Linguistic Cycles and Economy Principle:

The role of Universal Grammar in Language Change*

Elly van Gelderen

February 8, 2006

In this paper, I will review the two basic Economy mechanisms with which a Minimalist syntax accounts for the linguistic change that is most often referred to as grammaticalization. I will also add a third mechanism. These Minimalist Economy Principles lead to cycles of change, and I identify several such cycles here. Examples of three cycles will be drawn from languages such as Norwegian, Swedish, English, and Sami. I then focus on some differences and similarities in the mechanisms.

1   Introduction

As is well-known, grammaticalization is a process whereby lexical items lose phonological weight and semantic specificity and gain grammatical functions. Andersen (2005) distinguishes lexical elements becoming grammatical, which he terms grammation, from grammatical elements becoming other grammatical element, for which he uses regrammation. Both processes have frequently been investigated in a functionalist framework. Recently, however, structural accounts have started to appear (e.g. van Gelderen 2004) accounting for the cyclicity of the changes involved. Van Gelderen, for instance, uses Economy Principles that help the learner acquire a grammar that is more economical, and as a side-effect more grammaticalized.

It has long been recognized that language change is cyclical (e.g. Bopp 1868, and more recently Tauli 1958). This fact has also been denied, e.g. by Jespersen (1922) and more recently by Newmeyer (1998). Hodge (1970) calls this cyclical phenomenon the 'Linguistic Cycle', and (1) is of course one way how analytic languages become synthetic in a cyclical manner:

(1)   word   >   clitic   >   affix   >   0 (from Hopper & Traugott 1993)

At the end of the cycle, renewal and borrowing will bring new words into the language, leading to a more analytic language again.

In this paper, I first review two mechanisms from van Gelderen (2004) that account for a number of these cycles. I then have three main aims: (a) to add another such mechanism, namely Specifier Incorporation, (b) to focus on the cyclical change, which van Gelderen (2004) doesn't do, and (c) to identify new data.

The outline is as follows. In section 2, I'll review the syntactic Economy Principles and the Cycle. In section 3, I provide some examples of the Negative Cycle in Scandinavian and in Sami and Finnish. Section 4 provides new data from English on the Aspect Cycle. Section 5 considers the CP. Section 6 is an evaluation of the differences in cycles.

2   Economy and Cycles

Two Economy Principles are formulated in van Gelderen (2004). They are part of UG and help learners construct a grammar. They are similar to principles such as c-command, in that they remain active in the internalized grammar and therefore also aid speakers in constructing sentences. They are different from absolute principles such as c-command because prescriptive and innovative tendencies can counteract them.

In section 2.1, I quickly review these two principles, and show how they are relevant to linguistic change. In 2.2, I discuss the status of these Economy Principles. In section 2.3, I justify and add a third principle.

2.1   Economy

Principle (2) is a UG principle at work in the internalized grammar and holds for merge (projection) as well as move (checking):

(2)   **Head Preference Principle (HPP)**:
        Be a head, rather than a phrase.

This means that a speaker will prefer to build structures such as (3a) rather than (3b). The FP stands for any functional category and the pronoun (but categories such as adverb or preposition could occur too) is merged in the head position in (3a), and in the specifier position in (3b):

(3) a.   FP   b.   FP
.   F'   pro   F'
      pro   ...   F   …
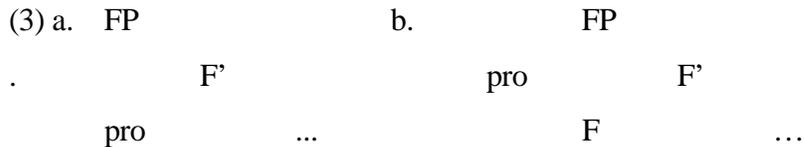
The speaker will only use (b) for structures where a phrase is necessary, e.g. coordinates. There may also be prescriptive rules stopping this change (as there are in French, see Lambrecht 1981).

The Head Preference Principle is relevant to a number of historical changes: whenever possible, a word is seen as a head rather than a phrase. Syntax is inert and doesn't change; it is the lexical items that are reanalyzed. In this way, pronouns are reanalyzed from emphatic full phrases to clitic pronouns to agreement markers, and negatives from full DPs to negative adverb phrases to heads. This change is, however, slow since a child learning the language will continue to have input of, for instance, a pronoun as both a phrase and a head. Lightfoot (1999) develops an approach as to how much input a child needs before it resets a parameter. In the case of pronouns changing to agreement markers, there will have to be a large input of structures that provide evidence to the child that the full phrase is no longer analyzed as that. The exact nature of the input needed for the change, the `cue', is not explored in this paper, however.

