senses, to encode grammatical meanings as targets or tenors, based on a perceived similarity or resemblance between two entities. According to the transfer model of Heine, Claude and Hühnemeyer (1991: 48ff), metaphorical processes may result in the following chains:

\[
\text{PERSON} \rightarrow \text{OBJECT} \rightarrow \text{ACTIVITY} \rightarrow \text{SPACE} \rightarrow \text{TIME} \rightarrow \text{QUALITY}
\]

The authors cite the word for ‘back’ in Ewe, \(m\text{e}g\text{b}\text{ê} \), in order to illustrate the context-induced reinterpretation and metaphorical extension of an object (‘back’) towards a spatial marker (‘behind’), a temporal marker (‘late’) and an expression for quality (‘backward, dull’).

In an earlier survey of evolutionary processes accompanying grammaticalisation, Heine and Reh (1984) argued that there is a phonetic dimension (involving adaptation, erosion, fusion and loss of sounds) as well as a morphosyntactic dimension involved in such changes. Thus, free forms may permutate or they may become phonologically dependent on other words, i.e. they may develop into clitics, and move through subsequent cycles such as affixation, infixation, or fossilisation. Common semantic or functional processes, according to the same model, involve desemanticisation or bleaching, expansion, simplification, and merger of linguistic units.

Such grammaticalisation chains may also result in a functional split, e.g. an adverb may develop into a (modified) tense marker, but retained in full form elsewhere.\(^{42}\) This may be illustrated with the following example. In Swahili, a future marker \(-t\text{a-/-taka-}\) is attested, the latter occurring in relative clause forms, whereas the shorter former is found in all remaining syntactic contexts.

\[
\begin{align*}
\text{watoto} & \quad \text{wa-ta-kuja} & \quad \text{leo} \\
\text{children} & \quad \text{cl2:SU-FUT-come} & \quad \text{today} \\
& \quad \text{‘the children will come today’}
\end{align*}
\]

\(^{41}\) Von Schlegel was also one of the intellectual fathers of morphological typologies. His evolutionary model, according to which languages develop from isolating into agglutinating and, finally, flexional, was superseded by more modern non-evolutionary, cyclic approaches.

\(^{42}\) Carlson (1991), for example, describes how serial verbs develop into verbids and, subsequently, prepositions or postpositions in the Senufo languages of southeast Mali, southwest Burkino Faso, northern Ivory Coast, and northern Ghana.
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Watoto  wa-taka-o-kuja  leo
children  cl2:su-fut-rel-come  today
‘the children which will come today’

(cl = class; su = subject marker; fut = future marker; rel = relative clause marker)

Describing elements such as -ta- as being desemanticised or bleached, i.e. subject to semantic reduction, is somewhat unfortunate, as these elements do not necessarily become less meaningful; rather, their meaning is modified. The term resemanticisation or semantic restructuring (with loss and gain of semantic properties) presumably is more appropriate. It is also important to keep in mind that none of the phonetic or morphosyntactic processes occurring in the Swahili example above are unique to grammaticalisation. Phonetic processes such as erosion or loss in phonetic substance presumably are related to speed, and in this sense are epiphenomenal, rather than being an independent property of semantic change itself (Fortson 2003). As we saw in Chapter 2, speed of speech comes in as a factor causing sporadic changes in the normal cause of language development. This is also obvious when comparing pidginised varieties of English with their lexical base, British English. Sankoff and Laberge (1973) observe that the rate of speech for native speakers of Tok Pisin is much faster than with second language speakers. Such speech behaviour, which is presumably caused by the automatisation of specific speech routines, easily leads towards the deletion of segments, including functional morphemes. Compare the reduction of the following words in Tok Pisin:

*bilong* (from English belong) > *blo*  ‘of’

*sav* (from Portuguese sabir) > *sa*  ‘be accustomed to’

The same process may affect not only lexical items, but also grammatical morphemes, as in the Swahili example above. Since functional morphemes belong to closed sets, their phonological reduction does not easily lead towards homonymic clash with other morphemes in the same functional paradigm slot, a phenomenon which potentially impedes or blocks phonological reduction in lexical items, as these belong to open sets. Moreover, the syntagmatic influence from neighbouring (lexical) morphemes, causing assimilation for example, is a process which is not unique to grammaticalisation either. This also holds for modifications in the morphosyntactic status of morphemes – for example, when prosodically deficient forms such as monosyllabic words become phonologically attached to adjacent words. Swahili has an accentual system whereby the prefinal vowel (either in the prefinal syllable or the first of a long word-final vowel) receives prominence. The shortened form of the Swahili word *wapi*  ‘where’, *pi*, automatically becomes part of the preceding word, because monosyllabic words cannot receive penultimate accent.

1st proofs
As this example shows, the frequent co-occurrence of two words may result in a re-interpretation of their morphosyntactic status. Consequently, it could be argued that grammaticalisation theory is not a theory, but rather a confluence of partly independently operating principles none of which are unique to grammaticalisation. This leaves us with semantic reinterpretation as a domain where processes unique to grammaticalisation phenomena might be observed.

The development of the verb ‘want’ in Swahili into a future marker would be an example of a common type of semantic change. This transfer of a volitional towards a proximative interpretation through indeterminacy about volitionality is more common cross-linguistically. Compare English will, which is cognate with German wollen ‘want’; see Bybee, Perkins and Pagliuca (1994: 255ff) for further details. Another source for a future tense marker, apart from volitional verbs and motion verbs such as ‘come’ and ‘go’, is described by Botne (1998) for a group of Central Eastern Bantu languages. Here, a near future marker emerged from an utterance verb ‘say’. Thus, in eastern Tumbuka the tense marker -ti- (from *-tɪ ‘say’) originated from a serial construction consisting of a subject prefix plus the root ‘say’ followed by another subject prefix plus verbal root and an inflectional marker:

\[
\begin{align*}
\text{wa-ti} & \quad \text{wa-lut-e} \\
3\text{su-say} & \quad 3\text{su-go-fv} \\
\text{‘(s)he will go}’ \\
(fv = \text{final vowel; su = subject})
\end{align*}
\]

In the closely related Bantu language Tonga, such complex predicates fused and merged into one phonological word, as a result of which the tense marker is now to be interpreted as a prefix (Botne 1998: 211). A similar development from a verb ‘say’ via intention towards future is described for the Cross-River (Niger-Congo) language Obolo by Aaron (1996–1997). It is probably this experience, the fact that similar grammaticalisation chains and semantic shifts can be observed in language after language, which led to modern grammaticalisation theories.

Languages do not change overnight, neither in their phonological system, nor in other parts of their grammatical structure. This also applies to semantic changes. There must be either an overlap or a transition towards a new system or their status must be ambiguous, with either case resulting from reinterpretation. Extension or use in new contexts (second use pattern, with the effect that there is ambiguity between the two meanings), pragmatic inferencing, or context-induced reinterpretations all play a role, as indicated by Heine (2003: 580). The interested reader is also referred to the World
Traditionally, semantic change has been studied from a synchronic perspective, focusing on the historical development of specific words or phrases. However, recent studies have expanded the scope to include diachronic processes that involve broader changes in grammatical categories. For example, Traugott (1989) has identified a diachronic process in the historical development of English in which specific words changed from a propositional (lexical) meaning towards a more discourse-based (textual) and expressive meaning, indicating the speaker’s attitude. She focuses on modal auxiliaries like ‘must’ and modal adverbs like ‘apparently’ in English amongst others. Traugott and König (1991) and Dasher and Traugott (2002) attach a central role to metonymy in this type of semantic change since it involves an increase in pragmatic function, namely the strengthening of informativeness.

Lexicon of Grammaticalisation by Heine and Kuteva (2002) for an inventory of (presumed) chains, paths or pathways (also called trajectories), and theories on the origin of different grammatical categories and their historical development.

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The historical role of so called invited inferences arising in the use of words in different contexts has been illustrated for Turkana in Dimmendaal (1996) with respect to so-called attitude markers. In this Nilotic language, the original marker for ‘one’, *bo*, has been replaced by another root, -pey, but the former is still attested as a concessive marker, *bo ‘only’* (the latter word in English of course is also related etymologically to the numeral ‘one’ in English); the marker *bo* in Turkana makes an utterance less inquisitive.

\[
\text{à-bàlà \ bo \ ayìŋ ‘I only said’} \\
\text{1sg-say \ att \ 1sg:nom}
\]

(1sg = first person singular; att = attitude marker; nom = nominative case)

Another example of the “subjectivisation” of meaning is the alternative use of the verb -ica ‘shine, glitter’ as a marker expressing surprise or counter expectation on the part of the speaker in Turkana:

\[
\text{è-twàn-it’ \ cà} \\
3\text{-die-a \ att} \\
\text{‘(s)he is almost dead!’} \\
\text{a = aspect marker; att = attitude marker}
\]

The last example presents a case of so-called heterosemy (Lichtenberk 1991, Enfield 2006), a phenomenon whereby related forms and their different, but related, senses belong to different morphosyntactically determined grammatical categories synchronically. In the ‘Turkana’ example above, we are dealing with a form going back to a verb ‘shine’, which is used as a secondary predication expressing an interpersonal meaning. These and other attitude markers in Turkana thus are instances of subjectification, in that its meaning is pre-empted to that of an exclusive focus marker, expressing the speaker’s “relative ranking of alternatives within a set” (Traugott 2003). As a next step in the development, intersubjectification occurs, i.e. its meaning became more centred on the addressee.
In her pioneering study on evidentiality marking in languages, Aikhenvald (2004: 287) points out that evidentiality markers result from the grammaticalisation of forms from both open classes (mostly verbs, more rarely nouns) and closed classes (deictic markers, pronouns, locationals). According to the same author, metaphors are the underlying driving force of the occurring semantic changes. Evidentiality marking is a poorly studied aspect of African languages, and is usually restricted to discussions of reported and direct speech or tense-aspect marking. The interested reader is referred to Aikhenvald (2004) for further discussion.

Instead of grammaticalisation, *regrammaticalisation* may occur, i.e. a shift from one grammatical function towards another. With *degrammaticalisation*, a process which is also known as morphologisation, a morph changes from a meaning-bearing unit into an empty morph. Examples of this kind are quite numerous in a number of sub-branches within Nilo-Saharan, in particular in Surmic and Nilotic languages. Compare the list of recurring “empty” morphs in the Nilotic language Turkana, as described by Dimmendaal (1983a: 253): -sɪ/-si-, -mɑ/, -ŋa/-, -ka-. Similar empty morphs are found across Nilotic as well as the closely related Surmic languages. They seem to be reflexes of prepositional and nominal attributive markers used to introduce nominal modifiers, and describing phenomena in the natural world. Compare the formative a- in the Anywa word a-tug-cetl ‘rhino’ (lit. that one with one horn) for ‘rhino’ (Reh 1996: 74).

Traugott (2003: 124) no doubt is right in claiming that “[w]hen the history of historical linguistics in the 20th century is written, one recurrent theme will surely be the hypothesis that certain types of change are unidirectional. This hypothesis takes many forms, but is probably most widely associated with historical cross-linguistic, typological work, much of it devoted to the correlations among changes in meaning and morphosyntax known as grammaticalisation”. As argued above, only specific semantic (as opposed phonological or morphological) changes are unique to grammaticalisation. But even with respect to the semantic domain, some critical comments are needed, in particular concerning the presumed unidirectionality of change, as the following cases should help to show.

It is claimed by Heine, Claudi and Hühnemeyer (1991), for example, that there is a unidirectional grammaticalisation chain whereby entities denoting OBJECTS may develop a meaning ACTIVITY. Nevertheless, the inverse process is also common. A widespread technique for deriving names of animals in Nilotic languages, for example, is by using attributive phrases describing their proto-typical features (as with the word for ‘rhino’ in Anywa above) or activities. Such adjectives or related types of attributive nominal modifiers are frequently reinterpreted as nouns in these languages. This appears to be particularly common with words referring to animals. In Southern Nilotic, a prepositional element introducing such phrases, *kip-*, is found, as in *kip-ngɔk* ‘like...
a chicken’ and the corresponding noun for ‘chicken’ *mg’kɔk*; the form *kip-sirich* means both ‘rhino’ and ‘as a rhino’ (the meaning of *sirich* is not known). What these processes show is that attributive phrases expressing qualities may develop into nouns expressing objects.

Nouns may be used at the syntactic level to express a location, thus structurally functioning as adpositions. But, again, the inverse process occurs as well, as in modern Dutch, where a diminutive suffix may be added to prepositions in order to coin nouns:

- *uit* (English ‘out’) → *uitje* ‘a day out/evening out (for entertainment)’
- *vooraf* (English ‘before (hand)’) → *voorafje* ‘a starter (with dinner)’
- *toe* (English ‘also, too’) → *toetje* ‘dessert (with dinner)’
- *om* (English ‘around’) → *ommetje* ‘a detour, short trip in order to relax’

Such processes should warn us against claims on unidirectional change, because the latter do not reflect the nature of human language (in the present author’s view), even if some changes are more common than others.

Another example, involving regrammaticalisation may help to illustrate the danger of claims on unidirectional changes. Heine and Kuteva (2002: 84–88) claim that there is a universal tendency to go from COMITATIVE > INSTRUMENT > MANNER. But compare the following data from the Ometo language cluster within Omotic. Woldemariam (2004) states that there are two distinct case markers covering distinct semantic domains in Zayse, a case marker -*ra* expressing a comitative, and a case marker -*na* expressing instrumental roles. In another member of the cluster, Haro, the same two case markers are attested. But in Haro, the comitative marker -*ra* also marks instrumental roles. The instrumental marker -*na* on the other hand cannot be used to express a comitative, although it can be used to express manner or agent. In Maale, we find only one case marker covering the role of instrument and comitative. But, contrary to what might be expected if the proposed unidirectional chains of grammaticalisation were universal, the marker in Maale is -*na*. In other words, the instrumental marker has also come to be used as a comitative marker.

Unidirectional grammaticalisation chains cannot simply be assumed; their plausibility must be demonstrated by way of the comparative method in language group after language group. Otherwise one ends up in a dangerous type of circular reasoning. Even if the cases listed in Heine and Kuteva (2002) are non-controversial – and, rather crucially, indeed have been proven by application of the comparative method – one can only refer to these phenomena as tendencies. That is interesting of course, but not quite the same as a historical law, as there probably are none. Some current grammaticalisation theories seem to assume a rigidity which does not appear to be in the nature of language. On the contrary, languages are highly adaptive systems, and it is
this flexibility which, presumably, has made human language such a powerful instrument from an evolutionary point of view. Although there are natural tendencies in grammatical changes, one should avoid predicting the unknown.

Current grammaticalisation models also seem to put specific focus on iconic principles in languages. Indeed, such principles can be observed in different parts of the grammar, as with reduplication, which is frequently used to express repetition (with verbs expressing events) or plurality (with nouns). Constituent order in a language may also reflect iconic principles: Old information tends to precede new information in an utterance. But another principle also plays an important role in the historical reinterpretation of morphosyntactic principles: The economy principle. As we saw for the Omotic language Maale above, a case reduction must have occurred here. Consequently, the semantic range covered by this marker widened, i.e. one and the same case suffix came to be used for a set of semantic roles without causing unwarranted ambiguity. The functional merging of para-digmatic categories, resulting in the loss of contrast between grammatical meanings, is an important economy principle. Presumably, the semantics of the verb and knowledge of the world help to disambiguate otherwise ambiguous expressions. Syncretism (i.e. formal neutralisation) is a further example of the importance of economy principles in language. Such phenomena are pervasive throughout language, not only with respect to case marking, but also in other areas, e.g. tense-aspect marking in combination with negation marking. It is common in languages to find fewer tense-aspect distinctions in negative, as against affirmative, constructions.

Alternatively, diagrammatic iconicity may occur; a phenomenon which may manifest itself in various ways, e.g. through sequential ordering or relative proximity to another element in the word or the sentence. (Compare Haiman 1985 for a detailed discussion of iconicity phenomena in languages.) Analogy may also be said to be motivated by iconicity, as it leads towards more unity in form-meaning relationships. Economy principles, however, may constrain, or even override, the operation of iconicity principles in languages, also historically. Vennemann (1978:259) formulates, what he calls, “Humboldt’s Universal”. According to this principle “suppletion is undesirable, uniformity of linguistic symbolisation is desirable: both roots and grammatical markers should be unique and constant”. This principle of semantic transparency helps to explain cases of analogical levelling or other processes resulting in the reduction of (phonologically or morphologically conditioned) allomorphy. But this proclaimed universal of iconic isomorphism would seem to be problematic in the face of economy principles, which manifest themselves in various forms, including the following one.

43. Formal coalescence, or syncretism, should be distinguished from neutralisation, i.e. the merger of two (or more) grammatical categories as a result of sound changes.
Whenever a binary contrast occurs in meaning, it is not necessary to mark both from a formal point of view. For example, with the contrast between present and past tense in a language, one of the two may be left unmarked.

Another manifestation of the economy principle in language is found in the fact that forms which are pragmatically unmarked, e.g. because of their high frequency of occurrence, are often left unmarked morphologically; less commonly occurring forms would be marked through morphological means under these conditions. The application of such economy principles also would seem to be advantageous from a cognitive point of view, e.g. in terms of language processing or parsing. Morphological coding may be left out where this is least needed for the hearer in order to decode a message.

Himmelmann (2004: v31) criticises the element-based view on grammaticalisation, and points out that more often than not it is the syntagmatic context which is widened. “[T]he unit to which grammaticisation properly applies are constructions, not isolated lexical items”. More specifically, this context expansion may involve “host-class expansion”, a process whereby the number of elements with which a specific element may co-occur increases. Alternatively, syntactic context expansion may occur, a restructuring involving a change in the syntactic context in which an element occurs. Finally semantic-pragmatic context expansion involves new semantic contexts for the occurrence of an item, e.g. from a full verb to a verb expressing modality.

A final point of criticism concerning current grammaticalisation theories revolves around the special focus which is put on syntagmatic relations. Heine and Kuteva (2002) do not provide sources for the origin of mood or modality contrasts in languages. Evidence from Omotic suggests that the paradigmatic contrast between verbs involving different types of modality in fact may result in the emergence of new mood distinctions. Many Omotic (Afroasiatic) languages, for example, make a formal distinction between the Declarative mood and Interrogative mood. Compare the following example from Maale (Amha 2001: 212).

\[
\begin{align*}
née-kó & măcč-á  rāfč-kó & kats-á-ne \\
2\text{SG:GEN-GEN} & \text{wife-NOM} & \text{meat-ABS} & \text{cook-IPF-}\text{A:DECL} \\
& \text{‘your wife cooks meat’} \\
\end{align*}
\]

\[
\begin{align*}
née-kó & măcč-á  rāfč-kó & kats-á \\
2\text{SG:GEN-GEN} & \text{wife-NOM} & \text{meat-ABS} & \text{cook-IPF-}\text{A:DECL} \\
& \text{‘does your wife cook meat’} \\
\end{align*}
\]

(a = affirmative; abs = absolute case; decl = declarative; gen = genitive case; ipf = imperfective; nom = nominative case)

The Declarative marker -ne- on the verb ‘cook’ in Maale goes back to a copula still found as such in Omotic languages like Hamer (Dimmendaal to appear a). Historically,
it was probably added to verbs in affirmative constructions in order to reinforce the correctness of a specific statement (‘it is a fact that …’). In due course, such a statement apparently became more strongly associated with the speaker’s subjective attitude towards a proposition as a conversational implicature, i.e. with illocutionary force. Once a different marker came to be used as a copula (the marker -ke in Maale), the marker -ne became fully grammaticalised as a modality marker for Declarative mood, contrasting with its absence in corresponding interrogative sentences. The result of this paradigmatic contrast was a formal distinction between Declarative and Interrogative mood.

Even if one accepts the points of criticism raised above, current grammaticalisation models no doubt are an enrichment, as they bring together a number of historical phenomena which seem to interact or co-occur with each other. Moreover, the cross-linguistic tendency to go from space to time or from concrete to abstract in terms of semantic change is well-attested and should not be discredited; see, for example, Robert (2003) for an interesting collection of studies in this respect. What should be avoided, in the present author’s view, is circularity in our reasoning, i.e. claiming we know the sources of specific grammatical morphemes, and thus we know where in newly described language from a poorly studied family a specific grammatical morpheme comes from. What should be avoided as well is presenting a synchronic survey of the range of functions of a particular morpheme, and then simply state that function a is older than function b, because grammaticalisation theory tells us so. That would be bad science. Such presumed developments need to be proven, they cannot be assumed. Simply deriving such a hypothesis from a synchronic comparison of two members of a genetic grouping would not do, as the case described for the group of Ometo languages above helps to tell us.

5.4 Semantic change and cultural experience

Whereas in the preceding section the focus has been on more universal cognitive strategies, culture-specific experiences are central to the present section. An initial example may help to show the role of cultural contact in this respect. The dominant role of lingua francas like English and French in many African countries clearly has had its effect on the semantic structure of African languages. This may be observed, for example, with respect to the use of colour terminology. Whereas in many languages traditionally no distinction is made between what is called, ‘green’ and ‘blue’ in English, the role of English in schools has resulted in the introduction of the term ‘blue’ into the system, as in Swahili buluu. Such external influences on the semantic structure of languages presumably have always been there, though not at a global level.
Specific semantic changes are clearly areal in nature. Hayward (1991) shows how in the Omotic, Semitic and Cushitic languages of Ethiopia similar verbs (which are not cognate historically) are used to express related meanings.

Amharic (Semitic):  ቦባብ 1. narrow, constricted; 2. in difficulties
Oromo (Cushitic):  ወምጥ 1. difficultly
Gamo (Omotic):  እንቁ ከወን ወንወ

From a semantic point of view, these changes are instances of more universal interfield changes, which may include changes from concrete (physical, tangible) to abstract (mental or intangible) situations. But the choice of metaphor appears to be areal-specific.

It should not come as a surprise that cognitive experiences triggering metaphors and metonymy are often directly related to the day-to-day-experience of people, in the same way that proverbs often are. Furthermore, it is in this domain where the concept of the so-called invisible hand appears to be particularly important. Keller (1994) uses this concept as an explanatory mechanism behind language change involving semantic shifts.44 In his analysis of semantic shifts in the historical development of languages, unintentional causal consequences emerge from the use of terms, more specifically from individual intentional acts by speakers, in different social contexts, as argued in Keller (1994). These are the invisible hands manipulating meaning and creating new structures, in the same way in which people may create a path across a lawn in a park which was never planned by the garden architect, simply by crossing that lawn at the same place all the time.

The invisible hand as a linguistic concept has been applied by Dimmendaal (2010) in order to account for differences in the meaning of terms for different spirits in the Teso-Turkana cluster within Nilotic (Nilo-Saharan). One of the common words in Teso-Turkana lects is a polysemous term (ɲ)e-kı-pe. In Karimojong and Turkana, it not only expresses ‘evil spirit’, but also ‘flash, striking of lightning’. In Teso, only the latter meaning appears to be attested: (ekipie ‘striking (lightning)’). The term (ɲ)e-kı-pe in Karimojong or Turkana denotes both the natural phenomenon, and the entity that causes its devastating effects. Striking by lightning can leave somebody stunned for some time. This experience is so frightening that, by extension, every other mysterious happening negatively affecting humans, and not attributable to a more precise cause, may be called (ɲ)e-kı-pe by speakers. Consequently, an animal behaving in a strange way or found in the wrong place may also be called (ɲ)e-kı-pe in Turkana, as may be a person who possesses certain handicrafts, or indeed, a person, a domesticated or wild animal or anything that acts in an unusual or extraordinary way. As a result of such

44. The author in turn based his concept on a notion developed in economics by Adam Smith in a study published in 1776, *The Wealth of Nations*. 
metonymic extensions, the term now may also refer to a cunning person ("smart alec") in modern Turkana. The invisible hand thus represents an interesting metaphor also for culture-specific experiences (or cognitive interpretations of such experiences) and their linguistic manifestations.

If one were to translate the term *hot* into a typical Nilotic language, one would indeed get a term referring to the potential qualities of fire or the sun. But contrary to English, a person characterised as 'hot' (i.e. sexy or admired by many people) in a Nilotic language is not necessarily popular; on the contrary, this term is used for people who are stingy, not willing to share their belongings or property with others. Rather than being an icon, such a person would be a pariah in the society when being characterised this way.

A common Africanism involves the metaphorical use of the verb 'eat' in order to express a range of related meanings, such as 'conquer', 'destroy', or 'have sexual intercourse', as already pointed out in Greenberg (1959). Here, we observe a reference change, i.e. a change in the notion being symbolised (rather than referent change or thing change) involving *pejoration* (or "degeneration"). English *silly* for 'foolish, stupid' via 'innocent pitiable' and Old English 'blessed, blissful' would be an example of this. The alternative process, a development from a negative to a more positive meaning would be termed *(a)meliorisation* (or elevation).

Evans and Wilkins (2000) test claims about the universality of patterns of polysemy and semantic extension in the domain of perception verbs on the basis of a study involving approximately sixty Australian languages. The authors first test Viberg's (1984) proposed unidirectional pattern of extension from higher to lower sensory modalities, and involving intrafield extensions within the domain of perception verbs, like 'see' > 'hear'. The second hypothesised universal is that put forward by Sweetser (1990) regarding the extension of perception verbs to cognition readings, involving intrafield (also known as transfield) extensions, like 'see' > 'know', e.g. Proto-Indo-European *weid- 'see' > German *wissen 'know'.

Sweetser (1990) takes the extension of perception verbs to cognition readings, involving intrafield (or transfield) extensions from 'see' to 'know', to be based on more universal conditions or cognitive states. As argued by Evans (2003), however, 'know' commonly develops from a verb 'hear' rather than 'see' in Australian languages. The author suggests that vision has primacy as the modality from which verbs of higher intellection, such as 'knowing' and 'thinking', are recruited, and proposes that verbs meaning 'hear' would not take on these readings, although they often extend to mean 'understand' or 'obey' in Australia. Viberg's proposal thus remains intact, while

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45. The term Africanism is used here for words occurring in all or most languages of a certain geographically defined area without being traceable to any concrete source of borrowing. See Mufwene (1993) for a study of Africanisms in Afro-American speech varieties.
Sweetser’s is proved false. Australian languages recruit verbs of cognition like ‘think’ and ‘know’ from ‘hear’, but not from ‘see’. It follows that, at least as far as perception verbs are concerned. Interfield (transfield) semantic changes are open to cultural variation to a larger extent than intrafield semantic changes are. The former consequently would have its foot in culture, the latter more in nature. Different cultures thus may weigh the relative importance of sensory modalities differently. Consequently, there are good social and cultural reasons driving the extension of ‘hearing’, but not ‘seeing’, to ‘know’ and ‘think’ in Australian Aboriginal societies.

Evans (2003: 13) concludes that such cases “provide strong evidence against nativist assumptions that see linguistic structures simply as instantiations of biologically given “mentalese” concepts already present in the mind of every child and give evidence in favour of a view that sees individual language structures as also conditioned by historical processes, of which functional adaptation of various kinds is most important”. As pointed out by Evans (2003: 37), “the most recent statement of Chomsky’s own views on language evolution [e.g. in Hauser, Chomsky and Fitch (2002) on sociocultural and communicative contingencies; GJD] opens a space for the culturally selected structuration processes…”

Progress in our understanding of the cultural dimension in semantic shifts strongly depends on good dictionaries. Etymological dictionaries of African languages are still relatively rare. Leslau (1979) on the Semitic language Gurage and Sasse (1982) on the Cushitic language Burji are pioneering studies in this respect. To date, there is nothing in the field of comparative African linguistics comparable to Buck’s (1949) etymological dictionary of Indo-European or the pioneering work of James Matisoff and his Sino-Tibetan etymological dictionary and thesaurus (e.g. Matisoff 2003).

5.5 The role played by cognition

After having re-emphasised the importance of cultural experience in our understanding of language change, it may be useful to swing the pendulum back and show that nature apparently has also left us with some deeply-rooted cognitive capacities.

In the early 1990s the present author directed a field methods class with a native speaker of Kana, a Cross-River language spoken in southern Nigeria. The informant for this class, Suanu Ikoro, was himself a linguist in the process of writing his doctoral dissertation (published as Ikoro 1996). During one session in which the noun phrase structure of Kana was to be investigated, specific markers showed up which were obligatory whenever numerals were used in combination with nouns. Suanu Ikoro himself subsequently set out to describe the formal, semantic and functional properties of these markers in an article published as Ikoro (1994). Table 15 summarises the
sixteen markers identified at the time. Most of these can be related synchronically to some noun as their lexical basis.

**Table 15.** Numeral classifiers in Kana

<table>
<thead>
<tr>
<th>Kana</th>
<th>’mother’</th>
</tr>
</thead>
<tbody>
<tr>
<td>bà</td>
<td>’fruit’</td>
</tr>
<tr>
<td>té</td>
<td>’tree’</td>
</tr>
<tr>
<td>ákpó</td>
<td>’length’</td>
</tr>
<tr>
<td>ápée</td>
<td>’piece’</td>
</tr>
<tr>
<td>ássú</td>
<td>’grain’</td>
</tr>
<tr>
<td>küm</td>
<td>’stock’</td>
</tr>
<tr>
<td>kerè</td>
<td>’half’</td>
</tr>
<tr>
<td>ábá</td>
<td>’one of’</td>
</tr>
<tr>
<td>ákpó</td>
<td>’heap’</td>
</tr>
<tr>
<td>ñíí</td>
<td>’child’</td>
</tr>
<tr>
<td>ábá</td>
<td>’part’</td>
</tr>
<tr>
<td>ákpá</td>
<td>’skin’</td>
</tr>
<tr>
<td>ñé</td>
<td>’person’</td>
</tr>
<tr>
<td>ápá</td>
<td>?</td>
</tr>
<tr>
<td>ákpé</td>
<td>?</td>
</tr>
</tbody>
</table>

Kana numeral classifiers share many of the classic properties of classifier systems common in Asian and Amerindian classifier languages, as shown by Ikoro (1994). In such a system, the noun primarily refers to the material a particular entity consists of, i.e. the distinction between mass nouns and countables does not play a role in the grammatical system. The numeral classifier provides information on the shape in such a system, as shown by the following example with ápée, which is etymologically related to the word for ‘piece’:

\[
\begin{align*}
\text{zií ápée nám} & \quad \text{‘one piece of meat’} \\
\text{zií ápée máá} & \quad \text{‘one splash of water’} \\
\text{zií ápée ziá} & \quad \text{‘one piece/slice of yam’}
\end{align*}
\]

Once established, other factors may start influencing the semantic basis of the system.\(^{46}\) For example, àkà, which is derived from the word for ‘mother’ is the most productive classifier in Kana; consequently, it is also used with modern borrowings from English related to electronics. The fact that the marker ka is the most widely used

\(^{46}\) For an interesting survey of research on prototypicality see the special issue of the *Belgian Journal of Linguistics* 5 (1990), which is devoted to diachronic semantics.
marker could be explained along at least two lines of reasoning, through semantic affinity or analogy. Given the highly diffuse set of nouns requiring this classifier synchronically, a semantic analysis (involving a prototypical meaning with extensions) does not seem to be very plausible. Rather, the well-established principle analogical extension (more specifically, the high frequency of the form ka, because of its use with terms for human beings, which themselves have a high frequency) probably triggered its productivity.

Evidence for the morphosyntactic unity of the classifier and the noun comes from the formation of diminutives, for example. This formative proliticises on the noun. However, when a diminutive formation involves a counting construction, the diminutive clitic is attached to the classifier rather than the noun (Ikoro 1994: 21):

\[
\begin{align*}
\text{í ná̩́} & \quad \text{‘small rat’} \\
\text{zíí j ká ná̩́} & \quad \text{‘one small rat’}
\end{align*}
\]

If numeral classifiers in Kana emerged from associative constructions, and all the available evidence points in this direction, how did they become generalised as obligatory inflectional markers? Proto-Cross-River in all likelihood had a classic Niger-Congo noun-class system (Dimmendaal 1978; Demuth, Faraclas, and Marchese 1986). However, in the Kegboid group (the cluster to which Kana belongs), the Proto-Cross-River noun-class system has broken down. There are still a few petrified prefixes. In Eleme, for instance, a petrified prefix is obligatory for all nouns, whereas in the other languages nouns may occur with or without such prefixes.

<table>
<thead>
<tr>
<th>Eleme</th>
<th>Kana</th>
</tr>
</thead>
<tbody>
<tr>
<td>ɔ̀-tɔ̀</td>
<td>tɔ̰́</td>
</tr>
<tr>
<td>n `-ló ló</td>
<td>ló</td>
</tr>
</tbody>
</table>

Such systems are also common in neighbouring Bantoid languages; compare Vinogradov (1996), who presents seven such classifiers for Ngyembɔɔ. Examples appear to involve mainly food products (‘rice’, ‘beans’, ‘maize’, ‘pineapple’, or countables such as ‘louse’ or ‘grass’, which are locally unmarked in the plural, i.e. used most often in their plural form). The set of numeral classifiers in Ngyembɔɔ is smaller than the Kana or Kegboid set, presumably because the noun-class system is still intact in the former. This interpretation is supported by data from Grassfields Bantu. In Ejagham, a Southern Bantoid language spoken in parts of the Cross-River basin in south-eastern Nigeria and in parts of the Mamfe division in the southwest province of Cameroon, there are lexical items which are used as classifiers when counting certain nouns. These classifiers function as the head of a noun phrase, and numbers concord with the classifier in enumeration. Watters (1981: 310–313) lists the following markers:
The reduction and ultimate obsolescence of the noun-class system thus was compensated for by the expansion of the numeral classifier system in Ejagham. Once alternative ways of quantifying nouns through number marking become obsolete, the numeral classifier system may become dominant. In this respect its actuation would seem to reflect a more deeply rooted cognitive basis (manifested in the mass/count continuum) where shape and form play a central role, as in the languages of Southeast and East Asia. Of course, languages may simply abandon number marking without using numeral classifiers. This alternative option is also attested in West African languages.

The expansion of classifiers, as in the Kegboid group, may be explained through intrafield metaphorical extension of a system also immanent in neighbouring Grassfields Bantu languages where a more extensive noun-class system is still found. Such classifiers may be more widespread in Niger-Congo languages, though not necessarily as extensive as in Kegboid or Grassfields Bantu. For example, in the Kwa language Twi classifiers may be used in order to distinguish between ‘bananas’ and ‘bunches of banana’ (Marian Afram, personal communication). Rather than interpreting numeral classifiers as the origin of noun-class markers in Niger-Congo, it seems more likely that this strategy emerged as a result of deeply-rooted cognitive strategies involving the conceptualisation of shape whenever other strategies, such as the use of noun-class markers, disappeared. The origin of noun classes in Niger-Congo thus remains the subject of further speculation.

In the preceding chapter it was argued that diagrammatic iconicity plays a role in grammatical systems. The question arises as to what extent the code of grammar is influenced by iconicity in the phonological domain as well, i.e. whether there are more universal principles of imagic iconicity, more specifically a resemblance between the shape of a sign and the referent through imagery (sound symbolism), either onomatopoetic (sound imitating) or defined by language-internal markedness principles.


<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
<th>Semantic range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ɣ-mlajè</td>
<td>a-mlajè</td>
<td>‘any small, generally round object’</td>
</tr>
<tr>
<td>ɣ-sûm</td>
<td>a-sûm</td>
<td>‘any fruit or root which is long’</td>
</tr>
<tr>
<td>ɛ-rgỹm</td>
<td>ɣ-d̄lgm</td>
<td>‘any fruit or root which is round or in a cluster’</td>
</tr>
<tr>
<td>ɣ-d̄lgb</td>
<td>a-d̄lgb</td>
<td>‘trees, plants and vegetables’</td>
</tr>
<tr>
<td>ɛ-sûn</td>
<td>ɣ-sûn</td>
<td>‘trees’</td>
</tr>
</tbody>
</table>
Apart from synesthesia, the transfer of acoustically-based onomatopoetic patterns to other areas of perception and sensation (Hock 1991: 289–290), there is another interesting phenomenon showing a direct link between sound (voice pitch) and meaning, the **Frequency Code**, as it has come to be known after the important contributions by Ohala (1984, 1994). For example, words involving reference to smallness cross-linguistically tend to contain vowels and/or consonants involving a high acoustic frequency, whereas words involving reference to largeness tend to involve segments produced with low acoustic frequency. High front vowels are produced with the highest F2 value, and low back vowels have the lowest F2 value. The importance of this phenomenon, as well as the frequent use of metaphors, metonymy and synecdoches in the lexical structure of some languages is illustrated in Schneider-Blum (in press).
Chapter 6

Internal reconstruction

6.1 The historical relevance of synchronic morphophonemic alternations
6.2 Why today’s morphology is not necessarily yesterday’s syntax

Complementary to the comparative method is a method known as internal reconstruction, which involves the reconstruction of earlier stages in a language on the sole evidence of synchronic alternation between morphemes in different environments. These internal reconstructions are usually, though not always (as we shall see below), phonological in nature. The present chapter shows both the potential as well as the limits of this method for the historical investigation of languages.

6.1 The historical relevance of synchronic morphophonemic alternations

One widely attested phenomenon related to the production of speech sounds is lenition, involving the weakening of intervocalic consonants, as we learned in Chapter 2. If such stops occur in a lexemic unit which also appears in related forms where lenition does not take place, e.g. because the stops are preceded by other consonants rather than vowels, there may be allomorphic alternations for such morphemes. When weakened intervocalic consonants are subsequently lost such morphophonemic alternations become opaque, i.e. they lose their transparency or phonetic naturalness because of unpredictable consonants showing up in the same stem in positions after a consonant. This appears to have happened historically in the following examples from Swahili, where root-initial stops disappeared except when protected from loss by a preceding consonant, e.g. a nasal prefix.
Reconstructed sound units in such alternations (e.g. the initial b or d in the examples above) are sometimes referred to as pre-phonemes (themselves occurring in pre-morphemes in a pre-language). The evidence in Swahili for the presence of an original, root-initial consonant emerging from synchronic alternations is corroborated by comparative evidence. Thus, cognate verb forms with initial consonants are found elsewhere in Bantu, e.g. in the southern Bantu language Zulu where an initial stop occurs in the cognate form ‘carry astride on the hip’ -ɓelek-. Similarly, the root for ‘dream’ in Swahili is cognate with a widespread verb root for ‘dream’ in Bantu, e.g. -l-oot, in Luba (a Bantu language spoken in Congo/Zaire), or the corresponding form in Nyoro (Uganda), -root-; the Proto-Bantu form as reconstructed in Meeussen (1980) is *-doot. Such internal reconstructions, based on synchronic morphophonemic alternations in a specific language, provide an important complementary tool to the comparative method in historical reconstructions.

One question of course is how to deal with these alternations synchronically. In phonological accounts of the 1970s and 1980s such alternations were accounted for by means of (abstract) rules, whereby the consonant showing up in nominal forms was assumed to be part of the underlying representation of the root. Such phonological models were criticised in subsequent accounts for being too abstract and for describing older stages of the language, rather than describing the mental system of speakers from a synchronic point of view. Indeed, the morphophonemic alternations as found in these Swahili examples provide the perfect ingredients for a method known as internal reconstruction.

Etymological links between words in languages may not always be obvious from a synchronic point of view. Compare the verb stem -amba ‘tell, say’ in Swahili and the corresponding noun with the root-initial stop g, ki-gambo ‘matter’, or the reflexive form ji-gamba ‘boast’. But again, in Nyoro we find a cognate consonant-initial root, -gaamb-, showing the link between these different lexemes. Guthrie (1967–70) identifies a common Bantu root *-gàmb- ‘speak, slander’ (Comparative Series 770).

It should be noted that such methods of internal reconstruction also have their limits. As the comparison of the Swahili reflexes with their cognates in more conservative Bantu languages like Nyoro above shows, vowel length (as in the root for ‘dream’) was lost in Swahili; this original property of Bantu languages cannot be reconstructed on the basis of internal evidence from Swahili. Also, the absence of a root-initial consonant in specific verbal as well as corresponding nominal forms does not necessarily imply that there was no initial consonant originally. For example, the verb ‘go’ -e-nda
has a corresponding nominal form *mw-endo. Nevertheless, there was an original initial consonant which is still found in languages like Haya (zone D66, Tanzania), *gend-. These data thus show that internal reconstruction should be used, where possible in combination with the comparative method.

An exemplary application of internal reconstruction as a supplementary historical method is provided by Andersen (1989) for the Western Nilotic language Päri. As observed by the author, synchronically there are asymmetries in morphophonological alternations of stem vowels in this language. Päri has a vowel harmony system with five [−ATR] vowels (*i, e, a, ɔ, u) and five [+ATR] vowels (*i, e, ʌ, o, u), all of which may also be long. In addition, there are two [−ATR] diphthongs (*iɛ, ʊɔ) and two [+ATR] diphthongs (*iɛ, *uɔ). Second, the [+ATR] vowel ʌ alternates with e and o in specific words:

\[
\begin{align*}
\text{kɛc} & \text{ or } \text{kɛɛ} \text{ 'hunger'} \\
\text{kwɔn} & \text{ or } \text{kwɔn} \text{ 'food'}
\end{align*}
\]

No such alternations occur in other words, i.e. here the vowel remains e or o, respectively. This suggests that the direction of change is from ʌ towards e and o rather than the other way around.

As observed by Andersen – and this is an important methodological step in the application of internal reconstruction as a method – synchronically, there are restrictions on the distribution of specific segments. The short vowels e, u, e, and o are marginal in the system. They do not occur in simple verb stems, whereas e and u are very rare in noun stems as well. Päri has a rather classic African vowel-harmony system of the cross-height type, with ATR-based vowel alternation; thus, i alternates with i, a alternates with a. But ɔ alternates with u, rather than with o, whereas u also alternates with u. This latter distributional fact can be explained through a lowering rule (Andersen 1989: 12) *ʊ > ɔ, which consequently also accounts for the ɜ/u alternation synchronically, as in *mør ‘warm’ (< *mor) versus *mʊør ‘heat (transitive)’.

Next, the author considers interdependencies between vowels and tone in Päri verbs, and observes that specific verbal tone classes do not build a natural class synchronically. Thus, verbs with a short monophthong i, i, a, u and ɔ (< *ʊ) form one tone class together with long ee, ee, ʊʊ and oo, whereas a second tone class is formed by verbs with a long non-mid monophthong (ii, ii, aa, aa, ʊʊ, uu) and verbs with one of the four diphthongs (*iɛ, *iɛ, *uɔ, *uɔ). On the basis of this synchronically unnatural grouping of vowels, Andersen reconstructs a historical rule for stems: *e, ɔ, e, ɔ > ee, ʊʊ, ee, oo. Note that these internally-based hypotheses also provide a natural explanation why short e, e and o are so rare synchronically. The few instances where these short vowels do occur must have entered the language through subsequent processes such as borrowing. A corresponding diphthongisation rule in Pre-Päri would explain the synchronic unnatural set of the second class of verbs: The long mid vowels *ee, *ʊʊ,
*ee, *oo must have shifted to ie, ow, ie, uo respectively. The rules posited on the basis of internal evidence from Päri are further supported by synchronic alternations such as the following:

<table>
<thead>
<tr>
<th>root</th>
<th>causative stem</th>
</tr>
</thead>
<tbody>
<tr>
<td>cam</td>
<td>caam-</td>
</tr>
<tr>
<td>dɔɔk</td>
<td>dɔɔɡ-</td>
</tr>
</tbody>
</table>

The diphthongisation rule for mid vowels must have preceded the lengthening rule for short mid vowels in Päri, otherwise this would have resulted in a merger of short mid vowels with their long counterpart, followed by a diphthongisation, and this is not in accordance with the system found synchronically. In other words, a pull chain vowel change may have occurred: The short mid vowels filled the slots which emerged after the change of long mid vowels into rising diphthongs. A similar pull chain effect may be observed with respect to the slots vacated by the lengthening of the original short vowels e and o. Synchronically, we find an optional rule in Päri whereby the [+ATR] vowel ʌ changes to e or o, as in ‘hunger’ or ‘food’ above.

As these examples should make clear, internal reconstruction can only recover conditioned changes. The synchronic alternation in words like ‘hunger’ and ‘food’ in Päri shows us another interesting property of language change. The front vowel variant (e) occurs when adjacent to a palatal consonant or if the stem is followed by a suffixal front vowel (Andersen 1989: 5). The alternation between ʌ and o occurs when preceded by a labial consonant and where there is no suffixal front vowel. What appears to be an optional, synchronic rule in Päri has been generalised in a number of Lwoo languages, the same cluster within Nilotic to which Päri belongs. In Luo, for example, we find a system with nine rather than ten vowels, with the vowel ʌ having disappeared from the system. Compare the following cognates in Luo with the Päri forms, repeated here for convenience.

<table>
<thead>
<tr>
<th>Päri</th>
<th>Luo</th>
</tr>
</thead>
<tbody>
<tr>
<td>këc</td>
<td>kɛc</td>
</tr>
<tr>
<td>kwàn</td>
<td>këc</td>
</tr>
<tr>
<td>kéc</td>
<td>kwùn</td>
</tr>
</tbody>
</table>

Andersen’s claims concerning specific sound changes in Pre-Päri thus are corroborated by historical-comparative evidence from other Western Nilotic languages. These facts further show that internal reconstruction may go beyond the reconstruction of earlier stages of the same language; it may also reveal changes shared with closely related languages which consequently must have occurred before these languages split up.

The presence of the vowel alternation rule, and its completion in languages like Luo, suggests that the rule itself is quite old in the Lwoo cluster. Luo and Päri are not particularly close genetically. They are in fact quite distinct languages, sharing only
74 of 100 basic words (Andersen 2006:7). The type of “free variation” found in the pronunciation of words such as ‘hunger’ or ‘food’ in Päri apparently may linger on for several centuries, and be carried over from generation to generation of speakers without becoming an obligatory rule of the language (Dimmendaal 2002).

So-called “free variation”, as in Päri words containing the [+ATR] central vowel, as such probably is a rare phenomenon in languages. Many so-called optional rules tend to have social connotations, hence the “sneering quote” marks for the label “free variation”. Whether the alternation for these words in Päri has any sociolinguistically relevant connotations (related to age, gender, or some other parameter) is not known. The point may therefore be illustrated with an example from another part of the world, again showing a sound change in progress. In modern Dutch intervocalic $d$ may be changed into $w$ or $y$, depending on whether the preceding segment is a back vowel as against a front or central vowel. A conjugated adjectival root like *oud* ‘old’ can be followed by a suffix -e: The resulting form may be pronounced in two ways: as *oud-e* [$\text{ɔud}_e$], or, alternatively, as [$\text{ɔu}_w\text{e}$]. The form with intervocalic $w$ is common in colloquial Dutch. The form with intervocalic $d$ tends to be used in more formal speech, or when speaking respectfully of items with a certain age. Compare:

- *een oude viool* ‘an old violin (e.g. a Stradivarius)’
- *een ouwe viool* ‘an old violin (e.g. with broken strings)’

In languages with rich morphologies, like the Chadic language Hausa, morpho-phonemic alternations are bound to reveal certain historical sound changes. Compare the following singular/plural alternations, involving a plural patterning *CaaCee*, whereby the consonant ($C$) represents the final consonant as found in the corresponding singular form; in addition, however, a consonant shows up which either is absent in the singular (as with ‘buffalo’ and ‘drum’) or which does not have the same point of articulation (as with ‘fence’).

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>baunaa</em></td>
<td><em>bakånte</em></td>
</tr>
<tr>
<td><em>taushii</em></td>
<td><em>tafåashee</em></td>
</tr>
<tr>
<td><em>shingee</em></td>
<td><em>shimåagee</em></td>
</tr>
</tbody>
</table>

Hausa does not have a velar nasal at the phonemic level. The velar nasal occurs only as an allophone of $n$ before a velar consonant, hence *[finggee] ‘fence’* above. Whereas nasals or other sonorants are common in syllable-final position within a word (as with ‘fence’), Standard Hausa tends to avoid obstruents in the same position within a word (although the latter consonants do in fact occur in a few examples). This distributional property, combined with the fact that specific obstruents whose point and manner of articulation cannot be explained from neighbouring segments show up in the plural, suggests that syllable-final weakening occurred in the coda position in the singular...
form; the same consonants were retained in the plural, because here the same conso-
nants formed the onset of the next syllable (where $ marks a syllable boundary). Thus:

\begin{itemize}
  \item \( * \text{bak} \ $ \text{naa} \rightarrow \text{bau} \ $ \text{naa} \) ‘buffalo’
  \item \( * \text{ba} \ $ \text{kaa} \ $ \text{nee} \rightarrow \text{ba} \ $ \text{kaa} \ $ \text{nee} \) ‘buffaloes’
\end{itemize}

Again, internal reconstruction based on synchronic morphophonemic alternations re-
veals the loss of an original segment. The same segments may still be found in western
varieties of Hausa, where no such weakening occurred. What the internal reconstruc-
tion on the basis of these examples in Hausa does not necessarily reveal is that this
weakening, which has come to be known as Klingenheben’s Law in Hausa studies, in
actual fact consisted of three different historical phenomena (see Newman 2004 for
further details).

A further elegant illustration of internal reconstruction and of ways in which
languages may end up having “unnatural” alternations synchronically is found in
Frajzyngier (1976) with respect to a number of other Chadic languages.

Internal reconstruction may be applied, not only to morphophonemic alterna-
tions in synchronic systems, but also to reconstructed sound systems. One such classic
instance using morphophonemic variance between related forms was proposed by de
Saussure (1879) for Proto-Indo-European as it was understood at the time. Ferdinand
de Saussure had been trained in the application of the comparative method at the
“homebase” of the Neogrammarians, Leipzig (Germany). But he was among the first at
the beginning of the 20th century arguing that language could also be seen as an entity
independently of its history, i.e. from a synchronic point of view, thereby introd-
ucing (synchronic) structural linguistics as we know it today. As a philologist, he made
important contributions to our understanding of the Indo-European family by using
the method of internal reconstruction in a rather ingenious way. Germanic languages
usually have a set of verbs with irregular present/past tense alternations, e.g. sing/sang
in English. These “Ablaut” (vowel alternation or vowel gradation) phenomena are also
attested in other Indo-European branches, and are reflexes of an archaic grade system,
reconstructable for Proto-Indo-European. Compare Ancient Greek: \( \text{pher-}\text{o} \) ‘I carry’,
\( \text{phor-}\text{e}\text{o} \) ‘I carry repeatedly’. Here, the e-grade (also known as the normal or basic
grade) is substituted by the o-grade. Replacement of the corresponding e or o by a
long vowel (also known as the extended grade) occurred in the nominalised form \( \text{phôr} \)
‘thief’. The question arises, first, what kind of segment could have caused the colouring
of specific vowels (e becoming o, for example). And second, what caused the lengthen-
ing of specific vowels in other conjugations? The founding father of modern linguistics,
de Saussure, argued on the basis of these data from Ancient Greek as well as data from
other Indo-European languages like Sanskrit that neighbouring segments must have
been lost in forms undergoing these morphophonemic changes. De Saussure did not
provide an exact phonetic specification for his reconstructed segments causing this change in vowel quality and quantity; he simply referred to these as the “sonorant coefficients” (coefficients son-antiques) $A$ and $Q$. In other words, $A$ and $Q$ did not represent vowels, but, rather, abstract symbols resulting in the colouring and lengthening of neighbouring vowels historically.

Other scholars have subsequently argued in favour of a third segment, $E$, in order to explain specific vowel alternations in a range of Indo-European languages. This way, deviations from the canonical shape of roots in Proto-Indo-European, which had the form $^{*}CVC$, could also be explained. Thus, $^{*}VC$ probably derived from $^{*}AVC$, $^{*}QVC$, or $^{*}EVC$, and $^{*}CV$ went back historically to $^{*}CVA$, $^{*}CVQ$, or $^{*}CVE$, thus further regularising the canonical shape of roots in early Indo-European as proto-typically involving $CVC$-roots. Some examples:

<table>
<thead>
<tr>
<th>PIE</th>
<th>Greek</th>
</tr>
</thead>
<tbody>
<tr>
<td>*dhi-dheE-mi</td>
<td>ti-thê-mi</td>
</tr>
<tr>
<td>*di-deÕ-mi</td>
<td>di-dô-mi</td>
</tr>
</tbody>
</table>

Interestingly, some 50 years later another Indo-European language which had become extinct around 1200 BC, the language of the ancient Hittites, was rediscovered through the decipherment of inscriptions and cuneiform tablets. As it turned out, this language had preserved distinct traces in the form of consonants in exactly those positions for which de Saussure had posited an original segment on language-internal grounds in order to explain the vowel changes in languages like Ancient Greek and Sanskrit.

Indo-Europeanists have since developed the hypothesis that these segments were probably laryngeal consonants historically. Instead of using $^{*}A$, $^{*}E$, $^{*}Q$ to represent these, they are now commonly represented as $^{*}H_1$, $^{*}H_2$, and $^{*}H_3$. There is some disagreement on the distinctive phonological (and phonetic) properties of these three consonants, but one hypothesis (as proposed, for example, by Beekes 1995) is the following.

$^{*}H_1 = {^*}ʔ$ or $^{*}h$ hence: $^{*}eH_1 > ^{*}ee$

$^{*}H_2 = {^*}h$ hence: $^{*}eH_2 > ^{*}aH_2 > ^{*}aa$

$^{*}H_3 = {^*}qw$ hence: $^{*}eH_3 > ^{*}oH_3 > ^{*}oo$

Labialisation, as with the final consonant ($H_3$), accounts for the rounding effect on adjacent vowels. Vowel coloration due to neighbouring laryngeal (or pharyngeal) consonants in fact is also quite common in Afroasiatic languages. The kind of vowel colouring and compensatory lengthening resulting from the loss of specific laryngeal consonants, as posited for early stages of Indo-European, is attested in other language families – for, example in the Berber cluster within Afroasiatic. As shown by Kossmann (2001), the Zenaga lect within Berber has retained the original glottal stop where other
Berber varieties underwent compensatory lengthening (whereby the macron expresses vowel length): \( a\kappa r > \dot{a}k\) (\([\text{aak}\kappa r]\)).

Laryngeals as reconstructed for the earliest stages of Indo-European are still common today in Caucasian languages in Turkey, the country where the Indo-European language Hittite was spoken some 3000 years ago. This language may have retained these phonological properties because it was spoken in an area where such consonants were common, as argued in Watkins (2001).

Whereas internal reconstruction typically involves morphophonemic alternations of the type illustrated above, it is not necessarily restricted to this. Morphological alternations in closed (i.e. non-productive) paradigms may also reveal earlier stages of productive morphological procedures, and thus of former inflectional or derivational markers which are no longer productively used in a language. Thus, in the Nilotic language Turkana there is a rich set of nominal number-marking suffixes (Dimmendaal 1983a: 223–258). Plural nouns formed with a suffix -\(\text{an/-on}\) (depending on vowel harmony rules in the language) constitute a closed set in this Eastern Nilotic language. In the distantly related Eastern Nilotic language Bari, this latter pattern of plural formation turns out to be highly productive. Newman (2000a: 267–268) discusses the gender-sensitive demonstratives (or specifiers) for ‘some’ in Hausa: \(\text{wa-}\text{ni}\) (masculine singular), \(\text{wa-}\text{ta}\) (feminine singular) and \(\text{wa-}\text{su}\) (plural). A comparison with the corresponding pronominal forms \(\text{shi}\) and the related possessive form \(\text{s}\) (masculine singular), \(\text{t}\) (feminine singular) and \(\text{s}\) (plural) shows that the masculine singular forms do not match, i.e. are not related. “[A] reasonable hypothesis would be that Hausa originally had a third person masculine pronoun \*\text{ni} which has subsequently been lost in the language. Comparative evidence shows conclusively that this internally deduced hypothesis is true […]” (Newman 2000a: 268).

Cross-linguistically, dependent (i.e. subordinate and co-subordinate) clauses frequently (though not necessarily universally) reveal archaic properties of languages which have disappeared from main clauses. Main clauses tend to be subject to syntactic (and pragmatic) innovations all the time, presumably as a result of their high frequency and corresponding communicative dynamism. Again, examples from Turkana may serve to illustrate this point. Whereas instrumental marking is not possible on verbs in main clauses, it is (still) possible with verbs in dependent clauses in this language (Dimmendaal 1983a: 189–192, 314–315). The presence of a cognate instrumental-marking verbal suffix in other Eastern Nilotic languages, e.g. Maasai (where it is used with verbs in both main and dependent clauses) again shows the historical relevance of the restricted synchronic distribution in Turkana.
6.2 Why today’s morphology is not necessarily yesterday’s syntax

A somewhat different interpretation and application of the method of internal reconstruction was proposed by Talmy Givón in the 1970s under the slogan “today’s morphology is yesterday’s syntax”. Free lexical morphemes may develop into bound grammatical function markers, as we saw in Chapters 4 and 5. Research in language typology as initiated in the 1960s showed that cross-linguistically there are statistically significant correlations with respect to the position of the verb relative to other major syntactic phrases. For example, auxiliaries tend to precede the main verb in verb-initial languages, whereas they tend to follow the latter in verb-final languages (Greenberg 1966). When combining the conclusions from this kind of typological research and grammaticalisation theories, one could argue that what are bound markers today in all likelihood were free syntactic categories at an earlier stage. The order of morphemes in a word, in so far as these morphemes derive from separate words, would reflect the (basic) constituent order of the language concerned at a period in time when these independent words started to form a phonological word with the word they modified (through cliticisation and subsequent affixation).

The author illustrated his hypotheses with a number of phenomena, e.g. the genesis of affixal morphology in Bantu verbs, more specifically the origin of modality (tense-aspect-mood) prefixes, which were assumed by him to have arisen from main verbs dominating sentential complements. If tense-aspect-mood markers indeed arose through the grammaticalisation of main verbs, the prefixation of these elements in Bantu languages must have risen at a time when the syntactic order in phrases was complement verb; in modern Bantu languages, the order is verb complement. These markers subsequently became frozen or fixed in their earlier syntactic position, according to the same reasoning. From this syllogism (“if these markers go back to main verbs, and if languages are subject to specific constituent order rules) it would follow that constituent order in Pre-Bantu was subject object verb (*SOV).

Another piece of evidence forwarded by Givón (1971) to support his claim that today’s morphology is yesterday’s syntax, relates to object pronouns in the Semitic language Amharic. Modern Amharic has a predominant order OV. Yet, the object pronouns are suffixes (like in other Semitic languages). This position is seen as a reflex of an earlier verb object (verb complement) order.

The proposals forwarded by Givón resulted from an ingenious combination of what were considered to be, well-established facts at the time. But unfortunately they have turned out to be wrong. Although it cannot be denied that at times today’s morphology can be related in one way or another to earlier syntactic structure, there are several reasons why quite often there is no such correlation. Languages need not be “consistent” in their typological behaviour, as Comrie (1980) observes. For example,
there may be a discrepancy between constituent order and the cliticisation or affixation of morphemes, as can be observed in languages synchronically. Part of the evidence for Comrie’s position derives from the study of Mongolian languages. Here, we find subject-marking suffixes (rather than prefixes), whereas all languages involved are and always have been verb-final (i.e. the syntactic subject precedes the verb), as far as present knowledge goes. Elements lacking stress (such as clitics) do not precede their head in these languages. In other words, analogy with such existing patterns and the metrical structure of these languages probably triggered the placement of these pronominal subject elements after (rather than before) the verb.

Similar features to those identified for Mongolian by Comrie (1980) can be observed for Eastern Cushitic languages. Whereas these languages tend to be verb-final, pronominal objects may be expressed as bound morphemes encliticised (rather than prefixed or procliticised) onto the verb, as in the following example adapted from Alaaba (Schneider-Blum 2006):

\[
\text{kitaab-i} \quad \text{tan(i)} \quad \text{mancót(a)} \quad \text{zaatóo-s(e)}
\]

book-ABS this person:DAT give.3SG:F:PERF-3SG:F

‘she gave the book to the woman’

(abs = absolutive; dat = dative; f = feminine; perf = perfective; sg = singular)

Eastern Cushitic languages do not have prefixes or proclitic markers. The positioning of such bound morphemes thus follows a more general patterning for phonologically bound grammatical morphemes as used in these languages. This is in no way to be interpreted as a reflex of syntactic principles operating in this Cushitic branch.

Givon’s claims have also been challenged on philological grounds. Incorporated object constructions in English compounds with the object preceding the verb (corn grinding, nut cracker) were formed during the Elizabethan period (around the 16th century), i.e. at a time when the language had already a syntactic SVO order. This modifier head pattern is still productive today, even though the dominant constituent order of English has been SVO for at least 800 years. Modern Greek object clitics emerged after the syntactic shift to SVO had occurred. Similarly, in French pronominal object pronouns precede the verb, whereas nominal objects follow the latter. This preposing of object pronouns historically occurred after the language had already shifted from a verb-final (SOV) structure towards a SVO order, and thus in no way is related to the general syntactic restructuring. As a matter of fact, there is a more common tendency cross-linguistically to move shorter syntactic elements to earlier positions in the sentence. This deviating position of pronominal objects as opposed to nominal objects may be related to the high degree of inherent topicality of the former. This, together with the tendency to cliticise prosodically weak elements (i.e. short forms in general, including pronominal reference markers), results in “deviations”.
Because of such "counter pressures", languages need not be consistent in their structural behaviour. The point is that other principles, e.g. prosodic or metrical rules, morphologically induced phenomena such as analogy, or pragmatically induced features such as topicality (and probably other linguistic features), apply to morphological elements, as a result of which such markers are cut loose from phrasal or clausal phenomena. Moreover, there are often multiple sources for specific bound grammatical markers, as grammaticalisation theories show us. What is more, as we shall see in Chapter 13, languages do not necessarily manifest "typological consistency". For example, verb-initial languages tend to have prepositions, rather than postpositions, but the latter language type (combining a verb-initial structure with postpositions) nevertheless occurs. Even if one managed to reconstruct the etymological source of specific morphemes, the conclusions on corresponding syntactic properties remain speculative. Consequently, there is some danger in blindly applying such reasoning.
Chapter 7

Language-internal variation

7.1 Establishing dialect zones
7.2 Dialectometrical studies
7.3 The transition problem
7.4 Resolving the Neogrammarian controversy

According to standard procedures in sociolinguistics, testing mutual intelligibility between closely related speech varieties is one important way of finding out whether the varieties are to be treated as dialects of the same language or as distinct languages. Determining whether one is dealing with two distinct languages or two dialects of one and the same language, however, is a considerable problem for synchronic linguistics. As shown in a classic sociolinguistic contribution by Wolff (1959) for two members of the Ijo family (southern Nigeria), testing intelligibility sometimes raises problems, because judgements may also depend on speakers’ attitudes and their willingness to understand the other variety. Also, intelligibility judgments may be determined by the degree of exposure to other lects, as the collection of differences between individuals (idiolects), or differences between social groups (sociolects) as well as regional differences (dialects) are sometimes called. It is the study of this latter aspect of language, in particular dialectal differences, which shall occupy us in the present chapter.

7.1 Establishing dialect zones

Many African languages still remain undescribed or undocumented. When grammatical descriptions become available, the resulting monographs usually focus on one variety of a particular language – understandably so, because the study of dialectal variation is time consuming and requires a long-term commitment towards the investigation of individual languages. At the same time we know that no speech community is homogeneous, and that variation between individuals, social groups and regions constitutes the basis for language change. Fortunately, for major African
lingua francas such as Swahili we have not only reference grammars but also studies on
dialect variation within the language. As already suggested by its name, Swahili (from
Arabic sawaahil ‘coastal regions’, singular saahil) is a language which developed along
the East African coast. Historically, it emerged as a separate language within the Sabaki
cluster of eastern Bantu as a result of contacts between speakers of a Bantu language
and tradesmen from the Middle East. This process probably started some 1000 years
ago in the Lower Tana region of what is Kenya today. At one point Swahili stretched
from the Somali coast all the way down to Mozambique. This spreading along the
coast (and only at a much later point in time, inland) is also reflected in the dialectal
map, as shown below.

There is a clear cut distinction between Northern and Southern varieties of Swa-
hili, as Nurse (1982) observes. When comparing lexical items between the northern-
most and southernmost varieties, for example, one can establish specific sound cor-
respondences. Thus, as pointed out in Nurse (1982), northern dialects as spoken from
Somalia to south Kenya tend to use a voiceless dental stop where southern dialects (on
the Tanzanian mainland and islands) use a voiceless palatal stop (here represented with
the Standard-Swahili orthographic symbol $ch$). Similar correspondence sets occur for
other consonants, e.g. prenasalised consonants or voiceless fricatives:

<table>
<thead>
<tr>
<th>Northern dialects</th>
<th>Southern dialects</th>
</tr>
</thead>
<tbody>
<tr>
<td>-taka</td>
<td>-chaka</td>
</tr>
<tr>
<td>-teka</td>
<td>-cheka</td>
</tr>
<tr>
<td>nd̪aa</td>
<td>njaa</td>
</tr>
<tr>
<td>nd̪e</td>
<td>nje</td>
</tr>
<tr>
<td>simbo</td>
<td>fimbo</td>
</tr>
<tr>
<td>-soma</td>
<td>-fyoma</td>
</tr>
</tbody>
</table>

'want' | 'laugh' |
'hunger' | 'outside' |
'stick' | 'read' |

Table 16. Correspondence sets between Northern and Southern Swahili dialects

One can plot such phonological as well as lexical and grammatical features on a map
by indicating geographical boundaries of the area in which a given sound, word or any
other structural property of a language manifests variation, and accordingly was affect-
ed by a specific innovation. Such a boundary is called an isogloss.47 Of course, specific
dialectal properties may intersect. The more isoglosses coincide in a particular region,
the stronger the dialect boundaries are. In other words, the density of isoglosses is in-
versely proportional to the density of communication or intelligibility between dialects.

47. The system of isogloss marking is parallel to what geographers use in expressing connecting
points with similar correlation coefficients for barometric pressure (isobar) or points having the same
temperature at a given time (isotherm).
The geographical distribution of such isoglosses for Swahili reflects the north-south dimension of the historical spreading of this language. During the 19th century, when trade routes developed from the coast towards central African regions, additional dialects emerged between coastal varieties and Swahili dialects such as Kingwana in Congo (Zaire).