Within recent Minimalism, there is a second economy principle (see e.g. Chomsky 1995: 348). Combining lexical items to construct a sentence, i.e. Merge, "comes `free' in that it is required in some form for any recursive system" (Chomsky 2001: 3) and is "inescapable" (Chomsky 1995: 316; 378). This means that it is less economical to merge early, as in (4), and then move than to wait as long as possible before merging:

(4)   **Late Merge Principle (LMP)**:
        Merge as late as possible

This principle works most clearly in the case of heads. Thus, under Late Merge, the preferred structure would be (a) with *to* basegenerated in C, rather than (b) with *to* in a lower position and moving to C. See also Kayne (1999). This accounts for the change from lexical to functional head or from functional to higher functional head so frequently described in the grammaticalization literature (e.g. Heine & Kuteva 2002):

```
(5)    a.              CP                    b.              CP
              C              TP                    C              TP
              to      .              T'            ^      .              T'
                             T              ...                  T              ...
                                                                 to
```

Late Merge also accounts for lexical phrases becoming base generated in the functional domain. An example is *actually*. When it is first introduced into the English language from French, it is as adjective (in 1315), and is then used as a VP adverb in the 15th century, meaning `with deeds in actual reality' as in (6). It then changes to a CP adverb, as in (7), in the 18th century:

(6)   Those who offend actually, are most grievously punished (OED 1660 example).
(7)   Actually, it is kind of an interesting problem (CSE-FAC97).

Structure (8a) shows the more recent structural representation and (8b) the earlier one. The prefered one under the LMP is (8a):

```
(8)    a.              CP                    b.       CP
                  AP              C'              .              C'
              Actually      C              TP              C              IP
                                    ...                    ....          VP
                                                                 ...          AP
                                                                              actually
```

How exactly does Late Merge account for language change? If non-theta-marked elements can wait to merge outside the VP (Chomsky 1995: 314-5), they will do so. I will therefore argue that if, for instance, a preposition can be analyzed as having fewer semantic features and is less relevant to the argument structure (e.g. *to, for,* and *of* in ModE), it will tend to merge higher (in TP or CP) rather than merge early (in VP) and then move. Chomsky (2001) uses external merge for the initial merge and internal merge for one where an element is merged for a second time (and where subsequently one copy has to be deleted). Chomsky assumes they are both economical, but it seems to me that internal merge still requires additional steps and that the LMP is still valid. The change from (8b) to (8a) is Andersen's grammation. Andersen's regrammation is the change from (5b) to (5a).

Like the Head Preference Principle in (2), Late Merge is argued to be a motivating force of linguistic change, accounting for the change from specifier to higher specifier and head to higher head. Roberts & Roussou (2003), Wu (2000), and Simpson & Wu (2002) also rely on some version of Late Merge.

2.2   *Economy and Language Acquisition*

I have mentioned above that I consider the HPP and LMP to be part of UG and that they help learners construct a grammar. In this section, I will first discuss how these Economy Principles are different from others that have been suggested, in that they are more like Preference Principles. Then, I show that child language provides evidence for these.

UG provides access to Principles (and possibly parameters). A list of Principles is hard to come by. Some candidates are c-command, locality (small steps), Merge (with a binary structure as result), the UTAH (Uniformity of Theta Assignment Hypothesis). Some of these are absolute Principles and cannot be violated. For instance, no matter how much societal pressure there is, the interpretation of who votes for whom in (9) cannot be changed; it must be the uncle of Kerry, not Kerry since the latter antecedent is too deeply embedded to c-command *himself*:

(9)   The uncle of Kerry voted for himself in 2002.

        There are also what seem to be more preference principles since prescriptive or
other rules can stop them from applying, e.g. (10):

(10)   **Stranding Preference Principle**
        Move as little as possible

This principle has been used to explain why speakers in English typically front the DP, as
in (11) and (12), rather than the full PP in (13) or the full QP in (14):

(11)   Who did you talk to ~~who~~?
(12)   The children might have been all ~~the children~~ reading happily.
(13)   To whom did you talk ~~to whom~~?
(14)   All the children might have been ~~all the children~~ reading happily.

Preposition stranding, as in (11), is preferred under (10). However, applying (10) has
been stopped by prescriptive rules since the late 18th century (e.g. Coar 1796). So the
economy principles of the speakers would guide speakers to stand prepositions as they
derive sentences. Since (10) is not absolute, however, it can be violated for pragmatic
reasons.
        As expected, children acquiring their language obey the economy principles. For
instance, according to Diessel (2004), young children produce only stranded
constructions in English, as in (15)

(15)   those little things that you play with (Adam 4:10, from Diessel 2004: 137).

Once they become (young) adults, they are taught to take the preposition along as in (13).
This means UG Principles come in two kinds, absolute and not absolute.

The economy rules I have been discussing in section 2 are of the non absolute kind: if there is evidence for a pronoun to be both a phrase and a head, the child/adult will analyze it initially as head unless there is also evidence in the grammar (e.g. from coordination) that pronouns also function as full DPs. There is evidence from acquisition studies that children make a prosodic difference between phrasal and pronominal subjects. Gerken (1991) shows that children produce no prosodic boundary between the subject pronoun and the verb, i.e. analyze them as heads. Diessel (2004: 137) shows, on the basis of 4 children, that when children start to produce relative pronouns, they produce 165/297 cases of *that*, 6/297 of *who* (all by one child), and 126/297 of zero. Following the common assumption that English *that* relative pronouns are heads in C but *wh*-pronouns are phrases in the Specifier of CP, the acquisition data shows that children avoid phrases completely (even the 6 instances of *who* can be argued to be heads).

In this subsection, I have argued that Economy Principles are `softer' principles in that they can be violated by other tendencies, prescriptive and innovative. They are still part of Universal grammar.

2.3   *The Linguistic Cycle and Specifier Incorporation*

How are the two principles just mentioned responsible for cyclical change? Let's see what happens when we combine the effects of the HPP and the LMP, as in Figure 1. The HPP will be responsible for the reanalysis, as a head, of the element in the specifier position; the LMP will ensure that new elements appear in the specifier position:
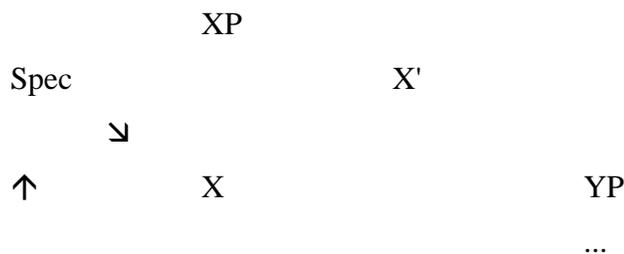
XP

Spec   X'

↘

↑   X   YP

...

Figure 1:   The Linguistic Cycle

This scenario works perfectly for changes where a negative object such as Old English *na wiht* `no creature' becomes a Spec and subsequently a head *not* of a NegP, and for a locative adverb being reanalyzed as part of the higher ASP(ect)P.

There are also a number of changes where a new element comes from outside of the sentence, e.g. a demonstrative being incorporated into the CP to indicate subordination, and an emphatic topic pronoun becoming the subject (in Spec TP). Therefore, I will argue that there is a principle that incorporates (innovative) topics and adverbials in the syntactic tree:

(16) **Specifier Incorporation (SIP)**
      When possible, be a specifier rather than an adjunct.

The cycle would look like that in Figure 1, but with the Specifier position being filled from the outside.

Givón (1979) and others have talked about topics that are later reanalyzed as subjects, and calls this a shift from the pragmatic to the syntactic. What this means is that speakers tend to use the Phrase Structure rules, rather than loosely adjoined structures. With (16) added, typical cycles can therefore be seen as (17), rather than as (1) above:

(17) a. Head   >   higher Head >   0 (=LMP)
      b. Adjunct   >   Spec > Head>   0 (=SIP/LMP and HPP)
          Phrase

The change in (17a) is the one from lower head (either lexical or grammatical) to higher head, via LMP. The change in (17b) shows that either an adjunct (via SIP) or a lower phrase (via LMP) can be reanalyzed as specifiers, after which the specifier is reanalyzed as head (via HPP). The last stage, the shift to zero, is not accounted for and I come back to that in section 6. Some well-known changes making use of the HPP are given in Table 1, and of the LMP and SIP in Tables 2 and 3 (for more on these see van Gelderen 2004).

relative pronoun *that* tocomplementizer	Demonstrative pronoun to article
Negative adverb to negation marker	Adverb to aspect marker (see s 4)
Adverb to complementizer (e.g. *till*)	Full pronoun to agreement

Table 1:   Examples of the HPP

For, from P > C (*for him to do that ...*)	VP Adverbials > TP/CP Adverbials (e.g. 8)
Like, from P > C (*like I said*)	Negative objects to negative markers (see s 3)
Modals: v > ASP > T	
To: P > ASP > M > C (*to* in (5))	

Table 2:   Examples of the LMP

Demonstrative pronoun *that* to relative
Emphatic to subject

Table 3:   Examples of the SIP

Many historical linguists see language change as determined by two kinds of factors. There are internal ones, such as the HPP, SIP, and LMP, of economy or of `ease', as in Jespersen (1922). There are also external reasons for language change such as a `need' by speakers to be innovative and creative. This need to be innovative may introduce new loosely adjoined elements into the structure, and the latter may tend to stop the cycle. These come into the language via (16). A `need' by society to be conservative and prescriptive stops change altogether. Jespersen formulates this tension as a`tug-of-war', and Lightfoot (1979) recognizes the difference between "changes necessitated by various principles of grammar" and those "provoked by extra-grammatical factors". Van der Gabelentz (1912) uses "Deutlichkeit" ('clarity') and "Bequemlichkeit" ('comfort') as important (competing) factors. I'll now put these principles to work.

3   The Northern Negative Cycle

Cross-linguistically, the Negative Cycle (also known as Jespersen's Cycle) may be one of the most pervasive, even though Dahl (1979: 88) suggests that the universality of the Negative Cycle cannot be verified due to "lack of information about the earlier stages of non-European languages". In this section, I provide a few examples from Northern Germanic and Finno-Ugric. The changes in the history of English and those in German are well-known (see e.g. Jespersen 1917 and Abraham 2003).

3.1   North Germanic

In early Germanic, the negative element *ne* precedes the verb (as in other Indo-European languages). In the North Germanic lanuages, this *ne* is phonologically very weak. As Wessén (1970: 100) puts it "[d]a die Negation schwachtonig war, machte sich das Bedürfnis nach Verstärkung stark geltend". This strengthening comes in the form of an enclitic *-gi* that attaches to regular words. This results in *eigi* `not', as in (18), *aldrigi* `never', *eitgi/ekki* `nothing', and numerous other forms:

(18)   *Þat   mɵli ek   eigi*   Old Norse
        that   say-1S I   not
        `I am not saying that' (from Faarlund 2004: 225).