At the grammatical level, more specifically with respect to verb morphology, Southern Swahili dialects have two different sets of prefixes for first, second, and third person singular, associated with different affirmative tense-aspect markers. Compare the following first person singular forms in the affirmative and negative in the southern dialect Vumba:

- **si-chukuu**
  - 1sg-carry
  - 'I did not carry'

- **n-a-βwera**
  - ona
  - 1sg-te-want
  - see
  - 'I want to see'

In Northern Swahili dialects, one finds only one set of person-marking prefixes. The Northern dialects, on the other hand, retained the old Bantu perfect(ive) suffix *-ide as -ile (plus a number of allomorphs), whereas Southern Swahili developed a prefix -me-. See also Nurse (1982) and Nurse and Hinnebush (1993) for further details on the historical morphology of Swahili.

Standard Swahili, the national language of Tanzania and Kenya, is based primarily on the Swahili as spoken in Zanzibar, a Southern Swahili dialect. In addition, there is some influence from a Northern variety, Mombasa Swahili, on the standard variety. Geographically, Zanzibar Swahili is half way between the extreme Northern and Southern varieties of the Swahili dialect continuum. When comparing the Standard Swahili lexical forms with those found in corresponding Northern or Southern varieties, one finds an interesting mixture where sometimes the forms are similar or identical to the northern dialects and in other cases to Southern varieties. Thus, the stem for ‘want’ is -taka, similar to Northern Swahili, but ‘laugh’ is -cheka, as in southern varieties. For ‘hunger’ we find njaa in Standard (Zanzibar) Swahili; similarly, the form for ‘stick’ is fimbo, as in the southernmost varieties. But the stem for ‘read’ is -soma, as in Northern Swahili, rather than -fyoma (or the alternative form -foma). There is an additional isogloss clearly distinguishing Northern and Southern Swahili, involving a correspondence between -z- in the north and -v- in the south, where again Standard Swahili occasionally has words where exactly this variation is attested, as in mwizi, mwivi ‘thief’ (Nurse 1982:171). We thus conclude that Standard Swahili also shares some isoglosses with Northern Swahili dialects.

So how did this situation come about? A brief digression into the study of Indo-European shows that the kinds of complications occurring in Swahili dialectology...
are well known from other dialect studies. According to the classic Neogrammarian position, sound changes are phonetically gradual, but lexically abrupt, in that all words meeting the conditions for a particular change are affected. After the Neogrammarians had worked out the major historical sound shifts for different Indo-European language groups and languages during the latter part of the 19th century, they set out to broaden their language materials, and started studying the impact of these changes at the dialect level, primarily in order to test the premise that sound change is gradual but lexically abrupt, and affecting all forms fulfilling the condition. Interestingly, they met with exactly the same kind of complications we observed for Swahili above. As dialect studies at the beginning of the 20th century on Indo-European languages
like German or French showed, the geographical boundaries between languages or within languages are often not sharp, and isoglosses have to be set up instead. German dialectologists like Wenker wanted to determine the geographical border between the so-called High German lects in the central parts of Germany and Low German varieties further towards the north. The result, however, was not a perfect bundle of isoglosses. What he found instead was a far more complex situation. First, they showed that innovations may spread across a linguistic area through contact and areal diffusion, and not just within a specific speech community; in other words, there is a clear cut areal dimension to language change. Second, sound changes sometimes are phonetically abrupt, but they may be lexically gradual, affecting certain words but not others.\(^48\) Compare some of the lexical isoglosses in the Dutch-German dialect continuum as shown on Map 3 adapted from Frings (1957). This area has come to be known as the “Rhenish Fan” (Rheinische Fächer in German), after the shape and distribution of phonological and lexical isoglosses across this area on either side of the

\(^{48}\) Some of the results were published in language atlases (Sprach-Atlassen) in 1878 and 1881.
River Rhine. In this transitional area roughly covering the area between Düsseldorf, Strasbourg and Frankfurt, one finds dialects where voiceless stops became affricates initially and fricatives medially or word-finally. Interestingly, however, certain words were affected by this change, but others were not – for example, in the area in and around the city of Cologne; with still other words, there is variation between speakers across the area. Compare the following forms in Standard British English with their cognates in Standard German, which is based on varieties that also underwent these changes (with German examples written in the orthography of the language, rather than with IPA symbols).

Table 17. Cognate sets in West German

<table>
<thead>
<tr>
<th></th>
<th>Standard English</th>
<th>Standard Dutch</th>
<th>Standard German</th>
<th>Cologne dialect of German</th>
</tr>
</thead>
<tbody>
<tr>
<td>pipe</td>
<td>pijp</td>
<td>Pfeife [pfaife]</td>
<td>Pief</td>
<td>Pief</td>
</tr>
<tr>
<td>(village)</td>
<td>dorp</td>
<td>Dorf</td>
<td>Dorf, doref</td>
<td></td>
</tr>
<tr>
<td>sleep</td>
<td>slapen</td>
<td>schlafen</td>
<td>Schlofe [ʃlɔfe]</td>
<td></td>
</tr>
<tr>
<td>that</td>
<td>dat</td>
<td>das</td>
<td>dat</td>
<td></td>
</tr>
<tr>
<td>eat</td>
<td>eten</td>
<td>essen</td>
<td>esse</td>
<td></td>
</tr>
<tr>
<td>cook</td>
<td>koken</td>
<td>Kochen [kɔxen]</td>
<td>Koche [kɔxe]</td>
<td></td>
</tr>
</tbody>
</table>

Whereas the velar point of articulation was affected intervocally in Standard German (as in ‘cook’ above), it did not change word-initially, although the corresponding voiceless bilabial and alveolar stop were affected in this position (as in ‘pipe’ above or the word for ‘two’, which is Zwei ([tswai]) in Standard German). Thus, *k became x (ch in the orthography) between vowels, but it did not become an affricate or fricative word-initially in Standard German. This latter change did occur, however, in Swiss dialects of German (hence [kɔxen] for ‘cook’ in Swiss German, instead of kochen [kɔxen] as in Standard German). The same Swiss dialects also underwent the weakening rule for bilabial and alveolar stops. This patterning shows that sound changes may be initiated in one part of the system (e.g. in the bilabial set) and then generalise to other phonological domains.

As a result of dialect studies in Germany, for example, the Neogrammarians’ somewhat optimistic statement that “sound laws operate without exception” clearly had to be modified. Language change turned out to be more intricate, not only because of analogical formations and a number of other complicating factors, but also because of dialectal influence. There is no neat division between German and Dutch, as there is no clear cut boundary between Northern and Southern Swahili. Different parts of historical sound shifts may spread at different rates and affect different geographical areas to a different extent. Linguistic innovations sometimes radiate out from a point, similar to waves on the surface of water when an object is thrown into it. It is on the
basis of this experience, that the Wave Theory was formulated by Schmidt (1872). Rather than adhering to the maxim “sound laws admit of no exceptions”, he arrived at the conclusion that “every word has its own history”. Today we know that this latter statement is also too extreme, even though we know that different dialects, but also genetically related (or unrelated) languages may exert a deep influence on each other. This important issue concerning language contact is discussed in more detail in the following chapters.

Intelligibility tests between Standard German and Standard Dutch show that these two varieties should be considered separate languages. But when travelling from the Dutch coast towards the eastern borders of Germany, one observes a dialect continuum, with neighbouring varieties being mutually intelligible. Such phenomena complicating the question whether one is dealing with two (or more) distinct languages rather than a dialect continuum, are of course also found in an African context, e.g. with respect to several Bantu languages.

In the case of these German dialects, it is possible to establish a so-called focal area or prestige area, i.e. a geographical area from which certain changes (whether phonological, grammatical or lexical in nature) originated and spread. In such areas, the observed sound changes may be expected to be the most regular. In the case of German, this area is to be found east and southeast of Frankfurt (see Map 3 above).

In a transitional area, like the area around Cologne, one observes that certain sound changes were copied through areal contact with focal areas. But interestingly, some words were not affected by these changes. A relic area (also known as a marginal, lateral, isolated or peripheral area) is not affected by the change or innovation. Historically, this applied to the so-called Lower German (“Nieder Deutsch”) varieties spoken in what is now called the Netherlands (hence the name “Dutch” for the language). These geographically outlying or remote varieties in “the Lower Countries” preserved the older pronunciation; compare the examples from Standard Dutch in Table 17 above.

Historically marginal areas (from a dialectological point of view) may themselves develop into focal areas. This is exactly what happened in the case of Dutch. The standard language is based on the variety spoken in the western part of the Netherlands known as Holland. After the Netherlands became an independent state (in the 16th

49. Both Standard Dutch and Standard German originated as written languages, rather than as the dialect of a specific region. Nevertheless, both have a strong regional basis historically; more specifically, varieties spoken in the western part of the Netherlands in the case of Dutch, and central German varieties in the case of German.

50. Trudgill (2002) sees isolated low-contact communities as being more conservative and resistant to certain kinds of changes.
century), varieties traditionally spoken in the western part of the country formed the basis of a standardised (written) language which then started to act as a new focal area, influencing other dialects within the Netherlands. This process continues today, especially because this western variety of Dutch was codified and subsequently became the standard variety used in schools as well as in public administration. The prestigious status of this standardised variety has resulted in the elimination of phonological and lexical isoglosses from other varieties of Dutch. This is due mainly to the fact that more and more words from Standard Dutch now enter other dialects of this Germanic language.

Complications involving the regularity of a specific sound shift have already been illustrated for Swahili lects above. But examples could be drawn from basically any other dialect cluster. In Chapter 2, examples were presented of phonological innovations in the Southern Nilotic Kalenjin cluster. One innovation shared by two Kalenjin lects, Nandi and Kipsikiis, involved a shift of \(*R > y\). But a closer look at all Kalenjin lects shows that the actual situation is slightly more complex. The complications with the historical development of \(*R\) do not discredit the subclassification method using shared (phonological, lexical and morphological) innovations. They simply show that additional phenomena need to be accounted for at the same time. This is also the position taken by Rottland (1982: 266–267) in his comparative study of Southern Nilotic, where he points out that areal spreading or convergence between different Kalenjin dialects resulted in the spreading of the shift \(*R > y\). In the northern variety of Marakwet, a shift \(*R > r\) occurred, whereas the southern variety of Marakwet was affected by the areal spreading of \(*R > y\). Northern Marakwet may not have been affected by the latter shift, because in cognate words in the neighbouring Päkot language (which is also close to the Marakwet language genetically) this sound unit (\(s\) phonologically) is realised as [\(\gamma\)] phonetically, a sound which is extremely close acoustically to \(r\) as found in northern Marakwet.

In the case of Kalenjin, it is not known which dialect of this cluster initiated the innovation \(*R > y\). But generally speaking, innovations in prestigious dialects tend to be copied by speakers of other dialects. The promotion of one dialect variety of a language to that of a codified and standardised language for educational and administrative purposes, for example, may result in the creation of a prestigious variety.

One frequent result of language standardisation, i.e. the promoting of one particular dialect of a language as the variety to be used in the educational system as well as in administration (i.e. providing one dialect with a flag and an army, as some have put it), indeed is dialect levelling. Speakers from less prestigious dialects tend to copy phonological, lexical and grammatical features (either on purpose, or as a result of interference), thereby eliminating earlier isoglosses.
We are now in a better position to understand the situation occurring in different Swahili dialects. Nurse (1982) contends that the Mombasa dialect and its subdialects (such as Ngare, Momvu, Kilindi) are basically varieties of Northern Swahili, with diffusional properties from Southern Swahili varieties. Mombasa Swahili shares isoglosses with Northern Swahili – for example, the dental, as against the (alveo-) palatal, point of articulation. On the other hand, Mombasa Swahili also shares a few isoglosses with the Southern dialects as a result of areal diffusion, e.g. concerning $s \sim f(y)$ or $z \sim v(y)$ correspondences. These must have been copied by speakers in the same way as speakers of Zanzibar (Standard) Swahili copied features from the Mombasa dialect, or speakers of Germanic lects in the Rhenish Fan area copied the pronunciation of certain words from neighbouring varieties spoken by economically powerful people. As we shall see in more detail below in Chapter 8, morphological systems are less subject to borrowing than phonological changes. This principle holds, not only between languages, but also at the dialectal level. A number of morphological properties in Mombasa Swahili clearly point towards a direct link.
with dialects further towards the north. Thus, remnants of the old perfect marker were still heard “a few generations ago” (Nurse 1982:177). Consequently, Nurse (1982:187) presumes that Mombasa Swahili split early from the main Northern dialect community, and that it did not participate in subsequent Northern dialect innovations; instead, the Mombasa dialect was later subject to some areal influence from neighbouring Southern dialect communities.

Standard Swahili is a Southern dialect with influence from Northern varieties of Swahili. This is likely to have been the result of the arrival of a large body of Northern dialect speakers most probably before the 16th century. The standardisation of Swahili goes back to the beginning of the 20th century, long after the major dialectal differences within this language had come to be established. Today, Standard Swahili itself is prestigious. Like Standard Dutch (as discussed above), it has formed a new focal area now influencing neighbouring dialects.

Speakers may also create “deregionalised” varieties by reducing dialect variation. This process is known as koiné formation, after the classical example of Hellenistic Koiné, the language of Greece during the time of Alexander the Great and subsequent eras. A koiné or link language is a supra-regional lect typically evolving in urban areas where speakers of different dialects develop a deregionalised form through interaction, thereby facilitating communication across regional or local differences. Because regional intricacies tend to disappear in favour of common structures shared by several or all dialect varieties, the result is usually a slightly simplified language, or a lect manifesting fewer irregularities.

Speakers familiar with different dialects of a language seem to operate with a so-called diasystem, as Anttila (1972:292) has called this phenomenon. Speakers apparently construct a common underlying diasystem from which varieties may be derived. This term describes the system internalised by speakers familiar with different varieties of a language, whereby each contrasting set of correspondences, as for the consonants in Swahili above, defines a diaphoneme; Möhlig (1995:47) presents such a diasystem for Swahili.

Hypercorrections may occur when speakers develop a notion of sound correspondences between a prestigious dialect and their own dialect which they are then trying to apply to new words. This may also happen with borrowings from another prestigious language. The consonant x in Swahili words originating from Arabic is pronounced as such in coastal dialects; thus, Arabic xamsin ‘fifty’ is pronounced as [xamsini]. The majority of other speakers tend to replace the velar fricative with an approximant h (also referred to as a glottal fricative), possibly as a result of spelling influence (since the word for ‘fifty’ is written as hamsini). Speakers familiar with the coastal pronunciation of words such as [xamsini] for hamsini sometimes by analogy extend this pronunciation to other words of Arabic origin pronounced with a glottal
approximant in coastal dialects, thus rendering the hypercorrect form [xabari] for "news" (written as habari), instead of the correct pronunciation [habari].

Dialect studies clearly enrich our conceptualisation of language change as a result of external influence. They show that innovations may spread through "waves", i.e. bilingual behaviour characterised by the copying of features from another dialect or variety. Innovations may spread due to sociolinguistic factors such as prestige, affecting certain lexical items, whereas others may escape the change (or lag behind). "Waves" of course are metaphorical representations of linguistic innovations spreading through areal diffusion. Such wave-like innovations usually involve social constellations of a certain nature. Heavy contact strongly promotes the diffusion of linguistic innovations. Consequently, changes may be expected to spread in densely populated areas (e.g. major cities), only later spreading to smaller settlements, affecting rural areas last. The areal diffusion consequently can be likened to skimming a stone across a pond, rather than to the effects of dropping a stone into a pond which then produces waves (Chambers 1993: 150). This alternative metaphorical representation of areal diffusion is called the gravity model or the hierarchical model by Trudgill (1974). In his research on English dialects, Trudgill (1983) also found so-called "mixed lects", i.e., dialects in which innovative variants alternate with conservative variants.

The comparative study of dialects of languages like French revealed a number of additional phenomena of interest for dialectal studies for other parts of the world, and for language change in general. Languages allow for homonymy to some extent, as pointed out in Chapter 5. An interesting phenomenon emerged from the research of the French dialectologist Gillieron, who was trying to establish the boundary between two closely related Romance languages, French and Provençal. For his data, this scholar depended on the extensive fieldwork in over six hundred localities conducted by the postman Edmond Edmont (who had learned about phonetics from a certain Abbé Rousselot). Gillieron discovered that historical sound shifts had occurred (taking Latin as the original form) in a transitional area between the two Romance languages called Franco-Provençal. These sound shifts also resulted in the phonological merger of certain words, i.e., they resulted in homonymy.

\[ \text{"cattus"} \rightarrow \text{"gat"} \quad \text{"cat"} \]
\[ \text{"gallus"} \rightarrow \text{"gat"} \quad \text{"cock"} \]

Interestingly, in dialects where these words had merged (as a result of sound changes), the word for 'cock' was always replaced by another lexeme, such as victaire or faisan. In other words, homonymic clash had occurred to an extent which presumably caused communicative problems, as both words referred to domestic animals, whose statuses in a traditional southern French household were rather different. Consequently, a "therapeutic" change occurred, i.e. loss by collision and lexical replacement through
semantic widening in a related term in the same semantic field, such as the word for pheasant.\footnote{Another attested way of “solving the clash”, is by way of a sporadic sound change applying to a single word; this appears to have been common in the historical development of Chinese languages (Randy LaPolla, personal communication).} Another example illustrating the resolving of homonymic clash comes from English. Old English \textit{letan} ‘allow, permit’ and \textit{lettan} ‘hinder, obstruct’ merged in Modern colloquial English (\textit{let}) as a result of specific sound changes. As in French, one of the two (the second meaning in this case) disappeared.

Homonymic clash due to sound changes in words used in similar environments, and subsequent therapeutic change, is also attested in Bantu. The current forms in Swahili for ‘black’ and ‘white’, -\textit{eusi} and -\textit{eupe}, can probably be explained this way. Meeussen (1980) reconstructs *-\textit{edu} ‘black’ and *-\textit{idu} ‘white’ for Proto-Bantu. As a result of intervocalic lenition and subsequent loss of the stop and the shift of a 7-vowel to a 5-vowel system, these forms would have become -\textit{eu} ‘black’ and -\textit{eu} ‘white’, respectively. The current longer forms in Swahili are probably due to the addition of ideophonic elements -\textit{pe} and -\textit{si} to these roots, as a result of which the forms were no longer homophonous. This phenomenon, whereby a longer form becomes the basis, is known as \textit{increment}.

Dialectology as well as language contact studies have been added as complementary or ancillary methods to the comparative method. Moreover, they constitute important challenges to some of the classical assumptions in historical-comparative studies. But these issues are best understood once one has developed a feeling for common (and less common) contact phenomena. They therefore should not concern us here. Instead, we will focus in the remaining part of the present chapter on the internal consequences for language change.

7.2 Dialectometrical studies

Swahili dialects have been studied extensively by the Africanist Wilhelm Möhlig, e.g. Möhlig (1984–1985, 1986). Inspired by the méthode dialectométrique (the dialectometrical method) of Seguy (1973) as applied to dialect research in the Gascogne, France, this Africanist as well as a number of other scholars have used dialectometrics in the study of Swahili and other Bantu languages. A central aim of the method is the discovery of phonological (including prosodic) isoglosses, as well as lexical or morphological features diagnostic for dialect differences. An important feature of dialectometrical studies concerns not only the number of features differentiating dialects of a language, but also the relative weighting of isoglosses. Also, the
frequency with which specific features occur in the cluster of dialects compared is to be taken into account.

The number of lexical items used for comparative purposes in dialectometrical studies varies between 100 and 600. Some of the basic principles of this method are illustrated below by way of a comparison of Swahili dialects (including closely related languages spoken on the Comore Islands, such as Ngazidja). When comparing the stem for ‘all’ in different dialects of Swahili, for example, one may rate formal identity with 30 (A1 below), and partial phonological divergence (A2) with 20; if the roots differ on more than one account (phonological as well as morphological, though using the same root) this is counted with 10; the number 0 is attached to words involving different roots (as with group B below).

Table 18. The lexical root for ‘all’ in Swahili dialects

<p>| | |</p>
<table>
<thead>
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<tbody>
<tr>
<td>'all'</td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>-ote</td>
</tr>
<tr>
<td>A2</td>
<td>-osi, -ontsi, -otsi</td>
</tr>
<tr>
<td>B</td>
<td>pia</td>
</tr>
</tbody>
</table>

The sum of the scores for the wordlist used (often around 100) is then divided by the maximum possible score. When multiplied by 100, percentages of resemblance between a pair of languages emerge. The figure arrived at for the comparison of Chwaka and Vumba, and expressing dialectal affinity is 843; between Chwaka and Nzuani the figure is 145. In other words, the higher the figure, the greater the dialect difference.

Within African linguistics, the method has been applied in particular in Bantu studies. For further details, the interested reader is referred to the collection of dialectological studies on different languages published in Guarisma and Platiel (1980), Guarisma (1984), as well as Guarisma and Möhlig (1986).

Dialectrometry is an essentially a-historical discipline, or more precisely, it ignores the relative chronology of specific innovations; instead, it aims at quantifying observed differences between dialects as reflected in isoglosses as well as at visualising dialectal differences through relational diagrams. A detailed application of dialectometry as a method (as well as the more traditional, comparative method) is found, for example, in Nanfah (2003) on the Yemba cluster, which belongs to the Eastern Grassfields group within Bantoid. The results of some his findings, expressed visually by the number of intersecting lines, are shown in Figure 8. The abbreviations in this diagram stand for different dialects of Yemba.
Apart from the scientific interest, there may also be a very practical reason for the application of this quantificational technique, namely establishing degrees of differences between dialects, and, related to this, the question of which variety is understood the most by speakers of different dialects and consequently should be selected for the codification and standardisation of a language. The latter point is important, for example, when one starts using such languages not only for oral communication, but also in educational systems.
More recently, Nerbonne and Heeringa (2001) have introduced additional quantitative techniques in order to measure phonetic similarities between dialects. See also McMahon and McMahon (2005: 122–138) for a survey of computer-based search techniques and an application of different quantitative-based methods in historical linguistics; their detailed discussion also contains cautions and caveats.

Language communities are never homogeneous. The variation may be idiolectal, sociolectal or dialectal in nature. The point is whether this variation is conventionalised, i.e. whether “stable variation” occurs. Interestingly, speakers copy or imitate the linguistic habits of others. How this happens has been shown by scholars like Labov for certain communities, more specifically for American metropoles.

7.3 The transition problem

Like other scientific disciplines, linguistics needs independent thinkers. Clearly, the sociolinguist William Labov should be ranked in this category. While starting his sociolinguistic research at a time when many other linguists were more interested in the formal representation of linguistic change by way of rules, Labov presented himself as a “street linguist” or fieldworker. Whereas Bloomfield and other linguists from the earlier parts of the 20th century had assumed that language change is too gradual to be observable in a synchronic survey, Labov and his fellow researchers concluded from their research initiated in the 1960s that this view was too pessimistic. Labov did not occupy himself with the actuation problem; instead, the main focus in his scholarly work was on the question “who are the leaders in language change, and how does change spread across a speech community?”, i.e. the transition problem (or propagation problem).

For their sociolinguistic investigations of variation in speech between members of the same speech community in American metropoles, Labov and his colleagues took a number of sociolinguistic variables relevant in sampling procedures into account: The generational status of speakers: age, gender, neighbourhood effects (including change in the composition of a community), ethnic descent (e.g. foreign language background, but also religious differences) or occupation (and thereby socioeconomic class). Related to the latter point were questions concerning education and alteration in the relative social status or social mobility (Labov 1966).

Two important approaches, the apparent-time approach and the real-time approach, are central to the method used to trace language variation across different social groups and generations in the Labovian tradition. With the so-called apparent-time approach towards the study of change, the distribution of linguistic variables among people of different ages are recorded during a single time period, and differences in their speech which correlate with age are assumed to reflect changes at
different times. In his research on American English, Labov (e.g. 1994) shows that the youngest age group may be 8 years old or beyond; for the older speakers it is of course important that their linguistic competence and performance is still intact.

With the real-time approach, speakers are interviewed over specific time intervals. Some of the informants consulted by Labov and his team have been known to the investigators for over 40 years. Labov further distinguishes between trend studies and panel studies. With trend studies, one more or less replicates the same research method with the same population sample. In a panel study, on the other hand, one attempts to locate the same individuals that were the subjects of the first study, and monitors any changes in their behaviour by submitting them to the same questionnaire, interview, or experiment. "This combination of observations in apparent time and real time is the basic method for the study of change in progress", as stated by Labov (1994: 63).52 This type of research concerning language change is virtually non-existent within African linguistics, partly because it requires longitudinal research of speech behaviour within a community.

Based on extensive and repeated interviews, e.g. the collection of social histories, with long-term participant observation in social gatherings combined with systematic inquiries into social network relations as well as studies of face-to-face interaction among peers over a period of forty years, Labov (e.g. 1994, 2001a, 2001b) concludes that sound change in progress can indeed be observed. His research shows, for example, that there have been rather dramatic sound changes in metropolitan areas of the United States over the past decades. Also, the earlier belief that the dominant role of standardised languages, as used in schools, the media, public administration etc., puts a halt to language change could not be supported. Interestingly, the so-called trend studies in the sociolinguistic research carried out by the Labov team showed that variables operating at high levels of social awareness are modified throughout a speaker's lifetime, with consistent age-grading in the community. The other set, including community, family, and individual studies, shows that the phonological categories that underlie the surface variation remain stable.

Variation in the pronunciation of words is an inherent property of language, as argued by the phonetician John Ohala (e.g. Ohala 1993). This important finding explains the so-called actuation problem, i.e. the fact that the pronunciation of sounds or larger units, such as syllables or words, varies with the same speaker as well as between speakers of the same language. The transition problem, i.e. understanding how a given variable (whether phonological, lexical or grammatical in nature) is

52. As already pointed out in Hockett (1960), one has to be careful not to confuse change in apparent time with change in real time, as distributions across age levels might not represent change in the community; instead, it may reflect what has been called "age-grading", where adolescents and young adults use stigmatised variants more freely than middle-aged speakers.
selected as sociolinguistically significant and thus generalised by groups of individuals, was one of the central questions in the research initiated by Labov in American cities. The same sociolinguistic techniques have been replicated in a range of studies covering urban areas like Norwich, Panama City, Philadelphia, and Cairo (Labov 2001a: 190). From his research it has become clear that linguistic changes originate in groups centrally located in the socio-economic hierarchy, rather than in the highest or lowest social classes. The “leaders of change” are not necessarily individuals with higher or lower education or social status. Rather, they are people at the centre of social networks within a community, often combined with a broad range of connections outside of their immediate locality (sometimes called “expanded centrality”). They also tend to have a high density of social interactions within the community. Moreover, women tend to lead most linguistic changes in the North American context, according to this research outcome. “The leaders of linguistic change are not inventors of a certain form, but rather those who, by reason of their social histories and patterns of behavior, will advance the ongoing change more strongly”, as Labov (2001a: 33–34) put it.

A specific linguistic change may begin as a local pattern characteristic of a certain social group. As the change becomes generalised throughout this particular community of speakers, it becomes associated for others with the social values attributed to that community. If neighbouring communities take the first group as a reference group for social values, they may modify their speech in order to sound more like those they identify with. This process may be accelerated further by groups first gaining entrance to the community. There follows a long period when the disappearing form is heard as archaic, a symbol of a vanished prestige or stigma, and is used as a source of stereotyped humour.

What is badly needed in the historical-comparative study of African languages, more specifically in dialectological investigations, is exactly this kind of research. Studies of a similar depth and empirical thoroughness as carried out by William Labov and other colleagues are virtually non-existent in the field of Africanistics. Such studies presumably are best carried out, to begin with, in smaller speech communities, given the amount of data that need to be gathered and analysed. The following anecdote may help to illustrate this point.

When the present author carried out fieldwork on Tima, a Niger-Congo language spoken in the Nuba Mountains, Sudan, he also organised group sessions with around thirty speakers being interviewed at the same time. Tima is spoken in five villages by approximately 5000 people. In addition, there is a community of around 1000 speakers in the greater Khartoum area (Dimmendaal 2009a, 2009b). During this group session with representatives from the five Tima villages and including males and females from different ages, the present author wrote down variation between speakers in the pronunciation of specific words each time this occurred, so that the degree of variation...
within Tima could be established. Through this preliminary investigation, it became clear that the Tima language is rather homogeneous, with only minor phonological variation occurring between speakers. The most distinctive property, occurring in the speech of the oldest speakers in the community (many of whom probably were over 80 years), is the presence of a voiced dental fricative ʁ:

<table>
<thead>
<tr>
<th>Old people</th>
<th>Middle generation</th>
<th>Younger generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>cĩːð</td>
<td>cĩ</td>
<td>cĩ</td>
</tr>
<tr>
<td>ki-ɗĩ</td>
<td>ki-dii</td>
<td>ki-dii</td>
</tr>
</tbody>
</table>

The research test reported upon here would be an instance of the so-called “apparent-time” approach, since the differences between speakers corresponds to age.

In addition, it turned out that there is variation between Tima speakers concerning fronting harmony with affixes. Several speakers, for example, pronounce the word for ‘leg’ as ki-ɗii rather than ki-dii. In addition to ATR-harmony, Tima thus has a system of fronting harmony, whereby vowels in prefixes and suffixes correspond in terms of the features front, central or back to vowels in roots. For all speakers the nominal prefix kV- (whereby V represents an underspecified vowel) is a back vowel if the root contains a back vowel, whereas the same prefix vowel is central if the root contains a central vowel:

\[
\begin{align*}
\text{Old people} & & \text{Middle generation} & & \text{Younger generation} \\
\text{kə-ðiŋ} & & \text{kɪ-ðiŋ} & & \text{‘thigh‘} \\
\text{kɪ-ɓɛ́r} & & \text{kɪ-ɓɛ́r} & & \text{‘friend‘}
\end{align*}
\]

Additional allomorphs, containing a front vowel in the nominal-class prefixes whenever the root contains a front vowel, are used by certain speakers, as in the word for ‘leg’ above. Whereas none of the old people appears to use such a fronting rule before front vowels – they use a centralised variant instead – speakers from both the middle and younger generations front the prefix vowel (s → i before i or e, and s → t before t or e) in such cases.

<table>
<thead>
<tr>
<th>Old people</th>
<th>Middle generation</th>
<th>Younger generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>kə-ɓɛ́r</td>
<td>kə-ɓɛ́r</td>
<td>kə-ɓɛ́r</td>
</tr>
<tr>
<td>ki-ɓɛ́r</td>
<td>ki-ɓɛ́r</td>
<td>ki-ɓɛ́r</td>
</tr>
</tbody>
</table>

These examples may help to illustrate the complexity of sound change in progress as manifested in the synchronic distribution of variation between individuals or groups. Whereas the use of ʁ by old speakers is seen as a distinctive property of “archaic Tima”, the variation in the fronting harmony for vowels is something many speakers are not even aware of. So far, no clear cut social stratification could be established between Tima speakers applying the fronting rule for prefix vowels as against those using the more archaic centralised vowel. There does not appear to be a generational differentiation concerning the fronting rule for prefix vowels, apart from the fact that the
oldest members of the community do not have this fronting rule, nor is this a matter of dialectal variation, as speakers from the same village either have this rule or not. What is more, a number of speakers who were aware of this variation indicated that they use both prefix forms with the central and the front vowel, because “it is all the same”. Consequently, it seems more likely that different social networks (possibly related to clans) are involved for those applying the fronting harmony with lexical roots containing front vowels as against speakers who centralise prefix vowels before roots with central as well as front vowels.

It remains to be determined (by way of extensive interviews with a large number of speakers) who the “leaders of change”, in this case the innovators of the fronting harmony rule for vowels in Tima, are. Similarly, it remains an intriguing question why some individuals copy such innovations and others do not. Tima villages are organised according to clan membership, with specific clans being concentrated in certain villages. But all Tima villages are “mixed” in the sense that representatives from different clans may be found in one and the same village, and one and the same clan may be represented in different villages. Consequently, the phonological variation described above possibly is linked to social networks involving clan membership and intensive contacts between members of the same clan in the case of Tima. The investigation of the social stratification of dialectal variation is an important desideratum in the comparative study of African languages.

Interestingly, when the present author asked the (rather unscientific) question which form was “the best form” during this group session with representatives from the Tima speech community, members of the group would always point towards the pronunciation certain individuals among them were using. One of them was a serene elder, respected by all group members, and clearly a prestigious speaker of the language. Possibly, speakers monitor their speech after such key figures in a society. But such hypotheses of course need to be verified through extensive data gathering.

In her description of variation among speakers in the treatment of certain bound morphemes in the Nilotic language Alur, Kutsch Lojenga (1991) mentions statements by older people, such as “this is what our children sometimes are saying”. Phrased differently, younger speakers tend to treat pronominal possessive markers in this language as “weak” (recessive) morphemes, i.e. the ATR-quality of vowels in these enclitic markers is determined by the root (as shown in Chapter 4 above). Thus for them, the nominal root for ‘eye’, way, remains unchanged when a pronominal possessive marker is added: way-1 ‘your eye’. Older speakers still treat the pronominal possessive marker as a “dominant” suffix, because its [+ATR] vowel causes the preceding root

53. Apart from these subtle phonological variables, there appear to be a few lexical differences between speakers.

Apart from reinterpretations considering the status of morphemes as either dominant or recessive in terms of their harmonic behaviour, African languages with ATR-harmony systems frequently add or lose specific vowels, which of course also has consequences for the operation of such systems. See Casali (2008) for a recent survey of the literature.

Most of us doing fieldwork on African languages have heard statements like “younger people no longer speak the language correctly or properly”. But of course children monitor their speech after the speech of their peers, usually adults or adolescents, and consequently, the variation must already be there in the community. Only detailed empirical studies using the real-time and apparent-time methods as developed by Labov and his associates will reveal who the innovators of speech are, and how changes spread across a speech community. Language-internal spreading of innovations occurs, presumably, in accordance with social forces. But the question of course is what these forces are. Labov (2001a: 24) also hastens to warn against extrapolating for the past, and also points out that Sturtevant (1947) held the same views:

“We must also be wary of extrapolating backward in time to Neolithic, pre-urban societies with an entirely different social organisation [from modern life in urban areas; GJD]. For many of the languages of Asia, Africa, and South America, the historical record is short, and it is possible that different principles may have applied in their early development.”

Additional models to those propagated by Labov used in metropolitan areas primarily in the United States have been developed by scholars in order to explain the spreading of innovations across a speech community in other parts of the world. Thus, lexical diffusion in so-called exogamous patrilects has been reported for Australian languages. Johnson (1990) has pointed towards lexical variation due to marriage between speakers of different patrilects within a single language or rather speech of an exogamous patrilineal clan in an Australian aboriginal community. This social constellation promotes borrowing and results in lexical diffusion of varying intensity.

People sometimes consciously introduce innovations to delimit specific social groups. Such cases have been reported for Papua New Guinea (Foley 1986). They, presumably, may be found on the African continent as well, but case studies on the topic appear to be rare. Deliberate language change is a characteristic of youth languages in African metropoles. But the latter phenomenon probably constitutes a modern continuation of an old tradition, as further argued in Chapter 10.

To date, there appear to be very few empirical studies of synchronic variation in African languages taking into account variables such as social group, age, gender, or register, Beyer (in print) being a rare exception. Also, questions such as “Who initiates
innovations?”, or “Why do these innovations get copied by others?” have hardly been asked, it seems, in the field of African linguistics. “Women conform more closely than men to sociolinguistic norms that are overtly prescribed, but conform less than men when they are not”, as Labov (2001a: 293) argues with respect to communities in American metropoles. Also, women are in advance of men in the development of linguistic change, in particular “women who combine upward mobility with a consistent rejection of the constraining norms of polite society”, as concluded by Labov (2001a: 415). Is it true cross-culturally that women manifest a stronger sensitivity to the social evaluation of language, as Labov (2001a: 291) claimed with respect to the United States, or are there pronounced cultural differences in this respect? According to Labov (2001b: 33–34), the leaders of linguistic change are not inventors of a certain form, but rather those who, by reason of their social histories and patterns of behaviour, will advance the ongoing change more strongly. Discovering “the leaders of change” in different types of African speech communities through parallel studies obviously is a central desideratum.

Following Grace (1996: 172) one may argue that “[a] speech community consists of those people who communicate with one another or are connected to one another by chains of speakers who communicate with one another”. Within such speech communities it is often possible to detect social networks or different communities of practice, a term developed by Eckert (2000) for an aggregate of people coming together around a particular enterprise. At the simplest level, they are a small group of people who have worked together over a period of time. Such a group does not necessarily constitute an authorised or identified group. What holds them together is a common sense of purpose. In the case of the Tima these communities may primarily consist of clans. But there may be several communities of practice forming specific networks within a speech community, and people may belong to more than one at the same time. Milroy and Gordon (2003: 117) define the concept of social network as “the aggregate of relationships contracted with others, a boundless web of ties which reaches out through social and geographical space linking many individuals, sometimes remotely”. First order ties involve direct contact. The presence of modern media such as the internet and mobile phones (and sms messages) make the so-called “second-order ties”, where the link is only indirect, particularly important. Once parallel studies become available within the field of African linguistics, it will also become easier to assess the validity of models such as the social network theory as developed by Milroy (1987) or Milroy and Milroy (1992).
7.4 Resolving the Neogrammarian controversy

Analogy as a morphologically-based process can interfere with the regularity of a specific sound change in paradigms, as illustrated in Chapter 4. This in turn may result in sounds or sound units that are irregular from an historical point of view. But what about languages with relatively little morphology? Can these still exhibit the kind of irregularities sometimes detectable in languages with rich morphological systems, or do we find that sound changes operate without exceptions in such languages? Modern Chinese languages, for example, have relatively little bound morphology. From an historical point of view, then, it would be interesting to know whether historical changes in individual languages or lects are always regular (leaving aside complications emerging from other factors, such as taboo, expressiveness and the like). This research question was taken up by William Wang in the 1960s, with preliminary results on the dialect of Chaozhou being published in Wang (1969). Central to this work was the investigation of tonal reflexes from Middle Chinese, more specifically the tone splitting rule whereby the Middle Chinese tone level II split into two tones in modern varieties, referred to as 2b and 3b. Given the fact that not all lexical items fulfilling the condition for the change historically were affected by this innovation in the Chaozhou dialect, the conclusion drawn by Wang was that sound changes are phonetically abrupt, but lexically gradual. Or phrased differently: Sound change diffuses gradually across the lexicon.

In Wang (1971), other cases were presented that are problematic for the classical Neogrammarian claim that sound changes operate without exceptions. However, in a sequel to his earlier study, Wang (1989) provided evidence that the irregular developments in the Chaozhou lect were due to borrowings from literary Chinese, thus restoring the Neogrammarian premise of regularity.54

A different and more intricate type of counter-evidence to the Neogrammarian premise, or at least a problematic set of data, emerged again from the scholarly work of William Labov. Apart from the fascinating sociological dimension, his research revealed interesting linguistic properties of sound change. Not only did Labov show that language change can indeed be observed, he also showed that the assumption sometimes held that adults do not change their vernacular pronunciation significantly is incorrect as well. See Labov (1994) for further details, as well as other recent studies, such as Harrington et al. (2000), or Sankoff et al. (2001), where similar observations are made.

Labov (1981) describes lexical exceptions to a phonetic shift in the Philadelphia dialect of American English concerning the laxing of short $a$ before a voiced alveolar

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54. See also Krishnamurti (1998) on the issue of regularity of sound change through lexical diffusion.
stop. Regular sound change means a change in which every instance of a particular sound in a language changes to some other sound, either in all of its occurrences (unconditioned sound change) or only under phonetically stateable conditions. A general shift in phonetic norm in Neogrammarian terms thus should affect all instances for which the conditioning holds. Fronting of /uw/ and /ow/ in Philadelphia indeed applied to all members of the original word classes, except those with final /l/. Also, raising rules for vowels in the northern cities of the United States in general show "Neogrammarian regularity". Raising and tensing of short /a/ to /ae:/ (aeh) in Midland cities, on the other hand, affected only a subset of /ae/, "following a complex set of conditions that vary systematically as we move from New York to Philadelphia to Baltimore" (Labov 1981: 284). Adjectives ending in /d/ (e.g. sad, mad) kept the so-called tense /ae:/ without any apparent social connotation.

How come the historical shift of short /a/ was so complex and irregular, whereas other vowel shifts were not? Labov (1981: 304) quotes Henry Hoenigswald (personal communication) for one possible explanation related to the scope or length of the conditioning environment: "The modern tensing of short /a/ considers a minimum of two, and up to four, following segments. By contrast, the front of /ow/ in Philadelphia has one simple exception – when a liquid is the next segment". A lexically conditioned splitting for short /a/ occurred, the fundamental unit of change here being the individual word, rather than the sound itself or the phonological environment. Thus, there are at least some words whose behaviour is not predicted by their phonetic composition. Instead, we are dealing with lexical diffusion, a process involving the redistribution of an abstract word class into other abstract word classes (defined by grammatical and social conditioning). In other words, a lexically conditioned splitting for short /a/ occurred, the fundamental unit of change here being the individual word, rather than the sound itself or the phonological environment. Thus, there are at least some words whose behaviour is not predicted by their phonetic composition. Note also that none of the factors listed in Chapter 2.4, such as analogy, can be invoked as explanatory mechanisms either.

Through his approach to sound change, Labov (1994: 542–543) reconciled the Neogrammarian stance and those advocating lexical diffusion, stating that there is evidence for both, but in different contexts. According to him, regular sound change is characteristic of the initial stages of a change, without lexical or grammatical conditioning or any degree of social awareness; this phenomenon is characterised as "change from below". Lexical diffusion is most characteristic of late stages of a change that has lexical and grammatical conditioning or a high degree of social awareness (positive or negative sociolinguistic value) or of borrowing from other systems; this late stage change is characterised as "change from above". Resolving the Neogrammarian controversy thus means accepting that changes in phonetic realisation of a category are
regular, but changes in category membership may show lexical diffusion. “The redefinition of the ‘notion of regular sound change’ to include probabilistic sound change nevertheless reduces the distinction between ‘regular’ change and lexically diffused change”, as Durie and Ross (1996: 26) argue.

For a number of African languages, detailed accounts of dialectal variations are already available. See, for example, Capo (1991) for an exemplary account of the historical phonology of the Gbe cluster within Kwa, involving at least fifty lects nineteen of which were selected for comparison. The study is presented within the framework of Generative Phonology as current in those days. It may also serve as a detailed account of the emergence of dialectal differences through subtle shifts in the phonetic norm for specific consonants and vowels, e.g. the emergence of the universally rare distinction between bilabial and labio-dental fricatives in the Vhe lects (which include Ewe). As shown by Capo (1991: 110, ad passim), the bilabial fricatives go back historically to labialised uvular fricatives.

Table 19. Cognate sets in Gbe

<table>
<thead>
<tr>
<th>Proto-Gbe</th>
<th>Vhe lects</th>
<th>Gen lects</th>
<th>Ajá lects</th>
<th>Fon lects</th>
<th>Phla-Pherá lects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcry *aχwâ</td>
<td>aφá</td>
<td>aϕá</td>
<td>aχwâ</td>
<td>aχwâ</td>
<td>aχwâ</td>
</tr>
<tr>
<td>Festival *χwε</td>
<td>χϕε</td>
<td>χϕε</td>
<td>εε</td>
<td>εχwε</td>
<td>-χwε</td>
</tr>
<tr>
<td>be small *söe</td>
<td>öö</td>
<td>öö</td>
<td>öö</td>
<td>öö</td>
<td>öö</td>
</tr>
<tr>
<td>to move *söä</td>
<td>öä</td>
<td>söä</td>
<td>söä</td>
<td>söä</td>
<td>söä</td>
</tr>
</tbody>
</table>

(The bilabial fricative φ is represented as f in Capo 1991.)

The extensive sets of examples presented in Capo (1991) suggest that sound changes in the Gbe cluster were regular and that dialect boundaries are clear. But it seems more likely that the examples were selected because of their regularity.

Another exemplary study of dialect variation is found in Derive’s (1990) detailed account of the Malinke (Bambara-Dyula cluster) variety as spoken in the Ivory Coast. To what extent sound shifts in these languages or dialect clusters were indeed regular, i.e. affected all lexical items, and whether innovations sometimes cut across dialect boundaries, remains an interesting question for future research.
Part II

The linguistic manifestation of contact

External causes of language change, as against language-internal causes, were already introduced to some extent in the preceding chapter on dialectology. But apart from changes spreading across dialects, there may be changes triggered by contact between speakers of different languages. Whenever speakers of different languages are in contact with each other, there tends to be a transfer of some language material between them. The direction of this influence, its degree as well as the kind of changes caused by external influence, depend on the intensity and the nature of the social interaction. Also, the question whether the contact situation involves dialects of the same language, genetically related languages or languages that cannot be shown to be related plays a role in the outcome, as discussed in the following chapters.

As a result of a growing awareness amongst scholars over the past decades that almost any material may be borrowed between languages, new models of contact-induced change have been developed, e.g. in the influential study of Thomason and Kaufman (1988). Their perspective as well as that of other authors on the subject of language contact is discussed below. The perspective taken in the present monograph is slightly different from that of many other authors writing on the subject, in that pidgins or creoles are not treated as a unique type of language. Instead, as argued below, languages may undergo different degrees of pidginisation and creolisation, thus being part of a continuum of different types of language restructuring caused by external influence. More recently, so-called “mixed” languages (or syncretic languages, as they are called in the present study) have been added to this typological spectrum of languages restructured under strong external influence, which traditionally also includes languages belonging to so-called convergence areas.

The main purpose of Part II of the present volume therefore is to investigate the social background to some of the better known types of contact phenomena as well as potential linguistic outcomes resulting from contacts between communities speaking different languages, processes which may also include language shift.

The main – and in a way rather trivial – conclusion arrived at in Part II is that different circumstances lead to different results. Consequently, it may be useful from a paedagogical point of view to distinguish between main types of contact phenomena (as is done here), as long as one keeps in mind that this represents an oversimplification of facts. Anybody looking therefore for a full scholastic definition per genus et differentia specifica for the identification of a creole, a syncretic language, a language which is a member of a convergence area (also known as diffusion
area or Sprachbund), or a language undergoing contraction as a result of language shift, may be disappointed by the conclusions arrived at here. The reasons for our “relativistic” conclusions, however, are simple and straightforward: As an unnamed contributor in Dorian (1989: 7) observed, “every case is special […] idiosyncratic”. The survey presented below should make clear why this is so. The present author’s view on the subject of language creolisation and language contact in general is thus in full accordance with, for example, Mufwene (2001), who also holds the view that restructuring processes that produced creoles are not fundamentally different from those involved in other language contact situations. Changes as a result of language contact happen through competition and selection of linguistic features; the ecological context in which these processes take place include such variables as the presence of smaller or larger number of languages and the potential typological variation between them as well as differences in socio-historical conditions.
Chapter 8

Borrowing

8.1 Lexical and grammatical borrowing  
8.2 Structural borrowing  
8.3 Codeswitching  
8.4 Linguistic areas on the African continent

Speech communities usually do not live in vitro. This situation holds for communities across the world today as well as in the past. Many people on the African continent, for example, are multilingual, usually speaking the language of one or more neighbouring groups, the regional contact language as well as the national language. Contacts between communities speaking different languages may lead to an exchange of material as well as intellectual or immaterial culture. This in turn may lead to a transfer of lexical and grammatical features amongst others. The identification of such similarities observable between specific languages is one of the two phenomena requiring a historical explanation, as already stated in Chapter 1. From a cultural-historical point of view, a transfer of words (or other language material) is interesting, because this usually reflects cultural influence between speech communities. From a linguistic point of view, adopting a feature previously used in another language, the donor language, often leads towards interesting restructuring processes which may also tell us more about the nature of the receiving language, as we shall see below.

8.1 Lexical and grammatical borrowing

Establishing lexical borrowing requires a number of analytical steps. The easiest cases of borrowing identifiable are those between languages which are not genetically related, or only distantly related. In such cases, we do not have the problem of distinguishing borrowing from shared inheritance from a common ancestor. Thus, in the Germanic language English, a range of words from a semantic field involving domesticated and
wild animals can be traced back to the distantly related Romance language French.\footnote{Of course, English as a Germanic language and French as a Romance language are genetically related. But this only becomes clear when comparing basic numerals as well as a few nouns and verbs belonging to core vocabulary (hence the characterisation “distantly related” languages).} Compare the following examples:

<table>
<thead>
<tr>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>veal</td>
<td>veau</td>
</tr>
<tr>
<td>beef</td>
<td>boeuf</td>
</tr>
<tr>
<td>venison</td>
<td>venison</td>
</tr>
</tbody>
</table>

English only uses these words when referring to the meat from specific animals. Note also that English does have separate words referring to these animals when alive (e.g. ‘calf’, ‘bull’ and ‘deer’ respectively). Because of older written documents available for English and French, we know that these words entered the English language some time during the 11th century when French-speaking Normans from Normandy (France) conquered parts of, what is today, Great Britain. The borrowed words refer to one specific semantic field, namely food. French probably had more prestige or status during this period, because it was the language of the ruling elite. But other factors may have played a role as well when these words from French were introduced into the English language. The invaders ruling England probably brought their own kinsmen to work in the kitchen rather than employing English cooks, as it was customary in those days to poison one’s enemies. The vocabulary associated with the language of the new ruling class then spread into the language of those colonised, the English.

The borrowing for ‘veal’ manifests another property sometimes found in borrowings. English retained an original consonant which has become obsolete in the cognate word in the source language French during following centuries (through velarisation of the lateral consonant and subsequent change into a vowel \(\text{veal} > \text{veau} [\text{voo}]\)). A further example is the Old French form \(\text{livel}\), which became \(\text{niveau}\) as a result of a dissimilation of the first \(l\), and then \(\text{niveau}\) in Modern French. The old form again is still found in the English borrowing \(\text{level}\). For additional examples one should consult Campbell (2004: 74–77).

Typically, lexical borrowings do not enter from a source language into a donor language one at a time, but rather in smaller or larger sets related to specific cultural domains (such as the preparation of food in the examples above), rather than to basic vocabulary. It is not necessary for speakers of the recipient or receiving language to be familiar with the donor language, as the borrowings related to information technology from English into numerous languages across the world today shows. It is usually enough for a few individuals to know the words and to introduce the cultural innovation going along with the borrowing.
Greenberg (1960) has formulated a number of useful criteria for the identification of lexical borrowing in his comparison between the Chadic (Afroasiatic) language Hausa and the Saharan (Nilo-Saharan) language Kanuri. Compare the following words:

<table>
<thead>
<tr>
<th>Hausa</th>
<th>Kanuri</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cìròòm</td>
<td>ciroo-m</td>
<td>‘traditional title for son of emir’</td>
</tr>
<tr>
<td>yàrììmà</td>
<td>yarii-ma</td>
<td>‘younger brother of emir’</td>
</tr>
</tbody>
</table>

How does one establish the direction of borrowing in such cases? First, there may be specific phonological and/or grammatical features in the words under consideration that are best explained as structural properties of one of the two languages. This indeed turns out to be the case here. First, syllable-initial r in Hausa is flapped in roots inherited from Proto-Chadic. The corresponding rolled R (written as r̃ in modern Hausa grammars) was innovated through a shift of *t, *d, *s, and *z > r̃ in syllable-final position, and through borrowing in other positions within the word (Newman 1980a). The rolled r̃ (R) in the Hausa examples above thus provides an initial indication of an external source of this sound unit in the language.

Second, there are specific morphological properties in the common forms shared by Hausa and Kanuri which are characteristic for the latter and not for Hausa. For example, the -ma suffix is commonly used in the Saharan language Kanuri to nominalise verbs. Borrowings are often morphologically and semantically unanalysed in the receiving language – as they are in Hausa in these examples – but not in the donor language. A further example may illustrate this property. The following words common to Hausa and Kanuri contain specific morphological features pertinent to Kanuri (the suffix -tǝ́ being used to form verbal nouns from verb roots); consequently, they probably entered Hausa via this language.

<table>
<thead>
<tr>
<th>Hausa</th>
<th>Kanuri</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>r̃ùbùùt</td>
<td>r̃vò-tǝ́</td>
<td>‘write/writing’</td>
</tr>
<tr>
<td>kàrâátìuì</td>
<td>kɔrâ-tɔ́</td>
<td>‘read/reading’</td>
</tr>
</tbody>
</table>

Forms which are cognate with the Kanuri root r̃vò- are found elsewhere in Saharan, e.g. arbu in Teda and Daza. This is another important distributional fact relevant for the identification of the direction of borrowing. Accordingly, Kanuri probably served as the donor language for this word as well as a range of other words attested in Hausa.

The form kɔrâ for ‘reading’ ultimately derives from Arabic qaraṭa. But as the Hausa form carries morphological material which is meaningful in Kanuri, the latter probably served as the donor language. The only plausible conclusion to be drawn from these facts is that Hausa borrowed the word of Arabic origin from Kanuri. (See also Newman 2000a:270 on this issue.) From a cultural-historical point of view the borrowing of
these (and other) terms related to education is interesting, because formal education traditionally is associated with Islam and Koranic schools. The borrowing of these terms via Kanuri seems to contradict a common view that Islam entered Hausa society through influence from the west, more specifically from the Mali Empire in the 14th century. The linguistic evidence shows that there is also evidence for a strong eastern (Kanuri) influence concerning Islam and cultural traditions associated with it, such as reading and writing, as pointed out in Greenberg (1960).

As noted above, lexical borrowings tend to enter languages in clusters associated with specific semantic fields. Lexical influence from Arabic in Hausa relates to everyday life, trade, technology, elementary aspects of Muslim religion as well as personal names. As shown by Kossmann (2005), there is also a strong Berber influence in different Hausa lects, involving a wide variety of semantic fields, especially animal keeping and caravaneering, but also crafts, desert life, agriculture and sedentary life, eating and drinking, as well as religious and educated vocabulary. The author shows, in an exemplary manner, how Berber loanwords can be identified on the basis of phonological and morphological properties characteristic of (varieties of) Berber, e.g. the feminine prefix $tV$, e.g. Ayr Tuareg (Berber) $ti\text{-}kru\text{f}_a$, and Hausa $cuk\text{u}r\text{f}_a$ 'long narrow corn-bag made of palm-leaves'. Borrowings from Berber into Hausa also manifest phonological adaptations, e.g. clipping of final consonants: $a\text{uf}_a$ 'cream-coloured camel', from Berber $\text{áwra}ɣ$. The adding of final vowels, or the insertion of vowels between word-medial consonant clusters which are not permitted in Hausa, are additional manifestations of phonological adaptation strategies: $ta\text{al}kii$ 'a created being' from $tax\text{ísk}$ 'creature'. Kossmann (2005) also points out occasional difficulties in the interpretation, e.g. the question whether some words of Berber origin entered Hausa through other intermediary languages, e.g. Songhay.

As is more common with borrowing, the words from Berber were subject to phonological restructuring, more specifically phone substitution, in Hausa. Such reinterpretations of phonological distinctions may involve either underdifferentiation or overdifferentiation. Unadapted borrowing in languages occurs as well, in particular when there is widespread bilingualism in communities where a transfer of items occurs. Consequently, borrowing may give rise to new phonological oppositions.

Whereas borrowings are not necessarily integrated from a phonological point of view, they do tend to become integrated morphosyntactically. Extensive lexical borrowing may result in morphological restructuring, e.g. through the addition of new lexical (inflectional or derivational) markers. But the latter tend to be added to a grammatical subsystem which already existed as such in the receiving language. Apart from an enrichment of the existing set of functional morphemes, however, extensive grammatical borrowing may also result in a restructuring of a language at the morphological and syntactic level. The phonological enrichment as well as morphosyntactic restructuring as a result of borrowing are illustrated next.
A high degree of multilingualism in a speech community facilitates unadapted borrowing. But quite often there is also a social dimension to this latter process, sometimes called the “act of perception”. The phonological structure of the Western Nilotic language Alur may serve as a case in point. Compared to other Western Nilotic languages like Dinka, Alur has a rather rich system of consonants. In addition to a set of consonants common to Dinka and Alur, the latter has several fricatives, two implosive stops as well as a labial-velar stop. The relative richness in consonantism in Alur most likely is due to heavy borrowing from neighbouring Central Sudanic languages, where labial velar stops, implosives and fricatives are common (Dimmendaal 1995a).

Dinka consonants:
- p
- th
- t
- c
- k
- b
- dh
- d
- j
- g
- m
- nh
- n
- ŋ
- ŋ
- r
- l

Alur consonants:
- p
- th
- t
- c
- k
- kp
- r
- b
- dh
- d
- j
- g
- b
- d
- ŋb
- f
- s
- h
- v
- z
- r
- l
- m
- n
- ŋ
- ŋ
- y
- w

Although Dinka has undergone some innovations as well (e.g. the phonologisation of the dental nasal; Dimmendaal 1988), it is obvious from a historical-comparative point of view that the most dramatic changes with respect to the consonantal system occurred in Alur. Central Sudanic languages belong to the same phylum as Nilotic, Nilo-Saharan; but these genetic links are remote (to such an extent that some Africanists would not even consider them to be related). There is extensive bilingualism between speakers of Alur and the neighbouring Central Sudanic language Lendu. Alur has also been influenced by Central Sudanic varieties such as Okebo and Madi. As Southall (1953) observes, speech styles among the Alur have been strongly influenced by their Central Sudanic neighbours, e.g. as shown by the frequent use of ideophonic expressions. The latter often contain implosives as well as labio-velar stops in these languages. Compare Lendu (Central Sudanic) ŭbũlũ ‘stealthily’ and ŭbũlũ in Alur. In other words, not only do we find “foreign pronunciation” influence in the phonological system of
the Nilotic language Alur, specific fashions of speaking in its speech community have also been affected by these contacts.

Another such instance involving unadapted borrowing concerns the introduction of clicks from Khoisan languages into southern Bantu languages, more specifically the Nguni cluster. As observed by a number of authors (e.g. Finlayson 1982 or Herbert 1990), a word taboo phenomenon known as hlonipa probably played an important role in the transfer of phonological features from Khoisan languages into Bantu. On the one hand, this occurred through phone substitution, e.g. -cima (where c represents the dental click) for the inherited Bantu verb root for ‘extinguish’, *-dima) and through extensive unadapted lexical borrowing, on the other hand.

Acts of perception clearly play an important role when it comes to language contact. Kossmann (2005: 17), for example, observes that “Tuareg lexicon is quite different from the lexicon of the other Berber languages. This is generally believed to be a result of a more conservative attitude to [the] lexicon from the side of the Tuaregs, who took over much less Arabic vocabulary than the other Berber groups did. While this is certainly true, it may only constitute part of the picture. It is quite possible that unique elements in Tuareg lexicon are due to substrate influence from non-Berber language […]”.

It was thought traditionally that borrowing usually involves “culture words”, and rarely fundamental vocabulary. After all, why would one want to borrow words for concepts that are known to a speech community? However, sometimes we do borrow such basic words. As shown in Dimmendaal (2001a) and Yigezu (2005), the South-western Surmic language Baale borrowed extensively from two distantly related South-eastern Surmic languages, Tirma and Chai, e.g. with respect to kinship terminology, but also in its basic vocabulary, e.g. involving body part terminology and the like. As pointed out in Yigezu (2005), the direction of borrowing can be established on the basis of the fact that the Chai and Tirma forms are also attested in other languages of the South-eastern Surmic branch, and these can in fact be reconstructed for their common ancestor, whereas these words are not attested in the languages most closely related to Baale, the Didinga-Murle group.

Table 20. Lexical borrowings in Baale

<table>
<thead>
<tr>
<th>Baale (South-western Surmic)</th>
<th>Chai-Tirma (South-eastern Surmic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tfámíná</td>
<td>tfámín</td>
</tr>
<tr>
<td>ééru</td>
<td>ééri</td>
</tr>
<tr>
<td>sédë</td>
<td>sëdëí</td>
</tr>
<tr>
<td>ídë</td>
<td>ídë</td>
</tr>
<tr>
<td>gagu</td>
<td>gagù</td>
</tr>
<tr>
<td>dër</td>
<td>dër</td>
</tr>
<tr>
<td></td>
<td>‘chin’</td>
</tr>
<tr>
<td></td>
<td>‘boy, child’</td>
</tr>
<tr>
<td></td>
<td>‘girl’</td>
</tr>
<tr>
<td></td>
<td>‘cloud’</td>
</tr>
<tr>
<td></td>
<td>‘road’</td>
</tr>
<tr>
<td></td>
<td>‘mud’</td>
</tr>
</tbody>
</table>
We may borrow words, because of innovations in material or spiritual culture, because of prestige or frequent bilingualism in other languages as well as due to negative evaluations. Campbell (2004: 65) mentions the word *assassin* in English and other languages (French *assaïn*) from Arabic *ḥaffājīn* ‘hashish-eater’, a name derived from an 11th century sect whose members would “…intoxicate themselves with hashish or cannabis when preparing to kill someone of public standing”, as an example of negative evaluation. The actual motivations for lexical borrowings may thus be manifold. (Weinreich 1953 is a pioneering study in this respect.) The most obvious reason for borrowing relates to the transfer of cultural innovation between speech communities. Whether languages actually borrow a word or try to translate a foreign concept by using language-internal material may again depend on “acts of perception”. In Swahili, for example, one commonly finds this alternative to lexical borrowing, namely loan translations or calques, also known as loan shifts. The term loanword in English itself as a matter of fact is a calque (from German *Lehnwort*; a label developed in the 19th century in order to explain exceptions to established sound laws).

Loan translations are found, for example, in Swahili youth language. The popular slang expression *cool* (when talking about a situation or a mental state one is in) from Afro-American culture has been translated as *poa*, ‘be(come) well/cool’. Most of these calques in the national language of Tanzania and Kenya, however, were not formed on the street, but instead by an official bureau concerned with corpus planning and the development of new terminology. For the English word ‘attachment’ one finds *fung-e*, formed with the derivational suffix -e expressing the “sufferer of an action”, *funga* meaning ‘close’; *ki-bony-e* ‘key (on a keyboard)’ derives from -bonya ‘press’; the noun *ki-un-g-o* ‘link’, derived from -unga ‘tie, link’, and carries the same noun-class prefix, but the derivational suffix -o is the actual marker for instrument as a derivational role. The development of new terminology may go hand in hand with semantic widening for existing lexemes, as the following Swahili examples show:

<table>
<thead>
<tr>
<th>Basic meaning</th>
<th>Semantic extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>-chapa</td>
<td>‘hit’</td>
</tr>
<tr>
<td>-chomeka</td>
<td>‘be pierced’</td>
</tr>
<tr>
<td>-bofy</td>
<td>‘make dented’</td>
</tr>
<tr>
<td>-bofyabofya</td>
<td></td>
</tr>
<tr>
<td>-fungi-a</td>
<td>‘open for’</td>
</tr>
</tbody>
</table>

Loan blends, also known as hybrids, involve partial morpheme substitution in loanwords. Anttila (1972: 15) mentions the borrowing in Pennsylvania Dutch of -ig (from German) for English -y in words like *fonn-ig* ‘funny’. A potential Swahili parallel would be *ki-ji-picha* ‘thumbnail’ (and the corresponding English borrowing *picha* for ‘picture’).
Speakers often are aware of the fact that neighbouring groups with which they are in contact speak a language which is similar to their own. This may result in a borrowing process of a different type which is less well known, and probably less well understood, called *correspondence mimicry* in Dimmendaal (2001a). This process involves the phonological modification of borrowed morphemes between languages which are genetically related on the basis of perceived phonological correspondences between these languages. In the Bantu language Nyakyusa (spoken in southern Tanzania) the word for 'lamp, torch', *itala*, was borrowed from Swahili, where we find *taa*. The latter language in turn borrowed the word from Arabic, *tata*. So where does the intermediate -l- in Nyakyusa come from? Most Nyakyusa are fluent in Swahili, and consequently are aware of specific sound correspondences. Thus, where Standard Swahili has *-zaa* 'bear (a child)', Nyakyusa has *-zaa*. It is presumably by analogy with such correspondence sets that speakers of Nyakyusa inserted a consonant in the word for 'lamp'. This mimicry phenomenon may have played an important role in the historical development of Bantu languages, where so often phonological and morphological properties are borrowed between neighbouring languages without these languages necessarily being closely related genetically. (Compare Schadeberg 2003: 158 for further observations concerning wave-like innovations across Bantu.)

There is probably a grammatical parallel to correspondence mimicry, known as (grammatical) *accommodation* (Campbell 1987). A morphological marker, or a syntactic construction, may bear a superficial segmental similarity with a marker or a construction in a contact language, and be reinterpreted on the model of this source language. Ameka (2009) provides an elegant example from the Togo Remnant language Likpe, where the verb *lɛ́* 'hold' is used to express present progressive meaning, parallel to the Ewe look-alike form *le* 'be at' for Present tense. Ewe serves as an important contact language for many speakers of Likpe, to an extent that the former now gradually replaces the latter as a primary language of communication.

In order for lexical borrowing to take place, it is often enough for a few individuals to know the source language. Intensive contacts, on the other hand, may lead towards deeper levels of borrowing. Gowlett (1989) describes the interesting case of Lozi, a language showing close affinity with southern Bantu languages belonging to the Sotho–Tswana cluster (Zone S) lexically as well as grammatically. But whereas the latter are situated mainly in Botswana, Lesotho, Mozambique and South Africa, Lozi is spoken in Zambia. There is an oral history among the Lozi making reference to a Sotho group known as the Kololo who left the Lesotho area some time during the first part of the 19th century, subsequently conquering the Luyi in Zambia, who speak a Bantu language belonging to a different subgroup of Bantu (zone K) known as Luyana. From a phonological point of view, Lozi is not like its closest relatives further to the south, the Sotho–Tswana cluster, but rather like Luyana. As shown by Gowlett through
a comparison of Lozi with cognates in Sotho, there has been a heavy phonological re-
duction in Lozi from 35 consonants to 18 (or 19, depending on how one counts), and
from 7 (or 9) vowels to 5. For example, Lozi probably lost the distinction still present
in Sotho between \( t, th, tl, tlh \), and \( hl \), all of which became \( t \) in the former. This merger
and other simplifications have resulted in a system which is similar to Luyana and
other languages from zone K in Zambia.