Faarlund (2004: 225) states that the *-gi* suffix is no longer productive in Old Norse but rather that it is part of negative words. That means that *eigi* and other negatives in Old Norse are phrasal adverbs, as is obvious because they trigger V-second, as in (19):

(19)   *eigi   vil   ek   Þat*   Old Norse
        not   want   I   that
        `I don't want that' (Faarlund 2004: 225).

For Modern Norwegian, Bondi Johannessen (1997; 2000) argues that *ikke* `not' is a head. That means that between Old Norse and Modern Norwegian, the negative is reanalyzed from specifier to head. An expected further change is that the head would

weaken phonologically and this is indeed the case as is fairly obvious from sentences such as (20), pretty common according to native speakers:

(20)   *Men detta Ø'kke et forslag som vi har interesse av*   Norwegian
         but that is-not a proposal that we have interest in
         `But that's not a proposal we are interested in' (from Solstad 1977: 70).

This is similar to the development in English with negative auxiliaries such as *don't*. The reason that English doesn't reinforce the weakened *-n't* is a prescriptive one.

   The next stage, where the weakened negative is reinforced, may be occurring in certain varieties of Norwegian. Thus, Sollid (2002) argues that in the Northern Norwegian dialect of Sappen a double negative is starting to occur, as in (21):

(21)   *Eg har ikke aldri smakt sånne brØd*   Sappen Norwegian
         I have not never tasted such bread
         `I haven't ever tasted that kind of bread' (Sollid 2002).

She argues this is under the influence of Finnish, which may well be the case. This would, however, not be possible if the grammar wasn't ready for this, i.e. if *ikke* weren't already a head.

   The changes can be summarized in Figure 2, where (a) and (b) represent Old Norse, (c) is Norwegian, and (d) represents a variety such as Sappen with the verb moving through the Neg head.

a.		NegP			b.		NegP	
	.		Neg'			.		Neg'
	eigi	Neg		... ⟹		eigi	Neg	... (=LMP)
		(ne)	VP				(ne)	
			~~eigi~~					
	⇑					⇓		
d.		NegP			c.		NegP	
	.		Neg'			.		Neg'
	aldrig	Neg	...				Neg	... (=HPP)
		'ke					(ik)ke	

Figure 2: The Negative Cycle

3.2   Negatives in Finno-Ugric

Sami, a collection of Finno-Ugric languages spoken in Northern Scandinavia, has an interesting negative construction where the negative word is inflected for person, number, and tense, as in (22ab):

(22)   a.   *Im*   *(manne)*   *daejrieh*   Southern Sami
              NEG-PRES-1S   (I)   know
              `I don't know'.

        b.   *Idtjim*   *(manne)*   *daejrieh*   Southern Sami
              NEG-PAST-1S   (I)   know
              `I didn't know' (from Bergsland 1994: 44).

These sentences show that the Negation is a head *-i*, moving to and left-adjoining to *-dtji* in T (to check tense) and then to *-m* in AGR (to check person and number), as in (23):

(23)   AGRP

              AGR   TP

              $[i_n$-dtji$]_t$-m   T   NegP

$$t_t \qquad \text{Neg} \qquad \ldots$$
$$t_n$$

Since the negation is a head, one might expect a reinforcement of another negative element in the Spec position, and this is definitely true in Northern Sami, as (24) shows, and what we 'll also see happening below in related Finnish:

(24)   *In*   *leat*   *goassege*   *dahkan*   *dan*   Northern Sami
       NEG-S-1   be   never   do-PART   it-ACC
       `I have never done that' (Trosterud p.c.).

The negative is also inflected in Sami's linguistic relative Finnish, be it only for subject agreement not for tense. As in Sami, this could be the result of the negative being analyzed as a head and then moving to a higher position to check the inflection. This is precisely what Holmberg et al. (1993) argue, namely that the Finnish negative moves. The evidence is that (25) only has the meaning indicated in its gloss, i.e. where the CP adverb *varmaan* `surely' has scope over the negative. This is expected if *ei* originates in the position below *varmaan*:

(25)   *Jussi*   *e-i*   *varmaan*   *ole*   *ostanut sitä*   *kirjaa*   Finnish
       Jussi   NEG-3S   surely   has   bought that   book
       `It is certain that Jussi didn't buy that book' (Holmberg et al 1993: 201-2).

The scope of TP adverbs such as *aina* `always' is different. The gloss to (26) shows that the negative has scope over the adverb:

(26)   *Jussi*   *e-i*   *aina*   *ole*   *pitänyt sinusta*   Finnish
       Jussi   NEG-3S   always has   liked   you
       `Jussi hasn't always liked you' (Holmberg et al 1993: 202).

(26) shows that the negative is generated/merged above the TP adverb, but not higher than the CP adverb, as (25) shows. The negation carries only inflection, and this fits if it moves into AGR in (27) (AGR is represented as FP by Holmberg et al.):

(27)   AGRP

          .   AGR'

          AGR   NegP

          e_n-i   .   Neg'

                    Neg   TP

                    t_n T   VP

The only difference between Sami and Finnish is the order of the NegP: it is below the TP in Sami but above it in Finnish.

If the negative element moves to the AGR position, one might expect it to weaken (through feature syncretism), as in Northern Sami, and reinforce the negative force with an adverb. This is indeed possible, as (28) shows:

(28) *En   ole   koskaan   maistanut   sellaisia   leipiä* Finnish
      NEG   have   never   tasted   such   bread
      `I have never tasted such bread' (from Sollid 2002).

Thus, the situation in Finnish and Sami is very similar to that shown in Figure 2 for North Germanic.

4   **The Aspect Cycle**

In many languages, perfective aspect goes through a cycle in which an aspectual prefix weakens and is replaced by an adverb. Well-known from Greek and Latin, see Horrocks (1981) and Smyth (1920), is the change shown in (29):

(29)   *eo trans flumen >*   *trans-i-eo flumen >*   *transieo trans flumen*   Latin
        go through river   through-go river   go-through through river
        (Dag Haug p.c.)

As Smyth (1920: 366) puts it, "[t]he addition of a preposition ... to a verbal form may mark the completion of the action of the verbal idea (perfective action)". Thus, in Greek (30), *δια* `through' renders the predicate perfective:

(30)   *διαφεύγειν*   Greek
        [through-flee]
        `succeed in escaping' (Smyth 1920: 366).

        Slavic languages have gone through the same changes. In Bulgarian, both (31) and (32) occur, where the latter is the innovation. The two sentence have different interpretations, with the PP in (31) an adjunct but the DP in (32) an object:

(31)   *Ivan   skoči*   *prez   ogradata*   Bulgarian
        Ivan   jumped   over   fence-the
        `Ivan jumped over the fence'.
(32)   *Ivan   preskoči*   *ogradata*   Bulgarian
        Ivan   over-jumped   fence-the
        `Ivan jumped the fence' (Mariana Bahtchevanova p.c.).

This development occurs in many languages other than Indo-European ones, e.g. in the Amazonian language Nadëb, as described by Weir (1986) and in Athabascan languages such as Chipewyan, as described by Li (1967).

        In Old English, there is an aspectual prefix, e.g. *upp* in (33), similar to the prefixes in Latin, Greek, and Bulgarian:

(33)   *Hu lange sceal min feond beon **uppa**hafen ofer me*
        `How long shall my enemy be elevated over me' (*Paris Psalter*, p. 19; HC OE3).

This prefix disappears in Middle English and perfective aspect is not expressed grammatically.

Starting in Early Modern English, as in (34), perfective aspect is again expressed through adverbs with verbs such as *offer up*. The order of adverb and object as in (34a) is more frequent in the examples provided by the *OED* than that in (34b):

(34)   a.   to offer **up** his only son (1548, Udall, from the OED)
          b.   those that offer it **up** (1657, from the OED).

With other verbs this is not the case, e.g. *receive in* followed by an object is less frequent than the pattern *receive* followed by an object and then *in*. The earliest instances of each pattern from the *OED* are shown in (35). These examples suggest that both orders are introduced around the same time:

(35)   a.   they .. did **receive in** such booties of catell or other things (1607, Cowell, from the OED).
          b.   Each grape to weep, and crimsin streams to spin Into the Vate, set to **receive** them **in** (1605, Sylvester, from the OED).

Other recent innovations are provided in (36) to (39): *out* in (36), and *up* in (37) to (39). All except (38) were recently uttered by speakers of American English. Note that in (39), the verb *offer* has undergone a shift as well from the earlier (34):

(36)   They'll issue them **out**.
(37)   I ordered one **up**
(38)   to boost **up** tourism (ICE-Tanzania)
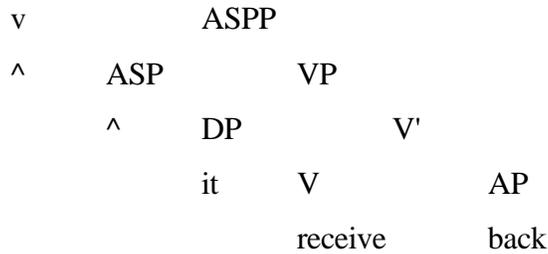(39)   offered **up** that suggestion.

As mentioned, two different word orders are possible, one with a definite object preceding the adverb, as in (36) and (37), and one with the object following the adverb,

as in (38) and (39). The second kind has become more frequent in the recent period, according to Davies (2005), even with definite nominals. The use of pronominal objects, typical for the first order, with these verbs has gone down too. The difference in frequency patterns is evident for the verb *receive* followed by a particle. In the 100-million British National Corpus, *receive* occurs nine times in constructions such as (40a) and four times in constructions such as (40b) (twice with a pronoun and twice with a DP):

(40)   a.   Elizabeth's accession allowed him to **receive back** his wife (BNC-GTB938)

   b.   a husband who changed his mind to **receive** his wife **back** without ceremony (BNC-HTX2122).