At the morphological level, also some interesting restructuring occurred in Lozi.
Pronouns and demonstratives in this language are similar to the Sotho-Tswana forms.
Interestingly, however, the subject pronominal prefixes for first person singular and
second person plural marking on verbs were borrowed from Luyana, as a comparison
with the Southern Bantu language Sotho makes clear:

<table>
<thead>
<tr>
<th></th>
<th>Sotho</th>
<th>Lozi</th>
<th>Luyana</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>ke-</td>
<td>ni-</td>
<td>ni-</td>
</tr>
<tr>
<td>2pl</td>
<td>le-</td>
<td>mu-</td>
<td>mu-</td>
</tr>
</tbody>
</table>

Heavy lexical borrowing may result in the introduction and productive use of (ad-
ditional) inflectional and derivational, i.e. function, morphemes in the receiving lan-
guage. This phenomenon may be observed in Germanic languages where heavy bor-
rowing from other Indo-European languages such as Latin or Greek occurred. Because
of the extensive borrowings, affixes in the donor language are being recognised by
speakers, and subsequently are used to form new words in the recipient language.
Compare, for example, English formatives like \( de- \) (de-activate, de-hydrate, de-com-
pose). Consequently, we find functional (or grammatical) morphemes added to an al-
ready existing set of bound morphemes occurring in the same position in the recipient
language (e.g. prefixes like \( un- \)), thereby extending an existing system of paradigmatic
oppositions in the lexicon.

Certain types of words appear to be borrowed more easily than others. Appel and
Muysken (1987) have proposed the following lexical borrowability scale, going from
“easily borrowed” to “less easily borrowed”:

A: adjectives, adverbs, exclamations, nouns, name
B: conjunction, negation, numerals, verbs, prepositions
C: copula, auxiliary
D: demonstrative, pronoun, pronom. clitic

This list and its sequential order should not be taken as an implicational scale, but
rather as a summary of cross-linguistic tendencies. Word classes constituting open
sets in a language may easily incorporate new elements from another language. Of
course, adjectives are not a universal category, neither are adverbs, and their incorpo-
ration in a language may require a structural (categorical) adaptation. But even if the
borrowing language and the donor language share word classes, this does not necessarily imply that no structural adaptation occurs. Many Nilo-Saharan languages in the Central African region have borrowed extensively from regional Arabic dialects. But languages like Fur, Maba or Tama change verbs borrowed from Arabic into light verb plus complement constructions, i.e. into a kind of copular verb, meaning 'do' or 'say', plus a non-conjugated complement derived from an Arabic verb. Compare the following example with the light verb *piá* in Fur (Waag in press: 82):

<table>
<thead>
<tr>
<th>Sudanese Arabic</th>
<th>Fur</th>
</tr>
</thead>
<tbody>
<tr>
<td>ȝarrab</td>
<td>ȝärrib-<em>eN</em> piá</td>
</tr>
<tr>
<td>dabuh</td>
<td>dááb-<em>eN</em> piá</td>
</tr>
</tbody>
</table>

The reason for this categorical reallocation is probably the fact that verbs in these Nilo-Saharan languages involve a complex system of consonant alternation when conjugated for person or tense-aspect. In several of these languages, this system includes a rather large class of verbs, but at the same time these systems cannot be claimed to be productive or regular. This structural complication consequently is circumvented by using an existing light (auxiliary) verb, which is already common with other predications in the language. The corresponding Arabic verb is added as an unconjugated complement.56

### 8.2 Structural borrowing

Unadapted borrowing in the Nilotic language Alur resulted in a restructuring of its phonological system, as illustrated above. But apart from unadapted lexical borrowing, another contact-induced change may be observed for this language, namely a shift in the phonetic norm (pronunciation) of certain consonants. Alur has an “optional” synchronic rule of hardening for labialised velars, which may also be pronounced as labio-velar stops (Dimmendaal 1995a).

\[
\begin{align*}
\text{kwaya or kpaya} & \quad \text{‘jest, joke’} \\
\text{kwe or kpe} & \quad \text{‘on the level, smoothly’}
\end{align*}
\]

The change can be explained along purely linguistic lines, namely as a result of interference from the first language (or mother tongue) of speakers of Central Sudanic languages (where these stops are common) when speaking a Nilotic language like Alur. This phenomenon consequently is called shift-induced interference by Thomason and Kaufman (1988). But there is also a social dimension to this historical

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56. Bonvillain (1978:32) presents examples from the Amerindian language Mohawk. Similar phenomena have been observed for other languages. Due to the frequent morphological complexity in this grammatical category, some languages do not easily borrow verbs.
change. The deviant form, introduced by these second-language speakers joining the Alur speech community and introducing it, must subsequently have become accepted by the speech community at large. According to Thomason and Kaufman (1988: 47) this type of interference occurs as a process accompanying massive language shift. When a shifting group is so large numerically, and when the target language model is not fully available to all its members, imperfect learning is a probability, and the learners' errors are likely to spread throughout the target language speech community. This process, described in considerable detail by Thomason and Kaufman (1988) for a number of regions outside of Africa, is illustrated below for languages in the Bantu-Nilotic borderland. 57

Within Bantu, one frequently comes across tense-aspect mood systems involving a range of verbal markers, usually prefixes or proclitic elements, expressing different time references especially for past tense marking. Such systems are found in languages like Gikuyu (Kenya), Haya (Tanzania), or Tonga (Zambia), and even in such distantly related Bantoid languages as Aghem, spoken in Cameroon (Nurse 2003; see also Hyman 1979 for a description of Aghem). This typologically rather remarkable tense-marking system is thus a permanent structural property of Bantu languages, with a similar degree of historical stability as the (archaic) noun-class system in these languages.

Such systems are not very common in Nilotic (Nilo-Saharan) languages with a few notable exceptions. In two Nilotic languages, the Southern Nilotic Kalenjin cluster and Western Nilotic Luo, we find tense-marking systems typologically similar to those found in neighbouring Bantu languages like Gusii. There are three distinct past tense forms in Kalenjin. Each of these can occur in the perfective (characterised by an absence of an aspect marker) and in the imperfective (characterised by the same aspect marker as found in the non-past). The Past 1, Past 2, and Past 3 forms are marked by proclitic tense markers on the verb; the allomorphy for each of the three markers is determined by vowel harmony processes in Kalenjin. In the Nandi lect, for example, we find:

\[
\begin{align*}
\text{Past 1:} & \quad ka-kas \quad '(s)he heard today (in the past)' \\
\text{Past 2:} & \quad koɔ-kas \quad '(s)he heard yesterday' \\
\text{Past 3:} & \quad ki1-kas \quad '(s)he heard the day before yesterday'
\end{align*}
\]

Cognate forms for the Nandi past tense markers are also found in a closely related variety of Kalenjin, Kipsikiis. Toweett (1979: 254) derives these three past tense markers from adverbs of time in Kipsikiis:

57. Clements and Riall (2008: 43) give a detailed account of the distribution of labio-velar (labial-velar) stops in northern Bantu languages, where these also constitute innovations.
Rottland (1982: 222) reconstructs all three past tense markers for the common ancestor of Kipsikiis and Nandi, Proto-Kalenjin:

\[
\begin{align*}
*ka & \quad \text{today past} \\
*kɔ & \quad \text{yesterday past} \\
*ki & \quad \text{remote past}
\end{align*}
\]

The system of tense marking as found in the Kalenjin cluster is quite distinct from that of its closest relative, the Omotik-Datooga cluster, the subgroup with which Kalenjin forms the Southern Nilotic branch within Nilotic, and consequently cannot be reconstructed for Proto-Southern Nilotic. Moreover, such systems do not occur elsewhere in Nilotic, again with one notable exception discussed below, namely in Western Nilotic Luo. Consequently, the Kalenjin system in all likelihood is the result of an innovation (Rottland 1982: 242), itself resulting from intensive contact with neighbouring Bantu languages, as argued in Dimmendaal (2001b). Additional evidence for the direction of the structural borrowing comes from the fact that in these Bantu languages there appears to be no immediate lexical source for the past tense prefixes, which suggests that they are not of recent origin, whereas the tense markers in Kalenjin can in fact be derived from adverbs of time, as shown above. The fact that there are more tense distinctions for the past than the future presumably rests upon a cognitive principle that knowledge of the past and the temporal sequencing of past events is more specific than for future events. As argued in Dimmendaal (2001b), this structural similarity between these two genetically unrelated language groups is best explained as the outcome of long-term contacts of Nilotic groups speaking Kalenjin lects with speakers of neighbouring Bantu languages. Oral traditions and shared clan names also point towards such contacts. As shown by Ehret (1971: 23, 71, 157–60), there is ample evidence for lexical borrowing from neighbouring eastern Bantu languages into Kalenjin, and thus for cultural exchange. The lexical borrowing in Kalenjin therefore is an additional indication of intensive contacts.

The development of adverbs of time into (past) tense markers as such of course is a common channel or source for grammaticalisation (see, for example, the survey of cases presented in Heine and Kuteva 2002). Adverbs of time may precede the verb as independent sentence level markers in Nilotic languages, including the Kalenjin group. Their development into preverbal clitics marking past tense consequently is but a minor step.

The tense system in the neighbouring Bantu language Gusii would seem to be closest to the Kalenjin system, in that it has four divisions for past time and only one
Map 4. The Nilotic-Bantu contact zone
for future time reference, whereas in Kalenjin there are three distinctions for past tense and one for future tense. Contrary to Kalenjin, however, the past tense marker in Gusii and other Bantu languages in the area (e.g. Kuria, Bukusu or Nkore-Kiga) occurs between the subject marker and the verb. Examples from Gusii (based on Whiteley 1956: 33):

\[\text{ná–rú-gá ‘I cooked (yesterday)’} \]
\[\text{ná–rú-gá ‘I cooked (before yesterday, but usually not more than a week ago)’} \]
\[\text{ná–rú-gé-té ‘I cooked (earlier today)’} \]
\[\text{ná–rú-gé-té ‘I cooked some time ago’} \]

Presumably, the relative order for the tense marker and the subject prefix following it in Kalenjin cannot simply be inverted. Inversion of bound morphemes would seem to be extremely rare cross-linguistically, with infixation usually resulting from metathesis or entrapment, as this process is sometimes called. Moreover, vowel coalescence and fusion of tense markers and subject markers in Kalenjin precludes metathesis. What would seem to be important from a structural point of view, however, is the fact that in Kalenjin as well as in these neighbouring Bantu languages the aspectual and temporal modality of a verbal event are expressed as a conceptual unit, i.e. as one (phonological) word.

A similar convergence process of Kalenjin towards neighbouring Bantu languages appears to have occurred with respect to verbal derivation. Although a range of derivational suffixes can be reconstructed for the common ancestor of Kalenjin and the Omotik-Datooga, Proto-Southern Nilotic (Rottland 1982), verbal derivation in Kalenjin is more extensive than in the latter primary branch or other branches of Nilotic. Several of the semantic notions expressed in Kalenjin verb derivation, e.g. comitative, contemporative again show parallel structures in neighbouring Bantu languages. To what extent these Bantu languages themselves have been restructured under the influence of Kalenjin remains to be determined. It is striking, for example, that Bantu languages in the area do not distinguish between voiced and voiceless stops at the structural level, a phenomenon which does not appear to be very common in other Bantu languages. As parallel consonant systems are found in Kalenjin lects (compare Creider and Creider 1989 as well as Rottland 1982 for a description), imposition of phonetic norms from the latter may have triggered this phonological restructuring.

What caused the Kalenjin grammatical system to change so radically? Oral traditions of Kalenjin groups point towards a southward expansion of their ancestors into western Kenya, as a result of which they met with new groups, amongst them speakers of Bantu languages. In the course of history, a kind of symbiosis developed between the predominantly pastoralist Kalenjin groups and agricultural communities speaking Bantu languages. As shown by Ehret (1971), lexical borrowings between the languages
involved point towards an exchange of material culture. Moreover, during the 19th century wars between the Nandi (Kalenjin) with neighbouring peoples like the Luyia (who speak a Bantu language), were punctuated by truces in times of famine. During such truces Kalenjin womenfolk travelled into neighbouring areas to barter for food. Interestingly, there are clans among Kalenjin groups such as the Nandi and the Kipsikiis tracing their descent to Gusii (Bantu) (Mwanzi 1977: 85). This strongly suggests that contacts between speakers of Southern Nilotic Kalenjin lects and Bantu groups involved not only trade but also intermarriage. Accordingly, there is ample evidence for long-term intimate contacts between Kalenjin groups and speakers of neighbouring Bantu languages. Moreover, there must have been several households where one of the two partners spoke a Bantu language as the primary language. Consequently, shift-induced interference probably played a crucial role in the case of second language speakers, speaking a Bantu language as their first language and using a variety of Kalenjin. Such forms (with tense-marking on the verb) must have been so frequent in the verbal forms used by these speakers that they became an accepted norm also adopted by other speakers.

Whereas the verbal system of Kalenjin clearly converged towards neighbouring Bantu systems, no such development can be observed for the noun (Dimmendaal 2001b), presumably because their respective nominal systems are radically different. Kalenjin has a proto-typical Nilo-Saharan number marking system involving: (1) unmarked plurals with corresponding singulative marking, (2) unmarked singulars with corresponding plural marking, and (3) replacement, whereby both the singular and the plural are marked; see Dimmendaal (2000c) for further details. Number inflection in all instances occurs by way of suffixes. Bantu languages, on the other hand, use a prefixation system, both in the singular and plural. The fact that no spreading of typological properties occurred in this grammatical domain suggests that pre-existing structural similarities are most conducive to diffusion or transfer. In other words, structural properties of the borrowing language may facilitate or inhibit structural borrowing, as Johanson (1992) already argued in his research on language contact and selective copying (Teilstrukturkopieren) of features in Turkic languages. Of course, also number-marking systems may change over time as a result of contact, but such modifications presumably take more time than restructuring in a domain where there is already considerable structural similarity. This may be illustrated with data from another Nilotic language, Luo, which belongs to the Lwoo cluster within the Western Nilotic branch of Nilotic.

In Luo, there is a set of preverbal tense markers which are absent in closely related varieties such as Alur, Lango, or Acholi. Moreover, no comparable tense marking system is found in other Western Nilotic groups (the sub-branch of Nilotic to which these languages belong), i.e. in Northern Lwoo, Dinka-Nuer, or the Burun group, as far as
present knowledge goes. Consequently, the Luo system must constitute an innovation. Parallel to Southern Nilotic Kalenjin, Western Nilotic Luo developed a system of verbal tense marking. Typologically similar tense marking systems occur in neighbouring Bantu languages such as Gusii (E42), where one finds a four-way tense distinction for the past; compare, for example, Whiteley (1960: 66). Again, parallel to the Kalenjin case, Luo has been strongly influenced by neighbouring Bantu languages, probably as a result of shift-induced interference. This is due mainly to a still continuing process of “Luoisation”, as Rottland and Okoth Okombo (1986) have called it, involving rather massive primary language shift from a Bantu language towards Luo. In the 20th century, Luo gradually became a prestige language, being a medium of upward social mobility, synonymous with modernisation, also under the influence of colonial rule.

The newly created Luo tense markers can still be derived from independent adverbs of time synchronically in the language (data from Tucker 1994). Moreover, exactly as in Southern Nilotic Kalenjin, their points of reference are in the past:

- \( \text{nédè} \) \( \rightarrow \) \( \text{nê} \) - ‘earlier today, recently’
- \( \text{nyòrò} \) \( \rightarrow \) \( \text{nyò} \) - ‘yesterday’
- \( \text{yandè} \) \( \rightarrow \) \( \text{yand(è)} \) - ‘a few days ago’
- \( \text{néné} \) \( \rightarrow \) \( \text{nè} \) - ‘long ago’

These Luo forms functioning as tense markers are not cognate with those found in Southern Nilotic Kalenjin, nor are they cognate with tense markers or adverbs of time in neighbouring Bantu languages. Accordingly, a parallel but historically independent development, again in a context where there was and still is intensive interaction with neighbouring Bantu groups, is the most plausible explanation. The presence of bound morphemes specifying temporal reference with respect to verbal events in corresponding Bantu languages presumably triggered the semantic specialisation of the corresponding Luo adverbs of time which developed into similar bound markers. The frequent juxtaposition of adverbs of time and verbs resulted in a semantic interaction between them. As in Kalenjin, the innovated tense markers precede the subject prefix, whereas in neighbouring Bantu languages tense markers follow the subject prefix.

By restructuring the morphosyntactic expression of time, and by introducing a tense marking system on the verb, the Nilotic languages Kalenjin or Luo in fact reduced areal differences with Bantu in the expression of form/meaning relations. But Luo manifests another interesting structural influence from Bantu, namely in its nominal system, suggesting that both borrowing and substrate influence played an important role in the restructuring of this Western Nilotic language. So why was the nominal system restructured in Luo, but not in the related Kalenjin languages? Compared to Kalenjin or most other Nilotic languages, Luo as well as other closely related Lwoo languages have a highly reduced number-marking system with only a few plural
marking suffixes. This formal reduction of nominal number marking probably resulted from long-term contacts with Central Sudanic and Ubangian languages, as argued by Storch (2005, 2006), who further shows that Luo and other members of the Lwoo cluster within Western Nilotic manifest several layers or chronologically organised stages of historical influence. As shown in considerable detail in her monograph on the noun morphology of Western Nilotic languages (Storch 2005: 216–379), languages belonging to the Lwoo cluster also have various paired prefixes stemming from derivative morphemes (some of which go back to lexical roots). In Thuri, for example, one finds a deverbial stem ɲát-dwáár (singular) / jò-dwáár (plural) ‘hunter’ (Storch 2005: 201). This latter system formed the basis for an even more elaborate system of number marking by way of prefixation in Luo. The expansion of this prefixation system can be attributed to Bantu influence. Extensive lexical as well as structural borrowing from Bantu attests to this. Extensive borrowing of nouns with alternating singular/plural class prefixes from Bantu into Luo, sometimes combined with the Luo plural marker thus result in a further expansion of prefixation, thereby replacing the older Nilotic (or Nilo-Saharan) system of number marking by way of suffixation. In the following Luo examples from Tucker (1994: 133) symbols written in bold face in Tucker (1994) have been replaced by their corresponding IPA symbols, whereas the low tone is left unmarked.

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>mɪ-hia</td>
<td>wa-hia  ‘child’</td>
</tr>
<tr>
<td>mɪ-sumba</td>
<td>wa-sumb-ni ‘bachelor’</td>
</tr>
</tbody>
</table>

In the case of Luo we thus observe that there may be multiple causations in linguistic restructuring processes, i.e. both internal (inherited) and external mechanisms may be at work. Contrary to the situation in Kalenjin, the already reduced system of noun-class prefixation in the Lwoo group within Western Nilotic, the cluster to which Luo belongs, set the frame for an influx of morphological borrowing from Bantu. Apart from this extensive borrowing, Luo is also in the process of developing additional nominal class prefixes through a reinterpretation of erstwhile compounds consisting of two lexical nominal roots as sequences of nominal prefix plus root. Thus, a shortened form of the root for ‘mouth’, dhok, is used as a noun-class prefix for language names (e.g. dho-luo ‘the Luo language), whereas a prefix ja- (plural ja/- / jo-) is used to refer to persons. The latter prefixes go back to a Western Nilotic root meaning ‘guest, stranger’:

<table>
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<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>ja-luò</td>
<td>jo-luò  ‘Luo person’</td>
</tr>
<tr>
<td>ja-miel</td>
<td>jo-miel ‘dancer’ (miel’dance’)</td>
</tr>
</tbody>
</table>

Interestingly, one can also observe calquing of semantic conceptualisations in Luo. Parallel to the use of the ki- class prefix in eastern Bantu for instruments as well as for
nouns referring to individuals with specific physical handicaps, Luo uses a prefix ra- to derive instruments but also to express concepts such as ra-ŋɔl for 'lame person' (based on the root ŋɔl 'limp' (Dimmendaal 2001b).

Apart from the copying of structural properties, negative borrowing may occur in contact situations. The latter phenomenon manifests itself through the loss of specific phonological and morphosyntactic features under the influence of neighbouring languages where such properties are also lacking. The reduction of noun classes in the northern Bantu borderland probably is a case in point. The noun-class system of Proto-Bantu as reconstructed by, for example, Meeussen (1967), is well-established and beyond dispute. By implication, simpler systems or sometimes the complete absence of noun classes in the northern Bantu borderland must be due to loss. As neighbouring languages belonging to Central Sudanic (Nilo-Saharan) often do not mark number or inflect nouns for plural only in the case of animate nouns (or terms referring to humans), this reduction may be the result of areal influence. Kutsch Lojenga (2003) describes such a “Bantu borderland” language, Bila (D32 in the classification of Guthrie 1967–71). Unlike many other Bantu languages, but parallel to neighbouring Central Sudanic languages, Bila has a nine vowel system with ATR-harmony, and remnants of a noun-class system, with only animate nouns alternating for number:

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-kpá</td>
<td>ba-kpá</td>
</tr>
<tr>
<td>N-bíla</td>
<td>ba-bíla</td>
</tr>
<tr>
<td>kaká</td>
<td>kíká</td>
</tr>
<tr>
<td>kondó</td>
<td>kondó</td>
</tr>
</tbody>
</table>

Shift-induced interference results in structural borrowing, i.e. in the transfer of linguistic patterns, e.g. in the way words are structured in terms of inflectional and derivational properties without necessarily borrowing actual morphemes. This may also apply to semantic concepts as well as to idioms or ways of speaking, as we saw above. One might conjecture from the case of Kalenjin and Luo that structural borrowing or convergence between languages only occurs if heavy lexical and grammatical borrowing occurs at the same time. But this is not always the case. Aikhenvald (1996, 2003) describes an interesting case in the Vaupes region of north-western Brazil where there is a strong inhibition towards “language mixing” at the lexical level, whereas morphosyntactically these languages did in fact converge towards each other (Aikhenvald 2003: 187–211).

There is probably a permanent tendency with bilingual speakers towards compound bilingualism, i.e. speakers try to relate the structure of a newly acquired second or third language to the structure of their mother tongue. This ultimately leads to structural interference and transfer of typological properties. There is clear cut evidence
for compound bilingualism as the dynamic outcome of language contact in the borderland where Bantu meets Nilotic, as we saw above. At the same time, there is also evidence for coordinate bilingualism in the area, i.e. for linguistic systems co-existing in neighbouring languages without any evidence for structural convergence. Speakers of Maasai, for example, have been in close contact with speakers of the Bantu language Gikuyu. Nevertheless, there does not seem to be any evidence for convergence towards the latter in Maasai, either phonologically or otherwise. Thus, whereas Gikuyu (E51) uses immediate past, near past and remote past prefixes in its verbal tense marking system, as is typical for many other Bantu languages, parallel structures are absent in Maasai; there is no evidence for procliticisation of adverbs of time in Maasai either. Compare, for example, the analysis of the Maasai verb system by Tucker and Mpaayei (1955) or the reanalysis presented in König (1993). This linguistic situation would seem to reflect the nature of the historical contacts between Gikuyu and Maasai speakers. 19th century accounts make reference to temporary co-residence of Maasai in Gikuyu land, for example, when Maasai were escaping the ravages of drought and settled among agricultural Gikuyu families with whom they had ties. But the same Maasai tended to return to their homes and to pastoralism as soon as conditions permitted them to do so. Moreover, whereas Gikuyu would tend to learn Maasai, the inverse was not necessarily true. Galaty (1993) refers to an interesting personal account of a Gikuyu woman early in the century who got married to a Maasai elder, and who observed that when a Gikuyu woman got married to a Maasai, she was not allowed to speak to her children in her language. Similar cases of diglossia have been reported by Winter (1979) with respect to the presence of Maasai among the Cushitic speaking Aasáx.

In their survey of language contact phenomena, Thomason and Kaufman (1988) differentiate between five stages of borrowing or scales in terms of language contact. The first involves lexical borrowing, as a result of casual contact. The second involves slightly more intense contact and, correspondingly, slight structural borrowing. The third type involves more structural borrowing as a result of more intense contact. The fourth type involves moderate structural borrowing under strong cultural pressure. The fifth and final stage involves very heavy structural borrowing, causing “significant typological disruption” (Thomason and Kaufman 1988: 75). Of course, instead of five, there could have been four or seven stages, as these types are part of a continuum. Thomason (2001) in fact proposes a division of borrowing situations into four types.

Borrowing combined with maintenance of the primary language (L1), as in the case of Hausa, and shift-induced interference in a shift situation from L1 towards a target language (L2), as in Luo, are two common processes observable cross-linguistically and discussed in detail by Thomason and Kaufman (1988). But one may also observe a third process, involving extensive structural borrowing as a result of interference from L2, without any evidence for language shift, i.e. while maintaining L1.
As pointed out above with examples from the Surmic language Baale, languages may also borrow basic vocabulary. A closer look at Baale in fact shows that it not only borrowed extensively from Chai and Tirma at the lexical level, it has also been deeply influenced by the latter in its phonological and grammatical structure (Dimmendaal 2000b, 2001a).

<table>
<thead>
<tr>
<th>Baale</th>
<th>Didinga</th>
<th>Murle</th>
</tr>
</thead>
<tbody>
<tr>
<td>mɛɛlɛɛ</td>
<td>mɛɛlɛɛk</td>
<td>mɛɛlɛɛk</td>
</tr>
<tr>
<td>‘axe’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>weuwec</td>
<td>weec</td>
<td>weec</td>
</tr>
<tr>
<td>‘four’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Calquing towards Tirma-Chai can be observed in Baale morphology. For example, lexical idioms such as compounds are formed after a pattern also attested in Tirma-Chai. Thus, Baale ọṭa ọtọ ‘nipple’, literally ‘breast-mouth’, corresponds to Tirma way tugo, ‘breast-mouth’ for ‘nipple’. Unlike the closely related Didinga-Murle languages, which are verb-initial, Baale has a relatively free constituent order, allowing for SVO, VSO, OVS, SOV depending on the pragmatic context in which an utterance occurs. This system parallels the morphosyntactic and pragmatic structure of Tirma-Chai; see Last and Lucassen (1998) for a first description of this dialect cluster. Contrary to Luo, however, the restructuring process did not result from imposition of second-language learners in a language shift situation. The restructuring in Baale apparently was driven by grammatical calquing from an inter-community language, the Tirma-Chai dialect cluster, a phenomenon known as metatypy. Ross (2001) defines this process as a change in morphosyntactic type and grammatical organisation (and also semantic patterns) which a language undergoes as a result of its speakers’ bilingualism in another language. This change is driven by grammatical calquing, i.e. the copying of constructional meanings from the intercommunity language and the innovation of new structures using inherited material to express them.

Tirma-Chai clearly provided the metatypic model for grammatical calquing in Baale. Whereas many Baale speak Tirma-Chai, only few members of the latter speech communities speak Baale. The modified language, i.e. the language undergoing metatypy, tends to be emblematic of the speaker’s social identity. Metatypy typically occurs when bilingual speakers use such an intercommunity language so extensively that they may even be more at home in this language than in the (emblematic) language of their own community.

This phenomenon, even affecting the stability of basic vocabulary, parallels the language behaviour among immigrants, as already observed by Haugen (1950: 282) with respect to Norwegian immigrants in the United States, whose use of such vocabulary was not motivated by any snobbishness; rather, “the terms most characteristic of the new environment were often impressed on their minds by mere repetition in vivid situations. Their experience in the new language began to outstrip their experience.
in the old, and the discrepancy set up a pressure which led to linguistic change.” The difference between these languages used by immigrants and Baale is of course that in Baale these new structures became conventionalised or grammaticalised.

Switching between languages within a sentence or between sentences is another phenomenon frequently encountered with people using more than one language on a day-to-day basis. In a number of influential publications, Myers-Scotton (e.g. 1993, 2002) has claimed that codeswitching and its psychological motivations constitute an important mechanism not only behind lexical and structural borrowing, but also behind several other contact phenomena (further discussed in Chapter 10). Let us have a closer look, therefore, at this widespread phenomenon.

8.3 Codeswitching

When walking on the streets of Nairobi, for example, one may hear people speaking Swahili intermixed with some English words. Compare the following example, quoted from Myers-Scotton (1993: 4):

\[
Lakini \text{ a-na so many problems, mtu a-me-repeat} \\
\text{But } 3s\text{-with so many problems person } 3s\text{-PERF-repeat} \\
\text{mara ny-ingi} \\
\text{time c1.9-many} \\
' But he has so many problems [that] [he is] a person [who] has repeated many times.' \\
\text{(cl = class prefix; perf = perfective; s = singular)}
\]

Here we find a phrase ‘so many problems’ embedded as a complement of a Swahili function morpheme -\text{na} ‘(be) with/have’. In the second part, the form \text{a-me-repeat} again is a mixed constituent involving two bound morphemes, a subject plus aspect marker from Swahili, whereas the lexical root position is occupied by a verb from English. This example thus illustrates intra-word switching. The corresponding Swahili verbal reconstruction for ‘repeat’ would be -\text{fanya tena} ‘do again’, whereas ‘so many problems’ would be expressed by \text{mashaka mengi} in a corresponding Swahili construction. Consequently, we are not dealing with a borrowing from English here, but rather with a phenomenon which has come to be known as codeswitching. The latter term probably was introduced first by Gumperz (1964) for switching within a discourse function. In addition, the term codemixing has come to be used. Ever since, there has been disagreement on the proper definition of these two concepts (see Auer 1995, and Clyne 2003: 70–76 for a discussion).\textsuperscript{58}

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\textsuperscript{58.} Clyne (1967) is one of the pioneer studies on language contact.
The term codeswitching is used in the present monograph as an umbrella term for the use of two or more varieties in the same conversation. Somebody may switch codes in a conversational interaction for a range of reasons. Even if somebody is fluent in several languages, an expression or lexical item from one language may more readily come to this person’s mind than the equivalent expression or word in another language he or she speaks. This in turn may simply be a result of the frequency with which this individual uses both languages in daily communications. Codeswitching, accordingly, does not necessarily present a conscious effort on the part of the speaker. Apart from filling temporary lexical (or semantic) gaps, this person may switch in order to circumvent lexical taboos in one of the languages. Expressing one’s social identity (or identities) as an ideological statement, and (re)negotiating one’s social positions during a conversation may be other reasons for codeswitching. Comparable to the use of registers, e.g. slang, codeswitching may be used to attain a humorous effect, to express solidarity, or as a distancing strategy in a conversation, also in order to exclude others from a conversation.

Although it is not always easy to distinguish between codeswitching and borrowing, some rules of thumb may help. First, codeswitching typically is found with bilinguals, whereas borrowings may be used by monolinguals. Also, phonological criteria may play a role. Sequences like pr in the word ‘problems’ do not fit in with preferred syllable structures in Swahili, which only allows single consonants (including prenasalised stops) or consonants followed by w or y. However, this criterion does not have universal validity. As we saw above, phonological integration may be a criterion; but languages may also allow for unadapted borrowing. Additional criteria which may help to distinguish between the two phenomena are the distribution of foreign words across the speech community. In other words, do most speakers use these forms, or are they part of the speech styles of certain groups within the society (regardless of age or sex)? Quite often, specific words may linger on as part of a codeswitching strategy, and then either disappear or become fully integrated, filling a semantic niche or lexical gap. The question whether two specific words (one indigenous to the language, the other one derived from a second language) are used next to each other, or covering slightly different semantic domains, consequently may be used as an additional criterion.

Codeswitching in an African context has been described in a number of monographs by Myers-Scotton (1993, 1997, 2003). According to this author, participating languages in a codeswitching situation never participate equally. For Myers-Scotton (1993: 4) codeswitching is the selection by bilinguals or multilinguals of forms from an embedded language in utterances of a matrix language during the same conversation. Phrased differently, there is always a matrix language structuring the morphosyntax of an utterance and proving a frame for the embedded language constituent. The example from Swahili above illustrated this principle. Bilingual (or multilingual)
speech accordingly is characterised by the asymmetrical or unequal participation or contribution of languages. This morphosyntactic dominance of one language in the frame has been formulated into a general property of codeswitching by Myers-Scotton (e.g. 2002), and has come to be known as the Matrix Language Principle. The so-called matrix language is identified by the morpheme order and the source for the system morphemes (i.e. functional morphemes) providing the morphosyntactic structure. More generally, the choice of the matrix language is manifested, for example, in constituent order and, more importantly, in the fact that functional morphemes (whether free or bound) are derived from one language. Context morphemes may be derived from another language. This is called the Asymmetry Principle for bilingual (or multilingual) frames by Myers-Scotton (2002).

Evidence for this model derives not only from the extensive corpus of codeswitching collected by Carol Myers-Scotton over the years, but also from aphasia, speech errors as well as from experimental psycholinguistic evidence. Thus, the relevance of the model principle equally well applies, according to the same author, “for structures in a wide variety of contact phenomena, from interlanguage among second language learners of English to child bilingual acquisition, to child bilingual attrition and shift, to creole formation” (Myers-Scotton 2002: 10). Myers-Scotton distinguishes between different types of system morphemes (i.e. inflectional morphemes or function words) versus (one type of) content morphemes. The latter refer to elements from open lexical classes such as nouns or verbs. With respect to the former, the author distinguishes between “early system morphemes”, “late system morphemes”, “bridge late system morphemes” and “outsider late system morphemes”, hence the alternative name for the proposed model, the 4-M model; see Myers-Scotton (2002) for further details. Within this model, codeswitching primarily is part of an accommodation strategy, i.e. a strategy of negotiation of social positions during a conversation, or more generally projecting oneself with the identities associated with specific languages. Participants in a conversation may project dual identities through a rational choice of one or more languages, in order to mark rights and obligations relative to others in a conversational setting, as in the example above.

Muysken (2000) argues that in many situations where somebody switches from one language to another in the course of conversation a more complex structural dependency is involved. Muysken uses the term “code-mixing” to refer to all cases where lexical items and grammatical features from two languages appear in one sentence. The more commonly used term code-switching will be reserved for the rapid succession of several languages in a single speech event […].” According to him, insertion (the embedding of lexical items or entire constituents within a sentence) is but one type of alternation observable with codeswitching (or code-mixing in Muysken’s terminology), next to alternation between structures, and congruent lexicalisation. With
Congruent (or composite) lexicalisation, the matrix language may be a composite of features from more than one (usually two) languages.

Congruent lexicalisation involves a situation where the participating two languages share a grammatical structure which can be filled lexically with elements from either language, according to (Muysken 2000). Such situations presuppose not only shared subcategorisation frames of functional (grammatical) morphemes, but also identical linearisation (constituent order) rules for constituents. The choice between the two interacting language systems is determined by sociolinguistic and psycholinguistic factors as well as by the grammatical structures of the languages involved.

Alternation involves a true switch from one language to another, i.e. the simultaneous presence of two grammars. Congruent lexicalisation and alternation involve symmetrical systems, whereas insertion involves an asymmetrical model, where one of the two languages constitutes the matrix language setting constraints on the kind of insertion.

Codeswitching may occur intrasentential, as in the example above, or intersentential, i.e. between sentences. With the latter type, as well as with quotation (i.e. with paratactic constructions), the Matrix Language – Embedded Language opposition is irrelevant, as in the following example adapted from Myers Scotton (2002: 56), which involves alternation in the terminology of Muysken (2000).

\[ \text{ndio wa-zungu wa-na-sem-a old habits die hard} \]
\[ \text{Yes cl2-European cl2-nonpst-say-fv} \]
\[ \text{‘Yes [as] Europeans say, old habits die hard.’} \]

Of course, codeswitching is easiest at points where the syntax of two languages aligns. As shown by Amuzu (2005) with respect to Ewe-English code-switching, the lexical-conceptual structure of English may be activated when Ewe is the matrix language. Compare the following example:

\[ \text{eyata as for asige lac, e-le important-e} \]
\[ \text{so as for ring TP 3SG-be-at:pres-ADV} \]

\[ \text{(ADV = adverbialiser; PRES = present; TP = topic marker)} \]

The adjectival predicate element important, occurring as a complement of le, does not have an Ewe equivalent that can be traced to the codeswitching slot. In other words, what superficially may look like embedding in an Ewe-only matrix language situation,

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59. The use of material from different lexical inventories into one shared grammatical structure is also attested with style shifting between a standard language and dialects (Trudgill 1986).
in actual fact involves incorporation of lexical-conceptual structures from English; phrased differently, composite lexicalisation is involved.60

The Ewe examples show that languages may be restructured under the influence of congruent lexicalisation in codeswitching situations. The various roles of codeswitching as well as its structural effect on language change remain an interesting topic for future research, also in an African context.

8.4 Linguistic areas on the African continent

Long-term bilingualism tends to result in compound bilingualism, i.e. the unification of two divergent linguistic systems from a formal and semantic point of view. Once the linking between the semantic and the morphosyntactic component in two languages is organised in a parallel fashion, it is easy to switch between these languages even within sentences. This type of codeswitching within sentences is quite common in bilingual situations. Gumperz and Wilson (1971: 154–155), in a classic contribution on language contact between Indo-Iranian and Dravidian languages in the Kupwar region of India, observe that “[i]t is possible to translate one sentence into the other by simple morph for morph substitution.” The authors draw examples from the Indo-Iranian language Urdu and the Dravidian language Kannada.

Kupwar-Urdu:

\[
\begin{align*}
\text{kya} & \quad \text{baba} & \quad \text{ghori} & \quad \text{bec} & \quad \text{di-ya kya} \\
\text{what} & \quad \text{fellow} & \quad \text{horse} & \quad \text{gave-you} & \quad \text{’hey, fellow, did you sell the mare?’}
\end{align*}
\]

Kupwar-Kannada:

\[
\begin{align*}
\text{yan} & \quad \text{appa} & \quad \text{kudri} & \quad \text{kwatt-i} & \quad \text{yan} \\
\text{what} & \quad \text{fellow} & \quad \text{horse} & \quad \text{gave-you} & \quad \text{what} & \quad \text{’hey, fellow, did you sell the mare?’}
\end{align*}
\]

It was Emenau (1956: 28) who coined the term linguistic area for “an area which includes languages belonging to more than one family but showing traits in common which are found not to belong to the other members of (at least) one of the families”. The phenomenon itself was well known from other parts of the world, and probably was first identified by Trubetzkoy (1923: 116, quoted in Toman 1995: 204), who called it language union:

60. For additional case studies on codeswitching, the interested reader is referred to Heath (1989) concerning codeswitching between French and Moroccan Arabic, and to Swigart (1992) for codeswitching between Wolof and French in Senegal.
Languages in a region defined in terms of geography and cultural history acquire features of a particular congruence, irrespective of whether this congruence is determined by common origin or only by a prolonged proximity in time and parallel development. We propose the term language union (jazykovyj sojuz) for such groups which are not based on the genetic principle.

Apart from terms like linguistic area or language union, terms like convergence area or the German term Sprachbund have been used to describe such regions, e.g. in central Asia or the Balkan area in Europe. The latter convergence area involves languages like Albanian, a relatively isolated branch of Indo-European, Slavic languages like Bulgarian or Serbo-Croatian, Romance languages like Romanian, but also Greek. Joseph (1983) and Hock (1986: 286–290) provide further details on this topic.

Convergence refers to a coming together in geographical space of communities speaking two or more distinct dialects or languages which results, in the course of history, in a greater degree of linguistic uniformity. Such convergence areas have also been identified for different parts of the African continent. One of the first linguistic areas or convergence areas of this type identified for the African continent was the so-called “Ethiopian language area”. Leslau (1945, 1952) argues that Ethiopian Semitic languages underwent strong influence from Cushitic languages in Ethiopia. For example, emphatic consonants are assumed to have become rephonologised as ejectives (or glottal stops). Similarly, at the morphological and syntactic level dramatic restructuring occurred in Ethiopian Semitic. Other authors have added features, and the concept of Ethiopia as a convergence area has also been criticised, as shown below. Let us therefore have a closer look at syntactic convergence in the Ethiopian area.

The reconstructed default word order for Proto-Semitic is Verb-Subject-Object (VSO), possessed-possessor, and noun-adjective order (Hetzron 1997). In Classical and Modern Standard Arabic, this is still the dominant order, but VSO has given way in most modern Semitic languages to SVO.61

The tenth century probably is the upper limit for the historical origin of the cluster of traits defining the convergence area of Semitic languages towards Cushitic and Omotic in Ethiopia. The earliest written attestations of Ethiopian Semitic date from the 4th century A.D., more specifically from Gëez, a language which disappeared as a spoken language, but which is still used as a liturgical language in the orthodox Christian church in Ethiopia. Gëez had VSO order with prepositions, and possessed-possessor order in genitive constructions, whereas adjectives followed the noun. But for various Ethiopian Semitic languages the following historical restructuring can be observed.

---

61. In Akkadian, the language of ancient Mesopotamia, only the order of clause-level elements (SOV from an earlier VSO) was affected, prepositions were retained and the order within the noun phrase apparently also remained noun-modifier.
Head modifier (as in early Semitic) > Modifier head (in Ethiopian Semitic)
nomen regens – nomen rectum > nomen rectum – nomen regens
noun pronominal possessive > pronominal possessive noun
verb object > object verb
preposition noun > noun postposition
matrix verb – subordinate clause > subordinate clause – matrix verb

The degree of convergence in modern Ethiopian Semitic languages towards neighbouring Cushitic and Omotic languages increases when moving from the north towards the south. The possessor can precede or follow the possessed element, and adjectives can precede or follow the noun in northern Ethiopian Semitic languages, e.g. in Tigre (spoken in Eritrea and Ethiopia); likewise, the subordinate clause can precede or follow the main clause in this language, which also has prepositions combined with a verb-final structure. Southern Ethiopian Semitic languages (e.g. Argobba, Harari or Gurage) have SOV word order and postpositions, genitive constructions with an order possessor-possessed, whereas the adjective precedes the noun. The degree to which this restructuring took place varies between languages, with the southernmost Semitic languages having completed the shift from head-initial to head-final constructions. Intermediate stages can be observed in Amharic constructions such as the following, where a preposition is combined with a postnominal modifier (or postposition):

\[ \text{ks} \quad \text{beet wost} \quad \text{‘in the house’} \]
\[ \text{from house inside} \]

In their gradual historical restructuring and convergence towards Cushitic and Omotic, these Semitic languages presumably used existing variation in the syntactic expression of meaning. Thus, verb-initial languages usually allow for pre-verbal subjects in order to topicalise or focus on the subject; also, OVS order may occur as an alternative, e.g. when focusing on an object. In other words, the historical restructuring in Ethiopian Semitic probably started from synchronic variation already existing in these languages when they came into contact with their distant Afroasiatic relatives in Ethiopia.

As shown by Amha (2001), the Omotic language Maale may be classified as verb-final, because of the frequency of this order and the fact that dependent clauses are obligatorily verb-final. At the same time this language allows for a set of alternative constituent orders, each being grammatical given certain pragmatic conditions. The OSV template is associated with a specific focus structure construction in Maale, whereby the subject carries (assertive) focus:

\[ \text{waas’-} \quad \text{tánní} \quad \text{láal-é-ne} \]
\[ \text{water-abs 1sg:nom spill-pf-aff:decl} \]
\[ ‘\text{I spilled the water}’ \]

\[ (\text{ABS = aboslutive case; AFF = affirmative; DECL = declarative mood; NOM = nominative case; PF = perfective}) \]
Whereas the order SOV (and SV in intransitive clauses) is the most frequent one in texts and in elicited material in Maale, alternatives such as OSV, but also SVO or OVS, do in fact occur in connected speech. In other words, postverbal subjects or objects are not excluded. Inversion of subject–verb order is common cross-linguistically as a strategy for expressing presentative focus, as in the following Maale example:

\[ kum^m\text{-}u^m\text{-}w\text{-}s\text{-}e \quad z\text{a}^g\text{i}m\text{-}n\text{-}\dot{\text{a}} \]

\[ \text{fill-pf:neg-neg:decl month-nom} \]

‘it does not last for a month (lit. a month does not fill)’

\( \text{(ipf = imperfective; neg = negation)} \)

Verb-initial sentences in Maale are judged to be less appropriate with indefinite or generic arguments (Amha 2001: 238), but interestingly Maale does allow for this constituent order.

\[ k\text{a}n\text{-}z\text{-}i \quad m\text{u}z\text{-}\dot{\text{a}}\text{-}n\text{-}e \quad \text{ta}^f\text{k}\text{-}\dot{\text{a}} \]

\[ \text{dog-def-nom eat-pf:aff:decl meat-abs} \]

‘the dog ate the meat’

\[ m\text{u}z\text{-}\dot{\text{a}}\text{-}n\text{-}e \quad k\text{a}n\text{-}z\text{-}i \quad \text{ta}^f\text{k}\text{-}\dot{\text{a}} \]

\[ \text{eat-pf:aff:decl dog-def-nom meat-abs} \]

‘the dog ate the meat’

\( \text{(def = definite)} \)

Similarly, adpositions in Maale (called Locative nominals by Amha 2001: 246), most frequently follow their complements, but they may also precede the latter:

\[ k\text{a}n\text{-}\dot{\text{a}} \quad d\text{e}^m\text{m}\text{-}\text{a} \quad b\text{o}^r\text{t}\text{-}\dot{\text{a}}\text{t}d\text{-}k\text{-}\text{o} \quad z\text{e}k\text{k}\text{-}\text{\dot{e}}\text{-}n\text{-}e \]

\[ \text{dog-nom under-loc animal-m-gen stand-pf:aff:decl} \]

‘the dog stood under the wild animal’

\( \text{(gen = genitive case; loc = locative case; m = masculine)} \)

Exploitation of such alternative representations of information packaging already existing in individual languages presumably lies at the basis of morphosyntactic and pragmatic restructuring in contact situations. In the “Ethiopian case” it was Semitic adapting itself to Omotic and Cushitic structures in most cases. The examples above showing syntactic variation in the Omotic language Maale, however, should help to show that convergence may go in either direction, depending on the socio-historical constellation, but synchronic variation within the language that are in contact lies at the basis of such historical restructuring.

A second factor influencing the outcome is shift-induced interference or (alternatively) metatypy as taking place with second-language learners. Third, composite
lexicalisation on the part of primary language speakers of the type illustrated for Ewe by Amuzu (2005) may result in additional modifications of existing structures. The outcome, when repeated again and again in different language contact situations, may indeed be a convergence area.

Ferguson (1970, 1976: 65–74) arrived at a total of 26 linguistic features (8 phonological and 18 grammatical) characterising the “Ethiopian convergence zone”. Tosco (2000) argues that Ferguson’s (1970) Ethiopian language area is an example of a false language area. Most putative Ethiopian features, it is claimed, are retentions of common features of Afroasiatic languages. Of course, Tosco (2000) is right in pointing out that there are (mainly Nilo-Saharan) languages in Ethiopia which do not manifest any convergence towards this common type in Cushitic and Omotic. Nevertheless, the dramatic restructuring of head modifier relations into modifier head relations in a range of Semitic language is best explained through influence from Cushitic and Omotic. Further details on the subject are found in Crass and Bisang (2004).

Heine (1976b) has argued that morphosyntactic properties as found in Afroasiatic languages in Ethiopia – more specifically features like a verb-final syntax with extensive case marking, extend into a range of Nilo-Saharan languages spoken west of the Ethiopian area as far as Chad. According to Dimmendaal (2008b), there are at least two additional morphosyntactic properties shared by languages in this convergence zone. First, the use of so-called converbs, i.e. verbs with a reduced system of inflection occurring in syntactically dependent clauses. Converbs are common, for example, in narrative discourse when describing a sequence of actions or events. They are common in Afroasiatic languages in Ethiopia, but also in Nilo-Saharan languages in Ethiopia and Eritrea, and a zone with Nilo-Saharan languages extending west into Chad (Amha and Dimmendaal 2006).

Compare again examples from the Omotic language Maale (Amha and Dimmendaal 2006):

\[
\begin{align*}
\text{ta} & \quad \text{dındá} & \quad \text{tük-} & \quad \text{burki-if-i} \\
1\text{sg:gen} & \quad \text{mother-nom} & \quad \text{coffee-abs} & \quad \text{boil-caus-cnv} \\
\text{káts-} & \quad \text{káts-} & \quad \text{ʔas-} & \quad \text{ʔééll-é-ne} \\
\text{food-abs} & \quad \text{cook-cnv} & \quad \text{people-abs} & \quad \text{call-pf-a:decl} \\
\end{align*}
\]

‘My mother made coffee and she prepared food and invited the people (who were working on the farm into the house)’

(abs = absolutive; caus = causative; cnv = converb; decl = declarative; gen = genitive; nom = nominative; pf = perfective)

A second morphosyntactic property common to several Afroasiatic and Nilo-Saharan languages spoken in Ethiopia, central and northern Sudan as well as Chad is the frequent use of so-called coverb plus light verb constructions as main predications. Nyimang, a
Map 5. Convergence areas (1976b)

Nilo-Saharan language spoken in the Nuba Mountains, Sudan (Dimmendaal 2008b) uses this strategy as a word-formation process.

- dünän-śëè 'bow, bend'
- bow-say
- jëyëjë-sëè 'scatter'
- IDEO-say

Hayward (1991) makes additional, interesting observations on lexical convergence between Ethiopian languages, involving the semantic organisation of the lexicon.
As shown by him, Amharic (Semitic), Oromo (Cushitic) and Gamo (Omotic) share patterns of polysemy. Historically, this implies that similar intrafield and interfield metaphorical and metonymic extensions occurred, presumably as a result of contact. Compare the following examples.

<table>
<thead>
<tr>
<th>Language</th>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amharic</td>
<td>ከልጇ (tab)</td>
<td>1. narrow, constricted; 2. in difficulties</td>
</tr>
<tr>
<td>Oromo</td>
<td>ቀሚስ (tip'aa)</td>
<td></td>
</tr>
<tr>
<td>Gamo</td>
<td>ከንተ (ninte)</td>
<td></td>
</tr>
<tr>
<td>Amharic</td>
<td>ላስ (yaz)</td>
<td>1. hold, catch; 2. start, begin</td>
</tr>
<tr>
<td>Oromo</td>
<td>እብ (k'abe)</td>
<td></td>
</tr>
<tr>
<td>Gamo</td>
<td>እናና (k'aykkides)</td>
<td></td>
</tr>
</tbody>
</table>

To date, there is no evidence that these lexicalisation patterns as found in Ethiopian Afroasiatic languages are shared with Nilo-Saharan languages in the area.

As these various examples above show, convergence may take place at the phonological, grammatical as well as the lexical level. But it may also extend to “fashions of speaking”. An interesting example of this is provided by Ameke (2004), who shows how triadic (as against diadic) communication patterns as found throughout West Africa share patterns of speech report, more specifically marking responsibility in discourse. The use of logophoric pronouns (Hagège 1974; von Roncador 1992a, 1992b) as an evidential hedging strategy is an additional areal feature. As pointed out in Dimmendaal (2001c), logophoricity is found in Niger-Congo as well as Nilo-Saharan, but interestingly also in Chadic and Omotic, i.e. in language families bordering on the first two phyla. Moreover, the marker used in these latter Afroasiatic branches may be cognate. In Chadic languages one finds a marker paa in Mapun, pee in Angas, pie-m’ in Pero, ba in Lode. In Omotic languages a similar marker is attested, e.g. ba in Bench’, pe in Maale, ba in Wolaitta. Dimmendaal (2001c) contends that the formal similarity of this marker to the logophoric marker in Chadic languages is rather remarkable, to say the least. Consequently, logophoricity in Omotic and Chadic could equally well be the result of shared inheritance from Proto-Afroasiatic.

Güldemann (2008b) takes the distribution of logophoric marking in an African context as a starting point for the investigation of a linguistic area termed “Macro-Sudan belt”. His concept of a “Macro-Sudan belt” of course is reminiscent of Westermann’s Sudanic zone.

The more specific a grammatical or phonological feature is, the more useful it is as a diagnostic property for areal diffusion. Kastenholz (2002) refers to the suppletive formation of negative and positive paradigms found in Mande languages as well as in Songhay and the Chadic language Hausa. Speakers of Chadic languages have also interacted with Benue-Congo speech communities for centuries, if not millennia. Wolff and Gerhardt (1977) and Jungraithmayr (1980) are among the first identifying
convergence phenomena between these language families. The convergence involves phonological features, such as ATR-based vowel harmony, but also grammatical features like the use of specific aspect systems.

Another contact area involves the Banda languages, which belong to the Ubanguian family (which are treated as a branch of Niger-Congo by Greenberg 1963, but which are treated as an isolated family in the present study) and neighbouring Central Sudanic languages (which are part of Nilo-Saharan in the present author’s view). Cloarec-Heiss (1995) raises the methodologically important question whether the observed influence or convergence between these language families is due to borrowing or to a substrate influence (i.e. shift-induced interference).

Following a specific tradition in Romance linguistics, Kießling (2002) propagates a kind of historical sociolinguistics in his study of West-Rift Southern Cushitic. As the Romanist Vàrvaro (1984: 109 translated in Sottile 2005: 207) indicates, “in historical linguistics it is neither possible nor appropriate to separate the historical aspect from the sociological one”. Phrased differently, if we are to understand the linguistic outcome of contacts between speakers of (typologically) different languages and language families, the nature of the social interaction needs to be studied too. This is exactly what Kießling (2002) does in his detailed account of the interaction of speakers of Southern Cushitic languages with speakers of Bantu, Southern Nilotic and Sandawe; see also Kießling, Mous and Nurse (2008) for a survey of contact phenomena in this Tanzanian Rift Valley area. The reader interested in narrow-scale convergence is also referred to Nurse (2000) for a detailed account of inherited and contact-induced features in two Bantu languages, Daiso (Tanzania) and Ilwana (Kenya).

Whether codeswitching is “the main structural mechanism promoting convergence”, as claimed by Myers-Scotton (2003: 247), is an empirical matter. It would seem that one has to differentiate between phonological, morphological, syntactic, pragmatic and semantic convergence in this respect. Phonological, and in particular prosodic, features spread easily, as the distribution of tone, vowel harmony and other features shows. But these convergence areas usually do not coincide with convergence zones reflecting morphological and/or syntactic (plus pragmatic and semantic) features.

Of course, the further back one goes back into history, the more difficult it becomes to disentangle areal diffusion from genetic inheritance. Greenberg (1959, 1983) already identified a number of widespread Africanisms, i.e. special features of African languages. These include lexical polysemy, such as the use of the same term for ‘(wild) animal’ and ‘meat’, or the word ‘child’ to refer to ‘fruit (of a tree)’. Among the list of ancient lexical and grammatical Africanisms listed by Meeussen (1975), there is
also a 'cum suis' (inclusive or inclusory) construction frequently used in combination with personal names.62

Luo (Nilo-Saharan): \( \text{ɔúm \text{á} \text{ɡírí}} \) ‘Ouma cum suis’

Hausa (Afroasiatic): \( \text{su-Audú} \) ‘Audu cum suis’

Rundi (Niger-Congo): \( \text{bɑɑ-kábiändà} \) ‘Kabundu cum suis’

One of the most recent studies on linguistic areas in Africa is the collection of studies in Heine and Nurse (2008). In their introductory chapter to this volume, Heine and Leyew (2008) raise the question whether Africa as a continent in fact constitutes a linguistic area. Heine and Zelalem Leyew (2008: 30–34) present a so-called isopleths mapping on the basis of a selection of eleven typological properties in a sample of 99 African and 50 non-African languages.63 Such a map is designed "on the basis of the relative number of features that languages of a linguistic area share: Languages having the same number of properties, irrespective of which these properties are, are assigned to the same isopleths and, depending on how many properties are found in a given language, the relative position of that language within the linguistic area can be determined" (Heine and Leyew 2008: 30). The features selected by the authors include phonological properties like the presence of ATR-based vowel harmony, labiovelar (labial-velar) stops, or the 'animal, meat' polysemy and others. As Heine and Leyew (2008: 31) further point out, "the contribution that isopleths mapping can make to reconstructing linguistic history in particular and history in general is a modest one since there is no coherent way of correlating isopleths structures with specific historical processes". A detailed account of widespread phonological phenomena as well as features with a more regional distribution is found in Clements and Rialland (2008). Morphosyntactic properties of verbs include the wide use of verbal derivational suffixes or the frequent employment of ideophonic words (Heine and Leyew 2008: 21). At the same time, the present chapter as well as other chapters in the volume edited by Heine and Nurse (2008) should have made clear that there is also tremendous typological (as well as genetic) variation. A central methodological problem involves the question how one can disentangle genetic inheritance from areal diffusion, as is also pointed out in the studies in Caron and Zima (2006) and Cyffer and Zima (to appear) on language contact in the West African Sahel region.

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62. Similar strategies are found in other parts of the world; see Heine and Leyew (2008:24), who also refer to other sources.

63. The term isopleths refers to points of equal elevation on a map.
Chapter 9

Pidginisation and creolisation

9.1 Pidginised and creolised languages
9.2 Bickerton’s bio-program
9.3 The role of substrate languages
9.4 Pidginisation and creolisation rather than pidgins and creoles

A simplified variety of a language may come about as an “emergency language” for communicative functions in multilingual settings where speakers with different linguistic backgrounds meet. These so-called pidginised forms emerge essentially between second-language learners for whom the input from the contact jargon is insufficient to become fluent speakers. Moreover, such contact media typically are learned by adults, usually in contexts of broader communication. Pidginisation thus results from incomplete acquisition of a grammar and lexicon, i.e. the learning of a language “in chunks”. This chapter discusses the social conditions under which such processes take place, and it also analyses the linguistic outcome of this contact phenomenon, including the development of pidginised language forms into fully-fledged (“creolised”) grammatical systems.

9.1 Pidginised and creolised languages

When the Khediv of Egypt Muhammad ‘Ali set out plans around 1820 to conquer areas south of Egypt in what is now called Sudan, he started to recruit male adults from this area for his army. During this Turco-Egyptian Rule, Arabic spread as the language of administration in Sudan. Prior to this era, which began in 1821; Sudan did not form a unified political entity. It was probably in the multilingual garrison camps in the southern Sudan that the pidginised versions of Sudanese Arabic emerged which came to be known as Nubi and Juba Arabic. For the soldiers recruited for the Turco-Egyptian army, whose primary language was probably one of the many Sudanese languages,
still spoken today, a simplified, or pidginised, variety of Arabic came to serve as the common lingua franca in their interaction with the military leaders as well as between each other. The designation “Nubi” for this military force created for the southward expansion from Egypt, and later on for the common language used by the recruited soldiers, came about as a result of the fact that many soldiers in this army originated from the Nuba Mountains in Sudan, who sometimes had been captured as slaves at an earlier point and were drafted for the so-called *jihādiyya*. During the second part of the 19th century, the area of recruitment for the military force shifted from the Nuba Mountain region to southern Sudan, but the name Nubi for the group as well as for the Arabic-based contact language they had developed remained. (See Sikainga 1996 for a detailed historical account of this period.)

Nubi developed from a pidginised variety of Sudanese Arabic used for communication in a labour setting into a fully-fledged, stabilised and crystalised language probably between 1851 and 1888 (Owens 1990, 1991). By then, Nubi had become an emblematic language for a group of people who had developed a separate ethnic identity, and who often felt superior as Muslims towards non-Islamic groups in Sudan. Moreover, these Nubi groups had begun to have families, and children born in these communities grew up with Nubi as their first language.

The Turco-Egyptian regime was replaced by the Mahdist State in 1881, which ruled over two-thirds of the Sudan until 1898, when the British, in the scramble for Africa, took over power in the region. As the Nubi garrisons did not want to serve under the Mahdi, a larger part (under Fadmulla Bey) moved to the West Nile area of Uganda, where they were persuaded in 1894 to join the Uganda Rifles, which served under British colonial rule. A second section of Nubi, consisting of soldiers and their families, followed Stanley to the East African coast and to Cairo, later on settling down in western Uganda and Kampala. Groups of Nubi then took up service in the King's African Rifles in 1902, after which a military reserve was created for them in Nairobi, known as Kibera. There is still a major community of Nubi speakers found in this quarter of Nairobi today; moreover, there are also communities of Nubi speakers in other towns in Kenya as well as in Uganda.

What does this language, which developed as a contact medium in the 19th century in the traders’ and soldiers’ camps in southern Sudan, look like? As shown in one of the first detailed accounts, Heine (1982), basic vocabulary and grammar derives from (Sudanese) Arabic, although several of the morphological properties of (Sudanese) Arabic were lost in Nubi. Compare the following paradigm forms from Classical Arabic and the morphologically reduced paradigm of Nubi (Owens 2001: 349), where masculine and feminine are no longer distinguished:

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64. See also Luffin (2005) for a detailed synchronic account of Nubi as spoken in Mombasa.
Like Classical Arabic or modern Sudanese Arabic, Nubi distinguishes tense, aspect and voice on the verb, but unlike its non-creolised relatives, it does not inflect the verb for person, gender, or number. Nubi also underwent phonological simplification; for example, the emphatic consonants of (Sudanese) Arabic disappeared. Heine (1982) treats Nubi as a language with a pitch-accent system; in terms of its phonetic realisation, the prosodic system involves modulations in frequency, whereas in terms of their distribution high-pitch syllables are like stressed syllables, in that only one prominent peak per word is allowed.

Such rapid simplifications in contact situations especially affecting phonological structures and inflectional morphology, often also involving the petrification or loss of (bound) derivational morphology, is commonly referred to as **pidginisation**. It has become fashionable to label contact media which underwent simplification compared to the target language as X-based pidgins when they are not the mother tongue of a group, and X-based creoles when they have become the mother tongue. Since Nubi has developed into the mother tongue of specific groups in Kenya and Uganda, it would be labelled an “Arabic-based creole”, following this terminology. The origin of the word pidgin is not clear, and a range of explanations have been forwarded over the years. One etymology is the Portuguese word *pequeno* for ‘little’ (suggesting baby talk), another one is the Chinese pronunciation of the English word *business*. The term creole in turn probably goes back to Portuguese *crioulo*, a term applied to Europeans who were born in the New World, then to Africans born there, to both, to people of mixed race, to the forms of language spoken by people in the Americas, and eventually, to any pidgin which has become a mother tongue for a community (Todd 1982).

The most commonly used definition for a creole is “a nativised pidgin”. It is frequently assumed that this nativisation goes along with a structural expansion of the language. But as we know now, pidgins may become relatively stable, homogeneous, and structurally elaborated without the participation of native speakers (even within two or three decades after their inception). A comparison between Nubi, which became the mother tongue of people during the 19th century, and the closely related lingua franca in southern Sudan, Juba Arabic, which probably does not have mother tongue speakers, shows that such contact languages may standardise or stabilise before they develop into the mother tongue of a group. As a matter of fact, there are only minor phonological and lexical differences between Juba Arabic and Nubi; moreover, in Juba Arabic the negator precedes the verb phrase, whereas in Nubi it follows; see Bureng Vincent (1985) and Watson and Ola (1984) for details. Specialists of pidgins and creoles,
e.g. Mufwene (1997), have therefore argued that creoles are stabilised pidgins, a definition also followed in the present monograph.

Rapid replacement of most of the native languages by a single shared medium of communication process sometimes is referred to as abrupt creolisation. A language known as Pitcairnese probably was formed this way. After the mutiny in 1789 on a ship called the Bounty, the mutineers returned the ship to Tahiti. Together with speakers of the Polynesian language Samoan (mainly women and children) they settled on Pitcairn in the South Pacific Ocean, where they developed an English-based creole. Here, then, we see a second problem with a unified definition for pidgins and creoles (the first problem involving the fact that pidgins may already constitute a more or less standardised lingua franca). Consequently, not all creolised languages are nativised pidgins, although such cases appear to be exceptional.

Many so-called “pidgin and creole languages” emerged as a direct result of European colonial expansion between 1500 and 1900. Fanagolo probably developed as a Zulu-based pidgin during the 19th century in Kwazulu-Natal (South Africa) between speakers of Bantu languages, mainly Zulu, and Anglophone settlers. It subsequently came to be used in the mines. The alternative name Isikul (Kuli language) derives from the fact that in the 1860s migrants (“kulis”) from India in the area started using the contact language. But pidginised languages do not always emerge in social situations based on inequality; some in fact emerged under different social configurations. Thus, Chinese Pidgin Russian as used in the border area between Russia and China did not develop under European expansionism, a social upheaval, or some population displacement. The same applies to Russenorsk, the variant of Norwegian with an admixture of the contact language Russian used in the (sub-)arctic zones especially in the 19th and 20th century, or Chinook Jargon used by trappers and traders in the northwest of the United States as well as in adjacent areas of Canada during the 19th and early 20th centuries.

Linguistic interest in pidginised and creolised languages dates back to the 19th century. Hugo Schuchardt (1842–1927), sometimes called the father of pidginistics and creolistics, was one of the first to show an academic interest in this language contact phenomenon. The same scholar questioned the Neogrammarian premise that languages cannot be mixed, as pidgins and creoles according to him were good examples of mixed languages. Scholars have held different opinions ever since on the role played by the so-called superstrate language or lexifier, i.e. the language providing the lexical material, and the so-called substrate language, spoken by those acquiring the contact medium, as further discussed below.