Taking the tree in (41) to be a representation of aspect, the adverb could either be inside the VP or in ASP. The order in (40a) can be derived by having the adverb be late merged in ASP and the verb moving via ASP (left adjoining to the adverb) to v, as shown in (41a). To show perfective aspect, it is also possible for the (definite) nominal object to move to either head or specifier of the ASPP (see e.g. Leiss 2000 for the relationship between definiteness and aspect), after which the verb will move to v via ASP (combining with the pronoun if the pronoun is in the head of ASPP). The result is (40b), shown in (41b), if the object moves to the specifier of ASPP and the verb to ASP. It is also possible for the object to move as head (under the HPP), when it can be analyzed as a head, and for the verb to left-adjoin to it on its way to v. This is shown in (41c):

(41)   a.   vP   b.   vP

   v   ASPP   v   ASPP

   ^   .   ASP'   ^   .   ASP'

            ASP   VP   ^   ASP   VP

            [pf]   .   V'   [pf]   .   V'

            back   object V   ...   ^   Obj   V   AP

            ^   receive   receive   in/back

c.   vP

```
        v              ASPP

    ^       ASP              VP

        ^       DP                V'

            it      V              AP

                    receive        back
```
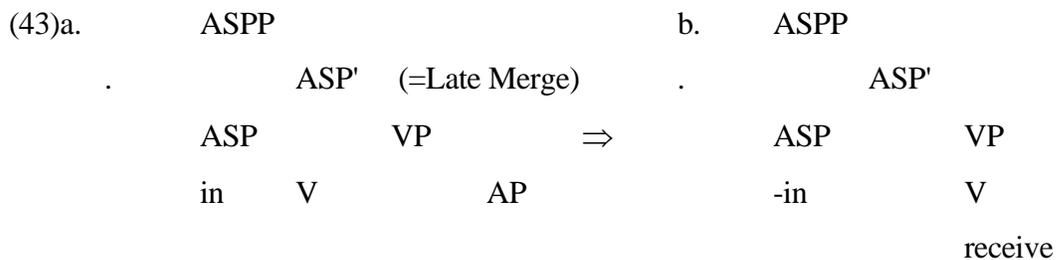
Of these three structures, (41a) is the most economical because there is late merge of *back* and regular V-movement. This construction turns out to be the one that is more frequent as well.

Some evidence for the structures in (41) comes from modification. When the adverb is in the VP, it is a full phrase and can therefore be modified, e.g. by *right* as in (42a); when it is the head of ASP, it cannot, as in (42b):

(42)   a.   He received that package **right back**.

        b.   *He received **right back** that package.

Another way to express the patterns in (35) and (40) is to argue that adverbs optionally project as head or as phrase, as Elenbaas (2005) argues for adverbs in the history of English. Then, in accordance with the HPP, a language learner will reanalyze the phrase as an aspectual head.

A scenario for further change is that the adverb becomes reanalyzed as an affix. After the adverb stage in (43b), the adverb initially becomes reanalyzed as ASP in (43a), and since the V moves to ASP on its way to v, the element in ASP automatically loses its independence:

```
(43)a.        ASPP                              b.       ASPP

    .             ASP'    (=Late Merge)        .             ASP'

        ASP           VP              ⇒            ASP           VP

        in      V              AP                   -in          V

                                                                 receive
```

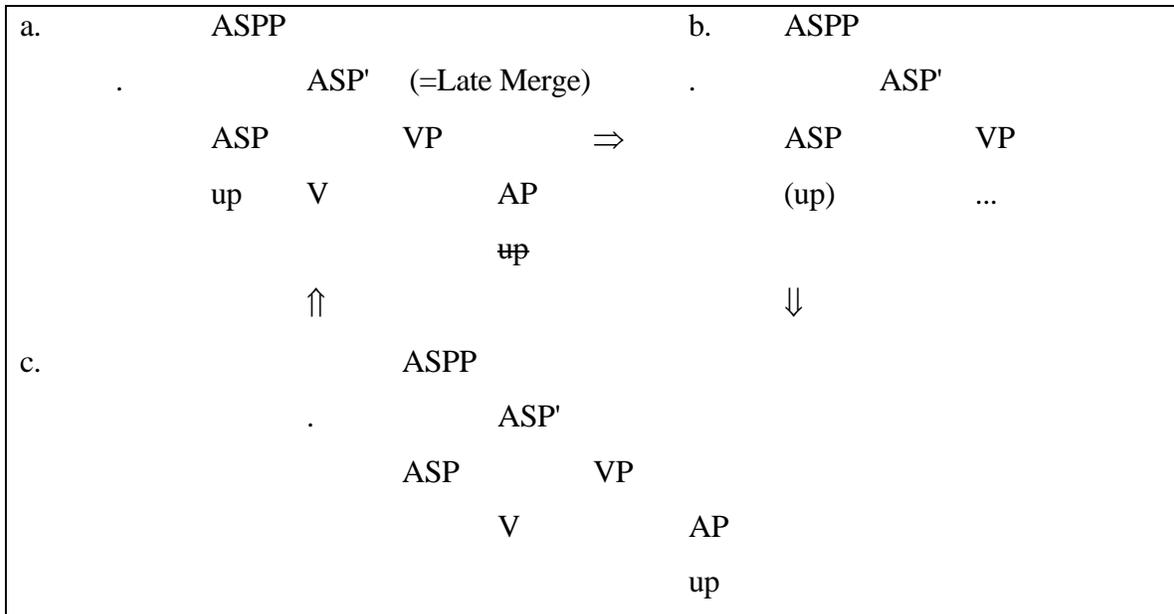The internal reason for this change will be mentioned in section 6.