The so-called “Monogenesis” theory was not a general theory on the origin of all pidgins and creoles known across the world. Rather, this model sought to explain specific lexical similarities in Caribbean pidgins and creoles through a common ancestor, an Afro-Portuguese pidgin developed in West Africa in the 15th and 16th centuries,
as the Portuguese had the monopoly of the slave trade on the African continent in those days. It has been alleged that at least the Atlantic pidgins all descended from a Portuguese-based "proto-pidgin" which established itself at the time of the Portuguese expansion in the 15th century. This pidgin in turn derived from Sabir, a trade language employed in the Mediterranean area during the Middle Ages between Muslims and Christian Crusaders. The Pidgin Portuguese Hypothesis of Thompson (1961) was supposed to explain the presence of Portuguese lexemes in English-based, French-based and Dutch-based creole languages in the Caribbean. According to this theory, these latter "emergency languages" (as pidgins are sometimes called) were adopted by mariners and merchants through a process of relexification. New learners plugged in new lexemes from another source (e.g. English, French or Dutch), but maintained certain lexemes and the syntactic base of the original Sabir. Compare the following items, probably going back to Portuguese, in some of these languages:

<table>
<thead>
<tr>
<th>Hawaiian Creole</th>
<th>Sranan</th>
<th>Portuguese</th>
</tr>
</thead>
<tbody>
<tr>
<td>pickanniny</td>
<td>pikin</td>
<td>pequeno</td>
</tr>
<tr>
<td>savvy</td>
<td>sabi</td>
<td>saber</td>
</tr>
</tbody>
</table>

This is one way in which the concept relexification has come to be used; a second way in which this term has been used, in particular in the work of the creole specialist Claire Lefebvre, is discussed below. The first relexification theory is now generally thought to be a rather complex model for the explanation of a relatively simple phenomenon, namely the presence of specific lexical items including nautical terms from Portuguese in a range of French-based, English-based and Dutch-based creoles. A much simpler line of explanation involves the independent development of these pidgins and creoles, with maritime jargon plus some other words carried over into these newly emerging contact languages, since this Portuguese-based pidgin was widely known among those sailing the world’s oceans in those days.65

The role of the so-called superstrate language, also known as the target language, is most obvious in the lexicon of pidginised and creolised languages. Mufwene (2001: 23) points towards an important methodological issue to be considered when trying to establish the relative role played by superstrate and substrate languages in the structuring of pidgins and creoles. For example, the lexifier of English-based or French-based creoles often "were typically incipient koinés from diverse dialects imported from the European metropole and from second-language varieties spoken by European

---

65. If this hypothesis were correct, one would also expect different degrees of relexification towards the newly formed pidgins (and creoles), a situation not corroborated by the facts. Also, in early documents from the French West Indies one finds variation in the form for ‘know’, between savoir and savé (‘known’). Such fluctuations would be unexpected if the Portuguese-based pidgin had formed the basis, since a form sabi is attested here.
indentured servants from other countries”. And (p. 23), “knowing that pronunciations such as /ɡwot/ for goat and /pyɛ̃/ for pear were attested as alternatives to the more common ones in the colonial English to which non-Europeans were exposed….would make it unnecessary to seek exclusive non-English explanations in order to account for their presence in Atlantic creoles”. In other words, simply comparing the creole (or pidgin) with the standard variety of the lexifier would be methodologically flawed.

As a general explanatory theory for the structure of pidginised and creolised languages, the “superstratist” theory has also become largely discounted these days. Under this hypothesis, it is assumed that the superstrate speakers were the active participants, simplifying their language in speaking to the slaves or workers. Pidginisation often tends to come about as a result of incomplete language acquisition, whereby the substrate language (i.e. the first language of those using the emergency language) interferes, i.e. shift-induced interference occurs. It should be made clear, however, that the restructured languages are not necessarily the result of incomplete acquisition in all cases. It has been pointed out, for example by Voorhoeve (1964:236), that slaves in the Dutch colonies were not allowed by their “masters” to speak the same variety of Dutch. As Reinecke (1937: 443) points out, “till the middle of the 19th century the Hollanders regarded their language as a sort of caste-language and heard unwillingly its employment by their inferiors”.

The important role of substrate languages in the development of creoles has been hinted at above, but will be discussed in more detail after an alternative interpretation has been presented first. We may call this latter theory the no-strate (as against the superstrate or substrate) model, after Owens (2001: 359). This explanatory model is commonly known as the “bio-program”, propagated by the scholar who first proposed it, Bickerton (e.g. 1981).66

9.2 Bickerton’s bio-program

Central to Bickerton’s claims is the hypothesis that innovative aspects of creole grammar are inventions on the part of the first generation of children who have a pidgin as their linguistic input, rather than features transmitted from pre-existing languages. His theory was not meant to be applied to all known creoles across the world, but rather to “…those situations in which the human linguistic capacity is stretched to the uttermost” (Bickerton 1984: 4). The bio-program is genetically coded and activated in the case of “early creolised creoles”, as Bickerton argues. The latter category involves languages which rose out of a prior pidgin which had not existed for more than one

66. For an additional source concerning theories of pidgin and creole genesis, the interested reader is referred to Kaye and Tosco (2003).
generation, and which arose in a population where not more than 20 percent were native speakers of the dominant language, and where the remaining 80 percent was composed of diverse language groups. One social constellation to which this applied, according to the same author, involved maroonage, the creation of communities of escaped slaves, for example in South America. Maroon communities lacked native speakers not merely of the original but of any dominant language; they also had a low, possibly null percentage of native speakers who might have provided a strong second-language model. For example, the Saramaccan community in Surinam was formed by slaves who were all African-born and "most of whom had been away from their African homelands for a few years at the most. In this conceptualisation of creolisation, languages may be classified along a scale such as the following (Bickerton 1984):

Table 21. Pidginisation index according to Bickerton (1984)

<table>
<thead>
<tr>
<th>Nearest to bioprogram</th>
<th>Furthest from bioprogram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saramaccan</td>
<td>Hawaiian C</td>
</tr>
<tr>
<td>Djuka</td>
<td>Papiamentu</td>
</tr>
<tr>
<td>Sranan</td>
<td>Hispaniola C</td>
</tr>
<tr>
<td>Providencia/</td>
<td>Mauritian C</td>
</tr>
<tr>
<td>San Andres C</td>
<td>Réunion</td>
</tr>
<tr>
<td>Haitian C</td>
<td></td>
</tr>
<tr>
<td>Guyanese C</td>
<td></td>
</tr>
<tr>
<td>Maroonage early</td>
<td>Low PI</td>
</tr>
<tr>
<td>withdrawal</td>
<td>High PI</td>
</tr>
</tbody>
</table>

Bickerton (1984) claims that Hawaiian Creole English constituted an early creolised creole. His research project on this language involved fieldwork (including recordings) in the 1970s with pre-1920 immigrants from different countries, "the only ones who could possibly have provided input to the creolisation process", as argued by Bickerton (1981: 26). For example, speakers originating from Japan manifested variation in constituent order between SOV and VSO. Anyone – in particular a child – trying to learn Hawaiian Pidgin English would have encountered formidable obstacles to even figuring out what the rules of this contact medium were supposed to be, because of the variability of the data to which children had access, according to the same author. Also, children acquiring the pidgin would have lacked models for complex structures as found in Hawaiian Pidgin English. From this Bickerton concluded that some deeply rooted biologically-based cognitive principles, or a general problem-solving device, "a bio-program", must have played a crucial role in the restructuring and creolisation of Hawaiian Pidgin English.

Hawaiian Pidgin English probably turned into a creole around 1910, and no later than 1920, when the first locally-born generation started using the language, as argued
by Bickerton (1981), who further claims (p. 6) that "first creole generation (children) produced rules for which there was no evidence in the previous generation's speech".

According to Bickerton (1984: 85–86), only a handful of trivial cases of substrate influence may be found in Hawaiian Creole. And as he goes on to argue (p. 184), "[s]ubstratophiles might suggest that Hawaii was unusual in the typological diversity of its substrate languages. A more uniform substrate (claimed to exist among the West African languages) might lead to a more uniform pidgin [...]. But even if this were true, there would be no way of explaining why a uniform substrate and pidgin in the Caribbean and a heterogenous substrate and pidgin in Hawaii should give rise to such strikingly similar results".

What do these structural similarities look like? One property concerns definiteness marking with nouns. In Hawaiian Pidgin English, there is tremendous variation in the use of definiteness marking. The definite article *da* in Hawaiian Creole English on the other hand is used for all and only specific-reference NPs that can be assumed to be known to the listener. Bickerton concludes that the zero marking of nonspecifics was a Hawaiian Creole English “invention”, and one firmly rooted enough to override counter-evidence from other languages known to its speakers. Another claim made within this model is that relative clauses are not introduced by relative pronouns. A third proclaimed property of restructuring in early creolising languages, and triggered by the bio-program, is the use of the sentence-initial position for focused constituents.

According to Bickerton (1981, 1984), these as well as a number of other features all appear in early-creolised creoles, and stem from a single substantive grammar consisting of a very restricted set of categories and processes, which is claimed by him to constitute part of the human capacity for syntax. Moreover, their origin cannot be accounted for by reference either to the lexifier (i.e. the “vocabulary-base language”), or to shared substrate-language structures. They cannot be accounted for by direct diffusion either, because some of the languages, in particular Hawaiian Creole and Caribbean creoles, are totally independent of each other historically. The author further contends that the most cogent explanation of this similarity is that it derives from the structure of a species-specific program for language, genetically coded and expressed, in ways still largely mysterious, in the structures and modes of operation of the human brain.

Over the past few decades, however, Bickerton's position has been strongly criticised on various accounts. Thus, Goodman (1985) in his review of *Roots of Language* (Bickerton 1981) points out that there is evidence that a pidginised variety of English was already spoken in Hawaii at the beginning of the 19th century. Moreover, there is evidence from a newspaper editorial from 1887 that a standardised variety had already come into existence around that time. Thus, contrary to Bickerton's claim, continuity between contemporary Hawaiian Creole English and the earlier pidginised Hawaiian
of the plantation period and before (known as Hapa Haole) cannot be excluded, and in fact is most likely to have existed. Immigrant workers arrived in large numbers from China and Portugal after 1876, because of a revision of the United States Tariff laws, allowing the free importation of Hawaiian sugar which caused the local industry to increase its productivity. Immigrants from Japan or the Philippines arrived much later, namely at the beginning of the 20th century. Consequently, the speech of old informants (the first of whom arrived in 1907 and the last in 1930) interviewed by Bickerton and his team cannot be assumed to be exemplary for the Hawaiian Pidgin English in its initial stage or as input to the first creole generation. Thus, specific features identified as part of the bio-program by Bickerton probably were already present in the preceding pidgin; see also Siegel (2007) for further details.

The empirical basis for Bickerton’s claims about Hawaiian Creole English has also been criticised on other accounts, e.g. on the basis of what is known about language acquisition with children. The latter are assumed by Bickerton to have been the creators of the new creole. But for children the norms and fashions of speaking of peer groups such as parents or other adults and adolescents is crucial for their own speech behaviour. The bio-program runs against common knowledge from language acquisition studies that peer groups are important for the linguistic behaviour of children. Aitchison (1983: 91), for example, argues that “Bickerton’s pronouncements on child language show both naivety and wishful thinking”. Moreover, the assumption that the speech of individuals does not change appreciably after adulthood is reached, is contradicted by research of scholars like Labov (1994), or Sankoff et al. (2001).

Although Goodman (1985) in his review of Bickerton (1981) strongly criticises the bio-program, and favours substrate models, he also contends that sometimes more universal, cognitive-based features may play a role. Goodman (1985: 122) raises the interesting question why in nearly all Caribbean creole the benefactive use of the verb *give* was used instead of the preposition *to* from the European target language. After all, speakers of Kikongo (who were very well represented among the early slave populations) use a derivational suffix to express the same semantic notion: “Doubtless because the verb ‘give’ would be learned much earlier. It is more essential to basic communication, and virtually every language has a word with a closely corresponding meaning, whereas prepositions rarely have exact semantic equivalents from one language to another”.

Checking whether other languages qualifying as “early-creolising creoles” manifest the same structural properties as Hawaiian Creole English would be another way of testing the validity of the bio-program model. Nubi would be a case in point, as argued by Owens (1990). If the so-called “bio-program” did indeed affect the structure of this language, there should be a number of structural properties, virtually none of which in fact are attested in Nubi. For example, early-creolising creoles are supposed to have
sentence-initial focused constituents following from a “movement” rule (Bickerton 1981:51–53). Nubi, however, uses a marker “ to emphasise constituents, which may also occur anywhere in a sentence (Owens 1990:236):

\[
\begin{array}{lllll}
\text{āna} & \text{āzu} & \text{yā} & \text{bāgara} & \text{tāki} & \text{dé} \\
1sg & want & foc & cow & your & dem \\
\end{array}
\]

‘I want your cow’

Question words should be directly preposed to the declarative form of the sentence, according to the bio-program. But in Nubi they occur in-situ, i.e. in the same position as the corresponding phrase expressing the instrument or manner:

\[
\begin{array}{lll}
\text{ītā} & \text{jā} & \text{kefīn} \\
2sg & come & how \\
\end{array}
\]

‘how did you come’

The Nubi system parallels that of the lexifier language, Sudanese Arabic. Also, contrary to what would be predicted by the bio-program, Nubi does use a relativisation marker al- (like Arabic al-) or ab-, optionally closed by the demonstrative dé. Parallel to Arabic, Nubi also has a productive passive (Watson 1984:70), whereas according to the bio-program such a construction should be rare, marginal or of recent origin. On the other hand, Nubi is supposed to have a definite article, which it does not have. Also, adjectives in Nubi behave like nouns in that they are inflected for number; when used as predicates, they behave like nouns rather than as a sub-category of stative verbs, contrary to what would be predicted by the bio-program. In fact, from a total list of fourteen early-creolising features which should be attested in Nubi, Nubi and Arabic agree with each other structurally rather than with the bio-program on ten accounts (Owens 1990, 1991, 2001).

Interestingly, the tense-mood-aspect system of Nubi is very much like that of Atlantic creoles and Hawaiian Creole English. As the comparison with Sranan (Suriname) shows, the categories anterior, future (irrealis) and progressive (non-punctual) are lexicalised in both languages (Owens 1990:227). Note, however, that the Nubi markers themselves are derived from Arabic.

<table>
<thead>
<tr>
<th>Anterior</th>
<th>Future (irrealis)</th>
<th>Progressive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nubi</td>
<td>kan</td>
<td>bi-</td>
</tr>
<tr>
<td>Sranan</td>
<td>ben</td>
<td>se</td>
</tr>
</tbody>
</table>

Possibly then, there is a more deeply rooted cognitive principle manifesting itself in pidginised languages here, the conceptualisation of stative versus active events, a feature which is widespread cross-linguistically, and which usually has consequences for the tense-aspect system of languages.
Chapter 9. Pidginisation and creolisation

9.3 The role of substrate languages

If specific phonological and grammatical features are found in a creolised language and several African languages, and if speakers of the creole are mainly of African ancestry, these features may well have been transferred from these African languages. The degree of substrate influence consequently may be expected to differ between emergency languages, because the time available to acquire the new medium of communication varies; Moreover, speakers of different (substrate) languages have different acquisition problems, related to the first language they speak.

We already pointed towards definitional problems between pidginised and creolised languages (or “pidgins” and “creoles”). Because Nigerian Pidgin English is a nativised pidgin spoken on a day-to-day basis by an increasing number of Nigerians especially in Bendel and Rivers State, it is in fact a creolised language by the standard definition. It has an interesting history, going back to the English which developed further towards the west by liberated African slaves in the colony that was to become Sierra Leone around 1800, and later joined by other former slaves from North America and Jamaica. (Slavery was abolished in 1772 in Britain, and the slave trade was declared illegal in 1808.) The English navy intercepted slave ships of all nations and released their “re-captives”, for example in Freetown in Sierra Leone. In the 1820s a similar colony was established by Afro-Americans in Liberia, where a related kind of creolised English emerged. Some of the recaptives returned to their native lands, Nigeria, as did traders and participants in the trans-Atlantic (slave) trade, taking their knowledge of the creolised English developed there, known as Krio, with them.

The close link between Nigerian Pidgin and English-based creoles like Krio in Sierra Leone is due to the fact the British started colonizing southern Nigeria in the 1860s. During the next decades, missionaries from Sierra Leone were transferred to southern Nigeria, and spread the use of this variety of English into the latter region.

Nigerian Pidgin English, as an increasingly important lingua franca in Nigeria, comes in different varieties (cf. Faraclas 1996). There are *acrolects* (i.e. decreolised varieties) which show some influence from other Nigerian languages, and which are used in informal communication between educated people. These may be considered as indigenised varieties of English in West Africa, parallel to varieties such as Australian or New Zealand English. Next, there are *mesolects* or intermediate varieties which typify the speech of those who have learned Nigerian Pidgin English as a first language. Finally, there are *basilects*, i.e. varieties of Nigerian Pidgin English in different regional as well as social varieties differing most dramatically from standard British English, as in the following example:

\[
\begin{align*}
\text{a tek knife cut di bread} & \\
1\text{sg take knife cut def bread} & \\
\end{align*}
\]

‘I cut bread with a knife’
As indicated by Thomason and Kaufman (1988: 179–80), the goal is not to search language by language, and feature by feature, for a source for each of the pidgin's features individually; rather, one must first identify the typological features of the pidgin and of all the languages spoken by the pidgin's developers, and then check to see if, and where, the typological profiles match.

The term relexification has been used, as pointed out above, as part of the so-called monogenetic theory of Atlantic creoles. But more recently it has also been used in order to refer to a specific process in pidginising or creolising languages. Muysken (1981: 61) defines this type of relexification for a specific type of language structuring, namely “the process of vocabulary substitution in which the only information adopted from the target language in the lexical entry is the phonological representation”. The author uses this definition in his description of Media Lingua, a variety of Quechua (spoken in Ecuador) with a strong lexical impetus from Spanish; an example from Muysken (1994):

<table>
<thead>
<tr>
<th>Media Lingua</th>
<th>uno</th>
<th>fabur-ta</th>
<th>pidi-nga-bu</th>
<th>bini-xu-ni</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quechua</td>
<td>shuk</td>
<td>fabur-ta</td>
<td>mana-nga-bu</td>
<td>shamu-xu-ni</td>
</tr>
<tr>
<td>Spanish</td>
<td>vengo</td>
<td>para</td>
<td>pedir un favor</td>
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<td>Spanish</td>
<td>vengo</td>
<td>para</td>
<td>pedir un favor</td>
<td></td>
</tr>
</tbody>
</table>

The creole specialist Claire Lefebvre (e.g. Lefebvre 1998, 2009) has used this relexification model in her analysis of “radical creoles”, i.e. creolised languages that “display extreme divergence from their lexifier languages” (Winford 2003: 307), a typological label similar to Bickerton’s “early creolising languages”. Haitian, which is a French-based creolised language, figures prominently in her model, with the Kwa-language Fongbe serving as a substrate model. Many early speakers of Haitian Creole are known to have come from southern Benin, and consequently a strong substrate influence from languages in this area (in particular Gbe languages) may be assumed to have played an important role in the restructuring of the contact medium French. In a beautifully detailed study, Lefebvre (1998) discusses the structure of determination within the noun phrase in French and Haitian (as part of a range of structural features), in order to show that the order and structure of the Haitian phrase parallels that of Fongbe (a member of the Gbe cluster within Kwa) rather than French, as in the following example (Lefebvre 1998: 78):
In contrast to French, nominal modifiers follow the noun in Haitian Creole rather than preceding it. Also, whereas the [+definite] determiner is obligatory with generic or mass nouns in French, it is impossible in this combination in Haitian or Fongbe. At first sight, then, it looks as if lexical items from the substrate language (e.g. Fongbe) have been “relabelled” on the basis of French, the superstrate, producing forms that have all the semantic and syntactic properties of the substrates lexical entries (Fongbe). But at closer inspection, there is more going on than a “relabelling” of lexical items or functional elements, i.e. the insertion of French tokens into predefined Gbe-type slots. First, the initial speakers of Haitian Creole in all likelihood were multilingual, as many Africans are today, and thus most likely they were just trying to acquire another language, a variety of French, as a contact language. Such a constellation of second-language acquisition does not simply involve assigning a lexical entry of L1 (the mother tongue) a new label drawn from L2 (the foreign language).

The model proposed in Lefebvre (1998) presumably is inspired by Generative approaches towards syntax and semantics. In such a conceptualisation of grammar, there is an autonomous syntactic frame to which lexical items can be attached. And here is a second problem, in the present author’s view, with the relexification model. Rather than operating with a L1 syntax to which new lexical items from a foreign language are attached, which is what the term relexification (or relabelling) suggests, one in fact observes the transfer of phrase-level and clause-level constructional frames. In other words, in languages like Haitian Creole, constructions as well as the way in which events are construed are taken over, not just lexical items. Thus, although the present author also emphasises the importance of L1 influence (substrate) in the restructuring of pidginising or creolising languages, he prefers to view this process in terms of a transfer of conceptual structures rather than through relexification processes. In fact, more recently Lefebvre (2009) also uses the concept transfer in her analysis of Haitian Creole. Evidence that constructions involving predications describing event structures with their corresponding mapping of agent and patient roles onto subject and object positions are transferred from the substrate language onto the superstrate language comes from the following example:

\[
\text{Haitian Creole:} \quad \text{krab [mwen 0]} \quad \text{sa a yo}
\]

\[
\text{Fongbe:} \quad \text{asm ny\(\text{e} \quad tm \quad el\(\text{y} \quad co \quad le}
\]

\[
\text{French:} \quad \text{ce(s) crabe(s) a moi}
\]

‘these/those crabs of mine (in question that we know of)’

(DEF = definite; DEM = demonstrative; GEN = genitive; PL = plural)
Body-state expressions of this type are common in Gbe languages, and interestingly also figure prominently in Haitian Creole as well as other Atlantic creoles.

A third reason for avoiding the term relexification in describing what happened in a number of creolised languages in Suriname is the fact that there are usually *multiple* languages involved in the transfer of structures in pidginising or creolising languages. Huttar, Essegbey, and Ameka (2007) present a detailed account of semantic transfer in the English-based creolised language Ndyuka. The authors conclude that there is indeed evidence for a substrate influence from Gbe languages, but also from other Kwa languages especially Akan and Ga, as well as non-Kwa languages of the former Slave Coast and Gold Coast areas and the immediately adjoining hinterland.

Table 22. Semantic transfer in Ndyuka

<table>
<thead>
<tr>
<th>Sense attested in Ndyuka</th>
<th>Ga</th>
<th>Twi</th>
<th>Ewe</th>
<th>Kabiye</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOUTH = POINT of sharp object</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>BREAST MOUTH = NIPPLE</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Body-part nouns, and to a lesser extent other nouns or other categories such as verbs, are reflective of the substrate, particularly of the Gbe languages. The phonological shape of Ndyuka morphemes, however, is due to Twi influence, whose speakers arrived at a later point as slaves. The authors thus make important methodological observations concerning the identification of substrate influences. Features that are common to a specific group of genetically-related languages, say the Gbe cluster within Kwa, and a creole or group of creoles cannot be assumed to be due to the influence of the African language(s) involved “until it has been shown that these features are not areal features that are also found in languages of other families spoken in the same geographical area” (Huttar, Essegbey, and Ameka 2007: 69). Indeed, a metaphorical expression such as ‘breast mouth’ is attested even in geographically distant languages like Tirma-Chai in southwestern Ethiopia, as we saw in the preceding chapter.

Other prominent substrate features of Atlantic creoles are so-called "serial verbs", which are common in Kwa languages, but also in neighbouring Benue-Congo, Gur, and Mande languages. Manessy (1995: 165–185) gives a detailed discussion of verb serialisation in Atlantic creoles. He also discusses another substrate property from Africa, the use of ‘say’ as a complementiser in the same Atlantic creoles (Manessy 1995: 187–205). In English-based creoles, the use of *sɛ* (from *say*) is indeed widespread, as shown by Holm (1988: 185).

Finally, the expression of superlatives by way of a verb ‘supercede, surpass’ is common in a wide range of languages in West Africa as well as in English-based and
French-based creolised languages (Holm 1988: 188).\(^{67}\) Compare the use of *pas* ‘surpass’ in Gullah Creole English and Haitian Creole.

**Gullah Creole English:**

\[ i \text{ tal } pas \text{ mi } \]

3sg tall pass 1sg

‘he is taller than I/ me?’

**Haitian Creole:**

\[ kay-li pi-gra pas\acute{e} kay pa-m \]

house-3sg more-big surpass house poss-1sg

‘his house is bigger than my house’

Structural similarities between Portuguese-based pidgins (and creoles) and English-based or French-based pidgins (and creoles) thus find their origin in the primary languages of the first speakers from West Africa, i.e. in the substrate languages.

The degree of typological difference between the lexifier language and the substrate (or non-target, non-lexifier) languages will correlate closely with the quantity of dominant-language input. This latter feature in turn is controlled by extralinguistic factors, such as the number of first-language speakers around, as well as the intensity or frequency of contact between first-language speakers and those acquiring the language in a contact situation, i.e. the target language learners. Of course, geographical distance from the substrate language communities can be another factor influencing the direction of change such a variety takes. The result is a cross-language compromise, with the kind and degree of coincidence between the features of linguistic systems in a contact situation favouring the retention of those features in the pidgin, as Le Page (1977: 236) concludes. Mufwene (2001: 25–80) presents a balanced overview of the potential role played by superstrate, substrate, or bio-program principles. Central to his explanatory model is the so-called *Founder Principle*, focusing on the various “founder populations” who contributed to the structuring and restructuring of pidginised and creolised languages.\(^{68}\) As we saw above, various founder populations, for example, contributed to the structuring of the English-based creolised language Ndyuka in Surinam.

Over the past decades a wealth of demographic, anthropological and socio-historical information relevant to creole societies has been produced by anthropologists

---

67. This pattern or schema extends into eastern and northeastern Africa, where one also finds a different strategy, the use of source (‘x is big from y’), as shown in Heine (1997).

68. The Founder Principle could equally well be applied to convergence phenomena described in the preceding chapter, as well as to so-called syncretic languages described in the next chapter.
and historians. An exemplary case illustrating divergent developments in spite of the presence of a common target language is that of Réunion Creole (on Réunion Island) as against Mauritian (Isle de France) Creole. The first French settled down permanently on Réunion around the middle of the 17th century, and were mainly engaged in the production of coffee, sugarcane and vanilla on the plantations. The first documents on Réunionnais date back to the middle of the 18th century. Speakers of French outnumbered immigrants (slaves) from East Africa and Madagascar (and to a lesser extent from India and Sri Lanka) during the formative period for Réunion Creole on Réunion Island. During the relevant period for the development of Isle de France Creole on Mauritius, the proportion of native French speakers was much lower than that for slaves. The resulting creolised version of French in Réunion Creole consequently contains far more grammatical phenomena immediately comparable to Standard French than the creole spoken on Mauritius, where speakers of West African languages outnumbered mother tongue speakers of French (Baker and Corne 1982). Their case study clearly shows the importance of demographic factors in the development of pidginising and creolising languages.

Another case in point, illustrating the importance of the number of target language (or dominant language) speakers as well as the frequency of interaction with speakers of other languages acquiring the target language (albeit in an incomplete manner), is that of Cape Verde Creole as opposed to the creolised version of Portuguese spoken on Sao Tome, Principe and Annobon (Ferraz 1983: 125). In the case of these Portuguese-based creoles, the former is much closer to Standard Portuguese in terms of its phonological, lexical and grammatical structure.

When comparing the Bantu languages Lingala and Bobangi on the one hand, and Kikongo and Kituba on the other, it is clear that the degree of morphological simplification in Lingala is less than in Kituba. As the alternative name for this language, Kikongo ya Leta (vehicular Kikongo) already indicates, the Bantu language Kikongo is the lexifier. It seems to have spread as a lingua franca during the second half of the 19th century between the local population and foreign workers in the Congo Free State (of King Leopold II) from Zanzibar, the West African coast, and the Upper Congo. There is no clear cut evidence that either Kituba or Lingala were contact languages during pre-colonial times, but it seems likely that such a contact language set the basis for the relatively rapid spreading of, for example, Kituba. The latter may have developed from a trade language as used by different Kikongo-speaking groups as well as between the latter and neighbouring groups in pre-colonial times. The creolisation of Kituba may have started as late as the period after the Second World War (Mufwene 1988).

For Kituba, vehicular Kikongo (Kikongo ya Leta), served as the lexifier. Pidginised Ki-kongo probably developed during the second half of the 19th century as a result of contact with foreign labourers in the Congo Free State. These workers came from
Zanzibar as well as the West African coast (hence the reference to the latter as “Senegalese” or “Kru”); at a somewhat later point, these workers also came from the Upper Congo region, where mainly Bantu languages are spoken. Their presence related to the need for additional manpower in the colonised regions. The presence of these latter groups also helps to understand a phenomenon known as decreolisation, a process whereby a creolised language reconverges with the language from which it originally derived. Thus, in Kituba there is a tendency to fuse independent words such as the following into one phonological word:

\[
\text{munu imene kwenda} \rightarrow \text{mu-me-kwend}
\]

\[
1\text{sg perfect go} \quad 1\text{sg-perfect-go}
\]

‘I have gone’

The result is a morphosyntactic structure which is very similar, again, to that of other (non-pidginised) Bantu languages in the area.

In contrast to the lexifier language, Kikongo, tone placement in Kituba is predictable, the penultimate syllable in words carrying a high tone. Moreover, marked consonants, such as diphthongs and labio-velar stops, have disappeared from Kituba. Also, deflection (i.e. morphological reduction) occurred in the noun-class system as well as in the inflectional system of the verb, in particular in the latter category. Derivational morphology in the verb has been kept to some extent, presumably as an inherent property of the lexical items. Unlike Kikongo, Kituba does not use pronominal clitics; instead free pronouns are used. This latter phenomenon is part of a more general drift in this language towards the use periphrastic constructions, also probably because tonal distinctions have disappeared. These in turn may be interpreted as examples of exoterogeny, a simplification of a language to facilitate communication with outsiders.

The story of Sango, the national language of the Central African Republic, again is a slightly different one. Here, an Ubangian language Yakoma served as a basis for an emerging pidgin in the bend of the Ubangi River probably at the end of the 19th century, when French and Belgians started to employ workers many of whom were of West African origin (Samarin 1989, 1990/1991). As pointed out by Pasch (1997: 214), “…some variant of the Yakoma language is likely to have served as a vehicular language throughout the Ubangi bend as far down as Bangui/Zongo and possibly even further downstream” even before the arrival of the Europeans. This pidginised form of Yakoma developed into a fully vernacularised in-group language for people working for the French military and administration in the area; it subsequently developed into a nativised creole, i.e. the mother tongue of people in particular in the capital Bangui. For a succinct description of the phonological and grammatical properties of Sango, also in relation to closely related languages like Ngbandi, see Pasch (1997).
who concludes (p. 260) that “Sango is the result of a series of significant changes, losses, and innovations which occurred due to imperfect acquisition of Yakoma by second-language speakers… The degree of retention is, however, lower than in many European-based creoles, some of which have retained more than 90% of their lexicon from the lexifier”.

The development of pidgins and creoles in the Caribbean during colonial times is but one socio-historical constellation which led to new languages. The Sango case again shows that there is no standard scenario for the development of a pidginised language. It seems likely that Sango was picked up as a contact medium because it already existed in a certain way as a contact medium between different local groups in the area. During colonial times in the 19th century the language developed in a new direction, because of the strong lexical influence of French. Taber (1979) reports that about half of the lexical items in running texts in Sango investigated by him go back to French. Such high numbers of loanwords presumably resulted from frequent codeswitching strategies between the Central African language and French.

Mufwene (2003) distinguishes between so-called endogenous and exogenous languages. The former have local lexifiers, which are then appropriated by outsiders brought to the area without being integrated or absorbed by the indigenous populations. For exogenous contact languages external lexifiers can be identified. This is not merely a terminological distinction. As argued by Mufwene, the difference correlates with variation in how the immigrant labourers were integrated. This difference in socialisation in turn has consequences for the way in which the pidgin evolves structurally. This applies to Lingala (as opposed to Kituba) – for example, a pidginised contact language which developed from an inflectionally rich Bantu language Bobangi. The name Lingala came to be used as a label for a riverine language spoken by the Bangala before the late 19th century (the first references to this language in historical sources going back to 1888). Rather than being one single ethnic group, the Bangala constituted a cluster of populations speaking similar languages in an area south of the Congo River bend between Stanley Pool and Irebu.

9.4 Pidginisation and creolisation rather than pidgins and creoles

From the survey above one may conclude that pidginised and creolised languages can be ordered along a scale or continuum, depending on the degree of similarity to the so-called lexifier (superstrate) language. The present approach thus is in accordance with the position taken by Mufwene (e.g. 2001), because the term creole is not structurally motivated, as creoles vary among themselves regarding almost any structural feature that is claimed to be typical of them. Pidginisation and creolisation comes in degrees, and languages can be placed along a continuum in terms of this parameter of
Swahili was the language of the coast and the offshore islands of East Africa until the early 19th century. By the mid-century, trade routes from Zanzibar west across East Africa towards Lake Nyasa and Lake Victoria as well as Lake Tanganyika resulted in a further expansion of this lingua franca. In the 20th century it further expanded throughout the region (including Kenya and Zaire). During this period also pidginised varieties emerged in Kenya, such as Ki-Hindi, the Indian language; Ki-Setla, the settlers’ language, Ki-Shamba, the plantation language, and Ki-Vita, the war language.

Nurse (1997) raises the question whether mainstream Swahili itself underwent pidginisation and creolisation. The language probably arose out of intermarriage between males from the Middle East and female speakers of Bantu languages. “Cushitic loanwords as well as phonological traits suggest that Cushitic speakers could have been assimilated into this early Swahili society […]” (Nurse 1997: 289). Thus, the dentalisation process in Northern Swahili dialects (see Chapter 7) is ascribed to the influence of a Cushitic community by Nurse (1997: 280). Also, the loss of tone or tonal accent and the development of penultimate stress may be due to this external influence. But this kind of restructuring is also common, as we saw in the preceding chapter, in situations of more or less full bilingualism. There is no direct evidence for pidginisation during the earliest period of its development (between 800–1800 A.D.). The rise of new grammaticalised auxiliaries, such as the perfective marker -me-, replacing the archaic Bantu suffix -ile, and the limited loss of agreement, may well have been due to incomplete second language learning. In pidginised languages, such changes occur within a relatively short time span. But the problem of course is that we do not have any information in the case of Swahili whether these changes occurred gradually or in a saltatory manner.

So far, there does not appear to be any evidence for Arabic influence on Swahili as spoken along the coast other than in the lexicon. For at least one variety of Swahili, it has been claimed that the restructuring took on the shape of pidginisation and subsequent creolisation. Swahili was introduced into the Congo area as a lingua franca during the 19th century when traders from the East African coasts entered Central Africa in search of slaves and ivory, amongst other things. When the Belgians claimed territorial power over the area during the last part of the 19th century, Swahili was introduced into the schools (mainly by missionaries) as well as in the army and colonial administration. Workers in the mines of what was then called Katanga mainly came from other parts of “Belgian Congo”, especially in the period between the First and Second World War. Fabian (1986: 13) argues that Swahili was imported into the Shaba region (Zaire), more specifically the Zairean Copperbelt, by a decision of the Belgian colonial administration in part in order to counter British colonial influence in the mining belt, and also in order to put an end to the use of Fanagalo, the Zulu-based
lingua franca which emerged in the mines of South Africa as well as in neighbouring areas towards the north.

De Rooij (1995) has argued in a subsequent study that Shaba (Lubumbashi) Swahili, as opposed to remaining Swahili lects in eastern Congo (Zaire), underwent creolisation. The restructured variety of Swahili developing in the Zairean Copperbelt region has a reduced agreement system on categories modifying the noun, e.g. the noun class prefix \( y \) (class 9) before pronominal possessives, regardless of the noun class to which the modified noun belongs. Also, periphrastic constructions (e.g. with negation) are used, rather than bound verbal markers, in contrast to Standard Swahili. But morphological properties were also added. Whereas Standard Swahili uses the enclitic marker \(-ni\) in combination with nouns in order to express location (\( nyumba \) ‘house, \( nyumba-ni \) ‘in/at/to the house’), the archaic Bantu locative markers have been reintroduced into Shaba Swahili (\( mu-nyumba \) ‘in the house’, \( pa-nyumba \) ‘on the house’, \( ku-nyumba \) ‘towards/at the house’), probably by speakers from neighbouring Bantu languages using Swahili as a contact medium.

What one gains from Bickerton’s unconventional, creative ideas as discussed above, is an awareness that a continuum is involved when pidginised and creolised languages emerge. A dichotomy between pidgins and creoles on the one side and other (“normal”) languages is arbitrary. It is therefore more appropriate to talk about pidginised and creolised languages, to bring out the kind of and different degrees of historical contact and corresponding substrate influence that led to their historical restructuring. There are also so-called post-creole continua. Decreolisation may fade or grow stronger. Trinidadian (English) Creole French influence reduced over the past 50 years or so. This phenomenon is comparable, from a sociolinguistic point of view, to dialect levelling, as isoglosses distinguishing such varieties are lost. Recreolisation has been found to occur in the English speech of younger people in metropoles like London who feel neglected by society. Thus, Rasta Talk functions as an emblematic sign of younger people, with the English of their grandparents of Caribbean having fewer creole features than that of their grandchildren.

Apart from the factors mentioned above, psychological factors involving the attitude towards the language spoken by speakers of the “superstrate” language or the lexical source language may affect the structural development of the pidginised language, as well as post-creole continua. Hall (1966) observes that the Chinese who learned and used Chinese Pidgin English refused to learn the foreigners’ language in its full form. Consequently, in such contact situations there may be different degrees of mutual linguistic accommodation, not necessarily leading towards an adaptation and acceptance of norms on behalf of L2 speakers.

Afrikaans has been characterised as a semi-creole. When Jan van Riebeeck, together with some 90 colonists, founded the first permanent settlement at the Cape of
Good Hope in 1652 in order to be able to provide Dutch ships on their way to South-east Asia with necessary commodities, varieties of south-western Dutch were introduced into the area as a medium. During the early years of the colony, most females did not come from the Low Countries, but instead were women from Asia speaking Creole Portuguese and Malay. Around 75 percent of the children born by these women during the first decades after van Riebeeck had established the colony apparently had a Dutch father. After 1685 more active attempts were made to attract settlers from Europe. These included not only Dutch-speaking people, but also Hugenot refugees from France who had been forced to leave their country for religious reasons. But at the same time people from Southeast Asia, the ancestors of the modern Cape Coloureds, entered the country through forced labour during the 17th as well as the 18th century. Conflicts between wandering farmers (“trek-boeren”) and Khoekhoe nomads increased during the 18th century, and the latter wandered off to regions north of the Cape colony, which in turn resulted in conflicts with San groups. Chickenpox and other diseases resulted in additional victims, also among Khoekhoe populations, and caused those surviving to become even more dependent upon colonists in the area.

The colonial communities in 17th century southern Africa spoke varieties of Dutch and Low German dialects. Jargonised forms of Dutch emerged among the indigenous Khoekhoe during the 17th century. During the next 150 years or so approximately 63,000 enslaved people mainly from Asia joined the early Cape society. It was in this polyglot society that pidginised varieties of Dutch developed into a medium for interethnic communication. A stable Cape Dutch Pidgin appears to have established itself as early as 1710 (Roberge 2006: 180). During the next 130 years or so, the colonial community was characterised by a complex pattern of lects involving a linguistic continuum from most or least acrolectal, mesolectal and basilectal, the latter bearing the imprint of the Cape Dutch Pidgin. This influence appears to have been strong in particular in Northwest Afrikaans, also known as Khoekhoe/Hottentot Afrikaans or Orange River Afrikaans. “The Cape Dutch Pidgin was characterised (inter alia) by the complete deflection of the verb, loss of the auxiliary verbs hebben [have; GJD] and zijn [English be; GJD], and the use of ge/ga [English go; GJD] as an unbound past tense marker with an invariant form of the verb stem” (Roberge 2006: 189). Similarities between Khoisan languages, e.g. the use of double negation in 17th century Dutch and in Khoekhoe, presumably contributed to it being retained in Afrikaans.

Cape Dutch Pidgin must have been extinct by 1880 (Roberge 2006: 185). But the structural metamorphosis of Cape Dutch Pidgin affected varieties that were closer to Dutch dialects as spoken in the Netherlands before it disappeared. Afrikaans thus grew out of close contact between an extraterritorial variety of Dutch and a Cape Dutch Pidgin, without itself ever having had a basilectal creole stage (Roberge 1994). Modern Standard Afrikaans indeed manifests many properties characteristic of pidginisation,
such as deflection of the verb system (e.g. the loss of the over 160 irregular verbs still used in modern Dutch as spoken in Belgium and the Netherlands): This in turn can only be explained if we assume that intensive networks existed between speakers of these different lects. Since all varieties of Afrikaans have undergone morphological simplification processes characteristic of pidginisation, we must further assume that this process had been completed by the time the first Afrikaans-speaking “Boeren” (farmers) founded independent republics such as Swellendam and Graaff-Reinet by the end of the 18th century, thereby introducing apartheid (separation) from other ethnic groups.69

Creole specialists agree that the primary language of the initial pidgin and creole speakers played a role in the formation of creolised languages, i.e. they agree there is usually substrate influence. The debate revolves around the degree of influence as well the domains in which this influence may be observed predominantly. Related to these issues is the question what caused these variant degrees of interference from the mother tongue.

Another interesting example of creolised Dutch is the case of Berbice Dutch, whose structure has come to be known primarily through the work of Kouwenberg (e.g. 1991, 1993). Berbice Dutch developed as a contact medium probably in the 17th century on Dutch-owned plantations on the Berbice River of Guyana amongst slaves and in communications with Dutch plantation owners as well as Indians (mainly Arawak). When the British took over the plantations at the end of the 18th century, many plantation owners, and with them speakers of Berbice Dutch, left for the coastal regions. As a result, Guyanese Creole became the major lingua franca in the area (Arends et al. 1995: 233), whereas Berbice Dutch lost its status as a contact language except in peripheral areas. Berbice Dutch was only spoken by a handful of speakers in the 1980s.

Although the lexical similarity of Berbice Dutch in particular to southwestern Dutch is obvious, there is an interesting influx in its lexicon as well as its grammar from at least one African language (cluster). Its lexicon includes a large proportion of vocabulary drawn from Eastern Ijo, a group of languages still spoken today in the Niger-delta of southern Nigeria. Thus, in a basic vocabulary list of 100 words, there is one Arawak word (i.e. a word borrowed from an Amerindian language), thirty eight originate from Eastern Ijo, and fifty seven from Dutch. Body part terminology derives largely from Eastern Ijo. Also, the pronominal system of Berbice Dutch is partly Dutch, partly Eastern Ijo (Kouwenberg (1991)). Both Dutch and Eastern Ijo use nominal suffixes to express plurality. As a result of a major influx of nouns from Ijo, Berbice Dutch also has a plural marking suffix which does not occur in Dutch, -apu. The constituent

69. It is interesting, and in a way ironic, to see that Afrikaans as the language of apartheid underwent such strong influence from African and Asian languages.
order of Berbice Dutch is SVO, comparable to Dutch, which has a verb-second structure, since auxiliary verbs as well as main verbs may occur in second position. The same SVO order occurs in questions in Berbice Dutch, unlike Standard Dutch, which uses a verb-initial structure in interrogatives. An example from Berbice Dutch:

<table>
<thead>
<tr>
<th>Berbice Dutch</th>
<th>you</th>
<th>wash-perf</th>
<th>your</th>
<th>hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>ju wɛf-te ju bara</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>you wash-perf your hand</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard Dutch</th>
<th>was-te</th>
<th>jie</th>
<th>handen?</th>
</tr>
</thead>
<tbody>
<tr>
<td>wash-perf you your hands</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘did you wash your hands?’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The continuity of patterns seemingly shared between these languages also extends to other constituent order patterns. According to Smith, Robertson and Williamson (1987: 64), this does not apply to the adpositional strategy. Berbice Dutch postpositions are derived from Dutch adpositions. Ijo uses postpositions, whereas Dutch uses prepositions, according to Smith, Robertson and Williamson (1987). The authors accordingly relate this postnominal strategy in Berbice Dutch to Eastern Ijo. But it should be kept in mind that Dutch also allows for this order, e.g. with verbs of motion. Compare the following examples with postpositions (or postnomial modifiers) from Standard Dutch:

<table>
<thead>
<tr>
<th>Standard Dutch</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>hij loopt het dak op</td>
<td>he</td>
<td>walks the roof op</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘he enters upon the roof’</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Consequently, the coinciding structures of Ijo and Dutch (under specific grammatical conditions) may well have led to its retention in Berbice Dutch.

What the Berbice Dutch case again shows is that languages may be placed along a continuum when it comes to restructuring and the degree of substrate influence in language contact situations, and consequently, of pidginisation and creolisation influence. Pidgins and creoles in our view do not constitute a separate category of languages. Consequently, a discussion whether some languages are creoles or semi-creoles is somewhat futile, due to the complexity of interfering factors and the continuum of language contact situations emerging as a result.

The creole specialist DeGraff (e.g. 2001, 2005) has pointed towards a widespread tendency in the literature on pidginised and creolised languages to treat these as special or abnormal linguistic creations or to claim that creole grammars are structurally exceptional. As Ansaldo, Matthews and Lim (2007: 14) observe in their innovative approach towards creole studies and their attempt to deconstruct the old paradigm,

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70. The interested reader is also referred to Lispki’s monograph on Afro-Hispanic for an exciting critique of creolistic debates.
"[e]xceptionalist scenarios that have led to the construction of the creole paradigm can only be accounted for as ideological constructs that viewed speakers of creole languages as having failed in one way or another, in respect to language evolution, language acquisition and language creation". As should have become clear from the presentation of these themes above, the present author strongly subscribes to these views. Processes which themselves are not unique to pidginisation or creolisation should not be presented as such.
Chapter 10

Syncretic languages

10.1 On so-called mixed languages
10.2 The emblematic role of syncretic languages
10.3 Special-purpose languages

More than a century ago, the British colonial administrator and linguist Robert Needham Cust made the following interesting observation:

Some years back it was laid down as an impossibility that a mixed language could exist. A mixed word-store was admitted, as it is universal, but it was denied that there could be any mixture in the grammatical structure of a language. This idea is now abandoned. In the two great vernaculars, English and Urdu, there is a mixture both of word-store and structure. In English the original Teutonic structure has become unrecognisable under the heavy burden of Latin intrusion, the Urdu vernacular is choked with Arabic and Persian accretions, and the influence of a third language, the English is now felt (Cust 1899: 27).

His statement has to be interpreted against the background of the Neogrammarian assumption, predominant in those days, that language mixing does not occur. The citation also shows that ever since the end of the 19th century at least some scholars have been aware that languages may influence each other to a considerable extent.

Another scholar and pioneer with respect to the study of pidginised and creolised languages, Schuchardt (1884), also showed that contrary to popular belief, languages do mix. His contemporary Whitney (1881) made important observations on what today would be called convergence phenomena in the Balkans. These authors were already aware of the fact that the social settings (including demographics) were potentially important for the historical development of languages.

The present chapter discusses a third type of outcome in language contact situations, next to borrowing, pidginisation, and creolisation, namely syncretisation.
10.1 On so-called mixed languages

The nature of language “mixing” has been a hot topic in the history of African linguistics, as the synopsis in Chapter 3 should have made clear. As the notion of “mixed language” (“Mischsprache” in German) was associated with racist theories, modern Africanists avoid the term altogether. An additional reason for not using the term “mixed language” of course relates to the fact that virtually all languages are mixed, i.e. influenced one way or another by other languages. As a taxonomic label for a specific type of language, the concept of “mixed language” therefore is not very enlightening.

Being aware of this aspect of the history of (African) linguistics, Bakker and Mous (1994) refer to the process of language restructuring resulting from intensive contact as language intertwining, no doubt a better characterisation, also because it suggests systematic structuring rather than just “mixing”. The 15 languages discussed in their collection, according to the editors, manifest a kind of split in their basic organisation, which is why Myers-Scotton (2002) prefers to call them “split languages”. In Dimmendaal (1995b), an alternative terminology is suggested for the kind of languages described in the collection of studies of Bakker and Mous (1994) and elsewhere, namely syncretic languages. The term is supposed to show that two languages which were emblematic for two different social identities were brought together (along lines further explained below), and also resulted in a fusion of social identities of the speakers.

By contrast with pidginised (and creolised) languages, syncretic languages characteristically do not emerge in a multilingual context, but instead come about as a result of the integration of two languages or language systems by speakers (hence the notion of syncretism). Nevertheless, here too, as with pidginisation and creolisation, we may observe different scenarios and different degrees of syncretism, in spite of the fact that essentially two languages are involved.

Within an African context, the best known case of a syncretic language probably is that of Ma‘ā in Tanzania. One of the first authors referring to this intriguing language was Whiteley (1960). Other authors on the subject are Goodman (1971), Tucker and Bryan (1974), as well as Thomason (1983). The most recent and most detailed account is that of Mous (1994, 2003). Mous (2003) notes that there are two registers in this language, referred to by the author as Inner Mbugu (Inner Ma‘ā) and Outer Mbugu (Outer Ma‘ā). Whereas the latter looks like a proto-typical Bantu language, with lexical and grammatical morphemes also attested in neighbouring Bantu languages like Shambaa or Swahili, the former contains a lexical register which is used for in-group talk. This lexicon is of non-Bantu origin. The notion “mixed language” derives from this apparent split between lexicon and grammar in Inner Mbugu. The lexicon of this latter variety of Mbugu can be shown to be largely derived from Southern or Eastern Cushitic or Maasai (Nilotic), although for several Inner Mbugu forms the origin
remains unclear. The Inner Mbugu register apparently was created through lexical manipulation by speakers of Normal Mbugu, in order to set themselves apart from their Bantu neighbours. An example from a conversation in Inner Mbugu with code-mixing (Mous 1994: 17), whereby the underlined elements are part of Normal (Outer) Mbugu and the italicised forms belong to the Inner Mbugu register, is shown below. Other elements are common to both registers. (The abbreviations K, W, I, and Z refer to different participants in this conversation.)

K: ãní ní mborâ nitेऴ jangu já uborâ
1sg cop girl 1sg:say:subj 10:mine 10:con 14.2:girl
‘I was a girl, should I talk about my childhood.’ (…) 
W: ní kuvîn bî (Inner Mbugu: kuhlaha.a ‘to dance’)
cop 15:dance only
I: temló ingî
neg:2pl:have other
Z: hàli ya kuyó
other 9:con 15:speak
‘More to say?’

Mous (2003) uses the term paralexification as a referential term for the co-existence of two lexicons. Many lexical elements in Mbugu in fact have two forms (for Inner and Outer Mbugu, respectively) with one meaning and one morphological classification. Some examples (from Mous 1994: 197):

<table>
<thead>
<tr>
<th>Inner Mbugu</th>
<th>Normal Mbugu</th>
</tr>
</thead>
<tbody>
<tr>
<td>húti</td>
<td>zujá</td>
</tr>
<tr>
<td>hlàti</td>
<td>jughua</td>
</tr>
</tbody>
</table>

From these data it is also clear that a number of earlier hypotheses on Ma’a, e.g. as summarised in Thomason (1983) should be abandoned. Thomason surmised that Inner Mbugu originated from a Cushitic language that underwent massive borrowing from a Bantu language (Pare). But as pointed out by Mous (2003), Inner Mbugu involves vocabulary in addition to a Bantu language termed Outer (Normal) Mbugu. Phrased in terms of Myers-Scotton’s (1993) model, as discussed in Chapter 8, the Outer Mbugu constitutes the matrix language, with embedded material being derived mainly from Cushitic and Nilotic. In other words, proficiency in Inner Mbugu (Ma’a) as a lexical register has always implied proficiency in Normal Mbugu.

There is some evidence from the earliest attestations (dating back to the 1930s) that there were more non-Bantu, more specifically Cushitic, grammatical features in Inner Mbugu at an earlier point. These seem to have fitted Bantu grammar from a typological point, e.g. a causative suffix (rather than a prefix).
As Mous (2003) observes, the original shift from a Cushitic language to a Bantu language is difficult to prove in the case of Mbugu (Ma’a). But data on – what seems to be – a case of parallel historical development, the creation of Angloromani, may help to understand what happened in the case of Mbugu. Boretzky (1985) has argued that Angloromani, a variety of English with a lexical register from another Indo-European language, was developed when Roma people who had switched to English as their first language and had lost their original language, Romani, attempted to restore the original language. The lexicon is often the final part of a language still available to rusty speakers or rememberers of a language. Matras, Gardner, Jones and Schulman (2009) have described this selective retention of structures from Romani in considerable detail. The current structure of Angloromani gives the impression of being the result of relexification (or paralexification), but its historical development shows that this was not just a matter of simple matrix language shift. British-inflected Romani functioned as a predecessor. The Romani-derived inflection as well as the use of prepositions, articles and clause-combining was lost at some point toward the end of the 19th century, according to Matras, Gardner, Jones, and Schulman (2009: 157), who further point out (p. 143) that “sources show a gradually increasing indiscriminate use of Romani-based and English-based predications, until finally English-based predications prevail”. Modern Angloromani consists essentially of the employment of Romani-derived lexicon within an English morphosyntactic and pragmatic framework, with some retention of grammatical forms from the ancient Romani language. Thus, the deictic expression duvva in the following example is Romani-derived (Matras, Gardner, Jones, and Schulman 2009: 167).

\[ɪ\]w\[a\]s\[ɡ\]onn\[a\]d\[duv\]a, \[ɪ\]felt like mori\[n\]i him

‘I was gonna hit this-one, I felt like killing him’

Romani is thus “enjoying a life after its death”, as the authors put it. What is important from a social point of view is the fact that Angloromani, as a special discourse device, is used as an emotive speech mood or code, expressing shared cultural values and solidarity among its users.

Before embarking upon the linguistic analysis and sociolinguistic background of Inner Mbugu, Angloromani and other syncretic languages, let us first have a closer look at another frequently quoted case of language intertwining. Michif (Met’if), a language spoken mainly in Canada today, which developed as an emblematic language of a community in the United States (North Dakota, Montana) and neighbouring areas across the border in Canada probably some time between the 1820s and 1870s when the Métis became an autonomous community (Bakker 1997: 54–61). The ancestral community of this language consisted mainly of women speaking the Amerindian language Cree, their spouses, who were French trappers or fur trading men and their offspring. But Michif apparently did not arise during the early period of French-Indian
intermarriage. As argued in Bakker (1997), the impetus for its emergence was the fact that the bilingual Métis were no longer accepted as Indians or French and they started formulating their own ethnic identity, which was mixed and which also included a language of their own.

In contrast to Ma’a, we do not find two distinct lexical registers in use in Michif, but instead an interesting split between the verbal and nominal systems of the same language, as the following examples from Bakker (1997) help to show:

\[
\begin{align*}
\text{ni-nitawéyiht-ánân} & \quad \text{une} \quad \text{battery} \\
\text{kâ-le-charg-er-t} & \quad \text{REL.-the-charge-INF-3SG.AN} \\
\text{'we need a battery charger'} & \\
\end{align*}
\]

As these examples make clear, the case of Ma’a versus Michif involves different types of “mixing,” or syncretisation (as this process essentially involving two, rather than several, languages is called here). In the case of Michif, the old language, Cree, constituted the source of the verbal system, whereas French, as the new language, constituted the source of most nominal systems (nouns plus nominal modifiers). In addition to the verbal complex, deictic elements such as demonstratives, postpositions and pronominal forms as well as question words in Michif have their origin in Cree. Adverbs and quantifiers are derived from Cree and French, and numerals again are from French.

Central to the present author’s structural analysis of languages like Michif (as well as others, e.g. Mednyj Aleut and Gurindji Creole discussed below) is a notion developed by Nichols (1986), namely head marking and dependent marking. Languages which are head marking at the clausal level typically express syntactic relations like subject, object and other functional notions on the verb. Dependent-marking languages mark such functions on syntactic arguments of verbs, i.e. on noun phrases and pronouns, e.g. by way of case. Alternatively, languages may use double marking (i.e. a combination of the two strategies, both on the verb and on syntactic arguments) or zero marking (instead using constituent order to express syntactic relations). As argued in Dimmendaal (1998b), for languages which are head marking at the clausal level, the verb constitutes the core element which is retained from the “old” (matrix) language after nominal grammar from the new language has been integrated in an emerging syncretic language. This, presumably, is what happened in Michif, where verbs constitute potentially independent utterances. This kind of “embedding” involves a slightly more abstract notion of dependency relation than propagated in Myers-Scotton (1997). It is more in line with the model defended in Muysken (2000), where an approach involving the government of specific constituents over other constituents inspired by Generative Grammar (more specifically, the theory of Government and
Binding) is argued for. As pointed out by Muysken (2000: 20–21), "[t]ypical cases of government would be case assignment, as in the Latin example [...] ad urbem 'to the city' [...]}. The Latin preposition ad takes an accusative complement (-m)." And (p. 21): "syntactic constituents are endocentric, i.e. [...] their properties derive from those of their head [...] the internal constituency of a verb phrase in terms of number of objects derives from the properties of the verb" as the head of the clause. In the present author’s view, the clausal head in a language like Michif is based on an Amerindian language, Cree, whereby (syntactically optional) elements governed by the verb, such as noun phrases borrowed from French, were grafted upon such Cree structures.

The case of Mednyj Aleut (the name Mednyj being derived from the Russian word for 'copper') illustrates another possible scenario for linguistic restructuring. This language and its historical origin has been described by Golovko (1994), who points out that Russian seal hunters and fur traders intermarried with the local population of Aleuts, who speak a language belonging to Eskimo-Aleut. Golovko (1994: 117) contends that the roots for Mednyj Aleut may be found in a "game" among adult Aleuts learning the Indo-European language Russian, which then became a secret code, and was subsequently conventionalised. The present author’s analysis of the Mednyj Aleut system is in accordance with Myers-Scotton (2002: 265), where it is claimed that the matrix language was Aleut, the embedded language Russian (gradually?) taking over slots in the frame. But, the turnover to Russian as the matrix language was stopped. Why this happened in Mednyj Aleut, or Michif for that matter, when in the case of Angloromani or Ma’a the turnover did not stop “halfway,” is an issue further addressed below in the discussion of Gurindji Kriol. The explanation, it is argued, is not linguistic in nature, but rather derives from the special emblematic role these languages played.

Mednyj Aleut incorporated finite verb morphology and the pronominal system (mainly) from Russian, whereas the lexicon and the rest of the grammar derived from Aleut, as the following example should help to illustrate. In this example, Russian elements are written in italics, and the Aleut components in roman letters:

\[
\text{yesli by oni ukaala-ag/aa-l-i huzu-um by txichi qala-chaa-l} \\
\text{if subj they here-move-pst-pl all-refl subj refl.pl be.glad-caus-pst} \\
\text{‘if they came, everybody would be glad’}
\]

Finally, the case of Media Lengua in Central Ecuador, a speech variety described by Muysken (1994, 2000) is mentioned here. The grammar and phonology of the Amerindian language Quechua provided the matrix language framework for massive reflexification towards Spanish in this language. The community using Media Lengua is found in villages intermediate between the urban Spanish speaking centres and the mountain slopes, where Quechua is the first language. Younger Media Lengua
speakers may have Spanish as their first language, whereas for some older speakers Quechua may be the primary means of communication. Media Lengua has Quechua grammatical morphemes, e.g. negation markers, personal pronouns, question words, case markers, tense-mood-aspect, and conjunctions. These were retained in the newly created language whenever they were bound (clitical as well as affixal) morphemes. Corresponding free grammatical markers were replaced by Spanish markers. Also, restructuring under the influence of Spanish occurred, e.g. in that prepositions were added to Media Lengua. This process probably took place during the late 19th century. The following sentence (adapted from Muysken 2000: 266) illustrates this interesting embedding of Spanish in a Quechua matrix language frame:

<table>
<thead>
<tr>
<th>Language</th>
<th>Word 1</th>
<th>Word 2</th>
<th>Word 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media Lengua</td>
<td>ubixa-buk</td>
<td>yirba</td>
<td>nuwabi-shka</td>
</tr>
<tr>
<td>Quechua</td>
<td>llama-buk</td>
<td>k’iwa</td>
<td>illa-shka</td>
</tr>
<tr>
<td>Spanish</td>
<td>no</td>
<td>hay</td>
<td>hierba par alas ovejas</td>
</tr>
</tbody>
</table>

What this brief survey of frequently quoted cases of syncretic languages should make clear is that they do not constitute a homogeneous set. The Media Lengua case is rather similar to the Ma’aa or Angloromani case, but differs from that of Michif and Mednyj Aleut with respect to the grammatical impact or embedding from another language.

Sentences in particular in languages like Inner Mbugu or Media Lengua above are reminiscent of intra-word codeswitching of the type described in Chapter 8. However, Thomason (1997: 464) contends that codeswitching is not the only mechanism behind the creation of languages like Inner Mbugu. Code alternation (the use by the same speaker of two different languages, but in different settings) requires passive knowledge of another dialect or language. But the structure of the syncretic languages discussed above can only be understood if one brings in an additional observation, namely that changes were brought about by speakers’ deliberate decisions. It seems likely that both codeswitching and deliberate decisions by speaker-individual creativity were operative, as observed in Thomason (2003: 34). The latter factor would seem to be evident both in the quantity of vocabulary and grammar replacement as well as in the type of replacement, which also affected basic, everyday vocabulary.71

The relevance of codeswitching as a mechanism behind the emergence of the Michif language is denied in Bakker (2003: 129); similar views are expressed in Mous (2003). Indeed, in a contemporary analysis Michif cannot be an instance of codeswitching.

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71. Deliberate decision-making or the “negotiation” of new language structures is also evident in languages developed in modern metropoles across the African continent, as shown in the next section.
or codemixing (Bakker 1997: 22), since Michif speakers rarely speak both Cree and French. But one cannot simply project this situation onto the past. After all, all sources seem to indicate that Michif was created by individuals who spoke French and Cree. Bakker no doubt is right in claiming that it is not the entire story, as it is not in the case of Angloromani or Mednyj Aleut. Indeed, in all cases discussed above, creating a symbol of in-group cultural identity through language manipulation appears to have played an important role in the creation of such syncretic languages. Moreover, it is useful, as Matras and Bakker (2003) propose, to distinguish between the optionality of insertion of phrases in codemixing (codeswitching) as opposed to the conventionalised use of elements from another language, as in Michif; compare also Thomason (2003: 27–33) who points out that the mixture in Michif (noun phrases for the rest of the language) matches codeswitching patterns in Moroccan Arabic-French switching. As no data were recorded at the time syncretic languages like Michif or Maà were created, we do not know how much codeswitching was involved at the time. But in a recent study on the Australian language Gurindji Kriol, McConvell and Meakins (2005) have argued that such language structures can indeed emerge from codeswitching. Gurindji Kriol is a language spoken across the middle of the Northern Territory, Australia. According to the same authors, “[English-based; GJD] Kriol provided most of the syntax, and the tense-aspect-mood and transitivity morphology, and Gurindji, the aboriginal language in the west of this region, the case-morphology on nouns and pronouns, as well as much of the nominal lexicon and many of the coverbs taking the role of verbs” (McConvell and Meakins 2005: 9). The authors hypothesise that this structure is due “…to the most frequent and salient input to child learners from adults in the 1960s–80s, combined with declining proficiency in traditional Gurindji among most young people” (p. 9).

Young Gurindji people apparently cannot produce alternational codeswitching, as they no longer have full command of Gurindji as used by older speakers. But studies by the first author, Patrick McConvell, in the 1970s show that both Gurindji and Kriol were found as matrix languages, i.e. as languages controlling the morphosyntactic frame, the choice being nested in “a configuration of social arenas” (McConvell 1988: 131). Some 30 years later, an increase in homogeneity and stability has occurred, neatly showing the transition from codeswitching in the previous generation to its current structure of a syncretic language.

According to McConvell and Meakins (2005), the creolised version of English as used in the area constituted the matrix onto which nouns and nominal material was grafted. But in a strongly dependent-marking language, it is to be expected (following the analysis proposed in Dimmendaal 1995b) that the latter language, in this case...
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Gurindji, sets the frame. Gurindji Kriol is still characterised by ergative case marking, though less regularly in SVO as against other constituent order types. In dependent-marking languages the “centre of gravity”, as McConvell and Meakins (2005: 14) put it, is in the nominal arguments. Locational and directional as well as dative case markers are from Gurindji, although a few Kriol prepositions are used as well, whereas Gurindji verbal material for tense, aspect and mood derives from (English-based) Kriol.

What the case studies above (and a number of other languages discussed below) show is not only that two (rather than several) genetically unrelated languages appear to have played a role in their genesis, but also that highly specific social circumstances gave rise to their formation.

10.2 The emblematic role of syncretic languages

The social conditions under which syncretic languages prototypically emerge is rather interesting. What the communities developing these fascinating communication channels appear to have in common is a desire for the emblematic use of manipulated languages, created through a “negotiation” of specific language structures. The deployment of these languages is a manifestation of an “act of identity” (a concept introduced by Le Page and Tabouret-Keller 1985). Consequently, such languages function as distinctive badges for their separate identity halfway between two social groupings. This appears to apply to all cases discussed above, Anglo-Romani, Gurindji Kriol, Ma’a, Mednyj Aleut, and Michif. According to McConvell and Meakins (2005: 16), there is no evidence that Gurindji Kriol emerged as the result of conscious invention or deliberate decision-making on the part of the community. On the other hand, there is evidence that the successful struggle for land rights in the 1970s did result in boosting self-esteem, “and the resultant desire to mark Gurindji identity linguistically may have affected the course of language shift and motivated the maintenance of a mixed language” (McConvell and Meakins 2005: 28).

Of course, one cannot simply deduct from the detailed historical survey and genesis of Gurindji Kriol that languages like Michif or Ma’a originated under similar circumstances. But – what would seem to be – highly similar social conditions and similar structural-linguistic outcomes do at least call for reflection.

Why should one dedicate several pages in a monograph on the comparative study of African languages to languages spoken outside the continent? First, in order to show that grammatical structures as attested in Ma’a again are part of a continuum involving language restructuring in contact situations. Second, because it cannot be excluded that languages similar to Michif, Mednyj Aleut or Gurindji Creole in fact may be found on the African continent, as the next example should help to make clear. Some varieties of Songhay in West Africa in fact may have developed as emblematic
languages this way. These are Songhay varieties strongly influenced by Berber, more specifically Tihishit in central Niger (spoken in two varieties, Tagdal and Tabarog), Tadaksahak in northern Mali (around Menaka), Korandje on the Algeria-Morocco border at Tabelbala, and Tasawaq(u) in northern Niger. They all appear to have been influenced by different varieties of Berber.73 Unfortunately, the data available at present do not allow for more conclusive observations.

The following table, reproduced from McConvell and Meakins (2005), summarises their views on the sociolinguistic position of Gurindji Kriol in comparison with syncretic languages like Michif and Media Lengua.