There are a few phenomena that might lead one to think, as I incorrectly did in van Gelderen (2004), that the change in aspectual particles is from independent adverb to specifier position, resulting in a prefix rather than in a suffix. Examples (45) and (46) are the first instances recorded in the OED of *downplay* and *play down.* The late appearance of the former seemed to indicate a development from adverb to prefix:

(45)   Their chief tended **to downplay** the report of heavy damage
       (**1968** *N.Y. Rev. Bks.* 25 Apr. 34/3, from OED).

(46)   They accused the Washington departments of being in league with the large
       employers **to 'play down'** the number of the unemployed and so encourage the
       too-ready optimism which continues to assert that prosperity is, once again, just
       round the corner (**1930** *New Statesman* 27 Dec. 351).

However, the examples are not systematic enough to be able to sustain this. There was also data from Dutch that seemed to indicate a change from separable prefix in (47) to inseparable prefix in (48):

(47)   *mer tis een flaute die hem **over ghe**comen is*   Early Dutch
       But it-is a swoon that him over PART-come is
       `He fainted'.

(48)   *Hem is een flauwte **over**komen*   Dutch
       Him is a fainting-spell happened (from Blom 2003: 33).

However, Fertig (2005) has convincingly argued that (48) was already an early Germanic form (OE *ofercuman* and OHG *ubarqueman*) and that there is no direction to this change. Different forms stayed around. Thus, the change is not from (46) to (45), since they are very infrequent, but from (41b) to (41a), or from Adv to ASP, in accordance with the LMP. For theoretical reasons (prefixes are hard in a system of left-adjunction, as in Kayne 1994), this is also to be preferred.

To end this section, I'll summarize the changes in Figure 4.

```
a.          ASPP                          b.      ASPP
     .            ASP'    (=Late Merge)    .                  ASP'
            ASP         VP          ⇒           ASP         VP
            up     V         AP               (up)          ...
                        up
                  ⇑                                   ⇓
c.                    ASPP
              .             ASP'
                   ASP          VP
                       V           AP
                       up
```

Figure 4: The Aspect Cycle

5   CP Grammaticalization

In this section, I examine a change in the highest functional layer, namely one concerning the CP. In (6) and (7) above, an example is given how a VP adverb is reanalyzed as a CP adverb through the LMP, and in this section, I show that the LMP, HPP, and SIP are at work in relative clauses and main clause interrogatives.

It is well-known that English speakers prefer a *that* complementizer over a *wh-* pronoun in relative clauses, by at least a 4 to 1 ratio (e.g. van Gelderen 2004; Montgomery & Bailey 1991, etc). This is expected under the HPP, since *that* is in the head C but the *wh-* pronoun is in the specifier position. This preference for heads also holds in Swedish (Wessén 1970), Norwegian, Pennsylvania German (Haag 1982), Yiddish (Fleischer 2005), Non-Standard French (Joseph 1988), and in Spanish (Escobar 2004). An example from French is given in (49), where *que* `that' is used rather than the standard *qui* `who':

(49)   *Les   enfants   **que**   jouent   là*

the   children   who   play   there

`The children who are playing there' (from Joseph 1988).

In some languages, the element from the specifier combines with the element in the head position, e.g. as in Gothic (50) and Old English (51):

(50)   *Aþþan all   uskiusaiþ   **þatei**   goþ   sijai   gahabaiþ*
        But   all   prove   that-that   good   is   hold
        `Prove all things; keep what is good' (I *Thessalonians* 5,21).

(51)   *and   wundor   godes* **þætte**   *on   þam cnihtum gecyþed wæs*
        and   miracle   of-god that-that   to the youths made-known was
        `and God's miracle that was made known to the youths' (*Daniel* 470-1, from
               Grossmann 1906: 26-7).

Since this fact about relatives is well-known, I will turn to the application of the HPP, SIP, and LMP in *wh*-questions.

In Norwegian dialects, interrogative main clauses display the same tendency to be situated in the head, as evidenced by the absence of verb-movement to C, as in (52):

(52)   *Kven du* **såg**   Norwegian variety
        Who you saw
        `Who did you see' (from Åfarli 1985: 6).

Westergaard (2005) provides more background on the conditions where this happens; one of them is that the *wh*-word is one word, i.e. a head. Thus, (53) with a phrasal *wh*-element requires verb-second:

(53)   *Ka   for   nokka   **sa**   dokker*   Norwegian variety
        what   for   something   said   you
        `What kind of thing did you say' (from Taraldsen 1985: 21).

To end this section, I summarize the changes in Figure 5. Stage (a) represents the stage when a word is introduced into the specifier of the CP. The element chosen is often a demonstrative, as in Gothic and Old English. Stage (a) represents the standard word order (where verb-movement is triggered). Stage (b) represents a variety as in (46) and stage (c) might come about when the head is reanalyzed as a question-indicator, and a new *wh*-element appears (usually from an indefinite pronoun).

```
a.              CP                          b.              CP
        .              C'     (=SIP)              .              C'
      kven    C                    ...    ⇒                    C                ... (=HPP)
                       VP                                    kven


             ⇑                                           ⇓

             c.              CP
                     .              C'           (=LMP)           .
                            C              VP
                          (kven) ...              kven
```

Figure 5: The CP Cycle

6   Contrasts and conclusion

In this paper, I have argued that there are Economy Principles that guide the language learner. The result is a reanalysis of phrases as heads, and heads as higher heads. These principles are also used by speakers to build derivations. One stage of the Cycle not addressed in this paper is the last one, i.e. the change to zero. Once an element becomes a functional head, other heads moving through the earlier empty head might conceal the newly formed head's function. This happens in the Negative Cycle as well as in the Aspect Cycle and seems to be a result of the avoidance of feature syncretism, e.g. as in the Southern Sami negative which encodes person, number, negation, and tense. Faarlund

(2005) has argued that children tend to analyze a string as containing as few as possible morpheme boundaries, and Slobin (1985) provides evidence that children prefer analytic constructions. A task for future research is to formulate this in a way compatible with the approach I have taken in section 2.