Table 23. Syncretic languages and their socio-historical background
(McConvell and Meakins 2005)

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Michif</th>
<th>Gurindji Kriol</th>
<th>Media Lengua</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current socio-linguistics:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy/</td>
<td>Independent of</td>
<td>Completely</td>
<td>Partially</td>
</tr>
<tr>
<td>languagelessness</td>
<td>both source</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>languages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native language of community of</td>
<td>Separated</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>speakers</td>
<td>ethnic group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native language of community of</td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>speakers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes/evidence it is not CS</td>
<td>New language</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>adapted to old</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innovation in</td>
<td>?Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>mixed variety</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insertions from</td>
<td>?Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>new language</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source split</td>
<td>Etymological split</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>dominant, not</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>marginal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More than one</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>linguistic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>parent</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Myers-Scotton ‘split languages’</td>
<td>Grammatical</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>structure from</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>both sources</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Composite structures in</td>
<td>?Yes</td>
<td>?Yes</td>
</tr>
<tr>
<td></td>
<td>at least one</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>component</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Origin socio-linguistics</td>
<td>Emerged from</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>bilingualism</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nicolaï (1990) argues that certain varieties of Songhay emerged as creolised Berber under the strong influence of neighbouring Mande languages. There is indeed clear cut

73. Such languages may in fact be more common in Africa, with the current assessment simply being based on our poor knowledge of this phenomenon.
areal influence from a range of different languages on various Songhay lects spoken along the Niger River as well as adjacent zones in West Africa. Nevertheless, a creolisation process for Songhay as a whole does not appear to be very plausible. There are various indications that Songhay is not pidginised (or creolised) Berber, as argued by Dimmendaal (1992). For example, its basic vocabulary is not Berber (or Afroasiatic) in origin. Also, pidginised (and creolised) languages typically emerge in a multilingual (rather than a bilingual) setting. The Songhay Empire once covered huge areas in West Africa, with networks of trade routes in different directions. As a result, there were also contacts between speakers of Songhay with neighbouring groups, some of which possibly gave up their earlier language in favour of (a variety of) Songhay. In the north, there were contacts with Tuareg (Berber) people, who obviously played an important role as tradesmen in the trans-Sahara routes. The numerous borrowings into Hausa, for example, attest to this (Kossmann 2005). No doubt, intermarriage also played a role in these interactions between groups speaking two different languages (a variety of Berber and a variety of Songhay). Traditionally, there are considerable differences in cultural behaviour between Songhay people on the one hand and Touareg (Berber) on the other. It is exactly in newly emerging societies with links towards two distinct cultural traditions that syncretic languages may emerge. Although this hypothesis has to remain conjectural for the time being, as no explicit data appear to be available as yet, it may well be that the northern Songhay lects underwent a restructuring as a result of congruent lexicalisation similar to languages like Gurindji, Michif or Mednyj Aleut, thereby resulting in a language "half-way" between two languages, and serving as a salient marker of distinct ethnic identity. With congruent (or composite) lexicalisation, the matrix language may be a composite of features from more than one (usually two) languages. It involves a situation where the participating two languages share a grammatical structure which can be filled lexically with elements from either language. Such situations presuppose not only shared subcategorisation frames of functional (grammatical) morphemes, but also identical linearisation (constituent order) rules for constituents.74 The choice between the two interacting language systems is determined by sociolinguistic and psycholinguistic factors as well as by the grammatical structures of the languages involved.

In the case of Gurindji, earlier data show that codeswitching was indeed characteristic for the intermediate stage. Congruent lexicalisation and alternation involve symmetrical systems and are characteristic for this intermediate stage, whereas insertion (the third type in the typology of Muysken 2000) involves an asymmetrical model, where one of the two languages constitutes the matrix language setting constraints on the kind of insertion. It would seem that Gurindji, but also Angloromani as described by Matras,

---

74. Material from different lexical inventories into one shared grammatical structure of course is also attested in style shifting between a standard language and dialects (Trudgill 1986).
Gardner, Jones and Schulman (2009), went through this historical stage from congruent lexicalisation and alternation (involving predications from two matrix languages) to insertion (involving one matrix language). What looks like a turnover (“U-turn”) towards a new matrix language with embedded material as a special register from an earlier language spoken by the community, as with modern Angloromani, in that case would be nothing but the end result of a much more complex historical process. With this in mind, we may also be misled by the “Gestalt” through which modern Inner Mbugu manifests itself to us, namely as a radical turn over from a Cushitic to a Bantu language. As with Gurindji Kriol, it may well have gone through a stage where two languages (a Cushitic and a Bantu language) were controlling the morphosyntactic frame as matrix languages. The fact that there were more non-Bantu, more specifically Cushitic, grammatical features in Inner Mbugu at an earlier point is an indication that there was indeed such a stage, followed by loss of one of the contributing languages (the Cushitic language), e.g. through a disruption of contacts with the group that only spoke the Cushitic language.

10.3 Special-purpose languages

Syncretic languages discussed above have all turned into the mother tongue of specific groups. Alternatively, we find languages which function as sociolects or social registers expressing conscious social and linguistic opposition. They have also been referred to as antilanguages, a term coined by Halliday (1978: 164). Urban youth languages belong in this latter category.

One of the first youth languages described in the scientific literature is a variety of Swahili in Nairobi (Kenya), Sheng, which developed in the Eastlands area of this metropole, probably initially among teenagers. The name Sheng is an acronym, derived from Swahili plus English slang. “The most common morphological structure of Sheng is the affixation of Swahili affixes to roots that are drawn from Kikuyu, Dholuo, English, and other donor languages […]. Coined words are similarly given Swahili affixes […]. However, there are no coined affixes in the language”, as Abdulaziz and Osinde (1997: 56) observe. The following examples (adapted from Ferrari to appear) illustrate these strategies:

\[
\begin{align*}
\text{u-na-give} & \quad \text{thanks} \quad \text{god} \quad \text{juu} \quad \text{ni} \quad \text{yeYe} \\
\text{2sg-pres-give} & \quad \text{thanks} \quad \text{God because be he} \\
\text{a-na-ku-pa} & \quad \text{nguu} \\
\text{3sg-pres-you-give} & \quad \text{strength} \\
\text{‘you thank God, because it is him who gives you strength’}
\end{align*}
\]

By contrast, Engsh developed in the more prosperous Westlands area of Nairobi has English as the matrix language which “…provides most of the grammatical frame-
work within which words from other languages are blended” (Abdulaziz and Osinde 1997:49). Typical phonological processes operating in African youth languages, like apocope, aphaeresis, and semantic manipulations involving hyperboles, metaphors or the use of dysphemisms, have been described for Sheng by Ferrari (to appear).

Kießling and Mous (2004) present a general survey of such urban youth languages serving to set speakers apart from the rest of society (e.g. older generations, rural populations, upper class groups). In this respect, they differ from other types of special-purpose languages. As the authors further point out, not only is there a functional difference between the urban youth languages and other types, they also differ in the use of certain strategies.

Additional examples of African youth languages are Nouchi, an antilanguage spoken in Abidjan (Ivory Coast), and Camfranglais in Yaounde and Douala (Cameroon). The latter has been described by Chia and Gerbault (1992) as one of the icons or urban youth culture next to music or personal outfit. Indoubil (based on Lingala) and its successor Lingala ya Bayankee (“the Lingala of the Yankees”), which spread through urban centres in Congo (Zaire), is an additional example of such antilanguages, as is Iscamto in Johannesburg (South Africa), which has Zulu as its matrix language.

In all these register-like languages, conscious language engineering appears to be involved, i.e. speakers are controlling the language. These speech varieties contain special vocabulary, and phonological features that are emblematic of non-conformity to social norms in a community. Their creation suggests the presence of, what Labov (2001a: 382) has called saccadic leaders (from Old French *saquer* ‘pull (violently)’, in these cases language engineers who are remodelling the language. The function of the youth language itself is to defy the linguistic norm; yet the way this is established is by rapid and continuous renewal of antinorms, and so there is a paradox of norms. To speak the youth language well means to be aware of the latest norms” (Kießling and Mous 2004:314).

Codeswitching between English and Swahili of the type described for Nairobi by Myers Scotton (1993) “plays a significant role but […] in itself is insufficient to describe and explain the phenomenon of urban youth languages”, according to Kießling and Mous (2004:304). From a linguistic point of view, a range of strategies may be observed, some of which are illustrated below. Apart from lexical borrowing from a range of regional or international languages, we find phonological and morphological manipulation, as well as semantic modifications. In order to give words a “Bantu flavour”, prenasalised clusters have been created in Camfranglais, for example. Thus, *gai* ‘cheerful’ becomes *nge*. Compare also the suffixation of English morphemes to non-English words:

<table>
<thead>
<tr>
<th>Camfranglais</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>lague-ing</em></td>
<td><em>lague</em></td>
</tr>
<tr>
<td><em>tch-man</em></td>
<td><em>sell drugs</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nouchi</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>tch-man</em></td>
<td><em>collaborateur</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Jula</th>
<th>Jula</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>ce</em></td>
<td><em>vendre</em></td>
</tr>
</tbody>
</table>
In francophone areas of Africa, French derivational suffixes actually are more common, as in the following example from Nouchi:

\[ gban-eur \quad \text{Jula} \quad gban \quad \text{‘heat’} \]

Semantic manipulation with the function of exaggeration or ridicule is another characteristic of such newly created languages. The occasional hyperbolic nature can be grasped from the Nouchi word for ‘one-liter bottle of beer’, *basilique*. Dysphemism as a semantic strategy is found in the Nouchi word used for ‘wallet carried in front of the belly or in a front pocket’, from *bedon* ‘paunch, pot-belly’. 75

According to Kießling and Mous (2004), these youth languages constitute a taxonomic category of their own for a number of formal and functional reasons. The deliberate manipulation of existing codes indeed appears to be strongest in antilanguages. Contrary to what has been observed for reverence languages (e.g. so-called (mother) in-law languages), there appears to be a lot of lexical fluctuation, for example; moreover, the poetic (artistic) and provocative function appears to be crucial. Contrary to the social identities expressed in guild and reverence languages (including the language of specific professional and caste-like groups as well as special languages used by secret societies), speakers of youth languages typically are able to choose whether to select the “anti” way of life and the linguistic etiquette associated with it, according to Kießling and Mous (2004). But this is presumably a matter of degree. Dress codes for youths in urban centres would seem to be rather strict or binding, unless one decides to be an outsider. Assuming, on the other hand, as the authors appear to do, that members of casts are trapped in their own traditions, would rather seem to be an outsider’s interpretation of cultural freedom, not necessarily shared by members of such caste-like groups.

Kube (2003:115), states that Nouchi has been adopted by larger portions of the urban society in Abidjan (Ivory Coast), as an emblematic sign of urban progressiveness. Childs (1997) reports a similar tendency for Iscamto in South Africa. We thus observe not only the loss of certain languages in particular in urban areas, but also “an enormous acceleration of linguistic change” (Kießling and Mous 2004:334), resulting in the creation of new languages in the same cultural context. Youths and young adults in many urban African centres thus tend to create their own languages in order to set themselves apart from the older generation. Mugaddam (to appear) shows how younger people from different social backgrounds in Khartoum manipulate language to serve their own communicative functions. Three social groups namely, university students, Regsha drivers and street boys, were chosen for the purpose of his study.

75. The existence of dense, multiplex networks in groups speaking stigmatised varieties of a language presumably helps to maintain the stability of these linguistic forms. In a way, this parallels findings with respect to dialect variants, e.g. of English in Ireland.
Intensive interviews were conducted to collect data on the language these groups use in their daily communication, known publicly as Randok. The analysis shows that Randok has almost all of the features of Halliday’s antilanguages: The creation of new words for old ones, overlexicalisation, orientation towards the foregrounding of social values, and secrecy. Interestingly, street boys, classified as having the lowest social status, appear to be the main initiators of youth language in Khartoum. Their language finds its way to the Regsha drivers, university students and the Khartoum speech community at large through networks of relations between individuals from different social and economic backgrounds. The formal and semantic properties of this antilanguage show clear parallels to Indoubil, Nouchi, Sheng and other youth languages. Apart from coinage (i.e. invention of new words such as *shirteet* for ‘money’), one finds affixation of Arabic suffixes to English words in Randuk:

- *yadabis* ‘be depressed’ (English depressed)
- *yantakis* ‘take a taxi’ (English taxi)

Formal properties include metathesis (loof instead of fool for ‘beans’). Semantic manipulation includes metaphorical and metonymic extension (*sargeel* ‘kind of worm’ for ‘train’, or *kalama* ‘speaker’ for ‘mobile phone’), synecdoche (*jirsa* for ‘coward; after Sayyid Jirsa, the name of a comedian in a television drama who always complains and fears), hyperbole (*algadah* ‘huge bowl’ for ‘market’), dysphemism (*shawal faham* ‘sack of charcoal’ for ‘police’). Mugaddam (to appear) uses the term “community of practice” (after Eckert and McConnell-Ginet 1992) for the different social groups involved. Becoming a member of a community of practice of streetboys interacts with the process of gaining control of the discourse appropriate to it. The (partly) secret lexical codes of streetboys and regsha drivers are copied by other speakers of Sudanese (Khartoum) Arabic, e.g. in the news media. In contrast to the situation in American metropoles as described by Labov (e.g. 1994), the initiators of language change in a metropole like the greater Khartoum area are not central figures with their social networks, but rather individuals who would be considered marginal members of the society.

In an impressive survey of literature on the topic, Storch (to appear) describes another fascinating aspect of linguistic diversification caused by social factors, more specifically ritual communication in Jukun speaking communities, in central Nigeria.  

**Jukun languages are Benue-Congo languages most closely related to Plateau, Kainji and Tarok. Jukun has attracted some interest from linguists, as it exhibits a considerable variety of types of noun classes and number-marking devices (Welmers 1968; Shimizu 1980; Storch 1997, 1999), whereas morphosyntactic structures in the other word classes**

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76. Ritualisation of communication and ritual contact (linguistic exogamy) has been explored in considerable detail by Aikhenvald (2003).
as well as word order patterns are largely uniform. Most of what is now classified as Central/Northern Jukunoid covers an area that was the heartland of the Sudanic kingdom of Kororofa until the early 19th century. Storch (2009) shows how the use of created speech registers has affected grammar in different Jukun languages. "Ritualised contact between the Jukuns and their allies or between the divine king and his subjects include the use of speech registers and secret languages that may be of considerable age in some cases", as pointed out by Storch (2009: 300). The technique of affix change and deletion, as well as affix invention, characterises a large number of nouns that denote tabooed objects and borrowed nominal vocabulary in manipulated Jukun languages.

Whereas Northern Jukunoid languages, for example, have noun-class prefixes, these have been turned into suffixes or circumfixes in the secret language of the Hone.

The extensive discussion of language manipulation in these and other African languages by Storch (to appear) further shows that modern urban youth languages constitute a continuation or extension of ancient traditions of language manipulation, whereby different groups restructured their languages in order to construct different social identities. Those who adopt a particular group as a reference group, and wish to acquire the social attributes of that group, adopt the form of the speaking characteristics of that group.

Whereas in the present and preceding chapters "balanced language contact" figured prominently, the next chapter discusses so-called "displacive language contact", as it is called in Aikhenvald (2006). In the latter situation, a dominant language imposes its structural properties, whereas the vanishing language tends to become simplified, i.e. contraction and attrition occurs, before it becomes obsolescent altogether. How and why such processes may occur is discussed next.
Chapter 11

Language contraction and language shift

11.1 Language contraction

Stable societal bilingualism is based upon social compartmentalisation of functions of the respective languages involved. In this respect, it is useful to make a conceptual distinction between additive bilingualism and subtractive bilingualism as introduced by Lambert (1975). The former situation occurs when speakers of a particular language (L1) in addition learn another language (L2), while maintaining their first language. This applies to speakers of local and regional languages in countries like Sudan, e.g. when children are introduced to these languages in primary education. Subtractive bilingualism emerges when the acquisition of L2 is accompanied by the replacement of L1. This latter process may be observed today in many urban centres like Khartoum. Children growing up in urban areas may not be sufficiently exposed to their parents’ first language to be able to acquire it. As shown by Miller and Abu-Manga (1992), for example, second-generation migrants in the larger Khartoum area (Sudan) hardly acquire the first language of their parents. With Arabic being the national language...
of the country as well as being the most widespread lingua franca of the country, and with education being in Arabic, the instrumental role of Sudanese Arabic in gaining social or economic reward is evident. There is a clear cut tendency among the citizens of Khartoum to use Arabic as the first language, also because it often happens to be the only common language shared in daily interaction with others in the capital or elsewhere in a country like Sudan, where over 120 different languages are spoken.

The motivation to transfer the parents’ language to younger generations and to learn the primary language of the parents depends on the teacher’s and learner’s positive attitude towards this language and the corresponding integrative role individuals attach to a language. There are, for example, differences in language solidarity between the various ethnic groups in Sudan in this respect, as shown by Miller and Abu-Manga (1992). The desire to integrate into a specific language community, and to speak the parents’ language, or to admire the culture and fulfill the desire to become familiar with or even integrate into the society in which the language is still used, are all important factors determining one’s attitude towards a specific language. Also, whether an individual is prepared to put the commitment into practice, i.e. learn the language, is another matter. Migrants from southern Sudan adhere more to their languages than people from Darfur, the Nuba Mountains or northern regions, when moving to the capital Khartoum. Other factors, such as the presence of a sizeable community, gender, marriage patterns (e.g. degree of exogamy, males may out-marry more than females, or vice versa), the period of residence, or social networks clearly are important as well, although there are always individual factors such as age or socio-economic mobility, which determine attitudes, and which are themselves liable to change over time as well. As Clyne (1991) has shown with respect to immigrant communities in Australia, cultural distance is another factor. Also, religion or the language policy followed by governments does affect the relative stability of languages. Assessing the vitality of an endangered language can be complicated as there is sometimes a mismatch between beliefs and actual language behaviour. In other words, even if people find it important to maintain their language, they may not act accordingly (e.g. by teaching the language to their children), because of the limited benefit they expect from this. Moreover, interviews do not necessarily disclose their actual language attitudes or views when answering questionnaires.

Shifts in the instrumental and integrative role of languages presumably have been part and parcel of the cultural history of most African regions and localities for millennia. In addition, the public administration and educational policy of states strongly influences the attitude of citizens towards languages these days. But, whereas in the Americas and Australia language loss is due primarily to the dominant role of languages like English or Spanish, these languages or other European languages seem to play a less important role in an African context. More often than not, a shift towards
other regional languages, in particular lingua francas, results in the obsolescence of minority languages. This effect may be observed, for example, with respect to lingua francas like Hausa in northern Nigeria, or Ewe and Akan in southern Ghana, which are gradually replacing other languages in the area. At the same time, the role of national (or official) languages seems to be increasing in situations where language shift occurs. For example, Amharic (Ethiopia), Arabic (Sudan) and Swahili (Kenya and Tanzania), but also creolised varieties of English such as Nigerian Pidgin English, are becoming the primary language of more and more individuals.

People in urban centres across Africa may feel that it is important for the younger generations to learn the parents’ language. But it does not necessarily mean that they behave accordingly and start teaching the language to their children. One practical reason of course is that quite often there are no teaching materials available, a requirement if the language cannot be acquired through day-to-day interaction. There may thus be a discontinuity between attitudes and actual language use or language behaviour. Obviously, not only the status of a language, or its demographic backing up (i.e. the number of speakers and their networks), but also institutional support as manifested in the language policy of a country are important factors enhancing language stability. The subjective assessment by speakers is crucial as it will contribute directly to the attitude, and result in either subtractive or additive bilingualism, as shown by Rouchdy (1989) for Nubian languages in Egypt.

Migration in the 19th-century or early 20th century differed from migration today, because of the new media, which may help to enhance language stability. But there are clear differences in ethnolinguistic vitality beliefs. In a European context, where language and state have become isomorphic over the past four centuries or so, the association between language and social identity (or ethnic affiliation) of course is quite strong. But as Leyew (2003: 264) points out, common ancestry is a more significant indicator of identity among the Kemant in Ethiopia, for example, than their language. Adherence to the language is not determined by the level of proficiency in the Kemant language. Instead, loyalty to the traditional religion goes hand in hand with loyalty to the Kemant language.

Incomplete acquisition and restricted use of a language by speakers tend to result in a reduction of the phonological and grammatical structure of a language. In this sense, language contraction is similar to pidginisation processes of the type described in Chapter 9. But there are also a number of important differences. Dying languages and pidgins by definition move in opposite directions, involving a decrease versus an increase in use. Pidgins are typically “emergency languages” created mainly by adults who interact in a rather restricted sense. Pidginisation often results in the emergence of a conventionalised speech form, i.e. a creolised version, in due course. Accordingly, the manner of acquisition between pidginised languages and dying languages is
different as well. Also, dying languages undergo structural contraction and ultimately may become obsolete. Moreover, there is a rather different cultural and political network involved in the case of pidginisation versus language contraction. Pidginised languages typically serve a purpose in communication beyond family or in-group intimacy. Using a vanishing language for private or domestic functions, even in a restricted manner, is a way of expressing loyalty or pride in a common cultural heritage. Here we observe a strong contrast between language as a tool, as with pidgins, versus language as a symbol of blood relationship, loyalty, or social identity in the case of endangered languages. Whereas pidgins may develop into standardised creoles, e.g. by becoming the mother tongue of individuals, the structure of endangered languages tends to be subject to gradual reduction. This presumably is why scholars like Trudgill (1978) have called language reduction, i.e. the linguistic manifestation of language contraction or obsolescence, “creolisation in reverse”.

Because of its role in informal situations between people sharing close personal ties, knowledge of the obsolescent language may become an important symbol of loyalty and group identity even for those who are semi-speakers. Semi-speakers’ competence thus often has an interactional rather than an informational value, as argued by Dorian (1981) in her pioneering and detailed study of a vanishing Celtic language, the East Sutherland variety of Gaelic in Scotland. As shown by the same author, semi-speakers are usually accepted by fully competent speakers as members of the speech community. Dorian (1981) distinguishes between full or fluent speakers, semi-speakers (often acquiring the vanishing language in childhood and mostly at home for domestic purposes), rusty speakers (suffering from loss of proficiency in the abandoned language), and passive bilinguals; passive bilinguals cannot make an intelligible sentence from the sometimes considerable number of isolated words they know. A switch in target language results in language decay or linguistic disintegration, especially among rusty speakers or “forgetters”. At the terminal stage we may only find rememberers.

Sasse (1992b) refers to historical events which lead to the uneven distribution of languages in multilingual settings as their external setting. Relevant factors leading to endangerment usually are a mixture of sociological, economic and cultural-historical factors. An investigation of the external setting also involves the study of speech behaviour among different generations in different social settings, in other words: “Who speaks what language to whom and when?”

77. The same process can of course be observed with dialect levelling in countries where one variety of a language has been promoted to that of national language, as is common in most modern states. Those who decided to switch to the standard variety of a language may codeswitch to their local dialect in order to express group solidarity. Others, however, may not want to be reminded of their “dual identity”.

77.
One of the rare detailed accounts of a vanishing African language, also from a sociolinguistic perspective, is Leyew (2003) on the Cushitic language Kemant in Ethiopia. Today, there are fluent speakers, but very few semi-speakers. Only 1% of the population still speaks Kemant fluently, the remaining population being more fluent in the national language of the country, the Semitic language Amharic, with no speakers being monolingual today. A gradual replacement process occurred from the 13th century onwards, when Kemant people became bilingual in Kemant and Amharic (Leyew 2003: 54). Mass conversion to Christianity took place in the second half of the 19th century and, in a second phase, in the 20th century. This rapid process left little room for overlapping bilingualism, as the traditional religion and the language associated with it came to be "considered backward in every aspect of life" (Leyew 2003: 59). Kemant consequently essentially became a stigmatised language, associated with an affiliation to the traditional Kemant religion. The switch towards Amharic started in urbanised areas and then moved on to rural areas.

In his investigation of Kemant as a vanishing language, Leyew not only assessed attitudes towards Kemant, but also language competence across different generations. Dramatic effects can be found in the grammar and the lexicon of Kemant as a vanishing language, also due to strong interference from Amharic. Frequently used items and words with less complex internal structures (e.g. nouns as opposed to verbs) are remembered more readily than less common ones. Extensive polysemy is another property; where active (fluent) speakers would use different words, less competent speakers may take recourse to the former strategy. Also, passive speakers tend to replace the velar fricatives $x$ and $ɣ$ (which are absent from Amharic) by the Amharic sound $h$ (Leyew 2003: 153).

<table>
<thead>
<tr>
<th>Active speaker</th>
<th>Passive speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>laxla</td>
<td>lahla</td>
</tr>
<tr>
<td>wayr</td>
<td>waxr $\sim$ wahsr</td>
</tr>
</tbody>
</table>

Similarly, the morphological system underwent simplification with non-fluent speakers of Kemant; those interviewed may no longer remember or know specific personal pronouns or morphological properties of the gerundive and jussive moods, subordinate verbs, the case system, or the present copula. What is more, forms from Amharic may be used instead, e.g. the plural marker -occ, the accusative case marker -n or the conjunction -ʃna, also in order to compensate for lack of competence in Kemant in this respect.

Apart from inflectional morphology, derivational morphology is affected in the case of passive speakers or semi-speakers. Some speakers may use derived forms from Amharic, whereas conservative speakers of Kemant use infinitive and relative forms as a compensatory strategy (rather than borrowings from Amharic). Typological features
which are common to Kemant and Amharic are maintained better than grammatical domains where the two languages differ.

In the case of Kemant, the shift in religion has been a main catalysing factor in the external setting for the shift in language solidarity. Alternatively, a combination of socio-political and/or economic constellations may constitute catalysing factors in dying languages. The linguistic properties described for Kemant as a dying language by Leyew (2003) reflect much more widespread tendencies with respect to language contraction or reduction processes. With respect to phonological structures, for example, there is a common tendency towards the loss of marked sounds as well as a tendency towards variation in the pronunciation of words among semi-speakers and rusty speakers. Markedness is a complex issue, as shown in Chapter 2. But features such as the relative age at which specific sounds are acquired by children, or the frequency of a particular sound in a language, are indicators of relative markedness. One property which appears to be particularly stable, presumably because it tends to be acquired by speakers at an early age, is tone or intonation. This at least is the conclusion arrived at in Dimmendaal (1992) with respect to the Kore dialect of Maa (a Nilotic language in Kenya). If correct, this stability would prove the regression hypothesis developed by Jakobson (1942), according to which the order in which attrition occurs is opposite to the order in which a language was acquired. It would be interesting in this respect to have more information about the stability of prosodic structures in vanishing tone languages on the African continent. But there are probably also language-internal factors affecting the stability of the segmental or supra-segmental structure (as well as other structural aspects) of a vanishing language. Factors such as frequency of use or activation may also be expected to play a role; in other words, what has been most used or reinforced may also be expected to be most resistant to attrition or loss. Also, the phonological match between the vanishing language and the dominant language may affect the degree of interference and transfer of features from the latter. One would expect features attested in the target language to be more stable in this respect than features which are unique to the vanishing language.

With “healthy” languages, variation in pronunciation usually has a sociolinguistic meaning in a speech community, as we saw in Chapter 7. But variation with semi-speakers usually does not have this connotation. The degree of morphological reduction depends on a variety of factors, such as the frequency of use of specific forms, their function and structural relevance in the system, or typological similarity to the target language. But loss of morphological complexity with rampant lexicalisation of specific forms is a common property of vanishing languages, with forms having a high functional load probably being retained longest. Because the reduction is not compensated for, the result often is functional defectivity. One frequently observed strategy in such situations is codeswitching and extensive borrowing without phonological modification or integration (or relexification, as some scholars have called this
phenomenon) from the target language. Codeswitching towards Amharic is reported, for example, by Leyew (2003: 263) for Kemant.

Compared to the more extreme instances of pidginisation, a greater amount of morphological complexity seems to be retained in a vanishing language, in spite of the tendency towards obsolescence without replacement, or amorphous change, as it is sometimes called. A vanishing language consequently sometimes dies "with its boots on", as one of the pioneers of language shift studies, Dorian (1981), in her pioneering work on language shift among Gaelic communities in Great Britain, observed.78

Sasse (1992a) emphasises the important role played by analogy (e.g. suppletive forms turned regular) in language reduction processes. Also, paradigm levelling and category levelling (for example, the extension of the domain of one category to another) are characteristic of dying languages.

The type of morphological reduction described above should not be confused with convergence towards the target language, or what Sasse (1992a) has referred to as negative borrowing. As we saw in Chapter 8, language contact may also lead towards the obsolescence of morphological features. There is, consequently, a methodological problem involved in the interpretation of structural changes in endangered languages. This may be illustrated with the discussion surrounding the case of Elmolo. During the 1970s the Africanist Bernd Heine met with, what appeared to be, the last speakers of an Eastern Cushitic language called Elmolo. As argued by Sasse (1992b: 76), the speakers interviewed by Bernd Heine may already have been semi-speakers, as the Eastern Cushitic language they spoke lacked certain proto-typical Cushitic features. The issue cannot be cleared unless full speakers of Elmolo can still be found.

Not only is it difficult to trace down the last speakers of a language, one can never be sure they are still fluent speakers. The speaker’s own assessment of their competence is relevant, but cannot be taken as a reliable criterion. Because of phenomena like negative borrowing, as well as the strong tendency towards codeswitching, the investigation of vanishing languages also requires knowledge of the target language, and – if possible – of languages which are closely related to the endangered language. Only this way it is possible to distinguish “autogenetic” processes emerging from the reduced use and knowledge of the endangered language from interference from the dominant language.

Convergence in terms of constituent order towards the target language may be accelerated as a result of a negative attitude towards the vanishing language. Although a more fixed constituent order may be expected when morphological strategies for syntactic function marking are being reduced in a dying language, there does not

78. Myers-Scotton (2003: 231) has analysed such morphological reduction processes in terms of her "4-M model", involving late system morphemes and early system morphemes. Early system morphemes are most susceptible to omission or replacement, according to this author.
appear to be any evidence that speakers of a vanishing language take recourse to SVO as the unmarked constituent order (thereby distinguishing syntactic function through fixed constituent order).

Many of us seem to assume that every individual has at least one language which he or she speaks perfectly. But this does not always seem to be the case. As the present author observed in, for example, Sudan, some individuals are neither fluent in the most important lingua franca of the country, Arabic, nor in any of the local or regional languages. Similar observations can be made with respect to immigrants, e.g. in Australia. Dutch immigrants moving to Australia in the 1950s often decided to abandon their mother tongue Dutch in favour of English. This was seen as the best way to assimilate to the circumstances in their new homeland. Because many of them left for Australia at an age when a new language is no longer easily acquired, several of them failed to acquire fluency in English during subsequent decades. Today, these elderly people sometimes are in a position where their English is still relatively poor, and at the same time their former first language has undergone strong attrition; see de Bot and Clyne (1994) for further details.

It is sometimes thought that the number of speakers is a crucial factor determining the degree of endangerment. It is essentially on the basis of this criterion, for example, that Sommer (1992) arrives at a listing of endangered languages on the African continent. Although the social conditions for language shift are probably far from understood, the number of speakers appears to be but one factor. There are various examples of small groups hardly affected by language shift, as with the Hadza in Tanzania, whose current number of speakers is estimated at around 800 (www.ethnologue.com). On the other hand, major speech communities (in terms of number of speakers) in southern Nigeria or the Tanzanian coast are shifting massively towards the dominant lingua franca of the coastal region, Nigerian Pidgin English and Swahili respectively. The question of who speaks a specific language when and where may therefore be more important than the actual number of speakers.

Even languages that have been demographically stable for centuries may experience a sudden “tip” or interruption of transmission to the next generation, resulting in their obsolescence. Kenuzi Nubian as spoken in southern Egypt is a case in point, as shown by Rouchdy (1989). During the initial phase of a giant project for the construction of the Assouam dam in the 20th century, part of the Kenuzi home area was flooded. In its final stage, speakers were resettled in a new area near the Ethiopian border. As a result, primary socialisation decreasingly occurred in this Nubian language, with Egyptian Arabic becoming the primary language.

Interestingly, again and again it turns out that languages assumed to have become extinct still have speakers. According to Helga Schröder (personal communication), there are still speakers of the Cushitic language Elmolo in Kenya. This also appears to be the case for the Cushitic language Aasáx or the Nubian language Birged, which was
already claimed to be highly endangered in Tucker and Bryan (1956). For recent assessments of endangered languages in Africa, see Brenzinger (2007), and Dimmendaal and Voeltz (2007).

11.2 Language shift and social identity

Once the shift from L1 (i.e. the source language) to L2 (the target language) has been completed, we may still be able to detect remnants of the vanished language in the form of substrate influence in the latter, not only phonologically and grammatically, but also lexically. Brenzinger (1992) describes such a phenomenon for two Eastern Cushitic languages in Kenya: Yaaku (Mukogodo) and Elmolo, which where replaced by varieties of the Nilotic language Maa. The Elmolo, for example, live as fishermen along Lake Turkana. In the 1970s, the Africanist Bernd Heine met with, what at the time appeared to be, the last speakers of this Cushitic language. The Elmolo practise mainly fishery along Lake Turkana, Kenya, whereas the neighbouring Samburu are predominantly pastoralists. The process of shift in primary language solidarity from Elmolo to Samburu was accompanied by a transfer of a set of words related to fishery going back to the Eastern Cushitic language Elmolo. Although the Samburu dialect of Maa has become the primary language of this ethnic grouping, the Elmolo lexicon related to fishing and hippopotamus and crocodile hunting has survived as a substrate; the same substrate influence also resulted in a phonological enrichment of Samburu (Brenzinger 1992: 242–249).

The neighbouring Turkana of north-western Kenya see themselves as pastoralists, but along the southern edge of their traditional territory one finds groups referred to in Turkana as ɗikebootok, ‘people without cattle, poor people’. The latter constitute a separate, slightly stigmatised group, but their language does not differ much from southern Turkana. Possibly, these people are the offspring of groups living in this area when speakers of Turkana (and other pastoralist groups) appeared on the scene. In fact, among several pastoral communities in Kenya and neighbouring countries, one finds communities without cattle (sometimes referred to by the derogative term Ndorobo), speaking the same language as a neighbouring group (or a variety which is closely related), presumably as a result of earlier language shift. These groups thus never became fully integrated and still maintain a partly separate network, sometimes reflected in (minor) dialect differences. Loss of a particular language, accordingly, does not necessarily imply loss of ethnic identity.

Many ethnic groups in the area constitute an amalgamation of earlier distinct groups. The studies in Spear and Waller (1991) on the history of Maasai ethnicity, for example, provide evidence for this claim. The anthropologist Schlee (1989) identified similar or identical clan names among different ethnic groups in the border area of
Kenya and Ethiopia. Compare also Unseth and Abbink (1998) for a description of the case of Mela, a clan name occurring among different Surmic groups (Meën, Chai, Tirma, Majangir) and possibly among the Omotic-speaking Dizi as well. The presence of such common clan names clearly suggests that language shift was a common phenomenon in the area. Ethnicity is not necessarily defined over a common language. In fact in an African context it often is not, although the colonial period probably stimulated the construction of social identities along language barriers.\textsuperscript{79} Apart from clan membership, other features such as shared customs or religious beliefs may come in as distinctive features. More often than not language in an African context appears to be like a piece of cloth which can be taken off and be replaced.

As the discussion of language contact situations above should have shown, the potential outcomes are manifold. Apart from borrowing in all its different manifestations (for example through esoterogeny or the creation of syncretic languages), pidginisation and creolisation may occur, or languages may be abandoned in favour of others. As Bentahila and Davies (1992) have shown, loss of the Berber language and switch towards Moroccan Arabic as the primary language among Berber communities in Morocco did not result in ethnic fusion. The Kore people in Kenya, who abandoned their Nilotic language (a dialect of Maasai) in favour of Somali, do not identify themselves with Somali ethnically. It is common to meet people in Senegal who consider themselves to be ethnic Serer or Fulbe, but who do not actually speak Serer or Fula (Wolof being their first language). Also, a distinction between urban and non-urban areas probably needs to be made for many parts of Africa. Rouchdy (1989) describes such a process, more specifically the “tip” to the dominant language Arabic, for the Nubian languages Kenuzi and Fadicca, and the different roles attached to language as a symbol of ethnic-group membership by urbanites and rural dwellers in Egypt. See also the detailed study by Dombrowsky-Hahn (2004) of Banfora, a major city in Burkina Faso.

One of the mysteries which have fascinated Africanists for years is the question whether pygmy groups in Central Africa, as descendants of populations who have lived there probably for the past 20,000 years, spoke languages belonging to a different, now extinct African language phylum or stock. Bahuchet (1991) has argued that linguistic and other evidence indicates that there may have been three separate pygmy populations in the past. Bahuchet (1992, 1993) further suggests that a partly shared lexicon in the Bantu language Aka, and the Adamawa language Baka, related to food gathering may constitute reflexes of a former common language. According to Didier Demolin (personal communication), terms related to the polyphonic music of

\textsuperscript{79} As a result of state building and in the past, a policy of repression of minority languages, language and nationality of course have become isomorphic for many Europeans.
pygmy communities may provide another such interesting area; the interested reader is also referred to Blench (2006: 173–176) for further details.

It is interesting to observe that sometimes language shift did not take place where it might have been expected to occur. The following case may illustrate this point. The Baale of southwestern Ethiopia together with the Tirma and Chai form an ethnic group known as Suri (or Surma to the outside world). The Baale are primarily agricultural specialist (as they live in a tsetse-infected area), whereas Tirma and Chai people sees themselves primarily as pastoralists. The Baale language converged towards the distantly related languages Tirma and Chai (Dimmendaal 2001a), and its speakers did not abandon the language in favour of the latter languages. This presumably means that the Baale form a close-knit society for whom a separate language is a vital part of their double identity (apart from being a Suri). As sociological or anthropological studies on the interaction between the Baale and the Tirma and Chai are essentially lacking, one can only speculate about the reasons for this behaviour. Tirma and Chai speakers claim that Baale is a difficult language, which is why they tend not to learn it. Of course, there may also be social reasons for this behaviour towards Baale as the language of a minority group. But communities (characterised by face-to-face communication) in which most speakers know each other may develop unusual linguistic traits. Such traits may be easily acquired by children during primary language acquisition. Lects which serve as vehicles of communication in large areas and gravitate towards the role of koiné tend to develop simpler systems than dialects that serve local purposes (Jakobson 1929 [1962] cited in Andersen 1988: 37). This argument should not be inverted. It does not exclude the possibility that languages spoken by such close-knit communities may have relatively simple phonological and morphological systems.

From these and other cases we may conclude that language and ethnicity are not isomorphic in the African settings discussed here, and that attaching a central role to language in intercultural settings does not seem to be correct in all cases. Similar observations have been made by Foley (1986: 23–24) for Papua New Guinea, where “villages often do not recognise any solidarity with other villages of the same language, but more often form ties with geographically closer villages regardless of the language spoken […]”.

Reduction and mixing come in different degrees, sometimes distributed unevenly across different parts of the grammar, as with syncretic languages, and sometimes at irregular (“punctuated”) time intervals, as with pidginised or creolised languages. But, interestingly enough, even such dramatic language changes seem to take place in a systematic manner. It is for this reason that they deserve a systematic taxonomic account. This, then, will be the central aim of the next chapter.
Chapter 12

Language contact phenomena and genetic classification

12.1 History repeats itself
12.2 On so-called non-genetic and multi-genetic developments
12.3 Cladistic versus rhizotic models

Es gibt keine Mischsprache
[There is no mixed language] Müller (1871–1872: 74)

Es gibt keine völlig ungemischte Sprache
[There is no completely unmixed language] Schuchardt (1884: 6)

Language contact and subsequent restructuring is one of the central themes of the present monograph, above all because African languages have a rich story to tell in this respect. Since most speech communities do not develop “in vitro”, there are probably no “unmixed” languages. Nevertheless – and somewhat paradoxically maybe – the present author holds a rather traditional (“Neogrammarian”) view concerning the genetic classification of languages. The primary reason for holding on to the family tree as a classificatory and phylogenetic model of language relationship relates to the nature of so-called “language mixing” or contact phenomena in general, as well as to important principles of taxonomy (Dimmendaal 1995b; the same position is defended in Greenberg 1999). This position, as a matter of fact, has been defended by different scholars at earlier points in time. Scholars like Hall (1958) already defended the view that creolised languages confirmed the usual applicability of genetic relationships among languages. From the discussion of pidginisation and creolisation processes in the preceding chapter, it should be obvious to the reader that the present author shares this latter view; first, because it is important in phylogenetic classifications to distinguish between inherited and innovated structures, and second, because language typology should not be mixed up with genetic classification, a point also raised again and again by the eminent Africanist Joseph Greenberg. Let us have a
closer look, therefore, at two alternatives to the family tree model, one claiming a non-
genetic development for specific languages, the other claiming a multi-genetic origin, 
and review the arguments for and against such terminological usage.

12.1 History repeats itself

According to the classical view on genetic relationship, languages are related when 
they developed from a common ancestor. In the 1950s, when the study of pidginised 
and creolised languages began to flourish, some scholars argued that these languages 
had a double genetic affinity. On the one hand, it was claimed that Atlantic creoles, 
for example, had an affiliation to the family of their “lexical-source” language (Eng-
lish, French, Spanish or Portuguese), whereas on the other hand the impact from the 
substrate languages pointed towards an affinity with African languages. This position 
is also represented in more recent handbooks on pidginised and creolised languages 
such as Holm (1988: 216). Ruhlen (1987: 21), in his classification of the languages of 
the world, also holds the view that “[p]idgins and creoles are special kinds of languages”, 
and, consequently, languages like Hawaiian Creole or Papiamento end up in a category 
of their own (“Pidgins and creoles”, p. 377). A similar position is taken by the compil-
ers of the Ethnologue (www.ethnologue.com), where a syncretic language like Ma’a 
(Mbugu) is classified as a “mixed Bantu-Cushitic” language.

The current interest in language contact involving deep borrowing (in the sense 
of Thomason and Kaufman 1988), and the discovery by scholars over the past decades 
of interesting new cases of cross-fertilisation between languages, has led to a reintro-
duction of the term “mixed languages”, and to claims that such languages constitute a 
taxonomic category of their own, defying any classification in classical genetic terms. 
This position is defended by Thomason and Kaufman (1988) or Matras and Bakker 
(2003). We thus see that a hundred years after the introduction by scholars such as 
Meinhof (1912) of concepts such as “Mischsprachen” (“mixed languages”), and the 
abandonment of these taxonomic categories in subsequent periods, we have returned 
to an old debate in historical linguistics. It is in the nature of at least certain scientific 
disciplines – and linguistics appears to belong in this realm – to simply accept such 
paradigm shifts, thereby conveniently ignoring counter-arguments raised by different 
scholars during preceding decades, and to start using labels like “mixed languages” 
again, with little reflection on the consequences of such terminological usage. Com-
pare Matras and Bakker (2003: 15), who point out that there are three current issues in 
the “Mixed Language debate”: The role of codeswitching, the role of inherent divisions 
and layering with the language faculty, and the role of speakers’ intentions. From this 
one may draw the (erroneous) conclusion that the taxonomic issue itself has been 
cleared, in spite of the fact that the varieties that are called mixed language indeed are
a mixed bag. It therefore seems useful to reinvestigate the issue in a monograph on historical linguistics. What is taxonomy, the science of naming and classifying, about? And, are there non-arbitrary ways of deciding whether language x or y is “mixed” to an extent that it should be classified as being non-genetic or multi-genetic in origin? How many features of ancestral languages should a language replicate, in order to be recognised as a phenotype of those ancestors?

12.2 On so-called non-genetic and multi-genetic developments

The history of language classification in Africa is replete with claims about multi-genetic origins for certain languages. In his influential work *Die Sprachen der Hamiten* (The Languages of the Hamites), Meinhof (1912) claimed that Bantu languages constituted a mixture of “Hamitic” languages (spoken mainly north of the Sahara) and “Sudanic” languages (spoken mainly south of the Sahara), as reflected, for example, in the Bantu noun-class system. Similarly, a language like Nama (classified as Central Khoisan in modern terms) was argued to be “Hamitic” by origin, but mixed with “Bushman” languages (i.e. San languages in modern terms). The same author tried to relate this genetic classification to the physical appearance and cultural behaviour or subsistence economy of speakers. Modern scholars using concepts like “mixed languages” as a taxonomic device no doubt no longer would like to defend the latter position for obvious scientific reasons. We know from experience – for example, because of the common cultural phenomenon of language shift, that there need not be any direct link between language and culture or language and racial characteristics. But the confusion between typological and genetic classification has lingered on into modern times.

In his monograph *Die westlichen Sudansprachen und ihre Beziehungen zum Bantu* (The Western Sudan Languages and their Relationship with Bantu), Westermann (1927) distinguished between a pure genetic relationship (whose model is Bantu), and a second type of more blurred, historical relationships which, according to him, applied to the Western Sudan languages, where linguistic units of various origins manifest a “gemeinsame Grundhaltung” (a common basic position), but where languages without noun classes were assumed to represent the ancient type of “Sudanic languages”.

In spite of their quintessential contributions to the description and comparison of numerous languages in eastern and central Africa, Tucker and Bryan (1956, 1966) again did not quite know how to deal with typological differences between Nilotic languages. Their conceptualisation of language relationships in the area underwent a number of stages over the decades. The so-called “Nilo-Hamitic” languages, corresponding to Eastern and Southern Nilotic in modern terms, contrasted with “Nilotic” languages, now called Western Nilotic, in their 1956 publication. As the term “Hamitic” had developed racist connotations, the term “Nilo-Hamitic” was subsequently abandoned.
in favour of the term “Para-Nilotic” (Tucker and Bryan 1966). But the same term of course still suggested that there were also “pure” Nilotic languages. In terms of morphological typology the latter were characterised by “internal morphology” (frequently involving fusion of morphemes and consonant or vowel alternation). It is clear from what we know today that even as a typological characterisation Tucker and Bryan’s 1956 or 1966 presentation was incomplete. Thus, their “Nilotic” (i.e. Western Nilotic) languages belonging to the Dinka-Nuer cluster indeed manifest a lower degree of affixational morphology than Southern Nilotic languages like Nandi, or Eastern Nilotic languages like Maasai. But members of the Western Nilotic Burun group, which had been hardly studied at the time Tucker and Bryan published their classification, in fact have extensive affixational morphology like Southern and Eastern Nilotic languages. However, such typological differences do not tell us anything about genetic relationship; the latter manifests itself through cognate lexemes and grammatical morphemes between languages with recurrent form/meaning correspondences occurring between them, and deriving from their common historical (genetic) source. Typological classifications of languages are useful, and at times these may tell us something interesting about language contact, but they are essentially a-historical, since they ignore the historical layering, i.e. the relative chronology of these typological innovations.

Considerably more sophistication of course is shown in more recent studies on genetic classification, also taking into account what is known about language contact. Nevertheless, controversial classificatory issues remain, also in the field of African linguistics. Apart from mixing up the genetic and typological classifications of languages, in the present author’s view, scholars sometimes seem to mix up, what Manessy (1990) has called, the genèse (genesis) and la généalogie (genealogy) of languages. The first concept relates to all the processes which contributed to the “constitution” or present structure of a language, whereas the second relates to inherited structures. And it is only the latter part which is relevant for the genetic classification of languages. Nevertheless, the debate continues, albeit from a slightly different angle. In their important and influential book on language contact, Thomason and Kaufman (1988: 3) argue that nonrelatedness for certain languages can be proven on the basis of specific criteria:

1. The establishment of phonological correspondences in words of the same or related meaning;
2. the reconstruction of phonological systems;
3. the establishment of grammatical correspondences;
4. the reconstruction of grammatical systems.

According to the same authors, “some doubt, ranging from minor to serious, can be cast on a hypothesis of genetic relationship” (p. 202) when one or more of these four points cannot be attained. More specifically, the authors had in mind cases where
massive grammatical restructuring occurred, as with abrupt creoles. The latter do not fit within the genetic model and therefore cannot be classified genetically, according to Thomason and Kaufman (1988: 165). The authors “do not believe that an abrupt creole can reasonably be viewed as a changed later form of its vocabulary-based language; there is, in fact, no language that has changed. Instead, an entirely new language – without genetic affiliation – is created by the first members of the new multilingual community, and further developed and stabilised by later members, both children born into the community and (in many or most cases) newcomers brought in from outside.”

Although this conceptualisation might seem attractive at first sight, it creates more problems than it solves. Let us depart first into a branch of science where there is considerable experience with taxonomies and what they are all about, namely biology. The great 18th century pioneer of plant taxonomy, Linnaeus, arrived at a classification of living organisms into phyla, families, and species on the basis of easily observable morphological properties, such as the number of stamen in flowers, an approach which may be characterised as essentially a-historical and typological in nature. After the seminal contributions of Darwin in the following century, it became clear that phylogenetic ancestry should form the basis for classification. Such relationships are expressed by way of clado-grams, i.e. branching family trees expressing phylogenetic relationship. Monophyletic groups are determined from the distribution of shared derived characters (so-called synapo-morphies) inherited from their common ancestor. These concepts and representations of genetic relationships between species are still central to evolutionary theory, telling the pattern of ancestry and descent.

A further (Darwinian) characteristic of this conceptualisation was that speciation was a gradual process. It has become common among evolutionary biologists to distinguish between vertical changes, dealing with adaptive changes in the time dimension, and horizontal changes, dealing with the origin of new diversity in the space dimension as populations move into new environmental niches. As the eminent specialist Mayr (1991: 20–21) argues, evolutionary biologists have overemphasised the importance of vertical changes, i.e. changes in the time dimension. There is an interesting parallel in thinking in historical linguistics here. Linguists too seem to have overemphasised the importance of adaptations in the time dimension and gradualness in the development of languages. Language contact phenomena relate to the space dimension, and here environmental influence – as opposed to genetic inheritance – plays an important role, as should also have become clear from the preceding chapters on language contact phenomena.

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80. The term cladogram (i.e. branched diagram) derives from the word clade from the Greek word for ‘branch, twig’, klados.
Clearly, languages are “Lamarckian”, in that they may exhibit inherited environmental effects from other languages through contact. But as argued over and over again in the preceding chapters, such modifications are always grafted upon a matrix language which contains structures inherited from an ancestral language. Parallel to what is common practice in evolutionary biology, it is these latter (inherited) features that need to be considered for genetic classification.

Evolutionary biologists also discovered that speciation was not always gradual. As argued by Eldridge and Gould (1972), for example, there is evidence for so-called punctuation as well, i.e. the relatively rapid development of new species, as a result of climatological changes, amongst others. Again, one may observe linguistic parallels here. Some creolised varieties of languages developed over a relatively short time span, i.e. within a few generations. But as already pointed out by Hall (1958: 368), “insistence on gradual, generation-to-generation evolution is not of the essence of genetic relatedness […] for genetic relationship as we customarily use the term, it is irrelevant whether we consider the linguistic changes involved to have taken place gradually or in a saltatory manner, or to have been transmitted from generation to generation or not”.

Moreover, a transmission “en bloc de la langue”, as Meillet (1921) put it, rarely occurs. Language transmission involves much more intricate, and therefore much more interesting, features than a simple transfer from one generation onto the next. Claiming, as Thomason and Kaufman (1988: 9–10) do, that normally “language is passed on from parent generation to child generation and/or via peer group from immediately older to immediately younger, with relatively small degrees of change over the short run, given a reasonably stable sociolinguistic context” is a statistical observation which may hold today for certain parts of the world. But its proclaimed universality is not in line with what can be observed, for example in an African context. As anybody who has studied a speech community in this part of the world may observe, very few speech communities are monolingual. Clearly, multilingualism is the norm. Language transmission is also more complex and intricate; for example, because speakers of other languages may enter a speech community; alternatively, multilingual people may shift their primary language in the course of their lives, because they are moving to another part of the country or because new social networks are developing. 81

The favouring of one particular language is determined by the uneven social roles usually involved in multilingual contact situations. The crucial point to be kept in mind, once restructuring occurs in a particular language as a result of language contact, is that there is always a matrix language providing the skeleton onto which

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81. The idea of purity with little or no introduction of structural patterns from any source outside the language or language family is “essentially a survival from Renaissance and neo-classical purism”, as argued by Hall (1958: 369).
borrowed material is grafted, even in syncrетic languages. This claim has been central in the discussion of language contact phenomena on the African continent as presented in preceding chapters. It is also supported by detailed studies of multiple language use among immigrants in the United States or Australia. As observed by, for example, Clyne (2003: 241) with respect to language behaviour among Australian immigrants, there is always one matrix language (in the sense of Myers-Scotton 1997) providing the basic structure for an utterance.

It is important to realise that there is no principled way in which one can argue that language x has become “mixed”, i.e. embedded with foreign language material, to an extent where it should be classified as non-genetic, or multi-genetic. There are scales or degrees of borrowing, and it is precisely for this reason that it is not a useful taxonomic principle to talk about non-genetic or multi-genetic developments.

Second, the embedding itself results in a replacement or extension of existing (inherited) material. And it is this latter property which is crucial for the establishment of genetic relationships (as against our understanding of the “genesis” of a particular language). Grammar is less susceptible to borrowing in most cultures than the lexicon is and, consequently, more useful as a diagnostic property for the establishment of genetic relationships. But as Hall (1958: 372) already observed, “[w]e do not consider English, French, and North Italian to be all ‘basically’ derived from Celtic because we may deem them to have more or less extensive structural survivals or carry-overs from a common Celtic substrate: and it would be unfruitful to call, say French, a Celtic language spoken with Latin words, in that such a formulation obscures the more fundamental structural relationship of French to Latin and Romance”. Consequently, Hall (1958) argues that pidginised and creolised languages should be treated along the same lines. By treating creoles, for example, as a different species falling outside the scope of genetic linguistics and the family tree – or having multiple origins for that matter – one ends up in a self-made trap. As argued in the present monograph, pidginisation and creolisation comes in different degrees. We consequently end up in arbitrariness when trying to decide whether to classify these languages as being genetically related to other languages or not.

Owens (2006) discusses a related problem with respect to varieties of Arabic as spoken in Nigeria and Chad. As may be expected, these have undergone substrate influence from Nigerian languages. As pointed out by him, treating such languages as being special and non-genetic in origin would lead to rather ridiculous consequences. Not only does one fail to distinguish inherited structures from newly acquired features; virtually no language would have a uniquely specifiable ancestor from this point of view.

Creolised versions of specific languages (as basilects or mesolects) may converge towards the acrolect, a process known as decreolisation. Defenders of so-called
non-genetic or multi-genetic developments in languages consequently would also have
to contend that languages may become members of a language family again. But decre-
olisation is not any different structurally from the tendency that may be observed with
many non-prestigious dialects of languages converging towards the more prestigious
standard variety.

Borrowing comes in different degrees. Although there may be certain universal
tendencies, there are also language-specific and culture-specific phenomena as claimed
above, and consequently no universally valid hierarchy can be formulated. Over the
past decades, research in this area has shown that there is a virtual lack of constraints
on contact-induced change in languages. These are important empirical results, be-
cause they show the adaptive (“Lamarckian”) nature of human language. Some might
argue that this is what makes languages different from other living organisms. But this
is only true to a limited extent.82 Concluding, consequently, that none of the taxonomic
principles common in biology apply to the genetic classification of human languages,
leads to unwarranted – because they are arbitrary – results, as the discussion above
should have made clear.

A leading specialist for Songhay, Robert Nicolaï (e.g. Nicolaï 1990) has argued that
this language cluster has a multi-genetic, rather than a non-genetic, origin. In his Pa-
rentés Linguistiques (1990) he argues for a three-level model of language transmission:

1. Material transmission (involving the transfer of phonological and lexical material);
2. structural transmission (involving the transfer of morphological and syntactic
material);
3. normative transmission (involving the transfer of traditions and norms of speaking).

All three domains are interesting and important domains in the context of language
contact studies. But again, we seem to be mixing up genetic classification and typologi-
cal classification here. Robert Nicolaï assumes a multigenetic origin for languages (or
varieties of speech) where the three levels of transmission are not isomorphic. He con-
tends that Songhay is a case in point. Contrary to Greenberg (1963), who argued that
Songhay is a member of the Nilo-Saharan phylum, Nicolaï (1990) claims that Songhay
is a Berber-based creole restructured under Mande influence.83 This hypothesis is
based primarily on presumed lexical similarities between Berber (as a member of the

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82. Interestingly, biologists now also use “epigenetic features” as a concept. These involve modifica-
tions developed by plants and animals during their lives, rather than being part of their inherited
gene package, and apparently inherited by their offspring. This Lamarckian nature of gene systems,
which was long held to be impossible, thus parallels the Lamarckian nature of language.

83. The emergence of different varieties of Songhay, and the potential role played by creolisation, is
taken up again by Zima (to appear) with respect to the Dendi variety.
Afroasiatic phylum) and Songhay in over 400 entries. Nicolai (2003: 200) abandons his earlier hypothesis, at the same time evaluating the lexical and grammatical evidence posited by Ehret (2001) in favour of a Nilo-Saharan affiliation of this language cluster. Nicolai (2003) convincingly argues that the evidence forwarded by Ehret (2001) is indeed very weak, thereby leaving the question of the wider genetic affiliation of the Songhay cluster essentially open.

The wider genetic affiliation of Songhay is not clear, as there is very little morphological material to go by for comparison. Over the past decade, a series of detailed descriptions have been published on different Songhay lects by Heath (e.g. 1999a, 1999b). A systematic analysis, in particular of common grammatical morphemes, may shed more light on the genetic affiliation of this cluster. The question to what extent the structure of Songhay can be linked to other language families is taken up again in Chapter 15.

The problem concerning languages or language clusters without any obvious immediate relatives can be multiplied by other cases. Why, then, is it so difficult to arrive at a uniform classification of language clusters like Songhay or languages like Laal in Chad, Shabo (Mekeyir) and Biraile (Ongota) in Ethiopia? The answer is: Because the (apparent) lexical and grammatical similarities with other languages or language families do not allow us to distinguish between inherited and borrowed material, i.e. the historical layering of these external influences on languages is difficult, and sometimes, impossible to reconstruct. Dimmendaal (1995b: 369) thus concludes that “in situations where history cannot be reconstructed because earlier traces have completely disappeared or where closely related languages have become extinct and where the lexicon and grammar have been subject to drastic changes, our methods simply do not allow us to make any further claims”. This methodological point may be illustrated with examples from English. If this language were to remain as the only Indo-European language on our planet a thousand years from now, with all traces of other members of this former language family having vanished without a trace (e.g. because all documents on these languages disappeared or were destroyed), there will be a language showing interesting similarities to various other languages across the world, but lacking any obvious direct relatives. One may be able to identify specific English lexemes as being derived from Arabic, e.g. *algebra* (from Arabic *al-jabr* ‘the science of reuniting’) if this latter language is still spoken a thousand years from now, or if sources on this language are still available. Lexemes like *potato* and *tomato* (or their reflexes) would be similar to lexical items in Amerindian languages still spoken a thousand years from now etc. The issue, then, is not whether English is related to some other language, but whether one can still prove it is. The history of English is fairly well understood; consequently, the fact that around 70% of its lexicon, for example, is non-Germanic in origin finds a natural explanation in the various contact influences the language underwent during its historical development. Languages could hardly be more mixed than this member of the Germanic
branch of Indo-European, which again shows that it is crucial to distinguish between the genesis of a language and its genealogical history.

The hypothetical situation described for English is essentially the situation observable, for example, for isolates like Laal, Biraile or Shabo. They manifest themselves to us in an essentially a-historical Gestalt. The various similarities to Nilo-Saharan and Afroasiatic languages in the area could be due to borrowing or shared inheritance from one of the two phyla. But we probably will not be able to show which hypotheses are more plausible, unless a range of morphological elements can be shown to be cognate with widespread morphological elements in either Nilo-Saharan or Afroasiatic or some other language phylum. It may well be, of course, that these languages constitute linguistic isolates, i.e. genetic groupings whose ancestral links can no longer be retrieved. This, in fact, is the position defended by the present author in Chapter 14.

A central claim made in the present monograph is that there is always one matrix language involved in restructuring as a result of language contact, and that “mixing” in fact involves borrowing or embedding of foreign properties. The position defended here is that, contrary to what appears to be the popular position to date (compare McMahon and McMahon 2005), such diffusion of properties is not incompatible with the family tree. The crucial point is that the genesis of a language (as against its genealogy) may involve the replacement or extension of inherited structures through a borrowing process (whether lexical, grammatical or structural). Any taxonomic approach towards the genetic classification of languages which ignores this chronological dimension in the structural development of languages is essentially a-historical in nature.

Without claiming that “anything goes” in the historical restructuring of languages, we have to conclude that language does not appear to be characterised by the rigid system (Universal Grammar) which some (historical) linguists have assigned to this product of evolution; see also Evans and Levinson (2009) for a critical assessment. Nobody these days would wish to claim that a common genetic origin means that the elements constituting a language all have to go back to one and the same source. Language presumably is so successful from an evolutionary point of view, exactly because it is so adaptive. And in the course of their historical development, languages may be “instrumentalised” by different groups. This in turn may result in such divergent processes as convergence, pidginisation (and creolisation), or “language engineering”, resulting in the emergence of syncretic languages or antilanguages. As argued in the preceding chapters, these categories constitute abstractions with proto-typical features, but there are fuzzy transitions between them, because they represent nothing but the endpoint of a continuum involving different types of language contact.

So how do we determine genetic affiliations in cases where language structures have been strongly modified as a result of contact? Simply counting the number of lexical items going back to the target language as against some other source (e.g. the substrate languages or some other source) is not necessarily a good indicator of structural influ-
ence, as shown in an important contribution by Taber (1979) with respect to the Central African lingua franca Sango. The author presents the results of a word count in a corpus of 37,217 words, i.e. of tokens, in a Sango text. This corpus contained some 1000 different words or types. In other words, type referring to word category or parts of speech, whereas token relates to the frequency with which particular units or words occur. The latter again consisted of 508 forms originating from French, and 490 types showing formal identity with forms in the Ubangian language Ngbandi. These figures would seem to be inconclusive as to the origin of Sango, either from pidginised (and creolised) French or a pidginised (creolised) Ubangian language. However, the 508 French types (words) account for only 6.8 percent of the tokens, i.e. the running text; words of Ngbandi (or Yakoma) origin on the other hand account for 91.3% of the tokens. The type-versus-token approach thus shows that the grammatical structure of Sango as a language closely related to Ubangian languages like Ngbandi is virtually unaffected by French.

The type versus token approach has been used for entirely different purposes by Bybee (2003), namely in order to emphasise the role of the frequency of use in the grammatical development of languages, more specifically with respect to the grammaticisation of constructions. Bybee (2003) focuses on the role of repetition in the gradual grammaticalisation (grammaticisation) of morphemes in languages like English. But the same approach would also seem to provide interesting results for processes like pidginisation and creolisation, based on the frequency of the use of certain forms, but not others, and leading towards the emergence of new grammatical structures. Pasch (1997) has pointed towards the central role of Yakoma in the emergence of Sango. The high frequency of Yakoma elements in Sango provided the matrix for the newly emerging structures in the latter. Its constructional properties consequently were preserved by contact language. Frequently used words and phrases are also more likely to be accessed as whole units and less likely to be reformed “on-line”. Thus, their general structure – including the morphological irregularity of high frequency nouns and verbs, or the structure of high frequency constructions – are preserved during pidginisation or creolisation processes. This explains the dominance of Yakoma elements in a creolised language like Sango.84

The Semitic language Maltese, spoken on the island of Malta, represents a similar case. Around 50 percent of the vocabulary (or more) in this language comes from Romance sources. But as stated by Drewes (1994: 87), “the morphology of Maltese is predominantly Semitic. Verbs of English or Italian origin are conjugated with the Arabic prefixes and suffixes”. This is exactly the point. Heavy influence from another language, in this case Romance languages, resulted in a rather radical loss of Semitic

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84. Similar conceptualisations of “emergent grammar” as presented in Bybee (2003) have been developed by Hopper (1987).
lexemes through lexical replacement. Because of this relexification, the case of Maltese is similar to Ma’a as well as varieties of Romani in Europe, e.g. Anglo-Romani, or Kormakiti Arabic, as spoken by Maronite Christian communities in Cyprus. From a structural point of view, such radical processes of lexical replacement taking place in a saltatory manner are not any different from gradual changes in languages. They only differ in the speed with which such changes occur, a factor which is totally irrelevant for genetic classifications.

Rather than claiming that these languages defy genetic classification, a position taken by Thomason and Kaufman (1988), Bakker (2003), or Matras and Bakker (2003), it is claimed here that they can be and should be classified, because there is always a matrix language involved. These monotremata of linguistics, emerging in situations of bilingualism and manifesting an “etymological split” between two or more languages are not problematic for genetic classification, if one takes the type-versus-token approach into account. 85

12.3 Cladistic versus rhizotic models

The intricate historical development of the Songhay language cluster has led linguists like Robert Nicolaï to develop alternative models for genealogical relationships as we saw above. Creissels (1981) has also indicated that a genetic model more sophisticated than the family tree may be needed to explain the Songhay case. It should be evident from the discussion in Chapter 3 that a classical tree model, as a partly abstracted representation of historical developments, has its shortcomings, as this arborial representation essentially represents divergence. Such tree diagrams, for example, cannot express diffusion or convergence, even though we know that such processes do occur between dialects and genetically related languages (as well as between genetically unrelated languages). Abstractions are often part and parcel of models. This is also true, for example, of synchronic descriptions of languages; most reference grammars do not discuss idiolectal or dialectal variation, partly because investigating such variations is rather time-consuming. At the same time, many linguists interested in historical changes have felt the need to somehow represent convergence or contact phenomena in a model in one way or another. In Indo-European studies, it was common at one point to speak about so-called Centum languages or language groups (Celtic, Italic, Germanic, Hellenic) in the west and Satem language groups (Slavic and Indo-Iranian) in the eastern zones of the Indo-European family. The latter underwent certain palatalisation rules historically. The discovery around 1900 of texts in an extinct Indo-European language once

85. The term Monotremata refers to species of egg-laying mammals of Australia such as the echidna or the platypus.
spoken in Chinese Turkestan and known as Tocharian (more specifically, Tocharian A, dated around 600 A.D., and Tocharian B, dated around 750 A.D., respectively) was important for our understanding of the comparative method in this respect. Although once spoken close to the area where the so-called Satem languages were spoken, the historical innovations in Tocharian matched the more western (Centum) languages better. The Tocharian case thus provided an important piece of evidence in favour of the classic methods of subclassification, without ignoring the important effect of areal diffusion as a complementary process.

Statements on the problematic genetic status of specific languages within a family, or branch of a family, have been made with respect to all major phyla on the African continent. In their comparative study of Cushitic, Sasse and Straube (1977), for example, point out that Burji occupies an intermediate position between Highland-East Cushitic and Lowland-East Cushitic. The authors reject a strict genealogical tree model, because phenomena of language contact and areal influence should be taken into account as well. Gragg (2004) is another contribution on the notion of networks in the larger Afroasiatic phylum as well as “an exercise in tree building, with some reflexion on what it all means” (Gragg 2004: 53).

Mouguiama-Daouda and van der Veen (2005) raise the question whether Guthrie’s Bantu grouping B10–B30 constitutes a phylogenetic grouping as shown by shared innovations, or whether these innovations are the result of “hybridisation” (hybridation), i.e. areal diffusion. On the basis of an extensive comparison of phonological, grammatical as well as lexical data, the authors conclude that both factors must have played a role. B10 and B30 together constitute an early Bantu split-off. Subsequent lexical borrowing from B30 into B10 languages, and a more intensive structural borrowing from B10 into B30 languages, probably as a result of frequent intermarriage between speakers, also resulted in a diffusion of features in the other direction. Speakers of B10 languages probably acquired iron working technology at an early stage, and so speaking their languages implied access to this important technological innovation. This in turn may have led towards a copying of features from B10 languages into languages belonging to B30.

Such alternative conceptualisations, involving netbuilding formation, have also been proposed as representational models for certain types of language development in Indo-European. Ringe, Warnow and Taylor (2002: 110) argue that the diversification of Indo-European must be modelled in part as a network rather than a family tree. Nichols and Warnow (2008) present a way of quantifying how good a tree is.

McMahon and McMahon (2008: 280) argue that geneticists “typically use computer programs to generate all possible trees (or at least a sample of many thousands), and to select the tree or a number of trees that fit the data best. Linguistic trees have typically been drawn by an individual linguist in a way that fits the classification he or she believes in, often rejecting many trees that are different but equally probable without even considering them”.
A representation of relationships as networks allows one to visualise the hybrid output of such quantitative methods (counting the number of common innovations, either through genetic inheritance or due to areal diffusion). The internal nodes do represent ancestors.\(^86\) The interruptions with reticulations in the family tree represent contact events and their consequences. It is important to make sure that these web-like structures reflect not only contact history, but also historical relatedness. Phrased differently, where possible, the historical layering needs to be taken into account.

One advantage of such a representation is that one does not have to claim that a language heavily influenced by other languages is non-genetic or multi-genetic in origin, which would be the logical consequence of the alternative type of reasoning propagated in Thomason and Kaufman (1988) or Nicolaï (1990). After all, the origin of the borrowed (diffused) material is irrelevant, as the source of lexical and grammatical innovations in a language could just as well have been a language from a different language family.

The basic idea behind a tree-diagram of course is that two or more species, or in the case of historical linguistics, languages, had a common history by sharing features which were not present in distant ancestors. The question evolutionary biologists are struggling with today is the degree of interbreeding possible between distinct but closely related groups. Parallel to this, historical linguists are struggling with the degree of intertwining between related languages. Evolutionary biologists have developed rhizotic models of change, i.e. models in which populations (in biological terms) are derived from or rooted in several different antecedents. One consequence of such conceptualisations of linguistic divergence is that the claim “once a language boundary, always a language boundary” is not necessarily true. Languages need not maintain their integrity over time.

Schnoebelen (2009) presents a so-called NeighbourNet graph of the Eastern Sudanic branch within Nilo-Saharan, primarily in order to establish potential historical links with Shabo, a language widely held to be a linguistic isolate. Diagnostic criteria involve features claimed to be stable by Wichmann and Saunders (2007).

But for those of us familiar with the structure of Eastern Sudanic languages, the resulting network representation would seem to be dissatisfactory on a number of counts. The Eastern Nilotic language Maasai, for example, ends up in this network representation as a language with a close affinity with Southern Nilotic languages like Nandi and Päkot, which simply is wrong. As neighbouring languages, they are typologically similar, but the genetic affiliation of Maasai as a member of Eastern Nilotic is beyond any doubt; see Vossen (1982) for a detailed account. In other words,

\(^{86}\) Specialists in dialectometry also use network-type of relations in order to express affinity between lects, as shown in Chapter 7.
Figure 9. NeighbourNet representation of Eastern Sudanic and Shabo (Schnoebelen 2009)
convergence is mixed up with genetic relationship. This appears to be a more general problem with some current methods aiming at rhizotic representations of genetic relationship. Frisian, a language spoken in the Netherlands as well as in northern Germany, is more closely related to English than to Dutch, as shown through a range of shared phonological innovations with English (Tiersma 1985: 2–3). A Neighbour-Net graph, however, would place Frisian with Northern Dutch, Southern Dutch (Flemish) and Afrikaans, i.e. with varieties of Dutch, as shown in McMahon and McMahon (2005: 161); this outcome no doubt is due to the heavy lexical borrowing from Northern Dutch into Frisian. A more extensive investigation of stable versus unstable properties of languages and a further refinement of the calculation methods used (also taking well-established shared innovations into account) presumably will result in more satisfactory outcomes. Rhizotic models, according to the present author’s view, thus present interesting, new ways of representing of genetic relationships. But by simply quantifying similarities between genetically related languages, without putting these phenomena in a historical perspective, i.e. without taking into account the chronology of the different historical layers, one ends up with an incorrect – and therefore dissatisfactory – genetic classification.

87. Compare also McMahon and McMahon (2005) for reticulation or netbuilding formation, as against an arborial representation, for Germanic and Romance languages within Indo-European and their mathematical background.
Part III

Studying language change in a wider context

During the early days of Generative Grammar in the 1960s and 1970s, the use of deductive methods (aimed at an in-depth study of a small number of languages first before embarking upon a deeper investigation of other more "exotic" languages) constituted the preferred research strategy. During the same period, however, scholars like Joseph Greenberg emphasised the importance of inductive methods in linguistics, by investigating a large number of languages in order to arrive at interesting cross-linguistic generalisations and variation between languages. This typological approach towards language study may also be combined with historical-comparative language studies, as shown by Greenberg (1978), where his method of dynamic comparison is introduced. The latter involves intragenetic comparison, i.e. a comparison of processes of change of related phenomena within a given genetic grouping, and intergenetic comparison of linguistic phenomena, i.e. a comparison between languages which are not or cannot be shown to be genetically related. With this type of processual comparison one focuses on the operation of similar diachronic linguistic processes, i.e. classes of similar but historically independent changes in diverse and independent instances, and one may try to infer universal patterns of change from these. See, for example, Herbert (1986) for an application of Greenberg's techniques of dynamic comparison as applied to prenasalised stops.

Such a method of comparison may be termed dynamic because it also involves, in an essential way, hypotheses about historical changes or historical origins, while methods in which this feature is absent may be called static. The second aspect of this former model, the dynamicisation of a subtypology, involves the intensive comparison within the type, i.e. a comparison of the languages which have such a property. For example, we first consider languages with nasal vowels with a view to the formulation of synchronic universals concerning the property in question. We then "dynamise" the results by certain procedures in order to establish developmental, i.e. historical, courses of events typical of the subtype.

As shown by Greenberg (1969) on the basis of a cross-linguistic study of voiceless (non-voiced or whispered) vowels, such a dynamic comparison leads towards interesting inductive-based generalisations on the cross-linguistic stability of such vowels. For example, it is claimed on the basis of intragenetic and intergenetic comparisons that if any language has high-pitched voiceless vowels, it has low-pitched voiceless vowels; also, the existence of voiceless vowels of less than the maximal
degree of vowel height implies the existence of some vowels of the maximal degree. With such knowledge at hand, we also have a powerful heuristic device for the historical comparison of this phenomenon in groups of genetically related languages where this phenomenon occurs.

Influential theoreticians of the “Generative Enterprise” like Noam Chomsky have always distinguished between the “conceptual” and “computational” components of language, the first embracing semantics and pragmatics and perhaps interconnected with non-linguistic cognitive capacities, the second involving syntax and phonology and constituting a truly autonomous processing mechanism of central interest to linguists, according to the same philosophy. But as we saw in preceding chapters, e.g. on semantics (Chapter 5) or on language contact phenomena (Chapter 8), our understanding of language and its place in society is enriched by taking into account the interaction of conceptual and computational components of human language. Fortunately, linguistic denominations have become less orthodox, religious schools these days, and there is more interaction and cross-breeding again between these alternative approaches towards the synchronic and diachronic study of language. Moreover, in Generative Grammar language variation (or parametric variation, as it has come to be called) is a central research topic today. (See, for example, the contributions by Lightfoot 1991, 1999 or van Gelderen 2006).

As should be clear from the preceding chapters, the present author is very much in favour of integrating “conceptual” components of language into the historical-comparative study of languages, as more interesting results, in terms of explanatory adequacy, are obtained by taking into account semantics and pragmatics as well as culture and cognition, rather than excluding these from “core linguistics”. Part III of the present monograph is about these additional approaches to the formalist approach of grammar, and their impact upon the comparative method.

Eliminating typological criteria was “the single most important factor in the success of my African classification”, as the late Joseph Greenberg pointed out in an interview (Bateman 1990: 19). Some of the case studies presented below should make clear why language typology as such, as developed by the Greenberg and others, nevertheless is important for historical linguistics. At the same time, these examples should also illustrate the potential dangers of its application, since one may tend to reconstruct towards an “average” language type without doing justice to specific historical-comparative evidence.
Chapter 13

Language typology and reconstruction

13.1 Phonological typology as a heuristic and controlling device

The same scholar who provided the comparative study of African languages with a new impetus as a result of his classificatory work, Joseph H. Greenberg, also made quintessential contributions to the field of language typology. When Greenberg was working on his doctoral dissertation on the pre-Islamic religion of the Hausa at Yale University (USA), he also began to develop some groundbreaking ideas on inductive methods in linguistics. His intellectual impetus apparently derived from the research of Yale anthropologists, who were trying to come to grips with variation between cultures in the way kinship terminology is organised on the basis of a worldwide comparison of kinship systems. Greenberg transferred this inductive method onto the comparative study of languages (as stated in an interview published in Newman 1991). In a way, Greenberg continued a tradition started by 19th century scholars like Friedrich von Schlegel, Wilhelm von Humboldt, Friedrich Müller and others, as well as 20th century scholars like the eminent Edward Sapir, Nikolai Sergejewitch Trubetzkoy, or Roman Jakobson, who also based their theories on an ever increasing corpus of data on languages from different parts of the world. Below, we shall discuss both the value and the potential danger of language typology as a supplementary method in the historical-comparative study of languages.

13.1 Phonological typology as a heuristic and controlling device

In a classic contribution on language typology edited by Greenberg (1966), which set a hallmark for a new era in the typological study of languages, one also finds a number of historically oriented studies. One of these is a study by Ferguson on nasals and nasality (Ferguson 1966). On the basis of a comparison of a (geographically and genetically)
wide range of languages, Ferguson arrived at a number of claims concerning nasals. It is claimed in his study, for example, that every language has at least one primary nasal consonant (PNC) in its inventory. Moreover, if a language has only one PNC, it will be an apical nasal (dental or alveolar); if there are two nasals in a language, then the other one is \( m \), according to his observations. Ferguson also arrives at some generalisations concerning nasal(ised) vowels, for example that no language has nasal vowels unless it also has one or more primary nasal consonants. Most of his claims are assumed to be absolute or near-universals. Of course languages may vary widely as to the number of oral vowels they have (just a few, as is true for some Chadic or Caucasian languages, or over forty, as in some Western Nilotic languages), as well as to the number of nasal vowels they distinguish. We thus have the unrestricted universal that all languages have oral vowels, and the implicational universal that the presence of nasal vowels implies the presence of oral vowels but not vice versa. 88 Also, according to the same author, nasal vowels, apart from borrowing and analogical formations, always result from the loss of a primary nasal in the environment of non-distinctively nasal vowels.

What is the relevance of such observations on absolute and implicational universals for the comparative study of languages? If correct, such claims may serve as heuristic and controlling devices. The so-called **Uniformitarian Principle**, probably first formulated by the geologist James Hutton in 1785, implies that knowledge of processes that operated in the past can be inferred by observing ongoing processes in the present (cf. Christy 1983: ix). 89 Such an approach forces one to ask questions about historical changes, and synchronic analyses which, as we shall see below, go beyond the initial level of comparative or descriptive work. They take the form of theories of relative origin and of implicational relations among changes. This may be further illustrated by applying the method of dynamic comparison introduced above to the phenomenon of nasal(ised) vowels in West African languages.

Ferguson (1966) assumes that there are no sources for nasal consonants, whereas there are processes by which they could be lost. Such a situation or type, from which there is no egress, is referred to as a sink in general systems theory. But “spontaneous” nasalisation, in particular of voiced stops, does occur (Ohala and Amador 1981). Schadeberg (1999: 385) describes such a case for Makhuwa, where the reflex of the Proto-Bantu nominal prefix preceded by the augment *dɪ-i, is nɪ-. Also, a velar nasal ɣ may develop from ʰ or a glottal stop, an affinity referred to by Matisoff (1975) as

88. It has been shown by Kuipers (1960) that phonological systems in Caucasian languages like Kabardian may be analysed as lacking vowels, as their quality can be predicted from the neighbouring consonant. The point is that these languages have vowels at least at the phonetic level.

89. Here, the interested reader is also referred to Joseph and Janda (2003: 23–37) for a discussion of the various ways in which this term has been used.
rhinoglottophilia. Such changes of \(^*h > \eta\) or \(^*ʔ > \eta\) are attested in varieties of Tibetan or dialects of Thai, but also in northeastern Bantu languages such as Nyole. Schadeberg (1989) argues that Proto-Bantu \(^*p\) changed to \(h\) (probably via \(ϕ\)) and subsequently progressed to (nasalised) \(h̃\) and \(ŋ\) in Nyole, as a result of acoustic similarity between such sounds. Synchronically, this results in “unnatural” (or “crazy”) alternations, for example when a first person singular subject marker \(n-\) is added to such stems with an initial \(ŋ\) going back to an original \(h\) (or \(p\)):

\[-puliira < -huliira < -puliira\]
\[puliira (< n-puliira)\]

\(\text{’hear’}\)
\(\text{’I hear’}\)

Nasal vowels are very common across West Africa (Clements and Rialland 2008: 45–49). Consequently, they are likely to have played a role in the historical development of various languages in the area. Diachronic statements about the origin or loss of nasality in vowels, on the basis of intragenetic as well as intergenetic studies, would constitute a dynamicisation of the typology, i.e. a translation into the diachronic plane of synchronic universal generalisations. A much debated issue in the comparative study of Niger-Congo languages indeed involves the role played by nasality as a segmental or suprasegmental property from a synchronic point of view, and, consequently, from an historical perspective. Nasal vowels are widespread in different branches of the Niger-Congo phylum as defined by Greenberg (1963). As Bole-Richard (1985) shows in his survey of this phenomenon, they occur in Mande (e.g. Dan, Gban, Guro, Mwan, Toura, Wan, Yaouré), Kru (e.g. Grebo, Klao, Nyabwa), Kwa (e.g. Abouré, Abron, Akan, Avikam, Ebrié, Ewe, Fon, and Mbatto), Gur (e.g. Bwamu, Senadi/Senufo), Ubangi (e.g. Yakoma), as well as in a range of Benue-Congo languages belonging to the Edoid cluster, or Igboid varieties such as Mbaise Igbo and Ikwere; Clements and Osu (2005) give a detailed synchronic study of this phenomenon in Ikwere. Let us have a closer look at one of these languages in order to see how nasalisation manifests itself at the segmental level.

The Kwa language Ebrié (Cama), which is spoken in and around the capital of the Ivory Coast, Abidjan, has a contrast between “fortis” and “lenis” consonants. In addition, there are seven oral and three nasal vowels in Ebrié.

### Table 24. The consonants of Ebrié

| \(p\) | \(t\) | \(cs\) | \(k\) | \(-\text{lenis}\) |
| \(b\) | \(d\) | \(jz\) | \(g\) | \(gb\) | \(-\text{lenis}\) |
| \(’p\) | \(’t\) | \(’c\) | \(’k\) | \(’kp\) | \(+\text{lenis}\) |
| \(’b\) | \(’d\) | | | | \(+\text{lenis}\) |
| \(f\) | \(ʃ\) | \(y\) | \(w\) | | \(-\text{lenis}\) |
If a voiced lenis consonant in Ebrié is either followed or preceded by a nasal vowel, it becomes nasal, whereas the glides become nasals with a corresponding place of articulation: ‘b, ’d, y, w → [m, n, ɲ, ŋ] respectively. As a result, one finds morphophonemic alternations such as ε-’ba ‘you come’ versus mɛ-ma ‘I come’. Also compare the following alternations:

\[
\begin{align*}
\text{abi} [abì] & \quad \text{‘grass’} & \quad \text{adu} [ndu] & \quad \text{‘water’} \\
\text{a’bi} [a’bi] & \quad \text{‘drum’} & \quad \text{a’de [a’le]} & \quad \text{‘tongue’} \\
\text{a’be [mme]} & \quad \text{‘trap’} & \quad \text{a’de [a’nε]} & \quad \text{‘hoe’}
\end{align*}
\]

The articulatory nature of the lenis feature in Ebrié “appears to consist in the absence of the heightened oral cavity pressure which, in other languages, commonly occurs as a redundant feature of obstruents. The difference in pressure is conveniently illustrated by the Ebrié pair [b] (nonlenis), [’b] (lenis). The nonlenis [b], which is similar to the [b] that is characteristic of languages in which the lenis feature is redundant, differs from [m] not only in being oral but also in having heightened pressure in the oral cavity as a result of the air flow being completely blocked. In the lenis [’b], however, the heightened pressure is somehow avoided; the auditory impression is of a sound intermediate between [b] and [m]” (Stewart 1973: 3). Phonetic descriptions of such consonants include oppositions such as long versus short duration of articulation, strong versus weak articulation, or greater versus less muscular tension (hence the scare quotes for “fortis” and “lenis” above). Auditory-based cues may also be the reason for the occasional re-interpretation of voiced stops as voiced nasals cross-linguistically.

Stewart (1976) reconstructs a similar system for Proto-Potou, the common ancestor of Ebrié and the closely related language Mbato. The original system reconstructable for Proto-Volta Congo, the common ancestor of the Benue-Congo and Kwa languages, again was similar to that found in present-day Ebrié, according to Stewart (1985, 1989), who further claims that this proto-language had nasal vowels and no distinctively nasalised consonants, though he does assume that the so-called “voiced lenis” consonants were non-distinctively nasalised in the environment of nasal vowels in Proto-Volta-Congo, as they are in present-day Ebrié. Thus:

**Table 25.** The consonants of Proto-Volta-Congo (Stewart 1989)

<table>
<thead>
<tr>
<th>Proto-Volta-Congo</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p</td>
</tr>
<tr>
<td>*ʼp</td>
</tr>
<tr>
<td>*ʼ[m]</td>
</tr>
</tbody>
</table>

According to Stewart (1989), nasal consonants phonologised at subsequent stages in the historical development of Volta-Congo through the loss of oral/nasal vowel contrasts, or, alternatively, through the loss of the oral consonant which was the source of the corresponding nasal consonant. Ferguson’s claim that nasal vowels, apart from
borrowing and analogical formations, always result from loss of a primary nasal con-
sonants is not necessarily disproved by Stewart’s claims on the origin of nasal vowels in Volta-Congo. The proposed scenario merely shows that, given our current knowl-
edge of the historical development of Volta-Congo, nasal vowels must be assumed to be old in this phylum. Although in Chapter 2 it is argued that sound changes tend to be cyclical in nature, it has to be concluded that particular stages can be quite persistent, as appears to be the case with nasal vowels across West Africa.

The general trend in Volta-Congo appears to have been for nasal sounds to gain phonological ground at the expense of nasal vowel sounds, as may be illustrated with examples from Gbe, a dialect cluster within the Kwa branch spread across southern Ghana, southern Togo and Benin, as well as Nigeria. There has been a lively discussion around the phonological analysis of the Gbe consonant system, revolving around the question whether the nasal consonants in this cluster have phonemic status or not. The problem arises from constraints on the distribution of the nasal consonants and the nasal vowels in the five major Gbe dialects: the Vhe dialects, the Gen dialects, the Aja’ cluster, Fon, and the Phla-Phera’ dialects.

Bole-Richard (1976) states that b, d, m, and n have phonemic status in Gbe, be-
cause b and d – like all other voiced obstruents and unlike all sonorants (including phonetically nasal consonants) – are tone depressors. As noted in Capo (1981), nasal consonants (more specifically, nasal stops, nasalised liquids and approximants) in vari-
ous dialects are followed by nasal vowels. Capo (1981) refuses to recognise any nasal consonant phonemes but finds himself up against the difficulty that b, d, l, y, y, w do not constitute a natural class. Stewart (1989) argues that Capo’s analysis is dubious and that Gbe has nasal consonant phonemes m, and n from a synchronic perspective. It is further argued by the same author that nasal vowels were denasalised after obstruents with the result that the nasal consonants are now the phonological equals of the nasal vowels in CV syllables; nasal vowels occur only after nasal consonants just as nasal consonants occur only before nasal vowels. Stewart argues that it is arbitrary to decide one way or the other, and that Adangbe, like all the other dialects, is better analysed as having both nasal consonant phonemes and nasal vowel phonemes. In other words, nasals are phonemic in Gbe.

In a sequel to his comparative Volta-Congo studies, Stewart (1999) argues, on the basis of a systematic comparison between the Potou-Tano group within Kwa and the distantly related Bantu branch within Niger-Congo, that Meinhof’s Law in Bantu was the result of a historical rule involving stop epenthesis: Simple nasals were changed into prenasalised voiced stops before oral vowels, but they were left unchanged before

---

90. Hyman (1972) in fact assumes that nasal vowels in Niger-Congo originated from nasal conso-
nants, a hypothesis presumably inspired by Ferguson’s (1966) article.
nasalised vowels in forms combining a homorganic nasal prefix with a stem beginning with a voiced oral consonant. As a result, we find correspondences between Proto-Bantu prenasalised voiced stops and \( NN \) sequences in the Potou-Tano (Kwa) language Akan before oral vowels; the Proto-Bantu simple nasals correspond to \( NN \) sequences before nasal vowels in Akan.

The validity of Stewart’s reconstructions and hypothesised sound systems presumably can be further tested once more detailed synchronic and historical-comparative accounts become available for another Niger-Congo outlayer, including the rather different Niger-Congo languages spoken in the Nuba Mountains.

Elugbe (1973) shows the complexity of consonant inventories in his comparative study of the Edoid cluster within Benue-Congo. Here, lenis consonants are relatively marked, i.e. acquired later than corresponding non-lenis consonants by children. They have also been more susceptible to change; their reflexes thus are more varied in phonetic character, frequently involving weakening towards fricatives or approximants, but also hardening, i.e. merger with the non-lenis counterpart (Elugbe 1980). Elugbe (1973) reconstructs the following consonants for Proto-Edoid:

### Table 26. The consonants of Proto-Edoid (Elugbe 1973)

<table>
<thead>
<tr>
<th>Lenis</th>
<th>*ph</th>
<th>*th</th>
<th>*ch</th>
<th>*kh</th>
<th>*kwh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-lenis</td>
<td>*p</td>
<td>*t</td>
<td>*c</td>
<td>*k</td>
<td>*kwh</td>
</tr>
<tr>
<td>Nasal</td>
<td>*mh</td>
<td>*nh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-nasal</td>
<td>*m</td>
<td>*n</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In addition, *ɓ, *ɗ, *f, *v, *l, *y, w are reconstructed for Proto-Edoid. In an appendix, Elugbe (1980) presents a rather extensive data set, consisting of reconstructions and their reflexes in Edoid languages, some of which are repeated here, in order to show weakening and strengthening of lenis consonants in this Benue-Congo subgroup.

### Table 27. Proto-Edoid reconstructions

<table>
<thead>
<tr>
<th>Proto-Edoid</th>
<th>*bhua ‘dog’</th>
<th>*dhi ‘eat’</th>
<th>*chuñho ‘hear’</th>
<th>*ghu ‘die’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degema</td>
<td>bôô</td>
<td>dî</td>
<td>suene</td>
<td>wu</td>
</tr>
<tr>
<td>Auchi</td>
<td>á-yùá</td>
<td>lè</td>
<td>sɔ</td>
<td>ghu</td>
</tr>
<tr>
<td>Uhami</td>
<td>á-biá</td>
<td>ri</td>
<td>huo</td>
<td>gu</td>
</tr>
</tbody>
</table>

Childs (1992–1994) argues, by using internal reconstruction as a method, that prenasalised stops in the Atlantic language Kisi historically developed from a reinterpretation of preceding nasalised vowels (*C \( \tilde{v} \) C v > C \( \tilde{N} \) C v). This would be another instance, then, of what Ohala (1981) calls hypocorrection.
Another vowel feature, (ATR] vowel harmony, is also widespread in Niger-Congo as well as in Nilo-Saharan, Chadic, Cushitic and Omotic (Afroasiatic) languages bordering on these phyla; compare Casali (1995, 2007) for a survey of the literature. Comparative evidence at lower-level units within Niger-Congo shows that this type of vowel harmony may be both acquired and lost relatively rapidly. Thus, some northern Bantu languages bordering on Central Sudanic and Ubangian languages have acquired ATR systems, probably as a result of areal contact; see Kutsch Lojenga (2003) for a description of the Bantu language Bila, where two more vowels have been added to the original Proto-Bantu 7-vowel system. The following table, derived from Dimmendaal (2001a) illustrates variation in the number of vowels in different Benue-Congo branches.

Table 28. Vowel systems in Benue-Congo

<table>
<thead>
<tr>
<th>Branch</th>
<th>Vowels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edoid</td>
<td>between 7 and 10</td>
</tr>
<tr>
<td>Nupoid</td>
<td>between 5 and 10</td>
</tr>
<tr>
<td>Idomoid</td>
<td>10</td>
</tr>
<tr>
<td>Defoid</td>
<td>between 7 and 9</td>
</tr>
<tr>
<td>Igboi</td>
<td>between 8 and 10</td>
</tr>
<tr>
<td>Platoid</td>
<td>between 5 and 9</td>
</tr>
<tr>
<td>Kainji</td>
<td>between 5 and 9</td>
</tr>
<tr>
<td>Bantoid</td>
<td>between 6 and 10</td>
</tr>
</tbody>
</table>

Dimmendaal (2001) raises the question to what extent this type of vowel harmony is the result of areal diffusion or common genetic inheritance, but concludes that this issue cannot be clarified until in-depth comparisons have been carried out for lower genetic levels within Niger-Congo (and Nilo-Saharan), given the variation within these subgroups.

The nature of implosive consonants may serve as an illustration of why typology sometimes should be handled with care. As argued by Kutsch Lojenga (1994), the Central Sudanic languages Lendu and Ngiti make a phonological distinction between voiced and voiceless implosives. Such a phonological contrast was unattested in the typological literature until recently. Research by Pascal Boyeldieu (personal communication 2005) suggests that the contrast in Lendu and Ngiti is indeed old in Central Sudanic, and probably should be reconstructed for their common ancestor.

Language typology should not predetermine reconstruction, as we still need to learn a lot about language variation. Moreover, language typology may not always be able to "help out". The origin of click consonants in Khoisan languages is a case in point. Whether there is a possible historical link with ejective consonants (consonants which are very common mainly in Afroasiatic languages in eastern and north-eastern

---

91. In Dimmendaal (1986), this contrast was interpreted as one between preglottalised voiced and voiceless implosives.
Africa) remains an interesting question. Also, the origin of breathy voice in vowel systems in the Western Nilotic Dinka-Nuer cluster remains to be clarified. As shown by Andersen (1990), an original system of five [−ATR] and five [+ATR] vowels developed into a system of seven creaky voice and seven breathy voice vowels in Western Nilotic Dinka (an innovation probably shared with Nuer and Atuot). It is a well-known fact that [+ATR] vowels are redundantly breathy, whereas [−ATR] vowels are creaky. A rather puzzling question, however, is why such dramatic reinterpretations of the vowel systems occurred in this subgroup of Western Nilotic. Although areal contact normally is a cause of dramatic phonological and grammatical restructuring, none of the surrounding languages in fact has such a system. The only language which appears to have a contrast between breathy and non-breathy vowels is the Omotic (Afroasiatic) language Aari, spoken in southwestern Ethiopia (Hayward 1990); consequently, its actuation in Western Nilotic remains a mystery.

As useful and enlightening as language typology may be, the comparative evidence should prevail. Some scholars, e.g. Vennemann (1984: 607) have gone as far as to question the heuristic function of language typology in the study of language change. But this position would appear to be too strong. The lesson to be drawn presumably is that we still have a lot to learn about typological differences between languages, but our preliminary results can nevertheless be used.

### 13.2 Morphological typology and reconstruction

Traditionally, language typology is conceived of as a synchronic concept. But as shown by Greenberg (1969) with respect to voiceless vowels as a typological phenomenon, one can dynamise the typology by investigating constraints on changes. This method of dynamic comparison has also been applied to morphology by Greenberg, e.g. with respect to the development of gender systems (Greenberg 1978). Gender should be understood here, not only in reference to masculine, feminine and neuter forms (as found, for example, in Afroasiatic or a number of Nilo-Saharan languages), but also to noun-class systems. Thus, singular/plural (or singulative/collective pairings expressed by way of noun-class affixes, as commonly found in different Niger-Congo groups, are also sometimes referred to as genders.

Variation between different Niger-Congo branches and individual languages involves their status as prefixes, suffixes, proclitics or enclitics, as observed in Williamson (1989a). Second, the grammatical status of these markers also differs; in some languages they play a role as definite markers, whereas in others they are simply obligatory inflectional markers regardless of the syntactic or pragmatic role of the noun to which they are attached. De Wolf (1971: 52) concludes that at least the following nominal class pairings can be reconstructed for Proto-Benue-Congo:
Table 29. Proto-Benue-Congo noun classes I (De Wolf 1971)

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ìi</td>
<td>*ba</td>
</tr>
<tr>
<td>*li</td>
<td>*a</td>
</tr>
<tr>
<td>*i</td>
<td>*i</td>
</tr>
<tr>
<td>*ku</td>
<td>*i</td>
</tr>
<tr>
<td>*ku</td>
<td>*a</td>
</tr>
<tr>
<td>*ki</td>
<td>*bi</td>
</tr>
</tbody>
</table>

Wolf (1971: 52) contends that the reconstruction of the following noun classes is less well established, given inconclusive internal evidence (within the Benue-Congo branch).

Table 30. Proto-Benue-Congo noun classes II (De Wolf 1971)

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>*èi</td>
<td>*X</td>
</tr>
<tr>
<td>*ka</td>
<td>*X</td>
</tr>
<tr>
<td>*bu</td>
<td>*X</td>
</tr>
<tr>
<td>*ìu</td>
<td>*i</td>
</tr>
<tr>
<td>*pì</td>
<td>*i</td>
</tr>
<tr>
<td>*ki</td>
<td>*a</td>
</tr>
</tbody>
</table>

Since a number of these noun-class markers, e.g. ka- or bu-, are attested in more distantly related Niger-Congo languages like Timca, which is classified as Kordofanian in Greenberg (1963), these in fact must pre-date Proto-Benue-Congo, according to the present author. (Data based on Alamin 2009 and Dimmendaal 2009b).

\[
\begin{align*}
\text{ka-han} & \quad (sg) / i-han \quad \text{‘egg’} \\
\text{ki-li’ii} & \quad (sg) / i-li’ii \quad \text{‘tongue’} \\
\text{bu-tun} & \quad \text{‘dirtiness’} \quad (-\text{tun} \text{ ‘dirty’}) \\
\text{ki-timi’il} & \quad \text{‘departure’} \quad (-\text{timi} \text{ ‘leave’})
\end{align*}
\]

In their survey of reduction processes in Niger-Congo noun-class systems, Demuth, Faracals and Marchese (1986) show that this slant goes in two directions. Either the agreement system is strongly reduced (with concord being lost first with numerals and adjectives, and retained longest with subject pronouns), as in Kru languages, or, alternatively, the system of nominal prefixes is reduced, and concord is still more extensive. Table 31 adapted from Dimmendaal (2001a) shows the variation in affixation systems across Niger-Congo.
Table 31. Noun-class affixation in Niger-Congo

<table>
<thead>
<tr>
<th>Noun</th>
<th>Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic</td>
<td>prefixes reconstructed; also suffixation</td>
</tr>
<tr>
<td>Kru</td>
<td>suffixation</td>
</tr>
<tr>
<td>Gur</td>
<td>prefixes (innovating suffixes and proclitics?)</td>
</tr>
<tr>
<td>Adamawa</td>
<td>petrified suffixes</td>
</tr>
<tr>
<td>Kwa</td>
<td>(remnant) prefixes</td>
</tr>
<tr>
<td>Benue-Congo</td>
<td></td>
</tr>
<tr>
<td>Defoid</td>
<td>petrified prefixes</td>
</tr>
<tr>
<td>Edoid</td>
<td>reduced prefixation</td>
</tr>
<tr>
<td>Idomoid</td>
<td>(petrified) prefixation</td>
</tr>
<tr>
<td>Nupoid</td>
<td>reduced (petrified, some suffixation)</td>
</tr>
<tr>
<td>Igboid</td>
<td>petrified prefixes</td>
</tr>
<tr>
<td>Cross-River</td>
<td>prefixes (partly reduced)</td>
</tr>
<tr>
<td>Kainji</td>
<td>prefixation (partly reduced)</td>
</tr>
<tr>
<td>Platoid</td>
<td>towards suffixation</td>
</tr>
<tr>
<td>Bantoid</td>
<td>prefixation (reduction and loss in north)</td>
</tr>
<tr>
<td>Kordofanian</td>
<td>prefixation</td>
</tr>
</tbody>
</table>

Within Atlantic, noun class systems also vary between prefixation, suffixation with or without stem-initial alternation. Doneux (1975) concludes that Atlantic originally must have used a prefixation system, a noun-class system still found in Wolof, for example. In Serer, one finds a combination of prefixation and suffixation (the latter system going back to enclitisation and subsequent suffixation of former demonstratives), whereas in Fulfulde, there is a productive system of noun-class suffixation, with remnants of a former prefixation system (as still found in Serer) involving consonant alternation. These languages all belong to the Senegambia group within Northern Atlantic. Drolc (2005) argues that in Cangin, another group of Northern Atlantic languages, an intermediate stage between prefixation and consonant mutation can be observed.

In Kru languages, we find a reduced system in which animacy plays a major role. From a formal point of view, suffixes or root-internal alternation (resulting from fusion of an original suffix with the preceding nominal stem) plays a role, as in Godie: su/si ‘tree(s)’. The fact that animacy plays a role in the system is due, presumably to the retention of alternation in nouns referring to human beings, which tend to have a high frequency. Concordance has been pertained in Klao, even though the alternation system has disappeared from the noun, instead being realised on nominal modifiers such as adjectives (Demuth, Faracas, and Marchese 1986).

nye plu ‘white man’ nye pli ‘white men’
A pioneer of Gur studies, Manessy (e.g. 1975, 1979) has described the Gur (Voltaic) system of noun-class clitics and suffixes specifying nouns. Here, one finds languages which show genuine prefixes in the Eastern Grusi (Tem) group within Gur, in addition to suffixes resulting from nominalisation of verbs (by prefixation and suffixation).

Suffixation of noun classes is also found in the Adamawa branch of Niger-Congo. Adamawa and Gur probably constitute a genetic subgrouping within Niger-Congo (Kleinewillinghöfer 1996), and consequently the disappearance of noun-class prefixes and the corresponding development of enclitical (and, subsequently, suffixal) elements possibly is a shared innovation of Adamawa and Gur. Miehe and Winkelmann (2007) present a detailed discussion of these noun-class systems in Gur from a synchronic and diachronic point of view. The authors reconstruct a total set of 25 noun classes for Gur.92 It is interesting to note that several of the reconstructed Proto-Gur forms contain nasals. The origin of these segments in prefixes is a bone of contention for scholars working on Niger-Congo languages, as we saw in Chapter 4.

How could this kind of variation across Niger-Congo between prefixation, suffixation, procliticisation or encliticisation come about historically? This may be illustrated on the basis of a synchronic investigation of one such system of noun classes, that of Dakarkari, a described by Hoffmann (1967). Noun classes in this Kainji (Benue-Congo) language can be grouped in a range of gender (singular/plural) alternations. When nouns in Dakarkari are modified by a demonstrative, the head noun drops its class prefix:

\[
d-hyi \quad \text{‘head’}
\]

\[
hyi \quad d-hn\quad \text{‘this head’}
\]

\[
yi \quad d\-hnè \quad \text{‘the head’}
\]

Similarly, when a head noun is modified by a genitive construction or adjective, the former drops its own class prefix. Thus, more generally, the class prefix disappears "in the moment the noun becomes the head of an extended nominal group with a qualifier marked by concord following it" (Hoffmann 1967: 15–16). The synchronic systems of Benue-Congo languages like Dakarkari shows how languages may develop suffixation (through encliticisation) from an earlier prefixation system. Kießling (2009) reports similar alternations synchronically for Grassfields Bantu languages like Aghem, but he also shows that this must be the result of the gradual loss of nominal prefixes whenever the noun was modified, since modified nouns in other languages from this group, like Isu, maintain the prefix under certain (syntactic and pragmatic) conditions even when the noun is modified. The system, as described for Dakarkari above, may therefore be

92. Miehe and Winkelmann (2007: 8, 22) also reconstruct locative noun classes ‘po and ‘ko for Proto-Gur. This is particularly interesting since remnants of locative classes are found in distantly related Niger-Congo languages in the Nuba Mountains, Sudan, such as Tima (Alamin 2009).
the endpoint of a historical process involving the gradual loss of noun-class markers when nouns are modified.

Greenberg (1977) raises the question whether Proto-Niger-Congo had prefixes, suffixes or both. He concludes that it is likely to have had a system of noun-class prefixes, rather than suffixes for a number of reasons. First, this is the most widespread pattern genetically across this phylum. Second, suffixation systems can be shown to be innovations in Atlantic, Benue-Congo or Gur. Encliticised and suffixed noun classes, as subsequent developments in different Niger-Congo subgroups, can be explained by way of the following stages of historical development (Greenberg 1978):

Stage I: Certain demonstratives are gradually reduced to definite articles following the noun.
Stage II: These definite articles become more widely used in due course and lose their semantic feature [definite], and/or become phonologically eroded.
Stage III: These suffixes or enclitics marking nominality are attached to a noun in all circumstances, except in particular cases where definiteness or indefiniteness is predictable, e.g. proper names, inalienable nouns, locatives.

A similar process may have occurred with gender marking in Eastern Nilotic (Nilo-Saharan) languages. In Nilotic (Nilo-Saharan) we find a gender-marking system of a different nature, involving distinctions between masculine, feminine (and, occasionally, neuter) gender. Whereas gender marking is a sex-marking (derivational) property of nouns in Western and Southern Nilotic languages, it is an obligatory inflectional property of nouns in Eastern Nilotic. Within this latter sub-branch, the system is covert in the Bari group, i.e. only marked on nominal modifiers, whereas in the remaining Eastern Nilotic languages (also called the Non-Bari group) gender marking is overt. These typological differences again can be explained along the lines proposed by Greenberg (1978) for gender systems in general. The dynamicisation of subtypologies with respect to gender marking shows that at Stage I a reduction to definite marker may occur. At Stage II, a broadening of its distribution to non-generic article occurs. At Stage III, it becomes an obligatory marker on nouns (with some exceptions). What this chain of historical reinterpretations of course does not explain is the origin of the gender system itself.

The various gender-marking systems in Eastern Nilotic languages can be accounted for historically as reflexes of different stages of grammaticalised gender marking. Whereas in languages like Bari masculine and feminine gender is marked on nominal modifiers, these markers have become obligatory inflectional elements of the noun as well as categories modifying the noun in languages like Maa (Heine and Vossen 1983). In Maa, gender markers are still omitted when nouns are used adverbially, when a
demonstrative precedes, or when the noun is used in an indefinite (generic) sense, as in the following example with the noun *ɔl-kɪn* 'breast'

\[
\begin{array}{c}
\text{ki-ŋar} \\
1\text{pl.-share}
\end{array}
\begin{array}{c}
kɪn

\end{array}
\]

‘we share the breast (i.e. we have the same mother)’

In Teso-Turkana, the presence of demonstratives has no longer consequences for the presence of nominal gender markers. The latter are simply obligatory. Also, the number of syntactic contexts in which the gender marking can be omitted is more restricted than in Maa; for example, generic use without an overt gender marking in combination with a verb is not attested in ‘Teso-Turkana. Nevertheless, a number of nouns lack gender markers when used in an adverbial sense, e.g. Turkana *kwɔp* ‘down’ versus *a-kwɔp* ‘land’.

Gender marking is rather rare in Nilo-Saharan languages, but it is a deeply rooted property of Afroasiatic languages. Newman (1980b) points towards the stability of gender allocations for nouns in Afroasiatic, i.e. the tendency for nouns to be either masculine or feminine, even when lexical replacement occurs. Whereas in some Afroasiatic languages gender is overtly marked on the noun, in others it is covert, showing on nominal modifiers or cross-reference markers on the verb. Thus, the word for ‘sheep’ in Chadic is intrinsically feminine; in languages like Hausa this inherent property has come to be marked overtly, as in *tünkìyáά* < *túmkì* (Newman 1979). As the gender of borrowings in Hausa has been assigned on semantic or analogical criteria, the original fit between phonology and gender is gradually breaking down again; compare the feminine noun *ɡwɔmn̩ati* ‘government’ (from English), which is feminine by analogy with the earlier Arabic borrowing *hukumɔ* ‘government’ (Newman 2000: 270–27).

A final example presented here, in order to show how language typology may act as a heuristic device, relates to the expression of event structures in Nilo-Saharan. Around 95% of verbal predications in the Saharan (Nilo-Saharan) language Kanuri consist of a verb ‘say, think’ *n* (also referred to as a light verb) combined with another constituent (also referred to as coverb), together referred to as class 2 verbs in Hutchison (1981). The latter construction may be based on a noun, adjective, adverb or a complement whose categorical status cannot be determined, followed by a (conjugated form of the light) verb *n*.93 Some examples (based on Hutchison 1981: 101–111), where + marks a morpheme boundary:

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93. The term “coverb” is slightly confusing, since it does not refer to a verb, but rather to the complement of a verb, namely the light verb ‘say’ or sometimes ‘do’.
Historical Linguistics and the Comparative Study of African Languages

### Basic category

- **kam kura** ‘important person’
- **ngwə** ‘many, a lot, much’
- **zau** ‘difficult, expensive’

### Coverb construction

- **kamkura** + ‘become an important person’
- **ngwə** + ‘become plentiful’
- **zau** + ‘become difficult, expensive’

The use of a light verb ‘say’ in combination with ideophonic words is widespread across the African continent. But predicate formations with ‘say’ in these Nilo-Saharan languages go way beyond this type of idiom formation, as the Kanuri examples illustrate. Remaining predications like ‘eat’, ‘follow’, or ‘see’ are expressed by simple verbs, i.e. verbal predications without the light verb *n* (Hutchison 1981: 98ff). In a different subgroup of Nilo-Saharan spoken in the same area, the Tama group, the same strategy of light verb plus coverb is used to express event structures with around 40% of the verbal constructions (Dimmendaal 2009c). From a semantic point of view, these combinations of a light verb ‘do/say’ *n-* plus some other element frequently, though not uniquely, express movements of the body or mental states in Tama:

- **wii n-** ‘return’
- **ɓààr n-** ‘be angry’
- **hár n-** ‘curse’

Constructions with the verb ‘say’, used in order to render transitive (as against intransitive predications), also constitute the predicate frame for borrowings of verbs from Arabic in Tama and other Nilo-Saharan languages. Remaining constructions in Tama are expressed by way of simple verbs.

Studies in language typology show that this kind of variation is more common cross-linguistically. Dixon (2002) shows how Australian languages can be ordered along a continuum, based on the number of simple verbs they have as against the number of constructions formed with a light verb plus coverb. In the case of these Nilo-Saharan languages, the direction of change can only be determined once a more extensive historical-comparative investigation, i.e. a dynamicisation of subtypologies, has been carried out.

There is some evidence that complement incorporation into a verbal predicate also occurred in Pre-Bantu (Niger-Congo). Meeussen (1967: 88) reconstructs sets of verbs for Proto-Bantu probably containing an ancient nominal root, as in the following example:

- ***-túađ-** ‘carry on the head’ (***-túć** ‘head’)
- ***-túđ-** ‘put down’

Other examples include the verb ‘bear a child’, ***-bi-ad-**, which carries the ancient Niger-Congo root for ‘child’ ***-bi**, the Proto-Bantu root for ‘child’ being ***-yána**. Bantu languages are widely held to be conservative members of the Niger-Congo family;
Chapter 13. Language typology and reconstruction

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This at least is suggested by the system of noun classes and verbal extensions, which are also attested in distantly related members such as Kordofanian and Atlantic. These patterns of object incorporation involving location or body parts consequently may also reflect archaic features of the Niger-Congo family, although this issue has never been raised, it seems. Interestingly, this typological phenomenon is also attested in Mande languages like Bambara (Creissels 2005), and the linguistic isolate Gumuz (Ahland 1990).


Table 32. Verbal extensions in Niger-Congo

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a. Applicative</td>
<td>*-de</td>
<td>-*ad</td>
<td>-*ad</td>
</tr>
<tr>
<td>b. Causative</td>
<td>*-ci, *-ti</td>
<td>-*ic-i</td>
<td>(*-an)</td>
</tr>
<tr>
<td>c. Contactive</td>
<td>*-ta</td>
<td>*-at</td>
<td></td>
</tr>
<tr>
<td>d. Passive</td>
<td>*-o</td>
<td>-*ob-o</td>
<td>*V[+back]</td>
</tr>
<tr>
<td>e. Reciprocal</td>
<td>*-na</td>
<td>-*an</td>
<td>-*ad</td>
</tr>
<tr>
<td>f. Reversive (tr.)</td>
<td>*-to</td>
<td>-*od</td>
<td>-*t</td>
</tr>
<tr>
<td>g. Reversive (i.)</td>
<td>*-ko</td>
<td>-*ok</td>
<td></td>
</tr>
<tr>
<td>h. Stative/neuter</td>
<td>*-ke</td>
<td>*-ik</td>
<td></td>
</tr>
<tr>
<td>i. Stative/positional</td>
<td>*-ma</td>
<td>-*am</td>
<td></td>
</tr>
</tbody>
</table>

Voeltz (1977) assumes that the verbal extensions originated from verbs. The reciprocal probably originated from a preposition, still attested as such in distantly related Bantu languages like Swahili (na), and Niger-Congo languages in the Nuba Mountains, like Tima (na). But it should be noted that at least some of the verbal extensions appear to be extremely old in Niger-Congo, given their presence in geographically disparate and historically distant subgroups such as Bantu, Atlantic and Niger-Congo languages such as Tima in the Nuba Mountains (classified as Kordofanian by Greenberg 1963, but probably constituting an independent branch of Niger-Congo, together with Katla and Julud and called the Katla group): The impositive marker *-ik already appears to have been unproductive at the Proto-Bantu stage (Meeussen 1967:92). The latter corresponds to a productive causative marker -ik in languages like Tima and Katla and thus most likely was the original causative marker for the common ancestor of the Katla cluster and Bantu. Proto-Bantu had a productive causative marker *-i, corresponding to the high transitivity marker (telicity) -i/-i in Tima (Alamin 2009). The same marker *-i presumably is found as a Proto-Bantu agentive marker (Meeussen 1967:93).
13.3 Syntactic typology and reconstruction

One of the conclusions arrived at by Greenberg (1966) in his classic contribution on word order typology was that only a subset of logically possible orders of constituents is attested in the world’s languages. Following the Uniformitarian Principle, such statements – if correct – should also have consequences for historical syntactic reconstructions. But there is an obvious danger in the radical and uncritical application of this principle, because such proclaimed universals are based on what is known about languages today. Given the fact that so many languages in Africa and elsewhere in the world are poorly studied, there is obviously still a lot to be learned about the typology of languages. Using typology, not just as a heuristic, but also as a controlling device, thus may easily lead to historical reconstruction towards an average type within a language family, as the following example may help to show.

According to Greenberg (1966: 78), verb-initial languages are always prepositional. Following the Uniformitarian Principle, one should not reconstruct proto-languages with a verb-initial syntax and postpositions. Nevertheless, as research subsequent to his publication has shown, there are languages in Eastern Africa which have exactly this combination. The Didinga-Murle group within Surmic (Nilo-Saharan) consists of verb-initial languages, but these also have postpositions or postnominal modifiers (Dimmendaal and Last 1998). A rigid application of language typology as a controlling device leads towards the reconstruction of “average types”, because otherwise the proto-language would be typologically “inconsistent”. It is, in particular in contact situations, where speakers of typologically rather different languages meet, that one may expect less common structures, as is the case with the Didinga-Murle languages (Dimmendaal 2005). With this proviso in mind, let us have a look at claims on syntactic restructuring in Niger-Congo.

In his continent-wide typology of constituent order, based on the order of meaningful units, Heine (1976b) arrived at a four-way distinction, instead of a tripartite division between VSO, SVO, and SOV, as in Greenberg (1966). Heine’s basic type A corresponds to Greenberg’s SVO, C to VSO, and D to SOV; the fourth type, type B, is introduced in Heine (1976b: 41) for a structural configuration involving a constituent order SAUXOV plus postpositions and a possessor-possessed order (i.e. nomen rectum-nomen/regens order) for the noun phrase.

Constituent order typologies themselves are of limited value as typological devices, as argued in Dimmendaal (2008b), because the position of the verb does not tell us a lot about other structural properties in individual languages. There are merely statistically significant correlations between the presence of a verb-initial word order and prepositions, or a verb-final order and postpositions. Moreover, typological differences between so-called “verb-final” languages, for example, can be huge when it comes to
inflectional (or derivational) properties of the verb or adpositions, and the syntactic as well as pragmatic correlates of these features. Second, languages differ in their degree of rigidity with respect to constituent order. Whereas some are consistently verb-final, others only show a statistical dominance of this pattern. To this another factor may be added, namely that languages need not be "consistent". Similar criticism concerning "word order typology" has been expressed by LaPolla and Poa (2006).

As pointed out in Chapter 4, the reconstruction of syntactic patterns in proto-languages is often problematic, especially if deeper historical levels are involved. Constituent order in Niger-Congo varies essentially between SVO (Type A) and SAUXOV (Type B). SOV order occurs in the Ijoid languages of Southern Nigeria as well as in Dogon. But these two language families may not even belong to Niger-Congo (according to the present author) and consequently should not be included in a comparison of word order variation within this phylum for now (as argued in Chapter 14).

Over the past decades, there has been a discussion in the literature on the historical development of word order (constituent order) in the Niger-Congo family. Given the complexity of the matter (the rapidity with which syntactic structures can change, and variation found across Niger-Congo), it should not come as a surprise that scholars have disagreed on the syntactic development of this phylum. Arguments in favour of particular hypotheses on the historical development of constituent order in this phylum usually derive from two sources: (1) the distribution of types across different branches of Niger-Congo, more specifically quantitative probability based on numerical dominance, also taking into account their areal distribution; (2) historical developments involving (re)grammaticalisation.

Languages in the more peripheral zones of the Niger-Congo phylum (Atlantic, Bantu, several Niger-Congo languages in the Nuba Mountains (Sudan)) are predominantly SVO languages. The second dominant pattern, involving a SAUXOV order, is common in different Benue-Congo languages, Kwa, Kru, Gur, or Adamawa. In various languages from different Niger-Congo branches, the SAUXOV order alternates with SVO, depending on tense-aspect marking in a clause (Heine 1976b: 41).

The discussion about the historical development of constituent order in Niger-Congo centres around mechanisms explaining the OV/VO alternation, whereby OV is preceded by an auxiliary or tense-aspect-mood marker. Heine (1980) contends that Proto Niger-Congo was a type A language, i.e. had SVO constituent order, type B constituting an innovation within a closed geographical unit. Marchese (1984) discusses constituent order in the Kru branch, and presents a mechanism for historical reinterpretations of constituent order. According to this scenario, there has been a general drift in Kru from *S AUX X V to S AUX V X, whereby X represents oblique NPs designating reason and locatives. These were gradually moved out of the verb "brace" formed by AUX...V (and surrounding non-subjectival elements in the clause),
a process called **exbraciation**. Core syntactic elements, such as direct and indirect objects, would appear to be moving out of the verb brace last on this hierarchical scale. According to Marchese (1984), this process probably was caused by analogy with the dominant SVO structure in clauses without auxiliaries. Locatives, reason phrase, temporal and manner adverbs show language-specific variation as to their syntactic positions. "In some languages, these elements may occur within the brace, while in others, such occurrence is ungrammatical […] There appears to be a rightward movement of elements outside the verb brace […]" (Marchese 1984: 253). Compare the following examples in Wobé from Marchese (1984), who refers to AUX as TAM (Tense-Aspect-Mood).

\[
\begin{array}{cccc}
\text{he} & \text{NEG} & \text{market} & \text{go} \\
\text{s} & \text{AUX} & \text{LOC-OBJ} & \text{v}
\end{array}
\]

'he didn’t go to the market'

In the following example, the locative is pushed out into postverbal position:

\[
\begin{array}{cccccc}
\text{he} & \text{NEG} & \text{rice} & \text{buy-nom} & \text{go} & \text{market} \\
\text{s} & \text{AUX} & \text{o} & \text{v} & \text{LOC}
\end{array}
\]

'he didn’t go to buy rice at the market'

Exbraciation, i.e. moving the object noun phrase into post-verbal or pre-verbal position is motivated by pragmatic reasons. The post-verbal position of the object in turn allows for the procliticisation of tense-aspect-mood markers onto the verb, a constituent order which is common in Benue-Congo languages (including Bantu). The opposite process, embraciation, has been argued for with respect to the Bantoid language Aghem by Hyman (1979). Here, it is argued, some elements were moved inside the brace as a result of defocusing mechanisms.

Parallel to Marchese (1986), Claudi (1993) develops a number of scenarios involving (re)grammaticalisation, in order to explain word order variation in Niger-Congo. One scenario argued for is a historical reinterpretation of (S)VO > (S)OV in languages with the order possessor-possessum (= GEN N in the schema below). If the first verb becomes reinterpreted as an auxiliary (= TAM, tense-aspect-mood), the resulting order is S AUX O V , according to the scenario presented by Claudi (1993: 63).

---

94. Similar processes are argued to have occurred in Old English; compare Stockwell (1977), who also appears to have coined the term exbraciation.

95. Claudi (1993: 54–61) also provides a scenario for the development of serial verbs into tense-aspect-mood (auxiliary) markers, i.e. from *S V OV to S AUX OV.
As the schema illustrates, the proposed scenario also involves a reanalysis of a nominalised verb as a (main) verb, and a possessive marker as object of this verb.

A second type of grammaticalisation chain causing word order change involves serial verb constructions, according to Claudi (1993: 42–54). Sequences of verbs may be re-interpreted as verb plus adverb, verb plus derivational morpheme, or verb plus adposition, as argued by Claudi (1993: 43). The author further points out that a range of scholars have shown how (transitive) serial verbs developed into adpositions, but that only few of them have shown that this may also have consequences for constituent order. The historical scenario from a serializing SVO construction to a non-serial verb-final construction would be as follows (Claudi 1993: 53):

```
S   V1 ('take')   O1   V2   Ø
↓   ↓   ↓   ↓
S   Prep   O   V
```

In a review of Claudi (1993), Gensler (1997) states that a simple SVO/SOV dichotomy as a typology distorts the analytical problem, since the special syntagm S-Aux-OV-Other, i.e. with an auxiliary element following the subject, occurs over much of Niger-Congo. In other words, what are described as SOV structures in Claudi (1993), in actual fact are SAUXOV structures. Gensler argues for a "verb-medial OV configuration "S-AUX-O-V-Other", a family-specific quirk which is widespread in Niger-Congo but almost nonexistent elsewhere (Gensler 1997: 57). This results in the typical order SAUXOV X, whereby AUX covers the slot marking tense, aspect and mood (mode). The latter are almost always present (also in combination with each other) As further observed by Gensler (1997: 90), "[u]nknowably many cycles must have gone by, and it is impossible to localise a particular point in time and say "this was Proto-Niger-Congo"; our reconstruction is inevitably a bit blurry".

The most plausible scenario for the historical development of constituent order in Niger-Congo consequently will remain a bone of contention for some time. Verb-second properties (SVO or SAUXOV order) nevertheless are a rather permanent property of Niger-Congo, and thus most likely go back to its earliest stages.
Kastenholz (2003) has questioned the shift in word order from SVO to SOV via grammaticalisation of auxiliaries hypothesised for Mande by Claudi (1993). According to him, there is no evidence either for word order change or for (transitive) verbs as sources for the AUX slot in this language family. Instead, the second position in the clause may be used for adverbs, conjunctions or postpositions in Mande. There is some evidence that a number of auxiliaries in the Mande language Manding resulted from intransitive verbs, e.g. *na* as a future marker from a verb *na* ‘to come’ (Kastenholz 2003: 49). Consequently, we are back to the multiple source problem for grammatical elements, and by implication nothing can be said about earlier constituent order on the basis of these phenomena. Kastenholz (2003), who refers to this phenomenon as the split or distributed predicate, bases his claims primarily on the study of Central Mande, but claims that his conclusions probably hold for Mande as a whole.96

Creissels (2005) also criticises the grouping of Mande and a range of Kwa, Gur, Kru, and Atlantic languages as well as Songhay under one common type B. Languages with a VO/OV alternation “cannot be straightforwardly characterised as having an alternation between a canonical S-V-O(-X) constituent order and a S-O-V-X constituent order of the Mande type. In a typical Mande language all oblique phrases (represented by X) follow the verb and are usually introduced by a postposition, as in Bambara (Creissels 2005):

\[
\text{sékù bë mādù kālān tūbābākān} \ 'nā
\]

Sékou pm Madou teach French Po

‘Sékou is teaching French to Madou’

\[(pm = \text{predicative marker}; \text{Po} = \text{postposition})\]

The so-called order S-O-V-X is more properly characterised as S-AUX-O-V-X, as is also pointed out by Gensler (1997). As Creissels (2005) notes, “most of them cannot be analyzed as auxiliary verbs in the case of Mande. Moreover, for some of them, there is evidence that they developed from other categories than verbs, in particular, from postpositions […]”97 Whether the verb (following O) is inflected as well, depends on the language. In the following construction the object is demoted to the status of oblique, as in antipassive constructions (Creissels 2005):

\[
\text{mādù bēnā dūmānī} \ 'bān
\]

Moussa pm food finish

‘Moussa will finish the food’

96. Bisang (1991) has referred to this position after the subject noun phrase as the attractor position.

97. Tröbs (2009) links the presence of postpositions in this predicative slot (as it is often called in Mande studies) following the subject to perfective constructions, and deictic elements to imperfective constructions; Bearth (1995) and Creissels (1997) have expressed similar views.
As further observed in Creissels (2005), Mande languages do not have constructions in which a second nominal term would be inserted between the subject and the verb, either as a second object in a double object construction, or in an oblique role. In other words, constituent order in Mande is much more rigid than in Niger-Congo groups such as Gur, Benue-Congo or Kur, in spite of (presumably) long-term areal contact between these language families. In Eastern Songhay, SAUXOV-X order is attested, but at the same time Eastern Songhay does have a class of bivalent verbs without one of the two complements being introduced by a postposition; see Heath (1999a) for a description of Gao Songhay, for example. The present author does not take Mande to be genetically related to Niger-Congo, as further discussed in Chapter 14. These rather different grammatical systems in Niger-Congo languages, on the one hand, as opposed to Mande on the other, would seem to confirm claims made by Bickel (2000) on the profound genetic stability of patterns along which participant roles are expressed morphosyntactically in different language families.

Gensler (1997: 81, ad passim) criticises the strong claim of Claudi (1993) that word order change via grammaticalisation (as a unidirectional process) is the only way in which languages can restructure their syntax. Indeed, as we saw above, reanalysis through language contact is another important factor. Reinterpretations of formally marked pragmatic functions as unmarked strategies may occur as well, e.g. due to an increase in usage. In the case of Ethiopian Semitic, the gradual shift of postverbal subjects and/or objects to preverbal positions probably is to be explained along these lines; this process may have been further strengthened by shift-induced interference among speakers of Cushitic and Omotic languages (where preverbal subjects are common). But such changes in markedness, e.g. the gradual shift of VSO to SVO (or SOV), may equally well come about as a result of language-internal developments, e.g. analogy as another important trigger behind syntactic reanalysis. There is a clear cut tendency in languages to reinterpret deviating patterns by analogy with more frequently used patterns. An illustration of this is found in Ahland (2009) for the Ethiopian Semitic language Amharic, where Dative objects expressing the possessor were still preceded by a Dative preposition in 19th century Amharic.

\[
\text{la-nne ka-anta gara nagar all-a-pn albk' a hoj}
\]

\text{to-1sg from-2sm with word exist-3msub-1Sobj captain voc}

\text{‘I have a word for you, o captain’}

(1sg = first person singular; 2sm = second person singular masculine; 3msub = third person masculine subject; 1Sobj = first person singular object; voc = vocative)
In modern Amharic, this preposition is no longer used, and the corresponding possessor has been reinterpreted as a subject (Ahland 2009).

\[
\text{sewje-w} \quad \text{wond} \quad \text{ld}3 \quad \text{all-a-w}
\]

\[
\text{man-def.m} \quad \text{male} \quad \text{child} \quad \text{exist PF-3msub-3mobj}
\]

‘the man has a son’

(3msub = third person masculine subject; 3mobj = third person masculine object; def.m = masculine definite; pf = perfective)

Like the subject, the possessor in an Amharic possessive construction occurs first in a sentence. This property as well as a number of other structural features, such as the prohibition against Accusative case marking for the possessor as well as the subject, and the fact that both control bound pronominal marking on the verb, presumably resulted in a reanalysis of former Dative objects as subjects in Amharic by analogy with more common constituent order patterns.

The cross-linguistic tendency for languages to be consistent presumably is a direct reflex of this. Hawkins (2004) argues that consistent head-final or head-initial structures for different syntactic phrases provide advantages for their parsing. But the case of Amharic rather suggests that a more consistent head-final structure emerging in this Ethiopian Semitic is the end result, resulting from analogy, rather than a target or a selective advantage of languages developing head-final or head-initial strategies. The hypothesis forwarded in Hawkins (2004) is also problematic for another reason. Many Nilo-Saharan languages are head-final at the clausal level, but head-initial in noun phrases, and this appears to be a fairly stable property within this phylum.

As argued by Campbell (2004: 284), reanalysis of the underlying structure on the basis of surface manifestations may affect constituency, the hierarchical structure, grammatical categories, grammatical relations as well as syntactic cohesion. The historical development of Amharic over the past 150 years or so as discussed above supports this claim. Such inferences have also been referred to as abductive changes, after an influential article on so-called abduction by Andersen (1973), who based himself on a concept developed by the philosopher Charles Peirce. But as argued by Deutscher (2002), the use of the term abduction in historical linguistics is beset by critical confusion and is neither adequate nor necessary. Such a change in the underlying structure of an utterance which does not involve modifications on the surface is best referred to as reanalysis.

Understanding how and why constituent order may be modified above all requires an understanding of pragmatic dimensions in a range of genetically related languages. Consequently, progress in our understanding of these grammatical domains can only be made by taking one step at a time, working from an in-depth analysis of synchronic systems in individual languages and closely related languages (within lower-level
units) towards a comparison of more distantly related groups. At the same time we should keep in mind that the syntactic typology involves more than an investigation of constituent order. For the historical-comparative study of syntactic systems in genetically related languages, it is also important to describe the formal and distributive qualities of categories as well as their semantic properties, next to their occurrence in different syntactic constructions.
Chapter 14

Remote relationships and genetic diversity on the African continent

14.1 On so-called long range comparisons
14.2 Afroasiatic
14.3 Nilo-Saharan
14.4 Niger-Congo
14.5 Additional language families
   and linguistic isolates
14.6 A note on stable and unstable features
   in languages

The comparative method takes languages which are assumed to be genetically related as a basis for a more systematic search for lexical and grammatical cognates. It is important to bear in mind that the standard classification of African languages by Greenberg (1963) is based, not on the comparative method, but rather on mass comparison. Of course, the comparative method can only be applied once a hypothesis on possible relatedness has been forwarded through an initial determination of “look alikes” in the lexical and grammatical domain. Once such a hypothesis has been formulated, one may begin to apply the comparative method by retrieving historical sound changes (or “sound laws”) on the basis of a systematic comparison of cognates, and aim at a reconstruction of earlier stages. Below, we discuss the results of mass comparison as a method in an African context. More specifically, the degree of genetic diversity on the African continent and stable versus unstable genetic features are central to this chapter.
14.1 On so-called long range comparisons

It is easier to see that Germanic languages are related to Indo-Iranian than to identify a genetic relationship between English and Hindustani as individual members of these respective Indo-European subgroups. The comparison of a group of languages facilitates the identification of lexical and grammatical forms that are widespread (or not). We accordingly should begin with well-defined groups of more closely related languages and leave isolated cases to be considered after more widespread families have been constituted. This method was followed by Joseph Greenberg with respect to his genetic classification of African languages. The initial results of his comparison were published in articles between 1949 and 1954, and published as a collection of essays in a monograph in 1955. Similar methods had been used by other scientists with respect to languages in the Pacific area in the early 19th century. Johnston (1919–1922) used it with respect to African languages and Grierson (1903–1927) for India. But above all, Greenberg built his hypotheses upon a critical assessment of earlier classificatory work on African languages by various other scholars, as stated in Chapter 3.

Croft (2005), in his introduction to the collection of essays on genetic linguistics written by Joseph H. Greenberg, points towards a range of weighting factors Greenberg used to increase or decrease the value of similarity for historical relationship: Words involving sound symbolism are assigned less weight; the longer a form-meaning similarity, the more weight is assigned to this similarity; even one irregular or suppletive allomorphic variation will suffice to establish a historical relationship; same morpheme combinations (e.g. the frequent use of the class affix resembling ku with the root resembling to meaning ‘ear’ in Niger-Congo) should be assigned great weight; form-meaning similarity between grammatical morphemes is assigned greater weight than similarity between “fundamental” vocabulary items, which in turn is assigned greater weight than similarity between “cultural” vocabulary items, as are the number of languages sharing the form-meaning similarity; also, recurrent sound correspondences are crucial; if a form-meaning similarity exists between language A and language B which also exists with other languages that have been established as closely related to B, then a greater weight is assigned to the similarity between A and B (cumulative effect); and, if one provides a tentative reconstruction of a form-meaning pairing for one set of historically related languages, and that reconstruction is more similar to the form in another language, then a greater weight is assigned to the form-meaning similarities among the languages in question. Croft (2005) also summarises criticism of Greenberg’s multilateral comparison and Greenberg’s response to the criticism.
14.2 Afroasiatic

One of the foremost contributions Greenberg (1955) made in his genetic classification of African languages was the inclusion of the Chadic family within a phylum until then frequently referred to as “Hamito-Semitic” by scholars. Here, Greenberg followed up on pioneering work by 19th century scholars such as Müller (1867–1888) on what was then called Hamito-Semitic, and 20th century scholars like Delafosse. In his initial series of studies on the genetic classification of African languages, Greenberg accepted this phylum as a valid genetic grouping.

The genetic unity of Afroasiatic has been accepted by most scholars working in this field ever since, even if – as is common – disagreement occurs as to the subclassification of this phylum. In a sequel to Greenberg’s classification of African languages published in 1963, Fleming (1969) proposed to excise one group referred to as West Cushitic from Cushitic, and to accord it the status of a separate primary branch within Afroasiatic; for this new branch. Fleming proposed the name Omotic (after a major river in the area, the Omo). Although its Afroasiatic affiliation has been disputed, the allocation of Omotic within this phylum is now widely accepted, based on the attestation of morphological properties which this family shares with the extant Afroasiatic branches, namely Semitic, Berber, Egyptian, Cushitic, and Chadic.
Hayward (2000: 86–95) presents an elegant summary of the most prominent and common grammatical features of Afroasiatic languages. First, there are striking similarities in the pronominal system in particular with “forms with possessive determiner and object complement functions, rather than in forms with subject function” (Hayward 2000: 87). Compare Table 33 with common pronominal markers, adapted from Hayward (2000). The abbreviations (m) and (f) express masculine and feminine forms, respectively.

Irregularities and asymmetries are particularly significant, as pointed out by Greenberg, e.g. the presence of a final consonant for the second person feminine pronoun *kim reconstructable for Proto-Chadic, Berber and Egyptian, whereas other singular pronouns consist of short open syllables. For further details, also on Egyptian and Omotic, and on common morphological and lexical properties of Afroasiatic languages, see Hayward (2000).

Gender marking as an overt or covert inflectional category for nouns (and pronouns) is common in Afroasiatic. Newman (1980b) points towards a constancy across Afroasiatic with regard to nominal gender, even when the nouns concerned are not cognate. Thus, the word ‘sun’ remains feminine (F), whereas the word for ‘moon’ masculine (M) regardless of whether the actual forms are cognate.98 Table 34 is based on Newman (1980b: 20).

Table 33. Pronominal reference in Afroasiatic

<table>
<thead>
<tr>
<th></th>
<th>Proto-Afroasiatic</th>
<th>Chadic (Old Hausa)</th>
<th>Cushitic</th>
<th>Omotic</th>
<th>Berber</th>
<th>Egyptian</th>
<th>Semitic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>‘me, my’</td>
<td>*i, *yi</td>
<td>wa</td>
<td>*yi – *yu – *ya</td>
<td>*yi-n</td>
<td>-i, -i-n</td>
<td>*-ay</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ni</td>
<td></td>
<td></td>
<td></td>
<td>*-ii, *ya’</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*ni (object)</td>
</tr>
<tr>
<td>2sg</td>
<td>‘you, your’</td>
<td>*ku, *ka (m)</td>
<td>ka (m)</td>
<td>-*ku (m)</td>
<td>-k (m)</td>
<td>**-ku (m)</td>
<td>*-ka (m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*ki (f)</td>
<td>kim (f)</td>
<td>-*ki (f)</td>
<td>-(k)m</td>
<td>**-ki (f)</td>
<td>*-ki (f)</td>
</tr>
<tr>
<td>3sg</td>
<td>‘him, his, her’</td>
<td>**si, *isi (m) and (f)</td>
<td>*ri-su(u) – *ri-sa(a) (m)</td>
<td>iz-n (m)</td>
<td>*-s</td>
<td>**-su (m)</td>
<td>*-su (m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*ri-sii (f)</td>
<td>iž-n (f)</td>
<td></td>
<td>**-si (f)</td>
<td>*-sj (f)</td>
</tr>
<tr>
<td>1pl</td>
<td>‘us, our’</td>
<td>na</td>
<td>*na – *nu – *ni</td>
<td>in</td>
<td>-ny</td>
<td>**-ina</td>
<td>*-na – *nu – *ni</td>
</tr>
<tr>
<td>2pl</td>
<td>*kuna</td>
<td>kun</td>
<td>*kun(V) – *kin(V)</td>
<td>no obvious cognates</td>
<td>-un (m)</td>
<td>**-kina</td>
<td>*-kunu (m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-unt (f)</td>
<td></td>
<td>*-kina (f)</td>
</tr>
<tr>
<td>3pl</td>
<td>*su – susu</td>
<td>sun</td>
<td>*risunV – *zi-sinV</td>
<td>iš-n</td>
<td>-sn (m)</td>
<td>**-sina</td>
<td>*-šumu (m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-sot (f)</td>
<td></td>
<td>*-šina (f)</td>
</tr>
</tbody>
</table>

98. Hodge (1975: 179) coined the term “chronomorph” for linear elements or forms identifiable as the same through time.
### Table 34. Gender in Afroasiatic

<table>
<thead>
<tr>
<th>Afroasiatic</th>
<th>Berber (Tuareg)</th>
<th>Chadic</th>
<th>Cushitic (Beja)</th>
<th>Egyptian</th>
<th>Semitic (Hebrew)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood <em>M</em></td>
<td><em>M ahni</em></td>
<td><em>M bar</em></td>
<td><em>M boy</em></td>
<td><em>M snf</em></td>
<td><em>M dam</em></td>
</tr>
<tr>
<td>Fire <em>F</em></td>
<td><em>F temse</em></td>
<td><em>F ak</em>&quot;a&quot;</td>
<td><em>F naʔa</em></td>
<td><em>M x.t</em></td>
<td><em>M ʔeš</em></td>
</tr>
<tr>
<td>Sun <em>F</em></td>
<td><em>F tafik</em></td>
<td><em>F fati</em></td>
<td><em>F yin</em></td>
<td><em>F ʾlm</em></td>
<td><em>F šemeš</em></td>
</tr>
</tbody>
</table>

Apart from cognate pronominal forms, or the suppletive imperative of ‘come’ (normal verb stem in Proto-Chadic *(-)sa, imperative form *ya, Kabyle Berber normal verb stem as, imperative eyya), cognate case markers can be identified for Afroasiatic, as shown in Hayward (2000).

### Table 35. Case in Afroasiatic

<table>
<thead>
<tr>
<th>Proto-Afroasiatic</th>
<th>Absolutive <em>-a</em></th>
<th>Nominative <em>-u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Akkadian (Semitic)</td>
<td>šarr-a-m</td>
<td>šarr-u-m</td>
</tr>
<tr>
<td>Classical Arabic</td>
<td>malik-a</td>
<td>malik-u</td>
</tr>
<tr>
<td>Shilha (Berber)</td>
<td>a-šlḥi</td>
<td>u-šlḥi</td>
</tr>
<tr>
<td>Afar (Cushitic)</td>
<td>áwk-a</td>
<td>awk-l</td>
</tr>
</tbody>
</table>

One of the first comparative studies of Afroasiatic is the pioneering study of Diakonoff (1988), where also an attempt is made to reconstruct the consonants of Proto-Afroasiatic. Ehret (1995) is another source aiming at a reconstruction of the lexicon as well as grammatical features for this phylum.

From a typological point of view, Semitic languages have a rather reduced case system in particular when compared to Omotic languages. On the other hand, Semitic languages tend to express modifications of semantic roles associated with the verb through changes in the morphology of the verb. Whereas Omotic languages tend to have causatives and passives as lexical operations affecting the argument structure of the verb, this valency-changing system in the latter branch of Afroasiatic itself is rather limited compared to Semitic. Consequently, historical changes must have occurred, either from a system in which head marking (on the verb) constituted the dominant pattern towards a dependent-marking system (by way of case marking) or vice versa. Since the predominant root structure in Afroasiatic languages outside Semitic involves two, rather than three consonantal root elements, a presumed innovation in the verbal system of Semitic provides the simplest historical explanation for this divergence. This is also the conclusion arrived at in Ehret (1995), where the origin of triconsonantal roots in Semitic is argued to be the result of lexicalised pre-proto-Semitic (derivational) suffixal morphemes. An example derived from Ehret (1995: 449):
Proto-Afroasiatic (nr. 942)  
* -rāw/*-rāy-  
'to rise'

Arabic (Semitic)  
rawḥ  
'to be wide, spacious'
(stem + h iterative)

Egyptian  
ris, rs  
'to wake, be watchful, vigilant'

Cushitic  
*-r-w-  
'to rise'

Ngizim (Chadic)  
rawa-  
'to grow up'

Ometo (Omotic)  
*daḥn-  
'termite mound'
(< *r-wn-)

Wolff (2000: 119) observes that Ehret's attempt to show that the “Proto-Afroasiatic language was only distantly similar in structure to its Semitic daughter tongues or to Egyptian” (p. 5) is rather refreshing methodologically. At the same time, the plethora of reconstructed verbal markers exceeds the limits of plausibility (Wolff 2000: 118).

It should be kept in mind that there are a number of other historical processes that may lead to the emergence of triconsonantal or quadriconsonantal stems. Apart from (partial) reduplication; combinations of light verbs ‘do’ and ‘say’ plus complement (sometimes referred to as coverb) may merge into one phonological and grammatical word (and consequently create triconsonantal verb stems). Cohen, Simeone-Senelle and Vanhove (2002) have shown that such constructions with ‘do and/or ‘say’ are widespread in Afroasiatic.

To what extent Ehret's reconstructions can be used as a basis for future reconstructions probably can only be clarified once more is known about the historical development of the other primary branches of Afroasiatic, in particular the least studied branch, Omotic.

### 14.3 Nilo-Saharan

Whereas with the comparative method we know what counts as a good match (regular sound correspondences in forms corresponding in meaning), “comparative linguists do not have a well-formulated and generally agreed on notion of what in fact constitutes proof of a hypothesis of relationship”, as stated by Greenberg (2000: 163). One type of criticism on long range comparisons involves the lack of explicit criteria to decide whether in a particular case we are comparing like with like (McMahon and McMahon 2005: 21). The “relativity of proof” presumably is particularly prominent when considering the history of Nilo-Saharan studies. In his 1955 classification, Greenberg proposed a language family called Macro-Sudanic, subsequently called Chari-Nile, next to a range of linguistic isolates. In his 1963 monograph, he arrived at the conclusion that Chari-Nile together with these isolated units, more specifically Songhay, Saharan, Maban plus Mimi, Fur, Nyangiyen, Temainian, and Koman constitute a phylum called Nilo-Saharan.
According to the present author, Greenberg’s greatest contribution to the classification of African languages is indeed the postulation of a Nilo-Saharan phylum. Nevertheless, as stated by Bender (2000: 43), “[o]f the four ‘Greenbergian phyla’ [...] Nilo-Saharan is probably the least widely accepted”. Indeed, this view seems to be widespread in particular among non-specialists. But it is not clear what this scepticism is based upon. There may in fact be a psychological reason for this. To the outsider it may look as if Greenberg simply grouped together a range of languages formally treated as isolated units and situated mainly between Afroasiatic languages to the north and Niger-Congo languages to the south. But contrary to a widely held belief that Greenberg was just lumping together left-over languages, in actual fact his classification was based on a judicious evaluation of the existing evidence. As was the case with other linguistic groupings, Greenberg elaborated upon research of earlier investigators, starting with his own identification of a Macro-Sudanic phylum in 1955 (which was subsequently renamed Chari-Nile). In his 1963 classification, language groups and languages formerly considered to be isolated units were grouped together in a new phylum called Nilo-Saharan. More and more grammatical evidence has emerged over the past decades for a Nilo-Saharan phylum, as a result of improved descriptions and historical-comparative studies on lower-level units. For reasons of space, the rather extensive evidence cannot be presented here; however, Dimmendaal (to appear c) presents a survey of current knowledge. Nevertheless, two groups claimed by Greenberg (1963) to be part of this phylum do not appear to fit in with the emerging historical picture: Songhay and Coman plus Gumuz. Nicolaï (2003) reviews the historical evidence for the affiliation of Songhay to Nilo-Saharan, and concludes that the actual evidence is very poor indeed. Similarily, very few of the more widespread nominal and verbal morphological markers of Nilo-Saharan are attested in the Coman languages plus Gumuz, which are spoken in the border area between Ethiopia and Sudan. Their genetic status remains debatable, also due to a lack of more extensive data. Paucity of new linguistic material on Nilo-Saharan languages is indeed a major handicap for our comparative endeavours.

Greenberg (1971) supports the hypothesis by Trigger (1964) of an Eastern Sudanic (Nilo-Saharan) affiliation for Meroitic, the language of the Kingdom of Cush. Rilly (2003) presents further convincing evidence that the extinct language of the Meroitic empire, preserved in written records which have been only partly deciphered, shows Eastern Sudanic affinity. It probably is most closely related to Eastern Sudanic groups such as Nubian, Taman, Nara and Nyimang (plus Dinik), i.e. to Northern Eastern Sudanic (Rilly 2003; Dimmendaal 2008b).

Bender (1996) assumes that Songhay, Saharan and Kuliak constitute primary branches of Nilo-Saharan, whereas the remaining subgroups form a fourth branch. He further claims that the Koman group (Coman plus Gumuz) is most closely related to the Eastern Sudanic group. Moreover, he assumes, as other scholars have done, that
the Kadu languages in the Nuba Mountains are part of Nilo-Saharan. Bender (2000) proposes additional lexical isoglosses and grammatical isomorphs for Nilo-Saharan.

The most extensive comparative study of Nilo-Saharan to date is Ehret (2001). The author presents (presumed) lexical and grammatical cognates for Nilo-Saharan, e.g. with respect to case marking, number marking, and the morphology of major categories like nouns and verbs. On the basis of an extensive comparison of lexical entries, presumed sound correspondences and grammatical comparison, Ehret (2001) regroups various Nilo-Saharan units. According to this classification using shared phonological and grammatical innovations for subclassification, Central Sudanic and Koman, which are also typologically rather distinct from remaining Nilo-Saharan groups, constitute genetic outlayers.

Ehret’s subclassification largely confirms earlier observations, e.g. by Greenberg (1963), on the unity of Eastern Sudanic, or the position of Central Sudanic as an early split off. However, Ehret (2001: 1–4) claims that his methods and results derive from a rigorous application of the comparative method. Indeed, we find tables with sound correspondences between major Nilo-Saharan subgroups (pp. 8–22, 30–33, 44–45, 49–52) and shared phonological innovations (pp. 23–29, 34–41, 53–58). On the basis of an extensive comparison of lexical and grammatical material, the author arrives at a total of 1606 lexical reconstructions, with an additional discussion of lexical and grammatical innovations. Ehret also includes a range of reconstructed morphological elements belonging to verbal derivation, nominal derivation, number, case, tense-aspect, and the pronominal system. But as argued by Blench (2000), there are probably a number of methodological flaws in Ehret’s study.99 First, etymologies are often based on attestations in a few individual languages, rather than a group of languages belonging to the same subgroup within Nilo-Saharan. Showing that presumed cognates are more widespread of course would strengthen their status as historical retentions. The following etymon from Ehret (2001: 504–505) may help to illustrate this point:

<table>
<thead>
<tr>
<th>Proto-Nilo-Saharan</th>
<th>*θɛyb or *θɛyp</th>
<th>‘to remove (covering layer)’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proto-Central Sudanic</td>
<td>*θɛ</td>
<td>‘husk, shell, fur’</td>
</tr>
<tr>
<td>Kanuri (Saharan)</td>
<td>*sɛp</td>
<td>‘to slide under, shovel up’</td>
</tr>
<tr>
<td>For</td>
<td>*sibiŋa</td>
<td>‘hair pulled out in fright’</td>
</tr>
<tr>
<td>Maba (Maban)</td>
<td>*sɛbek</td>
<td>‘tweezers’</td>
</tr>
<tr>
<td>Nara</td>
<td>*sɛbi</td>
<td>‘hair’</td>
</tr>
<tr>
<td>Dongolawi (Nubian)</td>
<td>sibir</td>
<td>‘feather’</td>
</tr>
<tr>
<td>Soo (Rub [Kuliak; GJD])</td>
<td>θibθitu</td>
<td>‘to remove’</td>
</tr>
</tbody>
</table>

99. The review article by Blench of Ehret (2001), which is also accessible through his homepage (www.rogerblench.info), is dated (2000), because it was published in the issue of the journal Afrika und Übersee for the year 2000.
The same etymon may be used to illustrate a number of other methodological problems. Ehret (2001) accepts widely diverging meanings for the identification of cognates, as shown by this example. Given the time depth one presumably deals with in the case of Nilo-Saharan, one may indeed expect a dramatic range of semantic shifts. As we saw in Chapter 5, a major challenge for the comparative method as we know it today is the development of a theory of semantic change. Thus, the word for ‘navel’ in language X may be cognate with the word for ‘person’ in language Y; as shown by Wilkins (1996), these can be linked historically through a range of intermediate steps involving intrafield metonymic shifts. The point is that the forms in the example above may or may not be cognate – none of the semantic shifts can be excluded as implausible on a priori grounds. But without an explicit illustration of attested intermediate steps in such semantic chains, such claims on cognacy unfortunately become meaningless. Also, although the possibility cannot be excluded that individual languages have retained forms which otherwise have become obsolete in the subgroup to which they belong, this strategy should be used with great care if sound correspondences are not yet fully understood.

Ehret also has to postulate numerous (petrified) affixes (mainly suffixes) in order to explain otherwise irregular sound correspondences between forms assumed to be cognate. Thus, in the etymon ‘to remove (covering layer)’ above the velar nasal ğ in Fur is assumed to be a nominal (derivational or number-marking) suffix. More generally, reconstructed etymons are almost always assumed to have involved a biconsonantal root form. If individual languages have an additional consonant, this must be a reflex of an earlier affix, it is argued in Ehret (2001). But note that it is highly common in verb-final Nilo-Saharan languages to build verbs by way of a biconsonantal noun, adjective or adverb plus ‘say’ or ‘do’.

As may be expected, the result is a reconstructed proto-language with thirteen reconstructed nominal suffixes and thirty seven verbal suffixes (as well as three prefixes), many of which are assumed to have become lexicalised in modern descendants. This leads us to a further problem with the results emerging from Ehret’s (2001) comparative study of Nilo-Saharan, namely the typological plausibility of the reconstructed proto-language, phonologically as well as grammatically. There is solid evidence that the extensive case marking in many Nilo-Saharan branches goes back to an early stage in the historical development of this phylum (Dimmendaal to appear c). But in Nilo-Saharan language groups where this system was reduced, one sees a corresponding development of verbal morphology affecting argument structure and valency change. For example, whereas Northern Eastern Sudanic languages (Nubian, Taman, Nyimang) have extensive case-marking systems and a reduced system of verbal markers affecting valency (passive, antipassive, middle, causative), Southern Eastern Sudanic languages (Nilotic and Surmic) have a reduced case system, but additional verbal markers affecting the lexical-functional and lexical-derivational structure of the verb (e.g. dative,
ventive, itive, instrumental and others). This latter phenomenon can be shown to be an innovation historically (Dimmendaal 2005). However, Ehret (2001) reconstructs both extensive head marking on the verb and dependent marking on the noun for the earliest stages of Nilo-Saharan. This also runs against (well-attested) economy principles in languages. Whereas languages may use a mixture of head marking and dependent marking at the clausal level (rather than being essentially head marking or dependent marking), as indeed some Surmic languages do, they never seem to use both systems extensively at the same time.100

The contrast between voiced plosive and implosive stops (next to a voiceless plosive series) is widespread across Nilo-Saharan. Additional contrasts – though less complex than in the Proto-Nilo-Saharan system as reconstructed by Ehret (2001) – only occur in Central Sudanic and Coman. Prenasalised stops as well as voiceless implosives (or preglottalised) stops occur in a number of Central Sudanic languages. But Central Sudanic languages tend to have reduced word structures and, compared to most other Nilo-Saharan branches, also rather reduced morphological systems (at least segmentally). Ejectives and aspirated stops are found in Coman and in South-eastern Surmic, an areal feature shared with neighbouring Afroasiatic languages. Nevertheless, Ehret (2001) also claims ejectives need to be reconstructed for Proto-Central Sudanic as an intermediate stage, without, however, presenting the comparative evidence.

Typological plausibility is important, but should be treated with care, as argued in the preceding chapter. But again, for the reconstructed proto-system we seem to find all the features (and more) attested in some of the daughter languages. Ehret (2001: 16) gives the following inventory for Proto-Nilo-Saharan:

Table 36. The consonants of Proto-Nilo-Saharan (Ehret 2001)

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ɓ</td>
<td>ɗ</td>
<td>ɗ̠</td>
<td>ɠ</td>
</tr>
<tr>
<td>b</td>
<td>d̪</td>
<td>d̠</td>
<td>g̠</td>
</tr>
<tr>
<td>p̩</td>
<td>t̩</td>
<td>t̪</td>
<td>t̪h</td>
</tr>
<tr>
<td>pʰ</td>
<td>tʰ</td>
<td>tʰ</td>
<td>kʰ</td>
</tr>
<tr>
<td>p̩</td>
<td>t̩</td>
<td>t̪</td>
<td>k̪</td>
</tr>
<tr>
<td>θ̩</td>
<td>s̩</td>
<td>s̩</td>
<td>n̩</td>
</tr>
<tr>
<td>m̩</td>
<td>nd̩</td>
<td>nd̩</td>
<td>nd̩</td>
</tr>
<tr>
<td>mb̩</td>
<td>y̩</td>
<td>y̩</td>
<td>h̩</td>
</tr>
<tr>
<td>w̩</td>
<td>l̩</td>
<td>l̩</td>
<td>r̩</td>
</tr>
</tbody>
</table>

100. Matisoff (2000: 116) has warned against "proto-form stuffing", the attribution of all the features recognisable in the daughter-languages to starred forms.
Given the time depth of Nilo-Saharan (as reflected in the relative paucity of grammatical and lexical cognates), the rather “unspectacular” sound correspondences in Ehret’s reconstructions also come somewhat as a surprise.

Table 37. Sound correspondences for Nilo-Saharan (Ehret 2001: 10)

<table>
<thead>
<tr>
<th>Proto-Nilo-Saharan</th>
<th>Uduk</th>
<th>Central</th>
<th>Kanuri</th>
<th>Songay</th>
<th>Maba</th>
<th>Gaam</th>
<th>Bertha</th>
<th>Western Nilotic</th>
<th>Rub (= Kuliak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*p</td>
<td>p</td>
<td>*p</td>
<td>b</td>
<td>b</td>
<td>p</td>
<td>b</td>
<td>b</td>
<td>*b</td>
<td></td>
</tr>
<tr>
<td>*ph</td>
<td>ph</td>
<td>*p</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>f</td>
<td>p</td>
<td>*p</td>
</tr>
<tr>
<td>*p’</td>
<td>p’</td>
<td>*p’</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>p’</td>
<td>p</td>
<td>*p’</td>
</tr>
</tbody>
</table>

Of course, sound changes need not be spectacular; in fact they usually take place through subtle shifts in phonetic norms. But given the time depth, one would rather expect a mixture of stable and unstable sounds. Certain consonants (as reflected in cognates) in Indo-European have turned out to be rather stable (e.g. in the reflexes for ‘brother’, *bhreh₂ tēr), but with other words one only recognised their historical relationship after sound shifts with the various intermediate steps had come to be known. The Proto-Indo-European reconstruction for ‘four’, *kwetuōr, based for example on cognates like č’ ork in Armenian and vier in German, illustrates this point. Phonetic changes may accumulate to an extent that forms are no longer recognisable as cognates, unless we find a series of correspondences showing intermediate stages.

Ehret (2001) also ignores what appear to be well-established sound correspon-
dences within lower level units such as Nilotic, e.g. the well-attested sound change for Western Nilotic *s > *r (Dimmendaal 1988, 1995a). Rhotacism occurred, for example, in the following roots inherited from Proto-Nilotic:

<table>
<thead>
<tr>
<th>Proto-Nilotic</th>
<th>Proto-Western Nilotic</th>
<th>Alur</th>
</tr>
</thead>
<tbody>
<tr>
<td>*sud’</td>
<td>&gt; *rud’</td>
<td>‘rub’</td>
</tr>
<tr>
<td>*s₂c</td>
<td>&gt; *r₂c</td>
<td>‘stuff, stop up’</td>
</tr>
</tbody>
</table>

The common detransivisation marker in Nilotic, *-isi, again has a reflex –iri/-iri (depending on the harmony set the preceding verb root belongs to) in Alur (Dimmendaal 1988:21). The alveolar fricative *s, reconstructable for Proto-Nilotic, is ignored in the correspondence sets for Nilo-Saharan in Ehret (2001), because “its possible existence remains to be adequately substantiated and in any case appears extraneous to the wider Nilo-Saharan consonant correspondences of the Nilotic languages. In general, examples in Eastern and Southern Nilotic of *s, whenever their origins can be traced, prove to be loanwords” (Ehret 2001: 17).

Here, another weakness of the methodology proposed in Ehret (2001) manifests itself, namely the use of borrowing as an explanation for forms as a deus ex machina.
Ehret (2001) further ignores the well-attested contrast between voiced plosive and implosive distinctions for Proto-Nilotic (see the examples listed in Chapter 2 of the present monograph). If the author had accepted these correspondence sets and reconstructions for Nilotic, this would have led to additional correspondence sets and, presumably, additional proto-phonemes for Proto-Nilo-Saharan in order to accommodate correspondence sets.

These critical comments on the methodology used in Ehret (2001), partly derived from Blench (2000), are presented here in order to show some of the potential problems inherent in long-range comparisons. Nevertheless, Ehret (2001) is to be complimented for putting together and comparing so many grammatical morphemes found in different Nilo-Saharan groups. Moreover, "the 'Nilo-Saharan Etymological Dictionary' that forms the bulk of Ehret's text is a fertile source of suggestions for isol-glosses that can be more carefully worked out by other writers with more mainstream views about semantics and referencing previous work", as Blench (2000: 303) put it. The present author considers the hypothesis of a Nilo-Saharan phylum (with the exclusion of Songhay, Coman and Gumuz) to be valid and worthwhile pursuing, in particular given a considerable number of grammatical (and lexical) morphemes that are likely to be cognate. Dimmendaal (to appear c) gives an extensive discussion of current knowledge especially with respect to the historical development of the grammatical systems across Nilo-Saharan. The number of clear cut lexical cognates is still too small to be able to set up recurrent sound correspondences and to reconstruct the original phonological system, as argued in Dimmendaal (to appear c). This set is more likely to increase once sound correspondences between lower-level units are better understood, and once intermediate stages (Proto-Central Sudanic, Proto-Saharan etc.) have been reconstructed in more detail.

14.4 Niger-Congo

Whereas claims on the genetic unity of a range of languages in West Africa (the "Western Sudanic" belt) with Bantu had been forwarded by scholars like Westermann (1940), it was Greenberg (1963) who first argued that a group of languages spoken in the Nuba Mountains, Sudan, are also genetically related to these. The prime clue for the genetic relationship probably came from the noun-class systems. Obviously, it is not their mere presence which determines their cognacy, as such systems are also found elsewhere in the world, e.g. in the Caucasus or in Australia. Schadeberg (1989: 72) observes that "similarities between the Niger-Congo and Kordofanian noun class systems are not only typological but can be extended to proper sound-meaning correspondences as well". Schadeberg compares Atlantic, Kwa, Benue-Congo, Gur, Adamawa-Ubangi with the common Kordofanian forms.
Niger-Congo (called Niger-Kordofanian by Greenberg 1963, and relabelled Niger-Congo in Bendor-Samuel 1989) is sometimes presented as the best established language phylum on the continent. But this optimistic view is not shared by all specialists. According to Greenberg, this phylum consists of Atlantic, Gur (Voltaic), Mande, Kwa, Benue-Congo, Adamawa-Eastern, and Kordofanian. There is indeed a core of language groups (each of which is fairly well-established as a genetic unit itself) which includes Greenberg’s Benue-Congo plus Kwa as well as Gur plus Adamawa, next to Kru. These can be shown to be genetically related beyond any reasonable doubt. The evidence is not just lexical in nature, it is based primarily on a range of cognate grammatical morphemes (noun-class markers as well as verbal extensions). The so-called “Eastern” branch of Greenberg’s Adamawa-Eastern, however, does not fit in (Dimmendaal
“Eastern” probably constitutes an independent language family, now usually referred to as Ubangian. The status of Greenberg’s Atlantic group within Niger-Congo is still unclarified as well. The internal diversification within this presumed primary branch indeed is so huge that some scholars would argue that “Atlantic” is primarily an areal grouping representing a number of independent, early descendants of Niger-Congo; a few have challenged this view and would go as far as saying that some of the languages originally included in this family may not even belong to Niger-Congo.

Mukarovsky (1976–77), in his study on "Western Nigritic", supports Greenberg’s hypothesis of a Niger-Congo phylum, although he does not adduce evidence from Adamawa-Eastern, Kordofanian, or Mande. Actual comparative evidence for Niger-Congo as a family using classical Neogrammarian methods has come forward in particular through the scholarly work of the late John Stewart. Compare the obituary by Mous (2007) for a full list of Stewart’s publications. In his comparative endeavours, Stewart (1983, 2002, 2005) focuses on a systematic phonological comparison between members of this language family, in particular between Kwa and Bantu (as a major subgroup within Benue-Congo). He further compared his Proto-Potou-Akanic-Bantu (Proto-PAB) with languages from Greenberg’s Atlantic branch, and argues that “Proto-PAB has the potential to serve as a pilot Proto-Niger-Congo in essentially the same way as a “Proto-Germanic-Latin-Greek-Sanskrit” served the pioneers of linguistic reconstruction as a pilot Proto-Indo-European” (Stewart 2002: 197).

### Table 38. Noun classes in Niger-Congo (Schadeberg 1989)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>3</th>
<th>pl of 3</th>
<th>5</th>
<th>6 of 5</th>
<th>6a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kordofanian</td>
<td>gu-people</td>
<td>gu-tree</td>
<td>j-</td>
<td>li-</td>
<td>ηu-</td>
<td>η-</td>
</tr>
<tr>
<td>Atlantic (Doneux 1975)</td>
<td>gu-‘people’</td>
<td>gu-tree names</td>
<td>Ci-</td>
<td>de-</td>
<td>ga-</td>
<td>ma-</td>
</tr>
<tr>
<td>Oti–Volta (Manessy 1975)</td>
<td>o-people</td>
<td>-bo-tree names</td>
<td>-Ci</td>
<td>-di</td>
<td>-a</td>
<td>-ma</td>
</tr>
<tr>
<td>Togo Remnant (Heine 1968)</td>
<td>o-people</td>
<td>firewood</td>
<td>i-</td>
<td>li-</td>
<td>a-</td>
<td>?</td>
</tr>
<tr>
<td>Benue-Congo (De Wolf 1971)</td>
<td>u-people</td>
<td>u-tree</td>
<td>(t)i-</td>
<td>li-</td>
<td>a-</td>
<td>ma-</td>
</tr>
<tr>
<td>Bantu (Meeussen 1967)</td>
<td>NP mu-people</td>
<td>mu-tree</td>
<td>mi-</td>
<td>li-</td>
<td>ma-</td>
<td>ma-</td>
</tr>
<tr>
<td>PP ju-people</td>
<td>gi-tree</td>
<td>gi-</td>
<td>li-</td>
<td>ga-</td>
<td>ga-</td>
<td></td>
</tr>
<tr>
<td>Mba (Ubangi) (Carrington 1949)</td>
<td>-V free</td>
<td>-V</td>
<td>e-</td>
<td>le</td>
<td>me</td>
<td>-me</td>
</tr>
<tr>
<td>Num g-man</td>
<td>w-</td>
<td>φ-</td>
<td>l-</td>
<td>name</td>
<td>liquids</td>
<td></td>
</tr>
</tbody>
</table>
Rather than using reconstructions from various Niger-Congo subgroups in his historical comparison of Niger-Congo, Stewart uses reconstructions from the subgroup for which most extensive reconstructions were available. Stewart’s comparative work on the common ancestor of Bantu and the Potou-Akanic cluster within Kwa (the subgroup for which he was a leading specialist), next serves as a pilot project for the reconstruction of Proto-Niger/Congo.

Fox (1995: 278–279), following Ringe (1992), states that “[w]hat has not been demonstrated […] is that these methods are actually capable of establishing relationships which are beyond the reach of other methods. The usefulness of such methods therefore remains to be demonstrated. But Stewart criticised the assumption that reconstructions must be based from the outset on a representative sample of all the
daughter languages. As indicated by Stewart (2002: 199), the early pioneers of Indo-European reconstructions concentrated on the languages they knew best (predominantly Germanic languages), and on the related languages of antiquity that were best documented (Latin, Greek and Sanskrit). Akanic (within Kwa) comprises some twelve languages which display an order of genetic diversity comparable with that found in Bantu. For Stewart the comparison between the modern Akanic languages and Proto-Potou-Akanic-Bantu constituted a parallel case, ultimately resulting in the reconstruction of Proto-Potou-Akanic-Bantu as “a pilot Proto-Niger-Congo as it would be by Greenberg’s (1963) classification, or as a pilot Proto-Southern Volta-Congo (Proto-Benue-Kwa) as it would be by Williamson and Blench’s (2000) […]” (Stewart 2002: 199). In the latter study, a total of 109 comparative pairs across Proto-Bantu and Akan are presented, displaying regular sound correspondences and related to each other by way of a range of (presumed) historical sound changes from the reconstructed Proto-Potou-Akanic-Bantu stage towards Proto-Bantu as well as Proto-Akanic and Akan. Compare the following series:

<table>
<thead>
<tr>
<th>Table 39. Potou-Akanic-Bantu correspondences</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>‘ground’</strong></td>
</tr>
<tr>
<td>Common Bantu</td>
</tr>
<tr>
<td>Proto-Bantu</td>
</tr>
<tr>
<td>Proto-Potou-Akanic-Bantu</td>
</tr>
<tr>
<td>Proto-Potou-Akanic</td>
</tr>
<tr>
<td>Proto-Akanic</td>
</tr>
<tr>
<td>Akan</td>
</tr>
</tbody>
</table>

| **‘stone’** | **‘hit’** |
| Common Bantu | *-bù[-]è | *-búd |
| Proto-Bantu | *-bʊ- | *-bol |
| Proto-Potou-Akanic-Bantu | *-bʊ | *-bulo |
| Proto-Potou-Akanic | *-bʊ | *-bulo |
| Proto-Akanic | *-bʊ | *-bulo |
| Akan | a-bʊ | a-buro |

Stewart (2002) is presumably right, when he claims that reconstructions do not need to be based from the outset on a representative sample of all the daughter languages. The point of course is – and here the history of Indo-European studies is illustrative as well – it is easier to make mistakes in the reconstructions or miss out on features or conditions for sound shifts; the latter situation may also lead to a doubling of correspondence sets and, accordingly, of reconstructed proto-phonemes.

It is probably no coincidence that Stewart did not include two other families assumed by Greenberg to constitute primary branches of Niger-Congo, Mande and
Ubangian, in his comparative studies. The actual comparative evidence for a Niger-Congo affiliation is indeed rather slim, and no convincing evidence seems to have been put forward over the past few decades. Consequently, Mande and Ubangian are best treated as independent language families.

Stewart (2007), published as part of Wilson’s (2007) monograph on the Guinea group within Atlantic, presents an extension of the historical comparison of Niger-Congo languages by way of inclusion of (Northern) Atlantic languages. Stewart claims that the so-called consonant mutation system as found in Atlantic itself appears to be a retention from Proto-Fulanic-Bantu. Consonant mutation in Atlantic languages “originates from the occurrence of phonologically conditioned allophones which have remained unaltered even when their conditioning contexts no longer apply” (Wilson 2007: 38).

Examples below present the three possible forms of an alternating consonant in initial position in Fulfulde, whereby “F” represents the basic series, “P” the plosive series, and “N” the prenasalised series, as in the following examples (Breedveld 1995: 66):

<table>
<thead>
<tr>
<th></th>
<th>‘village’</th>
<th>‘Fulbe person’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singular</td>
<td>wurɔ</td>
<td>pullɔ</td>
</tr>
<tr>
<td>Plural</td>
<td>gure</td>
<td>fulbe</td>
</tr>
<tr>
<td>Diminutive (singular)</td>
<td>gurel</td>
<td>pulel</td>
</tr>
<tr>
<td>Diminutive (plural)</td>
<td>nguroy</td>
<td>puloy</td>
</tr>
</tbody>
</table>

The third type, involving nasal alternation in Fulfulde and other Atlantic languages, is assumed by Stewart (2005) to be a reflex of the common ancestor of Northern Atlantic (which includes Fulfulde) and Proto-Potou-Akan-Bantu. This historical stage would correspond to the earliest stages of Niger-Congo (“Proto-Fulanic-Bantu”).

One of the best diagnostic features for genetic affiliation in the case of Niger-Congo is, of course, the set of cognate noun-class prefixes, as discussed above. The Ijo cluster (Nigeria), which does not have noun classes, is thought by Williamson (1971: 283) to have lost “more completely than most Kwa languages, initial noun prefixes”. In the case of Kwa, there are the so-called Togo Remnant languages which manifest noun-class prefixes which are cognate with prefixes in Benue-Kwa and Kordofanian; these in turn correspond in shape to the noun-class suffixes and clitics in Gur. But the Ijo nominal suffixes do not match. Also with respect to the verbal morphology of Ijo, there is virtually no evidence for a genetic link with Niger-Congo. This only leaves a set of lexical roots shared between Ijo and neighbouring Benue-Congo languages. But given the fact that the Ijo cluster is surrounded by languages from this phylum, this

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101. Breedveld (1995), on Fulfulde, presents one of the most detailed synchronic accounts of consonant alternation word-initially, stem-finally and suffix-initially in an Atlantic language.
could equally well be the result of borrowing. It consequently is more appropriate to exclude the Ijo cluster plus Defaka (a language which was identified after Greenberg 1963 had published his classification) from Niger-Congo. For the same reason, namely a lack of a sufficient number of convincing grammatical cognates, the Dogon cluster should be excluded from the Niger-Congo cluster. This would leave us with a core of language groups (consisting of Benue-Congo plus Kwa, Adamawa plus Gur, Kru, the so-called Kordofanian languages in the Nuba Mountains, Sudan, and probably the three language groups traditionally classified as Atlantic) manifesting sets of cognate nominal and verbal elements, and even good lexical cognates (as argued in Stewart’s scholarly work).

The Kadu languages, spoken along the southern range of the Nuba Mountains in Sudan, were classified as a branch of Kordofanian by Greenberg (1963). But as argued by Schadeberg (1981a), this group should be excluded from this family, and instead be reconsidered for possible affiliation with Nilo-Saharan. Similarly, Tima and Katla have been classified as a separate branch of Kordofanian both by Greenberg (1963) and Schadeberg (1981a, 1981b, 1981c). But the actual evidence for a closer affiliation with the Kordofanian groups Heiban and Talodi is rather slim, both lexically and grammatically (Dimmendaal 2009b). This also applies to the fourth group grouped under Kordofanian by Greenberg (1963) and Schadeberg (1981a), namely Rashad, which appears to form a distant historical relationship with the Katla cluster. The Katla plus Rashad group consequently are better treated as an independent, early Niger-Congo split offs.

14.5 Additional language families and linguistic isolates

Whereas research over the past decades has resulted in additional historical-comparative evidence becoming available in favour of Greenberg’s hypotheses on a Niger-Congo, and a Nilo-Saharan as well as an Afroasiatic phylum, it has to be concluded that his intuitions on the genetic unity of Khoisan could not be confirmed by subsequent research. Today, the few scholars working on these languages treat the three units which Greenberg grouped together under one super phylum, Northern Khoisan, Central Khoisan and Southern Khoisan, as an areal grouping consisting of three independent language families which cannot or can no longer be shown to be genetically related. Here, Greenberg may indeed have been misled to some extent by the extensive borrowing which occurred between different languages in the Khoisan area. The study by Traill and Nakagawa (2000) on borrowing between the Northern Khoisan language !Xóó and the Southern Khoisan language |Gui presents an elegant illustration in this respect. Interestingly, Greenberg (1963) also included two languages spoken in Tanzania, Sandawe and Hadza, in the same Khoisan phylum. As Güldemann and Elderkin
(to appear) show by way of the comparative method, Sandawe probably forms a genetic unit with Central Khoisan and the extinct language Kwadi (formerly spoken in Angola); Hadza on the other hand constitutes a linguistic isolate, according to modern views.

Map 9. Northern Khoisan, Central Khoisan, and Southern Khoisan
As should have become clear from the presentation in Chapter 3, Greenberg himself was a "splitter", rather than a "lumper" originally. Greenberg (1955: 100–101) wrote: “That there should be sixteen language families in Africa is, I should think, not really surprising in view of the admitted antiquity of Africa as a place of human habitation. Previous investigations have shied away from admitting the existence of language families of small membership”. Contrary to a widely held belief, then, his "classification is clearly based on a judicious evaluation of extant empirical materials and not on a priori reductionist principles” (Newman 1995: 7). As further stated by Newman (1995: 2): “[i]f responsible linguists disagree as to whether Mande belongs in Niger-Congo, if Songhay belongs in Nilo-Saharan, or if Hadza belongs in Khoisan, it is because the linguistic differences are very great and the relationships not obvious in the least.” This is exactly the point. The genetic affiliation, for example of the Songhay cluster is indeed not clear at all. As pointed out by Lacroix (1971: 91), many of the so-called lexical similarities between Songhay and other groups classified as Nilo-Saharan by Greenberg are based on the Zarma lect within Songhay, which shares these words with neighbouring Saharan languages. Consequently, they may be borrowings. Other such language groups whose wider genetic affiliations can only be clarified once their internal historical developments are understood include the Kadu languages in the Nuba Mountains of central Sudan, and the Coman group plus the Gumuz language in the border area between Ethiopia and Sudan.

In summarising our current state of knowledge, the following can be stated: Apart from Afroasiatic, Niger-Congo, and Nilo-Saharan (the latter two in a modified or "reduced" form, according to the present author) the following language families or phyla can be identified: Northern Khoisan, Central Khoisan plus Sandawe (and the extinct Khadi language), Southern Khoisan, Mande, Songhay, Ubangian, Kadu, and the Coman language group plus Gumuz. The question whether all languages originally included by Greenberg (1963) in his Atlantic branch of Niger-Congo in fact belong in there will remain a bone of contention in years to come. Next to these eleven (plus) language families or phyla, there are several isolates consisting of a single language only. Apart from one isolated language already mentioned above, Hadza, there are a number of others, e.g. Bangi Me in Mali, and Dampo and Mpra in Ghana, which have been reported upon by Blench (1999). Further towards the east we find Jalaa in Nigeria (Kleinevallinigehofer 1996), and Laal in Chad. Boyeldieu (1977) states that the latter language shows grammatical and lexical similarities to Adamawa (Niger-Congo) and Chadic (Afroasiatic), as well as an unknown source. The problem of historical “layering” of inherited and borrowed of language material, as Aikhenvald (2006: 7) has called this process, is indeed the main reason why it is no longer possible in some cases to arrive at more convincing hypotheses about genetic relationships. This problem also applies to two linguistic isolates in southern Ethiopia, Ongota (Birale) and
The Kuliak (Rub) language group may be another case in point. In this group of languages one finds lexical similarities with different Eastern Sudanic languages, which presumably is why Greenberg (1963) classified this group as a member of the latter branch within Nilo-Saharan. But grammatically there is relatively little similarity with other Nilo-Saharan languages. Heine (1976b: 70) concludes that the Southern Nilotic languages Omotik and Sogoo show a lexical substrate in a range of words probably going back to the same ancestral family as the modern Kuliak languages. The following examples illustrate this point (whereby the name Omotik for this Southern Nilotic language should not be confused with the Omotic branch of Afroasiatic):
In other words, "there might have existed a language or language group whose speakers possibly inhabited the large area between Kidepo valley at the Sudan/Uganda boundary in the north and the upper course of the River Mara in the south. This language or language group is likely to have belonged to the Kuliak group, being especially closely related to the Tepes-Nyang' branch of Kuliak" (Heine 1976b: 71–72).

If we follow the suggestion made by Sands (2009) to treat Kuliak as another linguistic isolate (in contrast to Dimmendaal to appear, who argues that Kuliak is indeed a member of the Nilo-Saharan phylum), this would bring the total number of languages families or phyla on the African continent including those with single language members, to at least twenty-three. 102 Several of them may indeed constitute the last representatives of language families which have become extinct. It is rather striking, when plotting these isolates – many of which are endangered – on a map, that most of them are spoken at the fringe of so-called spread zones (in the sense of Nichols 1997) like Nilotic, Bantu or Cushitic, as shown in Dimmendaal (2008a).103

Table 40. African language families and linguistic isolates

| 1. Afroasiatic | 2. Bangi-Me |
| 3. Central Khoisan | 4. Coman |
| 5. Dogon | 6. Dompo |
| 7. Gumuz | 8. Hadza |
| 21. Songhay | 22. Southern Khoisan |
| 23. Ubangian |

102. The list of linguistic isolates is not necessarily exhaustive, as specific areas are still poorly studied. Other potential candidates include Gomba (Ethiopia), trimba (Gabon), and Kujarge (Chad), according to Jean-Marie Hombert (personal communication).

103. Dimmendaal and Voeltz (2007) is a recent survey of endangered languages on the African continent.
The revised picture on the classification of African languages shows that the genetic diversity probably is more extensive than assumed in Greenberg (1963), also because some of the language isolates mentioned above were not known to him or other scholars at the time. It seems equally likely that in certain areas genetic diversity was even bigger in the past, and that expanding language families absorbed these speech communities. The linguistic map further makes clear that some areas are still much more diversified genetically than others. Genetic diversity is particularly prominent in the Nigerina river belt, the Nuba Mountains (Sudan), the Ethiopian Highlands and Southern Africa, also in terms of number of languages (Dimmendaal 2008b). More than four decades after Greenberg’s seminal contribution we do have a better understanding of the linguistic map of Africa and of genetic relationships. It has to be concluded on the basis of this more elaborate state of knowledge that the degree of genetic diversity is indeed higher than assumed by this eminent Africanist.

To some readers, the presentation above may come somewhat as a surprise, since the present author himself has speculated on wider affiliations, e.g. between Niger-Congo and Nilo-Saharan (Dimmendaal 2001c), based, for example, on the presence of what seem to be cognate third person singular logophoric and anaphoric pronouns. Widespread forms for the logophoric marker are \( \varepsilon \), whereas the anaphoric marker often is \( \alpha / o \); see also von Roncador (1992b) for details. Such a contrastive set is found in the Central Sudanic branch of Nilo-Saharan (as well as in Nilotic), but also in the Kwa branch of Niger-Congo. Similar speculations on a genetic relationship between Niger-Congo and Nilo-Saharan as a macro-phylum are found in Gregersen (1972), who calls it Kongo-Saharan. Other authors include Blench (1995) or Williamson and Blench (2000). What the field needs at this point in time, however, are not further speculations about possible deeper genetic relationships, but more rigid applications of the comparative method for well-established language families.

14.6 A note on stable and unstable features in languages

As observed by Nichols (1992) in a ground-breaking worldwide study of language change in space and time, one can identify so-called spread zones and residual zones or accretion zones across the globe. The Bantu area on the African continent is a typical example of a spread zone, i.e. of one language family occupying a large geographical range, whereby the internal genetic diversity is relatively small. A residual zone on the other hand is an area where the genetic and structural diversity of languages is high. On a global scale, the Himalayas or New Guinea belong in this category. The

few Khoisan specialists around in the scientific community assume that “Khoisan” constitutes an areal, rather than a genetic grouping. Compared to most other parts of the continent, then, there is also high genetic density in southern Africa. Moreover, as shown by Güldemann (1998), there is also high structural diversity in this area. Other such areas are south-western Ethiopia or the Lake Chad basin and the Benue-Niger area in Nigeria; Schaefer and Egbokhare (to appear) identify such a residual zone for Southern Nigeria.

Characteristically, language family relationships are deep in a residual area. Moreover, there is no appreciable spread of languages or families. The Nuba Mountain area constitutes such a residual zone. What is more, characteristically there is no centre of innovation in residual zones, which tend to preserve and enhance original diversity. Furthermore, in a residual area there is typically no lingua franca. Bilingualism does occur, and this sometimes leads to deep borrowing, but multi-lingualism tends to be local in nature.

As argued in a later publication on language in space and time, Nichols (2003), some grammatical features are relatively stable or recessive, whereas others are not. Word order is genetically unstable but areally stable. This hypothesis finds strong confirmation from African contact zones, as we saw in Chapter 13. Pronouns are on the list of relatively stable lexemes in Nichols’ typology. But pronominal forms are also prone to analogical reshaping, due to the pragmatics of deference and respect or phonological pressures. The author further distinguishes between so-called dominant and recessive features. The former are persistent for high propensity to be acquired by borrowing or through substrate influence respectively, the latter involve features with a low probability of inheritance and low probability of borrowing, though high as substrate (Nichols 2003: 285). Numeral classifiers are assumed to be genetically recessive, and so is ergativity, according to Nichols (2003). Ergative systems in Africa are found in Western Nilotic languages like Anywa, Pári, and Shilluk, and in neighboring Surmic languages such as Tenet (in subordinate clauses only) or Majang; in addition, at least one Niger-Congo language in the neighbouring Nuba Mountains has ergative properties. Whether such ergative systems or other typological features indeed have a low probability of inheritance or borrowing, as Nichols (2003: 299) thinks, remains to be seen. The interested reader is also referred to Greenberg (2005: 343–348) and Campbell and Poser (2009: 298–318) for a critical assessment.

Dunn et al. (2008) address the value of abstract structural properties of languages to extract likely patterns of ancient relatedness in cases where lexical evidence is not informative. To this end, the authors compare the stability of features in the

105. Bickel (1995) has shown that there is “pronoun resonance” (phonological linking due to alliteration, rhyme, and other phonological linking as selectional features affecting the structure of pronominal elements).
well-established Oceanic group within Austronesian and "Papuan" languages of Island Melanesia which are surrounded by Oceanic languages, whose relationships to one another are not clear. Dunn et al. (2008) also present quantitative techniques for the representation of graphs in a rhizotic model of language relationships. The authors conclude that a phylogenetic analysis based on abstract structural features (e.g. position and function of bound morphemes, inclusive/exclusive distinction for the first person plural) for the non-Austronesian languages of Island Melanesia indeed suggests a deeper historical relationship between these languages. In other words, clusters of structural features can preserve a "phylogenetic signal" (Dunn et al. 2008).

Syntactic alignment appears to be a relatively stable – and thereby a reliable – indicator of genetic relationship. Niger-Congo languages typically are head marking at the clausal level, i.e. they tend to express argument structure and valency on the verb, rather than on dependent noun phrases (by way of case). In contrast to this situation, many Nilo-Saharan languages tend to be dependent marking at the clausal level. Where languages deviate from this pattern (as in southern members of the Eastern Sudanic branch), areal contact with a different language type resulted in a historical drift towards a different language type (as argued in the preceding chapter).
Chapter 15

Language and history

15.1 The words-and-things method
15.2 The spreading of language families and population movement
15.3 Interpreting borrowing in a cultural-historical perspective

When older written records are relatively scarce and rarely date back more than a few centuries, as is the case for regions south of the Sahara and to a lesser extent for northern Africa, one may try and take recourse to alternative methods, e.g. the study of oral traditions, in order to reconstruct history. Historical-comparative linguistics has also been used to this end. Some authors (e.g. Fox 1995: 2) draw a distinction between language history and prehistory. “In the former case we are concerned with changes in languages as reflected in texts, inscriptions, and other documentary evidence; in the latter with changes occurring before the appearance of such evidence”. From this point of view, most studies in an African context of course involve “language prehistory”.

If comparative linguistics as a tool is so important for the study of African cultures in their historical context, why is it introduced relatively late in a monograph like the present one? The reason is quite simple. For a proper use of comparative linguistic data for the reconstruction of history in its different domains, it is important to first understand the comparative method as well as its intricacies and limitations.

There appear to be a number of mainstays along which the historical and comparative study of African languages could enhance our understanding of the history of the continent: Reconstruction (as discussed in Chapters 2 and 4), genetic classification (Chapter 3) as well as borrowing and other contact phenomena (Chapters 8–11). But these also have their limitations when it comes to drawing historical conclusions, as should become clear next.

106. The few written documents available derive from Arabic travellers describing their experiences in different parts of Africa between the 11th and the 14th century – for example, Al-Bakri (11th century), or the famous Ibn Battuta and Ibn Khaldun (during the 14th century).

107. Nurse (1997), in a succinct and well-written contribution, also explains comparative linguistics to the interested historian.
15.1 The words-and-things method

The comparative method allows us, by working one’s way backwards from forms occurring in today’s languages, to reconstruct lexical and grammatical properties of an ancestral or proto-language. The relative success of this endeavour of course depends on the historical level and the genetic distances between languages involved.

With the so-called words-and-things method (a translation of the German concept Wörter-und-Sachen-Methode, also known as linguistic palaeontology) one aims at the reconstruction of the lexicon related to the material culture or the mental world of the community associated with the reconstructed proto-language.108

Forms whose meaning have not or have hardly changed over time attest to long-term cultural continuities. But due to a number of reasons, vocabularies may undergo changes in the daughter languages, not only in form but also in meaning, as we saw in Chapter 5. A basic assumption of the words-and-things method is that the reconstructability of a lexeme (root, stem or word) implies the existence of the object or concept to which it referred in the culture of the speech community using this lexeme. The set of proto-Bantu forms postulated by Guthrie (1967–71) are also ordered according to semantic fields in Volume 2 (pp. 176–180) of his Comparative Bantu. Guthrie distinguishes between such semantic fields as body parts, fauna and flora, daily activities, or craft activities. From his list of reconstructions as well as from Meeussen’s Bantu Lexical Reconstructions (Meeussen 1980), it may be concluded that the earliest speakers of Bantu languages practised agriculture (*-dim-), kept goats (*-búdi), travelled along riverine systems (*-jató), also in order to supplement their diets through fishing (*-dob-o) by using a ‘fish-hook’ (*-dob-o) or nets (*-do-bé-).

The presence of cognate forms in genetically-related languages does not necessarily imply retention from the earliest stage of their common ancestor. First of all, it is important to determine for which historical level a lexeme can be reconstructed. This of course depends on the subclassification of the languages involved and the distribution of the cognate form across the different subbranches of the family. Moreover, there may also be semantic discontinuities, i.e. the meaning of lexemes may change. Bostoen (2005) presents an interesting methodological study on the use of comparative linguistics for the reconstruction of African history by using lexical forms related to the lexical field of pottery and ceramic traditions in Bantu (and stages pre-dating the emergence of Proto-Bantu) as a test case. For example, Guthrie (1967–1971) reconstructs a Proto-Bantu verb root *-bómb-, with a meaning ‘to mould pottery’. But

108. The label Wörter-und-Sachen in fact goes back to a journal by the same name founded at the beginning of the 20th century.
as observed by Bostoen (2005:139), the latter meaning (as well as related meanings such as 'conserve,' 'to put a plaster' or 'to heap up earth') is only attested in the Savanna Bantu languages, not in the Forest Bantu languages; consequently, its original meaning probably was something like 'to mould in clay'.

Accounting for semantic change, and reconstructing the original meaning of a lexeme, is a crucial methodological challenge for the words-and-things method. Distinguishing between inherited as against diffused (i.e. copied or borrowed) vocabulary between genetically related languages – especially when they are relatively closely related – is not always easy. Bostoen (2005) points out that irregular variability, or osculance, between synchronic reflexes or cognates is just an indication of this. The osculant series for the noun stem referring to a kind of pot in Bantu, *-biɡá, -bija discussed in Bostoen (2005) are a point in case.

As argued by Nsuka-Nkutsi and de Maret (1980), terms referring to iron working in Bantu are the result of semantic shifts in terms which themselves can be reconstructed for Proto-Bantu, but with a meaning not related to the production or use of iron tools.

\[
\begin{align*}
-\text{tud-} & \quad \text{‘beat, strike, hammer’} & > & \text{‘forge’} \\
-\text{tade} & \quad \text{‘stone’} & > & \text{‘iron ore’}
\end{align*}
\]

The words-and-things method within the field of ironworking and blacksmithing has been applied more recently by Vansina (2006) for Bantu in general, and by Klein-Arendt (2004) with respect to Savanna Bantu, an area covering the region between Lake Victoria in East Africa and South Africa.

Along similar lines of reasoning, it is argued by Dimmendaal (1988) that the earliest speakers of Nilotic languages probably were pastoralists. The spreading of cognate forms across different subgroups and the reconstructability of lexical roots such as *dɛn (singular) / *dok (plural) ‘cow’, *ca(kɔ) ‘milk’, *na-a ‘udder’ attest to this. The fact that no unambiguous roots can be reconstructed for ‘cultivate’ does not imply that the earliest speakers of Nilotic languages did not practice agriculture. If a specific term has been replaced in all daughter languages, no linguistic traces are left, and consequently no claims can be made concerning the presence of specific terms in the proto-language and activities associated with these terms.

Another caveat needs to be pointed out here. The fact that two terms can be reconstructed for objects related to material culture does not necessarily imply that two materially distinct objects were involved. This may be illustrated with an example from Timá, a Niger-Congo language from the Nuba Mountains, Sudan. A household object like a bowl (general term kwéey), made from a calabash that has been cut in half and emptied, may be referred to by different names, depending on the kind of function it fulfils in a household, rather than on its shape.
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kwáțiːri ‘bowl for forming stiff porridge’
kóːráːr̥n ‘bowl for serving porridge’
kɔ̂lbi ‘bowl for liquids’
kɘ́tɘ́kɛ̀ɛ̀ˈlʊ́ŋ ‘bowl for dried grains’

This semantic specialisation reflects a central property of meaning in human language, its fundamental unpredictability.

15.2 The spreading of language families and population movement

With the method that is central to the present monograph, namely the comparative method, subgrouping within genetic units is defined on the basis of phonological, lexical and grammatical innovations shared by two or more related languages and assumed to have taken place before they split up as separate languages from a common ancestor. Language families are commonly represented by way of family trees (as static models) with subgroups or individual languages being represented as branches. It is important not to misinterpret this arboreal representation as being isomorphic with the physical movement of peoples from one point in space (and time) away from one another. The divergence of a proto-language into daughter languages indeed reflects the divergence of a speech community into new and separate communities. Geographical separation, e.g. as a result of social regrouping, usually leads to linguistic differentiation over time. Population growth and subsequent migrations into new territories is another factor affecting the distribution of languages. But as we saw in preceding chapters, language shift is a common and widespread phenomenon forming part of social adaptation processes as well. This often results in the spreading of languages (and thereby of specific language families) without any obvious population movement being involved. The social interaction between neighbouring groups, and the uneven distribution of the social roles their languages potentially play, may result in the obsolescence of one of the two and the expansion of another. Given the dynamic picture emerging from language behaviour and language contact in an African context, there is every reason to think that this process of social fission and fusion reoccurred again and again in the history of Africa.

According to the so-called principle of least effort, the area with the greatest genetic diversity within a group of genetically-related languages usually constitutes the original homeland of that language family. This principle probably was applied first by scholars working on Amerindian languages, e.g. Sapir (1916) and Dyen (1956), and has since been applied to a range of language families across the world; see, for example, the discussion of the Indo-European homelands by Mallory, Blench and Srivastava (1997). Within an African context, the principle of least effort has also been used to explain the spreading of specific language families.
The question of how and why the Bantu branch within Niger-Congo spread over major areas between Cameroon in the west and Kenya in the east, and south of this area all the way towards southern Africa, has fascinated a number of scholars. The most probable location of their common ancestor may be inferred from the modern-day geography of Bantu languages by way of the principle of least effort. In the case of Bantu, the “centre of gravity” would be the north-western corner (Cameroon and surrounding regions), which is also the area where the closest relatives of the Bantu languages are spoken. The Bantu expansion probably involved a western and an eastern bloc of languages. There has been difference of opinion concerning an east-out-of-the-west-model and the alternative east-next-to-the-west model (both illustrated in Map 11) among Bantu specialists. The recent classification by Nurse and Philippson (2003a), using Neogrammarian principles of shared innovations, as discussed in Chapter 3, provides support for the second hypothesis. See also Map 1 in Chapter 3, where it is shown that Bantu languages belonging to the western group form one primary branch and the eastern group constitutes the other primary branch.

Map 11. The spreading of Bantu

As further noted by the same authors, “[t]he fact that languages belonging to Zones S, P, N, and most of M share no obvious innovations with the western groups […] rather suggests a loose affinity with the North-east Savanna group” (Nurse and Philippson 2003a: 179).
Bostoen (2008) argues that there are additional morphological innovations in Bantu pointing towards a specific subgrouping within this Niger-Congo branch. The author bases his arguments on the distribution of so-called “spirantisation” in different Bantu language groups, e.g. the formation of deverbal nouns formed with a high front vowel as suffix, which causes preceding consonants to become fricatives. The results of this investigation essentially support the subgrouping proposed for Bantu by Nurse and Philippson (2003a).

Vansina (1990, 1995) also assumes an initial split between Western and Eastern Bantu. A probably realistic scenario of the Bantu expansion, as argued by Vansina (1990), involves a wave-of advance of subsistence farmers and shifting cultivators, combined with frequent shorter or longer distance movements, hopping across ecological barriers not suitable for agriculture, combined with local dispersals. Speakers of Bantu languages probably also assimilated preceding populations, e.g. pygmoid groups and other communities.

Case studies at the “micro level”, i.e. within Bantu subgroups, support the scenario proposed by Vansina (1990, 1995). Mougiama-Daouda (2005) is an exemplary study of inter-disciplinary work on the Bantu languages of Gabon as well as on the history and archaeology of the country; in addition, the results of research on genetic variation in the population of Gabon is brought in. The conclusion arrived at by the author is that the spreading of Bantu in Gabon did not result from a single wave of Bantu-speakers, but rather from a number of migrations from the north, east and south. The country is likely to have been populated by speakers of other language families before the intrusion of Bantu, the only non-Bantu languages spoken in the country today probably being Baka, an Ubanguian language, and Irimba, a language whose wider affiliation still needs to be clarified.

Greenberg (1972) posited the Cameroon-Nigeria border area, the area with the greatest internal diversity, as the most likely Bantu cradle, given the principle of least effort. As shown on Map 12, this is the area where closely related language groups all belonging to Bantoid are spoken; moreover, other Benue-Congo language groups are situated to the west and north of this area. Williamson (1989b: 272) places the Benue-Congo dispersal centre at the confluence of the Niger and the Benue rivers, again following the principle of least moves. Of the 11 Benue-Congo subgroups four (Oko, Ukaan-Akpes, Defoid and Edoid) are found mainly southwest of the confluence, three to the north (Kainji, Nupoid, Platoid), Cross-River southeast, Idomoid and Bantoid east of the Niger-Benue confluence, and Igboi southeast of the confluence.

One of the leading investigators of Bantu languages in the 20th century, Malcolm Guthrie, in fact assumed that similarities between Bantu and West African languages belonging to the Niger-Congo phylum were due to borrowing. The term Bantoid was used by Guthrie (1948) for languages with “West Sudanic” noun class systems resembling Bantu, but without regular sound correspondences to Bantu (Williamson and
Blench 2000: 34). According to Guthrie (1962: 281), “features reminiscent of Bantu languages occur irregularly in a number of apparently unrelated West African languages as so-called “Bantuisms” due to direct incorporation of Bantu features into languages of a quite distinct origin from infiltrating groups of Pre-Bantu speakers”.

Borrowing comes in different, but structured, degrees. And as argued in Chapter 14, there are several indications in terms of grammatical and lexical affinity for the incorporation of Bantu as a subbranch of a subbranch of a larger Niger-Congo phylum. After all, how could mere Bantu influence produce resemblances in the pronouns, the most basic vocabulary, and fundamental grammatical characteristic as the noun-class system or verbal derivational markers? If one does not accept a common origin hypothesis, one has to assume that extensive contact and borrowing must have occurred, in order to arrive at a plausible explanation for the diffusion of these properties in hundreds of languages all the way towards Senegal and the Nuba Mountains of Sudan.

When applying the principle of least effort as a technique, the point is not simply to apply it mechanically without addressing geographical factors, for example.
Climatological changes also need to be taken into account when trying to link the spreading of languages or language families to the movement of people. The skewed distribution of the Eastern Sudanic branch within the Nilo-Saharan phylum may serve as a case in point. A number of Eastern Sudanic subgroups are situated in an area ranging from eastern Chad towards Ethiopia and Eritrea as well as south of this zone. At the same time, there are major regions in northern Sudan not covered by this phylum. Whereas these zones consist mainly of desert areas today, the situation was quite different between 8000 BC and 1000 BC. During this period, a major riverine system, the Yellow Nile or Wadi Howar, connected the Ennedi Mountains in Eastern Chad over a stretch of 1200 km with the Nile Valley between the third and fourth cataract. It is one of the most impressive witnesses of climatic changes in north-eastern Africa over the past 10,000 years. The former Wadi Howar course can be divided into three major parts: the Upper, the Middle and the Lower Wadi Howar (Pachur and Kröpelin 1987). The region was originally occupied by hunter gatherers, but after 5000 BC pastoral groups lived here (Keding 2000: 89, 95). The gradual disappearance of this water confluence between 3000 BC and 1000 BC seems to have forced these pastoral groups
to migrate into areas where there were still sufficient water supplies. Pottery from the Middle Wadi Howar associated with cattle-herders of the fourth and third millennia BC shows clear cultural links with the Lower Wadi Howar up to 200 km east of the Nile, which seem to indicate short-term stays in the Lower Wadi Howar, perhaps in the course of the transhumance cycle of these cattle keepers. The pottery of the later phase (first millennium BC and beyond) can only be linked to pottery of the Chad area further west, and indicates an increasing regionalisation and western orientation of the cattle herders who then inhabited the Wadi Howar region.

Because of climatological changes, the Lower Wadi Howar seems to have been completely abandoned by the second millennium BC, whereas the occupation of the Middle Wadi Howar continued to the first millennium BC. The current distribution of Eastern Sudanic subgroups to the west, south, and east of this area corresponds in an interesting way to the genetic subgrouping of these languages. Thus, the Northern Eastern Sudanic subgroup, consisting of Taman, Nubian, Nyimang plus Afitti, Nara and probably the extinct Meroitic language, is spread from Chad in the west across the northern Nuba Mountains towards Eritrea in the east. The Central Eastern Sudanic group, consisting of the Jebel languages, is situated to the east of the Nuba Mountains, whereas the Southern Eastern Sudanic group is represented by Temein plus Keiga Jirru in the Nuba Mountains, the Daju languages mainly west of the Nuba Mountains, and Nilotic plus Surmic south and southwest of the Nuba Mountains. The hypothesised historical diaspora is presented in Map 12.

Archaeologists have shown that the Wadi Howar area functioned as a contact zone for the exchange of material culture. This in turn implies that there was language contact, and therefore, multilingualism. The presence of this former contact zone consequently also provides a natural explanation for a range of typological features shared between languages in the border area between Chad and Sudan with languages in the northern part of the Nuba Mountains as well as languages towards the northeast, in Ethiopia and Eritrea. The skewed distribution of these areal features would remain totally enigmatic otherwise; see Dimmendaal (2007) for further details and arguments.

It is sometimes claimed that agriculture is the primary agent in language dispersals. This is the position taken, for example, by Bellwood and Renfrew (2002). Though no doubt true for Bantu, it would not necessarily hold as a general trigger for the spreading of other language families, e.g. for Eastern Sudanic. For this branch within Nilo-Saharan lexical roots related to pastoral culture can be reconstructed, thus pointing towards ancient pastoral traditions amongst the earliest speakers of these languages (Dimmendaal 1988, 2007).

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109. River basins presumably have been the basis for long-lasting and steady language contact and the diffusion of linguistic features in different parts of Africa (and elsewhere), e.g. in the Benue-Niger area in Nigeria.
According to archaeological findings, small livestock (goats and sheep) were introduced from the north after the fourth millennium BC, when dry periods set in in the region. There are again interesting linguistic correlations to this archaeological claim. In Cushitic languages like Beja (north-eastern Sudan and Ethiopia), there is a lexical root, na' for '(female) goat'. Similar forms reappear in a range of Eastern Sudanic languages and language groups. For example, in Temein (spoken in the Nuba Mountains) we find na. Vossen (1983: 374) reconstructs a root (with an additional prefix ki-) for the Eastern
Nilotic branch within Nilotic: "ki-neb. The spreading of this term suggests areal contact between Cushitic and Eastern Sudanic. There is also a common term for 'male goat' in these Eastern Sudanic languages (Dimmendaal 2007).

Nyimang \( k\text{ndra} \)
Temein \( k\text{rla} \)
Eastern Nilotic \( -k\text{ra} \) (Turkana), \( -\text{r} \) (Maasai)

An application of the principle of least effort to the Khoisan area is found in Güldemann and Elderkin (to appear). The authors argue on the basis of grammatical and lexical evidence that Central Khoisan (Khoe) is genetically related to the now extinct Kwadi language (southwestern Angola). As further argued by these authors, there is also evidence that these languages are genetically related to Sandawe, spoken in Tanzania. According to the same authors, "the ancestor language Proto-Khoe-Kwadi is most likely to have been spoken on the northern fringe of the Kalahari Basin" (p. 44). The authors further support the view expressed by other authors, e.g. Köhler (1973–74: 189) that this language family originated from the northeast, “…possibly even in eastern Africa” (Güldemann and Elderkin to appear: 46). A number of languages in eastern Africa not related to Central Khoisan according to current views on genetic relationships indeed have clicks, e.g. the Cushitic language Dahalo, spoken at the foot of the Tana River, Kenya. Another example is Hadza. Although assumed to be part of the Khoisan family by Greenberg (1963), Hadza is now widely held to be a linguistic isolate (see Chapter 14).

Northern and Southern Khoisan are generally assumed to have been spoken in the area where they are based today. As a human genetic corollary, one may expect a high degree of “gene flow” between individuals. Blench (2006: 284), in his fascinating monograph on the link between language and history in an African context, makes the following important observation about some of the population sampling used by geneticists:

Geneticists […] will need to develop a more ethnolinguistically informed procedure for obtaining their samples and a collaboration that asks interesting questions. Too often it is acceptable simply to use materials already “in the freezer” and publish results from their analysis, regardless of whether any useful conclusion has emerged. It is yet to become entirely clear whether results from genetics could ever entirely converge with the other disciplines. Genetics should show different results from language and ethnographic studies if all we understand about the diversity of marital patterns and language shift is to be taken into account.

If ethnic fission and fusion has been a common and permanent feature of the cultural history of Africa, the number of individuals participating in investigations of genetic distance through mitochondrial DNA research needs to be increased, at least if one intends to capture the genetic variation pool within communities. The spreading of languages may also have involved migrations into formerly uninhabited areas, especially during periods when parts of the continent changed from arid into humid zones, e.g. around 10,000 BC.
One of the most spectacular cases of language spreading in more recent times, in terms of geographical distances covered, is formed by Fulfulde (Fulani). This Atlantic (Niger-Congo) language is spoken in an area ranging from Senegal all the way towards Sudan and Ethiopia. It must have originated in the former area, because all other members of the Atlantic family, the branch within Niger-Congo to which Fulfulde belongs, are spoken in Senegal and neighbouring countries. The spreading of Fulfulde over the past thousand years or so probably resulted from migrations mainly of pastoral Fulfulde speakers, but also from language shift, i.e. the absorbing of speakers of different languages into their speech community. Moreover, ethnic Fulfulde themselves occasionally gave up their language, as the history of the Hausa states of northern Nigeria in the 19th century shows.

The spreading of Swahili over the past thousand years or so is another interesting case, as shown on Map 15, derived from Möhlig (1984–1985).

Although probably more of a major lingua franca in eastern Africa than ever, Swahili also used to be spoken as far south as Mozambique until the European colonial expansion resulted in the dissolving of a maritime network in which Swahili had served as the contact language. The former presence of Swahili speakers and their cultural heritage along the southeast African coast is attested, not only by archaeological findings, but it is also reflected in the extensive lexical borrowing from Swahili into southern Bantu languages (even though the modern speakers of these languages no longer speak Swahili).

15.3 Interpreting borrowing in a cultural-historical perspective

Historians interested in the cultural history of Africa may feel that more recent periods are better covered by written accounts or oral traditions than by comparative linguistic studies. But the study of loanwords can make potentially interesting contributions as well. Greenberg (1960), in a contribution also discussing the methodology involved in establishing the direction of borrowing, presents lexical borrowings in the Chadic language Hausa from the Saharan language Kanuri. According to the Kano Chronicle, Islam was introduced into Hausa society from the Empire of Mali in the West. But the linguistic evidence (as discussed by Greenberg 1960) suggests that the cultural-historical significance of the Kanuri-speaking neighbours (to the east) in this respect should not be underestimated.

One of the most prominent propagators of historical linguistic methods in African history studies over the past few decades has been Christopher Ehret. In a series of monographs (e.g. Ehret 1971, 1998) he has used lexical reconstructions, loanword

110. Historians know that the interpretation of written documents raises its own epistemological problems, e.g. because those producing these documents may have constructed their own history.
studies, and the genetic subgrouping of languages, combined with the principle of least effort as well as lexico-statistics, in order to reconstruct aspects of the material and mental world of African cultures of the past. For example, in his monograph on the history of peoples speaking Southern Nilotic languages in western Kenya, the Rift Valley and northern Tanzania, Ehret (1971: 30) claims that Proto-Southern Nilotic is to be placed probably in the early centuries of the Christian era (p. 30); the author bases his claims on lexicostatistics and glottochronology. Early speakers of Southern Nilotic are assumed to have lived in the western highlands in Kenya. Southern Nilotic is one of the three branches of the Nilotic family, according to Köhler (1948). Eastern Nilotic languages are spoken in southern Sudan and neighbouring regions of northern Congo (Zaire), Uganda, Kenya, and Ethiopia. Western Nilotic languages are spoken mainly in
the Southern Sudan, Uganda and Ethiopia. Ehret (1971: 35) observes that "[l]ocating the early pre-Southern Nilotic community rests largely on giving location to the proto-Nilotic community. On the grounds of geographical distribution of modern Nilotic languages, the land of the proto-Nilotes is probably to be placed in the lower dry regions to the west and southwest of the southern Ethiopian highlands", i.e. in the southern Sudan. Ehret (1971: 109–162) further points towards numerous borrowings from Cushitic and Bantu into Southern Nilotic and vice versa, suggesting that there were rather intensive contacts with speakers of languages belonging to these genetic groupings.

The study of lexical reconstructions, lexical borrowings and application of the principle of least effort have become widely accepted methodological premises as used by scholars interested in the culture history of Africa. The studies in Ehret and Posnansky (1982) or articles in the journal Sprache und Geschichte in Africa (Language and History in Africa) illustrate the application of these methods.

Lexical data as artifacts of the past are of interest for at least one other reason, namely the spreading of cultural innovations. Transfer of cultural activities (e.g. of iron working and other new technologies) through contact often involves a transfer of lexicon from one speech community associated with these innovations to another community. Rossel (1998) investigates the origin and spread of plantain cultivars as an important staple food in Africa as well as their vernacular names across the continent, Beyer (1998) discusses the spreading of terms for 'horse' in West Africa, whereas Kossmann (2005: 37–68) investigates the distribution of a range of other terms for domesticated animals in West African languages. Such studies may be complemented by onomastics, the study of the origins and histories of proper names, as well as toponymy, the study of place names, which may reveal additional aspects of the history of an area and the people living there.

Modern humans probably spread around the world from Eastern or Southern Africa. In contrast to some other parts of the world, e.g. with respect to the dispersal of the Austronesian family in southeast Asia and across the Pacific, there appear to be very few areas on the African continent still showing interesting correlations between gene flow, the spreading of language families and population movements. For some preliminary observations see Cavalli-Sforza et al. (1994) as well as Renfrew and Boyle (2000) on archaeogenetics, i.e. the disciplinary approach correlating archaeology and genetics. Blench (2006) is a continent-wide approach towards the link between language and African history. His monograph is a particularly rich source for the reconstruction of economic (pre)history in an African context, based on the comparison of lexical items for semantic fields such as botany or domesticated animals. Not only does he discuss methodologies (archaeology, historical linguistics, genetics, ethnography, iconography, or oral traditions) and their limits, he also postulates homelands for different language families.
Chapter 16

Some ecological properties of language development

16.1 Biological evolution and language evolution
16.2 Punctuation and equilibrium periods
16.3 A potential linguistic parallel of the species-area effect
16.4 Self-organising principles
16.5 Some final remarks

The formation of distinct languages and distinct species, and the proof that these have developed through a gradual process, are curiously parallel, as argued by one of the founding fathers of the comparative method, Schleicher (1861). Although the notion of gradualness has been relaxed more recently in evolutionary biology as well as in historical linguistics, the genealogical line that can be established and the persistence of systems with modification both in the historical development of languages and in biological speciation, as manifested in the continuation as well as the individuation, are notoriously similar. Nevertheless, whereas the evolution of species and the evolution of language are identical in form, their fundamental causes are different. There is no convincing evidence, for example, that human language has developed from less advanced to more complex stages in any sense. The few unfortunate attempts that have been made to try and show that language indeed moved from primitive towards more advanced stages, have failed. As shown by Joseph (2004), evolutionary theories of languages go back a few thousand years. During the 19th century and the beginning of the 20th century, authors tried to find explanations for language change...
in climate, topography, or attitude. Thus, Whitney (1904: 84–85) assumed that least effort, laziness, or carelessness might be the cause for language change. The research of William Labov and other sociolinguists has shown that neither uncultivated nor careless speakers are the “corrupters” of language, and that instead centrally located individuals play a quintessential role in the transition of innovations in, for example, American metropoles. At the same time, there are a number of interesting parallels between the historical development of biological systems and languages, as argued below. These involve the speed with which changes may occur, the degree of genetic and typological diversity in some areas as opposed to others, and so-called self-organising principles.

16.1 Biological evolution and language evolution

It is a widely held view by linguists these days that language change in general does not result in the emergence of more effective systems. This is not just an axioma or an ideological stance. There is no evidence that the historical restructuring of languages results in the replacement of systems with alternatives that have greater selective advantages. Nevertheless, there still appear to be scholars who do believe that modern languages evolved in the Darwinian sense, and that some modern languages are more advanced in this sense than others. Compare, for example, Bichakjian (1988), who claims that there are “solid linguistic data” supporting language evolution. His central claim is that in the course of the natural history of languages, linguistic features – speech sounds, marking devices, grammatical distinctions, and syntactic strategies – have been consistently replaced with alternatives that have greater selective advantages, a phenomenon referred to as paedo-morphism by the author. In biology, this term refers to the retention of juvenile characteristics with the adults of a species. Part of the evidence is drawn from historical developments in the phonology of Indo-European languages. When the consonantal system of the ancestral language is compared to that of a modern language such as French, it becomes apparent that the number of obstruents is almost the same: Thirteen in Proto-Indo-European and twelve in French.

Table 41. Proto-Indo-European consonants and their reflexes in French

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<tr>
<th>Proto-Indo-European</th>
<th>Modern French</th>
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<td>*pʔ</td>
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<td>*tʔ</td>
<td>t</td>
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<td>*kʔ</td>
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<tr>
<td>*gwh</td>
<td>z</td>
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<tr>
<td>*s'</td>
<td>v</td>
</tr>
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</table>
However, as argued in Bichakjian (1988), all Proto-Indo-European consonants except for *s* were subject to important restrictions, whereas the modern French consonants are fully functional, i.e. contrastive in all positions within a word. Consequently, according to the same author, the evolution of consonants in this Indo-European language constitutes a definite case of optimisation: Their complexity has steadily grown less, while the functional capabilities have continued to rise. Southern Nilotic (Nilo-Saharan) languages belonging to the Kalenjin cluster lost the phonological distinction between voiced and voiceless stops, and thus also have simpler phonological systems than the ancestral Proto-Nilotic language (Dimmendaal 1988). But what about Southern Bantu languages like Zulu for that matter? As pointed out in Dimmendaal (1991), the number of consonants has more than doubled in the historical development between Proto-Bantu and modern Nguni languages like Zulu. Apart from consonants inherited from earlier stages of Bantu, Zulu and other Nguni languages have increased their inventory as a result of intensive borrowing from neighbouring Khoisan languages.

Phonologies often become simpler or more complex as a result of areal contact, as we saw in the preceding chapters. The complex set of glottalised consonants of Proto-Indo-European may be a reflex of areal contact with Caucasian languages. Some Indo-Europeanists also believe that early Indo-European had tonal properties. Whether these features disappeared in Indo-European languages due to chance or as a result of contact with pre-Indo-European languages already spoken in the area at the time of their intrusion is presumably hard to prove. But specialists like Schrijver (2005) have argued that areal contact and substrate influences played an important role in the historical development of Latin, for example.

It is argued by Bichakjian (1988) that at least in the most widespread and most intensively investigated language family, Indo-European, the major linguistic features have evolved by decreasing the complexity of their form. It is claimed, for example, that change is unidirectional – under normal circumstances – from SOV to SVO. Since case markers in Indo-European are generally lost after the shift from SOV to SVO has taken place, the resulting fixed order is SVO. Languages move in the direction of head-first structures, and as they do they are led to cast off their suffixes in favour of preposed particles, and, when case markers have been eliminated, word order becomes fixed, according to the same author. It is further argued that the head-first arrangement, which includes the SVO order, has advantages that SOV order does not have. It is also argued that, independently of the benefits of the “head-first” pattern, there is a distinct advantage to having a configurational representation of grammatical functions. When word order becomes fixed, the functional yield does not change, but the material complexity of inflectional markers is eliminated and the eventual decoding problems are excluded, according to Bichakjian (1988).
Bichakjian (1988) frequently refers to "normal circumstances". But it is not clear what this means. If statistical frequency is the criterion, the empirical basis is simply lacking. What about Ethiopian Semitic, for example, which drifted towards a verb-final syntax? For a critical assessment of such evolutionary concepts see Lass (1990) and Dimmendaal (1991).

Of course, one of the oldest discussions on archaisms in modern human languages centres around clicks as found in Northern, Central and Southern Khoisan languages in southern Africa, Sandawe and Hadza in Tanzania, and Dahalo in Kenya. Outside of Africa, clicks occur in an initiate register or ritual language of the Lardil speech community in central Australia, known as Damin. Clicks of course are widespread as a paralinguistic phenomenon, e.g. the use of the dental click in order to show discontent. Areal features like clicks may have gradually spread over the area. But if they are indeed innovations, the spreading must have occurred thousands of years ago, as the same phenomenon is attested in geographically distant languages in Southern or Eastern Africa.

A borrowing scenario is indeed the most plausible explanation for the origin of clicks in the southern Bantu languages constituting the Nguni group. Apart from (unadapted) lexical borrowing, phoneme substitution in common Bantu roots accounts for the origin of clicks in Bantu languages like Zulu. The reflex -cima ([lima]) 'extinguish' from Proto-Bantu *-dim-, or the alternation between -chela ([lhelal]) 'pour ceremonially' versus -thela 'pour', illustrates this strategy. The custom of avoiding the pronunciation of specific words itself is related to an avoidance language known as hlonipa in traditional Nguni communities (cf. Finlayson 1982; Herbert 1990).

As Khoisan is considered an areal grouping by most specialists today, a contact scenario is equally plausible for the presence of clicks in the three Khoisan groups, Northern, Central and Southern Khoisan; moreover, the same specialists do not see any convincing evidence for a genetic link of any of these languages with Hadza. Still, Knight et al. (2003) arrive at the conclusion that the presence of clicks in Hadza (Tanzania) and Ju’hoan (Northern Khoisan) can only be explained as a retention from an early common ancestral language, rather than through contact or independent innovation. The actual hypothesis is quite old, already propagated by van Ginneken (1938) or Stopa (1960). Because the speakers of these languages differ considerably genetically, i.e. in terms of inherited human DNA structures, Knight et al. (2003: 464) further conjecture that "[t]he deep genetic divergence among click-speaking peoples of Africa and mounting linguistic evidence suggest that click consonants date to early in the history of modern humans". In other words, Knight et al. (2003) explicitly exclude independent innovation or contact, though for no obvious linguistic reason. As the case of Lardil and Dahalo above shows, these alternative scenarios are actually well-attested.
Güldemann and Stoneking (2008), and Sands and Güldemann (2008) also question the linguistic reasoning behind the conclusions of these authors. They provide a range of other reasons why the genealogical explanation of Knight et al. (2003) for clicks as an archaic property of human languages in general is the least compatible with the linguistic evidence, and consequently "remains just one among several speculative hypotheses". A non-genealogical origin (i.e. borrowing) of clicks in languages like Hadza is in fact suggested for a number of reasons: The relative low number of clicks (nine segments: the Hadza inventory thereby being in the lowest range of complexity); the low frequency of clicks in the lexicon, contrary to the majority of (Northern, Central, and Southern) Khoisan languages in southern Africa; the phonotactics of clicks, which is not that of core click languages. Note also that the click system of the Bantu language Yeyi is three times as big as that of Hadza; the interested reader may want to consult Sommer (1995) and Seidel (2008) for additional details.

If one follows the reasoning of Knight et al. (2003), one would also expect languages like Turkana in north-western Kenya to have clicks. Turkana is a Nilo-Saharan language, i.e. a language belonging to a family stretching over the Southern Sudan and neighbouring regions in Congo (Zaire), Uganda, Kenya and Ethiopia. The Turkana as a people are claimed by Watson et al. (1996) to be the descendants of "the oldest people in Africa". Genetic diversity of people can be estimated by counting the number of mutations in their mitochondrial DNA. Whereas forty four random genetic mutations were found within the Turkana speech community, the Maori in New Zealand, for example, manifest only four. The genetic variation within the Turkana community is thus tremendous. Of course, this is what may be expected in a part of the world from where modern humans emerged, and where fission and fusion as a cultural-historical process is so common. If the Turkana speech community absorbed individuals already living in the area after migrating into the area, and if these latter are descendants of people who have lived in the area for tens of thousands of years, why does this language not have clicks? The most obvious explanation of course is that speakers in this area in Kenya never came into contact with speakers of languages having clicks, whereas the ancestral Hadza community further south in Tanzania did.

More recently, the term evolution has taken on a new interpretation without any claim (or implied inference) that modern human languages represent different evolutionary stages. Studies in Hombert (2005) as well the monograph by Heine and Kuteva (2007) on the origin of language follow a different approach, in that none of the languages spoken today are assumed to represent more archaic stages. Heine and Kuteva (2007), for example, take a grammaticalisation perspective on the evolution of grammar, assuming that its reconstruction can be explored by deploying the processes involved in the emergence of grammatical structures. For them, nouns and verbs constitute primary categories, also from an evolutionary perspective, from which other categories are derived.
 Whereas there is no evidence for evolutionary adaptation either in human languages today or in their reconstructed common ancestors, there nevertheless appear to be a number of positive analogies between “linguistic evolution”, in the sense of “historical development”, and the evolution of other biological systems. Adaptation, the evolvement of structures for their current utility, is a well-known process both for evolutionary biologists and linguists interested in contact phenomena. Less well known among linguists is exaptation, a development whereby structures that arose for other reasons fortuitously become available for other changes. Whereas feathers originally were thermoregulatory devices for reptiles living in high latitudes, they were co-opted for flight in their evolutionary descendants, birds. Lass (1990) refers to interesting linguistic instances of so-called exaptation i.e. the “opportunistic” co-optation of a feature whose origin is related to its later use, i.e. “conceptual renovation […] of material that is already there, but either serving some other purpose, or serving no purpose at all” (Lass 1997: 316). The author gives examples from the historical restructuring of Germanic tense-aspect marking, more specifically the development of strong verbs. Late Western Indo-European lost its aspect system (with the perfect and aorist merging into an aspect-free preterite). The formal reflex of the so-called o-grade of the perfect root became the preterite singular, whereas the so-called zero-grade aorist (in heavy roots) and the lengthened grade aorist (in light roots) became the preterite plural. In other words, old aspectual grades were redeployed as number markers (Lass 1997: 317).

<table>
<thead>
<tr>
<th>Proto-Indo-European</th>
<th>Old English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect stem *bhoid-</td>
<td>bát ‘bit (preterite singular)’</td>
</tr>
<tr>
<td>Aorist stem *bhid</td>
<td>bit-on ‘bit (preterite plural)’</td>
</tr>
</tbody>
</table>

Below, three additional concepts showing a potential parallel between the historical development of languages and language communities, on the one hand, and biological speciation on the other are discussed.

16.2 Punctuation and equilibrium periods

In an influential paper published a few decades ago, the evolutionary biologists Nils Eldridge and Stephen Gould questioned the gradual evolution or speciation model proposed by Darwin, instead proposing a model of so-called punctuated equilibrium (Eldredge and Gould 1972), which states that the history of biological evolution is concentrated in rapid events of speciation next to periods of evolutionary stasis or equilibrium.

During the early 1980s, the Chadicist Paul Newman entered into correspondence with Nils Eldredge on possible parallels in the historical development of languages (Paul Newman, personal communication). Thurston (1987) also formulated notions of
gradual versus abrupt change in language. But the concept of punctuated equilibrium in historical-comparative linguistics probably is best known through Dixon (1997). In this study, the author assumes that sometimes languages develop into different varieties over a relatively short time span, e.g. as a result of the geographical expansion of a specific language. This process in turn may be due to some technological innovation, for example the invention of a new tool or weapon. Such periods of punctuation, as argued in Dixon (1997) are followed by equilibrium periods where languages may converge towards each other as a result of contact, both locally as well as within larger areas.

Australia is claimed by Dixon (1997) to have had long periods of equilibrium, with speech groups about equal in size, comparable in culture, and similar in prestige. According to his model, languages tend to converge to a “common prototype” during periods of equilibrium, because of the diffusion of lexical and grammatical features (including structural borrowing). In a typical situation one may find up to 50% score with at least one neighbouring language, rising to or falling to a 50% lexical equilibrium level, according to the same author.¹¹³

A state of relative equilibrium may be punctuated by some cataclysmic event, e.g. some technological innovation. Agricultural innovations must have played an important role in the spreading of Indo-European (Renfrew 1987; Mallory 1989) or Austronesian (Bellwood 1991). Also, the relatively rapid expansion of Bantu languages presents an instance of punctuation. Bellwood (2001) argues that agricultural innovations played an important role in the expansion of various language families. No doubt, innovations with respect to this type of food production also played an important role in different parts of Africa.¹¹⁴ But according to Vansina (1995: 192) “[t]he prestige of the Bantu languages flowed more from their sedentarity [sic] and the size of their social organisation than from their technology”. Perhaps the most accurate representation for the development of the Bantu branch within Niger-Congo is one which assumes a relatively rapid genetic differentiation and geographical spreading over a large area, combined with gradual linguistic diffusion as a result of bilingualism during long periods of equilibrium. One potential outcome of this may be a clouding of genetic splits. The family tree model of linguistic relationship, which basically makes claims about divergence, consequently is only applicable, according to Dixon (1997), in a period immediately following a punctuation; Atkinson et al. (2008) presents a recent application of the punctuation model.

¹¹³. Authors contributing to the volume edited by Bowern and Koch (2004), on the other hand, claim that the comparative method can in fact be applied effectively, leading towards the establishment of genetic subgrouping in Australia.

¹¹⁴. In northeastern Africa, the introduction of pastoralism must have resulted in the expansion of language families such as Surmic or Nilotic (Dimmendaal 2007).
The essays in Aikhenvald and Dixon (2001) address Dixon’s claims about diffusion during periods of equilibrium as well as punctuation. On a critical note, Watkins (2001) shows on the basis of cases from ancient Anatolia that family-tree-like changes may go hand in hand with language contact. Phrased differently, diffusion may occur both during punctuation and equilibrium periods.

One reason for the apparently frequent diffusion of both lexical and grammatical features in Australian languages might be the fact that these were spoken by small communities regularly interacting with other speech communities through common ceremonies or hunting parties. If these sociological factors indeed played an important role in diffusion processes in the past, one might expect similar phenomena to have occurred in hunter-gatherer communities in other parts of the world, also characterised by a state of relative equilibrium (Dimmendaal 2001a). In a fascinating contribution, Traill and Nakagawa (2000) present the results of a comparative study between the Northern Khoisan language Gui and the Southern Khoisan language !Xóõ in western Botswana. Areal diffusion of phonetic features between !Xóõ and Gui involve a “full paradigm of uvular consonants found in !Xóõ and Gui, and the palatalisation of coronals, the diphthongisation /o/ to [oa] and common uvular consonants and accompaniments in #Hòan and the Khute dialect of Gui” (Traill and Nakagawa 2000: 3). What is more, names of waterholes mainly at the eastern edge of current !Xóõ territory are Gui in origin. Moreover, in a database covering 3100 entries for !Xóõ and 2700 for Gui around 10% is shared by the two languages. As the authors note (p. 11), this could easily have been misinterpreted, if uncontextualised, as evidence for genetic relationship, instead of the (correct) conclusion that these are due to diffusion between two populations who had some degree of reciprocal bilingualism.115 According to the same authors, such contact situations are by no means exceptional in the Khoisan area (p. 14). And as further concluded by Traill and Nakagawa (2000: 15): “we cannot expect the lexicons of the languages to preserve a clear picture of genetic relationships”.

Whereas Traill and Nakagawa (2000) show that there has been extensive lexical borrowing between a Northern and a Southern Khoisan language, there is little evidence for extensive grammatical diffusion. We are thus left with a situation which seems to differ from what Dixon (1997) has claimed to be characteristic for Australia. There does not appear to be any convincing evidence in these Khoisan languages or elsewhere in Africa for an extensive diffusion of grammatical material to an extent where genetic relations become obliterated (Dimmendaal 2001a), although we do find lexical diffusion.

115. Lexical similarities played an important role in the establishment of Khoisan as a genetic grouping in Greenberg (1963), which would explain why his conclusions on genetic relationship could not be confirmed in subsequent research.
16.3  A potential linguistic parallel of the species-area effect

There is at least one additional potentially interesting parallel between biological and linguistic diversification. In biogeography (as the study of the geographical distribution of organisms) claims have been made about habitat heterogeneity and biological diversification. According to the so-called "species-area effect", for example, mountains tend to be species-rich compared with lowlands. In regions like the Caucasus, this is due mainly to the many different habitats found in the area, which allowed for the development of, for example, over 700 plant species.

Here, again a variant of the species-area relationship has a parallel in terms of linguistic diversification. For the Australian continent there is more linguistic diversity in the forested regions than on the plains (cf. Dixon 1997). Similar observations, taking into account geographical features, could be made for different regions across Africa. The extreme linguistic diversity in the Ethiopian highlands is a case in point. There may be a number of reasons for this latter situation. The high number of languages and the high degree of genetic (and typological) diversity, in particular in south-western Ethiopia, on the one hand, may be due to the fact that one is dealing with a refugium area. Here, we find languages belonging to such different families as Omotic, Cushitic and Semitic (Afroasiatic), Surmic (Nilo-Saharan), and the linguistic isolates Ongota and Shabo. There have been rather dramatic climatological changes also in north-eastern Africa over the past 10,000 years, including periods of drought affecting in particular the lower (savannah) regions. Mountainous regions, such as the Ethiopian highlands, presumably continued to provide sufficient water supplies as well as game and plants. Alternatively, people may have moved into such areas in order to escape domination from other groups. Geographical isolation due to high mountain ranges and, consequently, impeding of areal diffusion may also have played a role, but this latter factor should not be exaggerated. Also in the Caucasus, there are regions where different languages are spoken in neighbouring villages without any geographical barrier occurring between them (Denis Creissels, personal communication). This suggests that another factor probably played a role, namely people's attitude towards outsiders speaking a different language, and sometimes attending to different cultural habits. This latter factor, which may be resumed under the notion "acts of perception", is illustrated with examples from the Nuba Mountain area in Sudan.

The Nuba Mountains are characterised by a high number of languages belonging to three different phyla. The area also manifests a considerable degree of typological diversity. Nubian languages, for example, have an extensive case system and a verb-final syntax, whereas the Kadu languages are strongly head marking at the clausal level, i.e. express argument structures and semantic relations on the verb, and are essentially verb-initial. Niger-Congo languages in the area are predominantly head marking at the clausal level, and have variable constituent order.
As shown on Map 16, there are Nubian languages mainly in the northern part of the Nuba Mountains, and the distantly related Eastern Sudanic languages Temein and Keiga Jirru spoken just south of these. The latter two languages form a subgroup together with the Daju languages west of the Nuba Mountains and extending into

The name Nubai was mentioned as an ethnonym for the first time in the 3rd century BC by the geographer Eratosthenes from Libya.
Chapter 16. Some ecological properties of language development

Chad (with one Daju language, Daju of Lagowa, also being spoken in the western part of the Nuba Mountains). Two related language groups spoken are spoken south and southeast of the Nuba Mountains, the Nilotic and the Surmic subgroup within Eastern Sudan in number. In the case of Nilotic, we not only find a large number of languages (some forty), but also that they are spread over a large area (see Map 14 in Chapter 15). Moreover, several of these languages have more than one million speakers. Clearly, these rather dramatic differences between different Eastern Sudanic subgroups are in need of an explanation. A range of factors in fact may have played a role. Whereas many Nilotic groups have been described as prototypical pastoralists, agriculture also traditionally played an important role as a means of subsistence. The environment in which most Nilotic-speaking groups live today is far more favourable to such economic activities, and thereby to food production, than the more marginal regions where, for example, the Daju languages are spoken, namely in western Sudan and Chad. These favourable factors presumably led to a dramatic population growth over the past millennia. Lactose tolerance may have constituted another favourable factor affecting birth rates in a positive sense (Sarah Tishkoff, personal communication). No doubt cultural factors also played a crucial role in the dramatic expansion of several Nilotic languages. It is a well-known fact that several Nilotic communities, e.g. the Luo, the Nandi, or Dinka communities absorbed speakers from other linguistic backgrounds. As a result of these language shift processes, several Nilotic languages now have millions of speakers.

There may have been a number of refugium areas on the African continent historically, the Nuba Mountains in north-central Sudan as one of the higher elevation areas with sufficient water supplies being one of them.

Following the typology developed in Nichols (1992), one may characterise the Nuba Mountains as a residual (or accretion) zone. The most likely historical cause for this situation is to be found in the dramatic climatological changes which occurred in the area over the past three thousand years. The desertification of zones surrounding the Nuba Mountains, in particular to the west, north and east, must have forced people to move into higher and more humid zones, such as the Nuba Mountains. One result of the gradual disappearance of the Yellow Nile (which at one point connected the Ennedi Mountains in Chad with the Nile in northern Sudan) between 3000 and 1000 BC was the migration of different groups towards the border area with Chad, the northern and central parts of the Nuba Mountains, and the Nile (Dimmendaal 2007). This at least is suggested by the linguistic evidence. The so-called "Wadi Howar diaspora" is the most plausible explanation for the current distribution of different Nilo-Saharan languages, according to the same author.

Over the past few centuries, people may have found it expedient to escape the influence of the Sahel empires and slave raids, and to move into the Nuba Mountains in order to take rescue there. But this historical constellation cannot explain the current
linguistic diversity in the Nuba Mountains. Obviously, living in the Nuba Mountains itself did *not* provide sufficient protection against aggression from outside. The Tima have an oral tradition which says that their ancestors moved up into the higher zones of the Nuba Mountains in order to avoid slave raids during the 19th century. At the beginning of the 20th century, the British colonial government encouraged the Tima people and other groups to move down from the hills into the lower regions of the Nuba Mountains. However, there do not appear to be oral traditions among the Tima or most other communities of migrations into the Nuba Mountains. On the contrary, with few exceptions (e.g. among the Daju of Lagowa, who claim to have come from Darfur), they claim to have lived in this area since time immemorial. Possibly, the slave trade over the past few centuries had a minor catalysing effect. But it cannot explain the genetic and typological diversity found in the Nuba Mountains. If people had been forced massively to take refuge into the Nuba Mountains, one would also have expected them to develop some sort of contact medium, or even pidginised language varieties. This is what can be observed when speakers from different speech communities come together, e.g. because of external forces. Maroon communities in Suriname and other South-American countries, established by people who had managed to escape slavery, developed creolised varieties of English, when creating such new speech communities, and so did liberated slaves in Liberia and Sierra Leone. But apart from Sudanese Arabic, which was introduced more recently, there are no lingua francas in the Nuba Mountains. People simply are multilingual, speaking a range of languages, depending on which part of the Nuba Mountains they inhabit.

What is striking, however, is not only the genetic diversity but also the typological variation found in the Nuba Mountains. When representatives from these various groups surrounding the Nuba Mountains moved into more humid mountainous regions, the result was a “facsimile” of this macro level diversity at the micro level of the Nuba Mountains. Research on languages in the Nuba Mountains so far has not led to the discovery of significant convergence zones or areal traits. Whereas Eastern Sudanic (Nilo-Saharan) languages like Nyimang or the Nubian languages use extensive case marking with the main verb occurring in clause-final position, the Niger-Congo languages in the Nuba Mountains are predominantly head marking (using extensive verb morphology) at the clausal level, with word order varying between SVO, VSO, and SOV, sometimes in one and the same language, e.g., in Tima (Dimmendaal 2009b, 2009d).

Dimmendaal (2008ba) consequently claims that social factors must have contributed to the maintenance, and in fact the creation of additional, genetic and typological diversity. The Tima case is taken as a point in case to support this claim. The Tima form a close-knit society of around 6,000 people, whose members prefer to marry within their own group. Interviews by the present author with a range of ethnic Tima made clear that at the same time they find it important to be open towards the outside.
world, when it comes to the introduction of technical innovations or opportunities to
improve their socio-economic conditions. They are very proud, for example, of com-
community members with a degree in higher education. Like most other groups in the
Nuba Mountains, the Tima have a mixed economy. Although most groups in the Nuba
Mountains also have cattle, sheep and goats, they are essentially sedentary agricultural-
ists living under ecological conditions which enabled them to develop self-sufficient
economies in the course of history. Traditionally, they do not produce for an external
market, nor does there seem to be a big need for trade or exchange of commodities
with other communities in the area, as they are all essentially autarkic. Consequently,
one would not necessarily expect them to develop larger networks and corresponding
trade languages. (These latter conditions would also have resulted in the spreading of
linguistic features and the development of major contact zones.)

Claims on ethnic identity among the Tima as well as other groups in the area
are associated with territorial claims. For the Tima, their language clearly functions
as an important emblematic feature of their ethnic identity, setting them apart from
neighbouring groups like the Katla, who probably number around 15,000 and whose
language is relatively closely related to Tima. Katla people claim that Tima is a complex
language and difficult to learn (Dimmendaal 2009d). There is no reason to believe that
the assessment on behalf of the Katla people is based on a lack of interest in learning
the Tima language or social dismay. The Tima are aware of these stereotypical views
on their language. According to an oral tradition, their ancestors manipulated the
language after a conflict with the Katla, so that the neighbouring Katla could no longer
understand the Tima language. Whereas Tima and Katla are relatively close lexically,
their grammar (in particular concerning the morphology of the verb and constituent
order) are indeed quite different. According to Dimmendaal (2009d), the structural
differences between these two languages are best explained, not as the result of deliberate
language change, but rather as the result of shift-induced interference accompanying
language shift towards Tima.

Esoterogeny, a development whereby speakers of a language add linguistic in-
novations that increase the complexity of the language in order to highlight their
distinctiveness from neighbouring groups, has played a role in the historical devel-
opment of languages in the Pacific, according to Thurston (1989). Ross (1996: 184),
argues that “esoterogeny arises through a group’s desire for exclusiveness”. The author
refers to specific languages in New Guinea which developed into emblematic lan-
guages or in-group codes excluding outsiders. In such situations, innovations leading
to increased complexity and to differences from neighbouring lects are believed to be
favoured. Ross (1996: 183) points to such processes as elision and assimilation which
result in phonological compactness, in allophony and allomorphy, to the accumula-
tion of irregularities, an elaboration of the lexicon with numerous near synonyms,
much borrowing, and to an increase in the frequency of opaque idioms. Exoterogeny, on the other hand, occurs if a community has extensive ties with other communities and their emblematic language is also spoken as a contact language by members of those communities. Exoterogeny reduces phonological and morphological complexity. Swahili, as an important lingua franca for major regions in eastern Africa over the past one thousand years or so, could presumably be characterised as an exoteric Bantu language.

Even if there is no evidence for deliberate language change in Tima – or for deliberate change in Katla for that matter – it is still interesting to know why such an oral tradition emerged in the first place. The oral tradition of language manipulation by their ancestors presumably is an example of a post hoc rationalisation among Tima people for the observed structural differences between their language and the language of the Katla people. Speakers of Tima possibly seized on observed structural differences with the closely related Katla language when social tensions with their neighbours occurred. Consequently, the Tima language became an important emblematic feature of their distinct social (ethnic) identity, an identity which was also associated with territorial claims. Although it is often the case in an African context that language and ethnicity are not isomorphic, and although in quite a few cases additional identities (defined, for example, along clan affinity) play an equally or even more important role, there are instances where language does constitute an important, emblematic feature of social (ethnic) identity, as with the Tima people.

The Tima followed, what one might call, a localist strategy. In her research on certain groups in Mexico, Hill (2001) arrives at the conclusion that local communities seem to follow either localist strategies or, alternatively, distributed strategies. In the localist case, speakers hold an opinion that they have a rightful and primary claim on valuable and dependable local resources adequate to sustain their well-being. In the distributed case, speakers may argue that they have no such rightful and primary claim on valuable and dependable local resources. This strategy also corresponds to interesting linguistic differences. According to the same author, in a localist strategy the speaker decides to select a particular kind of person as his or her model, and (s)he will try to sound as much like that particular kind of person. In a distributed strategy, the speaker is not sure what kind of person (s)he wants to sound like, and will try to sound like a variety of different kinds of people. The speech of any single person and the patterns of variation in any community will always be the product of a combination of these two strategies, according to Hill (2001: 261), who associates each of these strategies with a different set of ecological and socio-cultural constraints.

117. As pointed out in Ross (1997), exoterogeny and esoterogeny cannot readily be captured in a social network diagram, because it is not the distribution or the spread of innovations which is significant, but the kind of innovation.
Whereas Hill (2001) relates these alternative social strategies to differences at the dialect level within a speech community, there does not seem to be any principled reason why they could not equally well apply to differences between speech communities speaking distinct languages, in particular in an African context, where many people are polyglots. One striking feature common to many pygmy groups in Central Africa, for example, is the fact that they tend to speak the same language as, or a language closely related to, the non-pygmy group with which they live in a kind of symbiotic relationship. Consequently, these pygmy groups either speak a Central Sudanic language, or a language belonging to Bantu, Adamawa or Ubangian. This strongly suggests that they shifted their language in order to adapt to local circumstances, i.e. whenever a shift in language solidarity could be associated with positively regarded traits and social privileges with membership in a given social context. Whereas the pygmy groups traditionally often constitute small hunter-gatherer communities, the non-pygmy groups tend to be numerically dominant, sedentary social groupings with an agricultural economy. In order to be able to add to limited resources and in order to sustain or improve the well-being of the community, pygmy groups presumably switched their language solidarity towards languages spoken by socially and economically dominant groups. This kind of behaviour may thus be interpreted as a distributed strategy. The Tima, and presumably other groups in the Nuba Mountains, on the other hand, followed a localist strategy.

Speech communities are often aware of relationships between their languages and those spoken by other communities in the area. Consequently, its members may also reflect upon the “how and why” of observed differences with closely related languages and, through post hoc rationalisations, arrive at an explanation for these differences, also in order to define their own distinct, social identities. It remains to be determined to what extent the localist versus distributed attitude helps to explain the linguistic diversity in genetically and typologically diversified regions on the African continent.

Blench (1998) discusses genetic diversity for the Nigerian Middle Belt, the band of territory stretching across the country between the large language blocs of the semi-arid north and the humid forest along the coast, where between 250 and 400 distinct languages are spoken (according to how broadly the region is defined). As pointed out by Roger Blench (personal communication), the assumption that geographical barriers caused this diversification lacks plausibility. An explanation in terms of social behaviour remains as an alternative explanation. Speech communities may have

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118. At the same time, they may also be aware of the fact that some other languages are not related to their own. Thus, all Tima speakers interviewed on the question pointed out that the language of their southern neighbours, the Tulishi, is not related to theirs. This is also the view held by comparative linguists, who treat Tulishi as a member of the Kadu languages, a group of languages probably forming a linguistic isolate.
rather different ideologies when it comes to the role of language in the construction of their social identities and their corresponding attitude towards “others”. A number of authors have tried to develop a typology for the way in which speech communities may act towards the outside world. Andersen (1988) distinguishes between “open” and “closed” as well as between “endocentric” and “exocentric” communities; Ross (2001: 155) has suggested “tight-knit” and “loose-knit” as an alternative labelling for the latter. Concepts like “open” and “close” refer to the external relationships of a community, whereas “tight-knit” and “loose-knit” refer to the internal relationships. Presumably, these “prototypes” (open and tight-knit, open and loose-knit, close and tight-knit) allow for transitions or different degrees of closedness and tightness, but as categorisations they provide an interesting model for group behaviour and potential consequences for language development.119

Metatypy as a structural process typically occurs in a language spoken in an open but tight-knit (polylectal) community. Dimmendaal (2001a) presents examples of metatypy from Baale, a Surmic language spoken in the border area between southern Ethiopia and Sudan. The Baale consider themselves to be part of a larger ethnic grouping together with the Tirma and Chai, a grouping referred to by all three groups as Suri. In this sense, the Baale community may be said to be “open”. At the same time, it forms a tight knit community which is aware of its separate identity, with the Baale language as a marker of this partly distinct identity. The approximately 9,000 Baale people are agriculturalists traditionally, whereas the approximately 20,000 Tirma and Chai see themselves as pastoralists. As a result of the frequent use of the interlanguage Tirma-Chai (which constitutes a dialect continuum) by the Baale, the Baale language has become restructured lexically and grammatically. Interestingly, Baale speakers still claim their language is very similar, not to Tirma-Chai, but instead to the neighbouring Didinga-Murle languages. This is also the position taken by historical linguists, who put Baale in a genetic subgrouping within Southwestern Surmic, whereas Tirma-Chai belongs to Southeastern Surmic (Dimmendaal 1998b).

According to Dimmendaal (2001a), the neighbouring Majang community, whose language also belongs to the Surmic branch within Eastern Sudanic, constitutes a relatively closed and tight knit society. The Majang are surrounded by Omotic communities speaking languages with a verb-final syntax and extensive dependent marking at the clausal level. Majang, on the other hand, is a verb-initial language with extensive head marking at the clausal level. In other words, there appears to be no evidence of any significant convergence in Majang towards these neighbouring languages (or vice versa).

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119. Close and loose knit, as a characterisation of social behaviour, presumably is an unlikely combination.
The different directions in which Surmic languages developed historically would seem to cover almost all major language contact processes as we know them today, except for pidginisation and creolisation. Apart from metatypy in Baale and a relatively isolated development in the case of Majang, we find structural convergence between the Didinga-Murle cluster and neighbouring Nilotic languages due to long-term contacts between their speech communities. Groups of Tennet speakers working as blacksmiths in the Lopid Mountains, southern Sudan, on the other hand, are in the process of shifting to Lopid, a dialect of the Eastern Nilotic Lotuxo cluster (see the studies in Dimmendaal and Last 1998, and Dimmendaal 2005 for further details).

The Nilotic language Maasai also manifests very little evidence of influence from neighbouring Bantu languages, for example. But, whereas many Maasai would seem to be proud of their ethnic background, thereby showing that they form a tight knit community, their community cannot be characterised as closed. Maasai as a language has spread over a vast area over the past centuries, thereby reflecting the “expansionist” attitude of its speakers who seem to have absorbed different groups in the area culturally and linguistically. Consequently, it is clear that different social attitudes and socio-economic settings have their effects on the historical development of languages.

Storch (2006) describes the case of Belanda Bor, a Western Nilotic language strongly influenced by the Ubangian language Bviri. Contact with the latter language “led to significant structural changes in the fields of phonology, syllable structure, and affixation techniques in the noun morphology, but the semantic dimension of
the number-inflectional system has been kept up without any other salient contact-induced changes" (Storch 2006: 109), who contends that number-marking patterns were emblematic features which played a salient role in the speakers’ language attitudes (p. 111). What is also remarkable about Belanda Bor is that it influenced Bviri (Storch 2006: 109), even though it was or is the less prestigious language in the contact scenario.

Map 17. The distribution of Surmic languages

Whereas there appears to have been rather extensive lexical borrowing in Baale from Tirma and Chai, there has been a marked resistance to the borrowing of lexical forms in Likpe, a Togo Remnant language spoken in Ghana (Ameka 2006). Grammatical accommodation towards Ewe, on the other hand, is observed not only in the formation of the present progressive, but also in the marking of plural number on kinship terms
and proper nouns, an O-V-V nominalisation strategy, and a number of complementation strategies, as shown in Ameka (2006).

In Chapter 15, it was argued that climatological changes as well as specific technological innovations probably affected the genetic picture for African languages. As a result of these factors, we find both accretion zones and spread zones. The main conclusion to be drawn from the present section is that social factors must have played an additional, and in fact rather crucial role in the emergence of both genetic and typological diversity on the African continent.

16.4 Self-organising principles

Historical linguists have borrowed concepts such as punctuated equilibrium and exaptation from evolutionary biology, in order to help explain processes of language change. Perhaps the most controversial attempt to present a parallel between biological and linguistic developments, because it appears to be a relatively new concept, is that of self-organising principles. Evolutionary biologists have used the concept of self-organising principle to denote such processes where the organisation of a system spontaneously increases without this increase being controlled by an external system.120 This model, which is also known through the notion of convergent evolution, describes the process whereby unrelated organisms, or organisms not closely related, independently acquire similar characteristics while evolving in separate and sometimes varying ecosystems. An example of convergent evolution is the similar nature of the wings of birds, bats and insects. These are comparable in structure and serve the same function, although they evolved independently. Similar observations have been made with respect to the independent evolution of electrical sensors in the beak of the Australian platypus as well as sharks in the oceans, or the use of poison as a defence mechanism with different species.

One of the analytical issues linguists are struggling with is the tremendous typological variation between languages on the one hand, and similarities in structures on the other. If genetic inheritance or areal contact cannot be invoked as explanatory mechanisms for observed similarities, alternative explanations need to be found. Self-organisation, a process whereby “the organisation of a system spontaneously increases without this increase being controlled by an external system (e.g. the environment)” (Dimmendaal 2008a: 305), is supposed to fulfil this explanatory role; see also Lindblom et al. (1984) and De Boer (2000) for an application of this principle in phonological domains. Its introduction into historical linguistics is not motivated by a desire to copy

120. The same term has also been used in Artificial Intelligence studies.
another concept from a prestigious ("real") scientific discipline such as evolutionary biology. Rather, it seeks to explain structural similarities between languages which are not genetically related and which do not appear to have acquired these parallel features due to areal contact, since they are spoken in geographically discontinuous areas. The model is also presented as an alternative to one in which such similarities are argued to follow from born-in or innate capacities (Universal Grammar), as is common in the Generative tradition. The following case study may serve as an illustration of some of the basic mechanisms behind self-organising principles in morphosyntactic systems.

As observed by Masica (1976), languages using converbs (i.e. dependent verbs occurring in (co-)subordinate clauses) frequently manifest a tendency towards verbal compounding involving converbs plus main verbs. As shown by Amha and Dimmendaal (2006), a large number of Ethiopian Afroasiatic languages, as well as Nilo-Saharan languages towards the west of this zone (extending into Chad and Nigeria) use converbs as a clausal strategy for the expression of sequences of events and simultaneous actions. Several of the African converb languages discussed by Amha and Dimmendaal (2006) manifest a tendency towards the lexicalisation of specific converb plus main verb constructions. Consequently, the question arises as to why languages using similar syntactic strategies to express event structures also manifest a tendency towards lexicalisation of verbal compounds.

In Wolaitta and other Omotic (Afroasiatic) or Nilo-Saharan languages where converb plus main verb constructions are common, no object intervenes between the two verbs; moreover, the subjects in such constructions are co-referential. The frequent juxtaposition of converbs plus specific (following) main verbs, it is argued, leads to semantic interaction between the two elements. As a next step, such collocations may develop idiosyncratic meanings, i.e. a verbal compound may emerge, especially when the resulting meaning is not already covered by an existing lexeme in the language. In the Omotic language Wolaitta, there is a closed set of verbs occurring in the main verb slot which frequently combine with converbs. The syntactically main verbs all appear to modify the Aktionsart or derivational aspect of the preceding converb in languages like Wolaitta, thereby adding semantic concepts usually not contained in the basic meaning of the lexeme (Amha and Dimmendaal 2006).

<table>
<thead>
<tr>
<th>Converb</th>
<th>Main verb</th>
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<tr>
<td>baizz-</td>
<td>m-</td>
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<tr>
<td>haizz-</td>
<td>zekk</td>
</tr>
<tr>
<td>bak’k’-</td>
<td>royk’-</td>
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</tbody>
</table>

The concept of self-organising principles as presented in Amha and Dimmendaal (2006) is comparable to the more classical notion of drift, as some readers might argue. Drift involves the emergence of identical or highly similar structural features in related...
languages. Language sometimes moves down time in a current of its own making, as Sapir (1921: 150) already observed; it has a drift. The drift of a language is constituted by the unconscious selection on the part of its speakers of those individual variations that are cumulative in some special direction in genetically-related languages passing through the same or highly similar phases. Sapir referred to the breakdown of the Indo-European case system in Germanic languages as an example. In Sapir’s terms, drift thus involves parallel developments in genetically-related languages.

Self-organising principles may equally well result in parallel structures in unrelated but typologically similar languages as a result of the interaction of grammatical sub-systems, as we saw above. In the case of verbal compounding, these principles involved are adjacency of verbs, co-referentiality for subjects or agents of verbal predications, and semantic interaction between verbs with lexicalisation occurring where resulting meanings are not preempted by existing lexemes in a particular language. Drift, then, would be an instantiation of self-organising principles in languages that are genetically related.

Three more grammatical examples may help to illustrate the role of self-organising principles in the historical development of genetically related as well as unrelated languages.

With respect to Bantu languages, it has been observed by Nurse (2003) that they tend to use rather extensive sets of bound tense markers on verbs. Such systems remain relatively stable unless contact with typologically different languages occurs, as in the languages along the northern Bantu borderland where contact with Central Sudanic and Ubangian languages caused restructuring. Even though specific tense markers may be lost historically, the system tends to be maintained through the introduction of a new tense marker taking over the same function.

Another striking feature is the stability of the three-way number-marking system found in numerous Nilo-Saharan languages, in particular those belonging to the Eastern Sudanic branch. In spite of the widespread nature of the system, it is not so easy to find cognate number markers between more distantly related languages. There are probably a number of reasons for this. Suffixes may lose their productivity, and be replaced by new suffixes (derived, for example, from demonstratives or referential markers). Second, paradigmatic displacement results in morphological reinterpretations. But the system as such is maintained.

Comparativists working on Afroasiatic languages disagree on the question whether internal plurals, as found in Semitic or Cushitic, are an archaic property of Afroasiatic. Newman (1984, 1990: 38) points towards a methodological pitfall in his study of prracial marking, which actually covers two different processes in Chadic languages, according to the same author (Newman 1990: 38): Infexion and apophony/ablaut (i.e. vowel replacement). Infexion occurs in the Hausa singular/plural alternation ɡulbii/
gulàabée ‘stream’, internal -a apophony occurs in the Kanakuru word for ‘brother, sister’, mol, molì]/mwalàa. The so-called “internal -a-” alternations in Hausa, however, probably are “nothing but particular manifestations of external -agi plurals” historically, according to Newman (1990: 41), who further contends (p. 38) that “[i]n Chadic these may historically reflect one and the same process […]”. In other words, they are not necessarily cognate with internal -a plurals elsewhere in Afroasiatic. The parallel development (known as homoplasy in evolutionary biology) again is best explained as an instance of self-organising principles in these languages.

Africanists familiar with specific language families have often observed in public discussions that such and such a change is very common or occurs over and over again in the language family they are familiar with. But why would such changes occur over and over again? The notion of self-organising principles is supposed to make this intuition about “floating” or “permanent” rules in language families explicit by showing how similar typological properties may emerge independently from each other, and second how language-specific routines may lead to similar structures. Self-organising principles thus should account for the independent emergence of parallel systems without either areal contact and structural borrowing or shared innovations necessarily being involved.

Heath (1997) points to the abrupt replacement of key morphemes in languages, the so-called lost wax phenomenon. In languages with opulent morphologies, a grammatical affix which has become dysfunctional, e.g. as a result of phonetic erosion, is sometimes abruptly replaced by a conveniently available morpheme with which it shares one or more phonological segments. The new affix has the phonological shape of the old independent stem, but acquires the basic grammatical function of the old affix, though it may also bring in a portion of the stem’s own morphological and semantic idiosyncrasies. This historical scenario for a formal repair in morphosyntactic systems, by way of a creative redeployment of inherited low-function material, presents an alternative to the renewal by way of grammaticalisation of syntactic elements. Heath (1997) thus emphasises the pivotal role of the inherited system in grammaticalisations, and criticises historical models which see grammaticalisation as a straightforward syntax-to-morphology compression. Indeed, grammaticalisation often is tightly controlled by system-internal considerations, including both the morphosyntactic typology of a language and a strong tendency to maintain preexisting categories whose prior expression have become unsatisfactory in one way or another, according to Heath (1998), who calls this the hermit-crab principle. As the hermit crab grows in size, it has to find a larger (empty) shell and abandon the previous one.

121. The term “lost wax” (French: cire perdue) refers to a method for casting bronze objects.
The linguistic parallel is a formal renewal of morphology by phonologically-mediated affix substitution, thereby maintaining pre-existing categories.

The lost wax phenomenon and the hermit-crab principle again would seem to be part of this more general, overarching principle operating in languages, that of self-organising principles. Dimmendaal (to appear a) provides an example of the operation of the latter principle in Omotic. Here, one frequently finds a formal distinction between the Declarative and the Interrogative mood, as in the following example from Maale (Amha 2001), where the suffix -ne on the final verb expresses Declarative (Affirmative) mood:

\[
\text{nee-kómácc-á zafk-ó kats-á-ne}
\]

\(\text{2sggen-wife-nom meat-abs cook-ipf-a:decl}\)

‘your wife cooks meat’

The corresponding marker is absent in interrogative clauses in Maale:

\[
\text{nee-kómácc-á zafk-ó kats-á}
\]

\(\text{2sggen-wife-nom meat-abs cook-ipf-a:decl}\)

‘does your wife cook meat?’

\(A = \text{affirmative}; \text{abs} = \text{absolutive}; \text{DECL} = \text{declarative}; \text{GEN} = \text{genitive}; \text{IPF} = \text{imperfective}; \text{NOM} = \text{nominative}\)

Historically, the Declarative marker -ne goes back to a copula, still found as such, for example, in the distantly related Omotic language Hamar (Dimmendaal to appear a). In the Omotic language Zargulla, the use of this Affirmative mood marker -ne was extended towards questions (i.e. interrogative sentences). But rather than losing the formal modal contrast between the Declarative and the Interrogative (through a merger of the two formal systems), Zargulla developed a new formal distinction by introducing a copula -tte for the Declarative mood.

A final example may serve to illustrate the operation of self-organising principles. Africanists who have worked on different language families on the continent may have become aware of the frequent tendency to use auxiliary verbs where Indo-European may use adverbs or tense-aspect markers. Andersen (2007) describes this phenomenon for the Western Nilotic language Dinka, where some 20 auxiliary verbs occur, corresponding to adverbial expressions like ‘first’, ‘immediately’, ‘recently’, ‘quickly’, ‘next’, ‘afterwards’ in languages like English, “while the rest are tense-aspect markers” (Andersen 2007:99–100). In the distantly related Eastern Nilotic language Turkana, a similarly high number of auxiliary verbs is found expressing similar semantic concepts (Dimmendaal 1983a: 134–138). Interestingly, the actual morphemes are not necessarily cognate between these genetically related languages. Heine et al., (1991:246) also observe that once a grammatical form declines and disappears, the newly recruited...
form tends to follow the same conceptual pattern as the old one. This is exactly what one observes with respect to such extensive auxiliary systems. Similarly rich sets of auxiliaries can be found in a wide range of African languages. Newman (2000b: 64–67), for example, refers to a set of approximately thirty verbs in the Chadic language Hausa as “aspectual verbs”. Meanings expressed by such verbs include the following:

- **ćika** ‘do too much of’
- **dingá** ‘keep on doing’
- **kāmā** ‘begin doing’
- **kōmā** ‘go back to doing’
- **rikā** ‘keep on doing’

Comparable lists could be composed for a range of other languages belonging to different African language families. We may be dealing here with an extremely old (“pan-African”) phenomenon with a remarkable historical stability. The recreation of extensive sets of auxiliary are easily explained as the result of self-organising principles in languages. Language structures drift into different typological directions only gradually, unless areal contact with typologically different languages occurs, in which case more sudden, dramatic changes may occur. The fact that specific grammaticalisation processes are common in certain languages can also be explained by the operation of self-organising principles in languages. The choice of a particular option is predetermined by its existing structure. This is what Aitchison (1987: 19) has called “causation level two” (“causation level one” involving social factors).

### 16.5 Some final remarks

Understanding the different ecological settings in which speech communities operate and their languages become restructured has been a central topic in the present volume, because it is the author’s conviction that a linguistically rich continent like Africa can teach us much in this respect, and so one of our main research interests perhaps should be focused here. This intellectual stance relates to a more general point concerning the synchronic and diachronic study of language. The present author strongly subscribes to the view defended by Evans and Levinson (2009), namely “the need for a coevolutionary model of human language, where there is interaction between entities of completely different orders – biological constraints and cultural-historical traditions”. Our speech apparatus and the brain (more specifically, the areas involved in speech comprehension) clearly set biological constraints, for example, on possible sound systems and the way they evolve. But at the same time they leave us with tremendous space for the expression of sounds and corresponding sound changes, including those with a limited distribution in space or time, such as labiovelar stops or clicks.
It has been argued at different points of the present study that analogical thinking is an important trigger behind morphological and syntactic change. Fischer (2008) points out that analogy principles are at work in all areas of culture and life. Analogical change in languages and certain types of semantic changes thus presumably relate to more general cognitive predispositions we have. But at the same time one has to conclude that cultural behaviour (more specifically the nature of social interactions and culture-specific experiences) also affect semantic changes, thereby showing that language is a product of evolution as well as culture. Consequently, the fact that languages developed radically different ways in which meaning has come to be linked to form at the word level or beyond (i.e. at the phrasal or clausal level) should not come as a surprise.

There are several topics and methodological issues relevant for our understanding of language development in an African context which have not been treated in the present monograph. These topics were not addressed, not only for reasons of space, but also because they still constitute poorly understood subjects. African sign languages and their historical development (Kamei 2006) constitute one such domain. Another area where modern technology allows us to develop new research programs involves computer-based search techniques and quantitative-based methods in comparative linguistics, a topic only hinted at in Chapter 12. McMahon and McMahon (2005: 122–138) give a detailed discussion; their contribution also contains cautions and caveats.

A third area where hopefully more research will be carried out in the near future is the question to what extent grammar is geared by culture, or phrased differently to what extent there is a direct encoding of cultural meaning in the semantics and morphosyntax of languages. For a pioneering collection of essays the interested reader is referred to Enfield (2002), where this phenomenon is referred to as "ethno-syntax". By adding a historical-comparative dimension to such research, one obtains an additional, independent device by way of which presumed correlations and ways in which culture shapes grammar may be tested.

A fourth domain barely touched upon in the present monograph revolves around correlations between linguistics and genetics (more specifically, the investigation of variation in mitochondrial DNA structures), giving rise to what has been called the "New Synthesis" by Renfrew (1999). McMahon and McMahon (2008: 267) state that "[t]he simplest hypothesis […] would be that, since humans carry genes and speak languages, we should expect two populations speaking closely related languages also to share similar genetic profiles. Conversely, where we find distantly related or unrelated languages, we might anticipate high levels of difference in the genetics". Neither of the two hypotheses can be upheld in an African context, because of language shift and frequent fusion and fission processes within speech communities. Political sensitivity and the danger of political instrumentalisation of research outcomes may impede
geneticists from carrying out this kind of research in certain countries. Nevertheless, on the whole we may still be in for some fascinating new insights here.

What the field of African linguistics needs most in the present author's view, and this leads us to a fifth and rather central desideratum, are longitudinal studies on language change. How do linguistic innovations actually spread in different African speech communities? The answer is: We don't know. In his opus magnum, the first of a brilliant trilogy on language change, Labov (1994: 598) made the following challenging statement: "We should not be embarrassed if we find that systematic readjustments in the syntax and morphology of language are governed by the same cognitive faculty that governs the social behaviour of mallard ducks". This may well be the case, but before we can justify such a conclusion, we need to take a wider range of languages into account. As pointed out by Labov (1981: 305), the beauty of theories lies not in their simplicity or symmetry, but in their firm connection with reality. It is hoped that through the survey of some of the literature on African languages in the present contribution, these languages will begin to play a more important role in theoretical discussions about the nature of language and language change than they have done so far.
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# Appendix

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<th>Greenberg (1963)</th>
<th>Major branches</th>
<th>Present author’s view on genetic relationships</th>
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<tbody>
<tr>
<td>Afroasiatic</td>
<td>Ancient Egyptian</td>
<td>Afroasiatic</td>
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<td>Berber</td>
<td>Afroasiatic</td>
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<td>Cushitic</td>
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<td>Southern</td>
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<td></td>
<td>Omotic (called Western Cushitic in Greenberg 1963)</td>
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<td>Semitic</td>
<td>Afroasiatic</td>
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<td>Southern Khoisan</td>
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<td>Hadza</td>
<td>Isolate</td>
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<tr>
<td>Niger-Congo</td>
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<td>Niger Congo</td>
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<td>Benue-Congo</td>
<td>Niger-Congo</td>
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<tr>
<td></td>
<td>Kordofanian</td>
<td>Niger-Congo (but consisting of two independent branches, rather than forming one genetic subgroup) Kadu independent family</td>
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<td>Adamawa and</td>
<td>Niger-Congo</td>
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<td></td>
<td>Eastern</td>
<td>Independent family (renamed Ubangian)</td>
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<td></td>
<td>Mande</td>
<td>Independent family</td>
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<td></td>
<td>Dogon</td>
<td>Independent family</td>
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<tr>
<td></td>
<td>Ijaw (Ijo)</td>
<td>Independent family (together with Defaka)</td>
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</tbody>
</table>
Greenberg (1963) | Major branches | Present author’s view on genetic relationships
---|---|---
Nilo-Saharan | Songhay | Independent family
Maban and Mimi | Nilo-Saharan
Fur (and Amdang) | Nilo-Saharan
Saharan | Nilo-Saharan
Eastern Sudanic | Nilo-Saharan
Kunama | Nilo-Saharan
Berta | Nilo-Saharan
Central Sudanic | Nilo-Saharan
Coman | Independent family
Gumuz | Isolate

Additional isolates not listed as languages in Greenberg (1963):

- Bangi-Me
- Dompo
- Jala
- Laal
- Mpra
- Ongota
- Shabo