To conclude, I will briefly compare the different cycles. For instance, the Aspect Cycle is different from the others in that it doesn't use HPP. The differences can be summarized in Table 4.

	Neg Cycle	ASP Cycle	CP Cycle
HPP	yes	--	yes
LMP	yes	yes	(yes)
SIP	(yes)	yes	yes

Table 4:   Comparing the Cycles

The brackets indicate changes not provided full evidence for in this paper. The Negative Cycle allows incorporation of adjunct-elements (in accordance with the SIP), e.g. *never* might end up being used as the regular negation in English since the *-n't* has weakened too much. The CP Cycle also sees Late Merged elements replenish its expressions.

Abbreviations

BNC   British National Corpus, see references.
CSE   Corpus of Contemporary Professional American English, see references.
HPP   Head Preference Principle

ICE   International Corpus of English, see references.

LMP   Late Merge Principle

OED   Oxford English Dictionary

SIP   Specifier Incorporation Principle

UG   Universal grammar

References

Abraham, Werner 2003. "Autonomous and non-autonomous components of `grammatic(al)ization': economy criteria in the emergence of German negation". *STUF* 56.4, 325-65.

Åfarli, Tor 1985. "Absence of V2 effects in a dialect of Norwegian". *Working Papers in Scandinavian Syntax* 22: 1-21.

Andersen, Henning 2005. "The Structure of Grammaticalization". [in this volume]

Blom, Corrien 2003. "The diachrony of complex predicates in Dutch". GLAC talk.

Bondi Johannessen, Janne 2000. "Negasjonen *ikke*: kategori of syntaktisk posisjon". Oslo, ms.

Bopp, Franz 1868. *Vergleichende Grammatik*. Berlin: Dümmler.

British National Corpus, BNC, http://sara.natcorp.ox.ac.uk.

Chomsky, Noam 1995. *The Minimalist Program*. Cambridge: MIT Press.

Chomsky, Noam 2001. "Derivation by phase". In: Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 1-52. Cambridge: MIT Press.

Coar, Thomas 1796. *A Grammar of the English Tongue*. London.

Corpus of Contemporary Professional American English, CSE, http://www.athel.com.

Dahl, Östen 1979. "Typology of sentence negation". *Linguistics* 17:79-106.

Davies, William 2005. "Examining diachronic shifts in phrasal verbs". SHEL talk.

Diessel, Holger 2004 *The Acquisition of Complex Sentences*. Cambridge: CUP.

Elenbaas, Marion 2005. "The structural development of particle verbs in the history of English". ICHL talk.

Escobar, Anna María 2004. "From Subordinate Marker to Discourse marker". Talk at LASSO.

Faarlund, Jan Terje 2004. *The Syntax of Old Norse*. Oxford: OUP.

Faarlund, Jan Terje 2005. "A mentalist interpretation of grammaticalization theory". [in this volume]

Fertig, David 2005. "Review of Geert Booij's *Morphology of Dutch*". *Journal of Germanic Linguistics* 17.2: 141-153.

Fleischer, Jürg 2005. "The Origin of Eastern Yiddish *vos* relative clauses". ICHL talk.

Gabelentz, Georg von der 1891. *Die Sprachwissenschaft*. Leipzig.

Gelderen, Elly van 2004. *Grammaticalization as Economy*. Amsterdam: John Benjamins.

Gerken, LouAnn 1991. "The metrical basis for children's subjectless sentences". *Journal of Memory and Language* 30.4: 431-51.

Grossmann, Heinrich 1906. *Das Angelsächsische Relativ*. Berlin Diss.

Givón, Tom 1979. "From discourse to syntax". *Syntax & Semantics* 12, 81-112. New York: Academic Press.

Heine, Bernd & Tania Kuteva 2002. *World Lexicon of Grammaticalization.* Cambridge: Cambridge University Press.

Haag, Earl 1982. *A Pennsylvania German Reader and Grammar*. Penn State: The Pennsylvania State University.

Hodge, Carleton 1970 "The Linguistic Cycle". *Language Sciences* 13: 1-7.

Holmberg et al 1993 "The Structure of INFL and the Finite Clause in Finnish", in Holmberg et al *Case and Other Functional Categories in Finnish Syntax. Berlin:* Mouton: 177-206.

Hopper, Mike & Elizabeth Traugott 1993. *Grammaticalization*. Cambridge: Cambridge University Press.

Horrocks, Geoffrey 1981. *Space and Time in Homer*. New York: Arno Press.

International Corpus of English, ICE, Tanzania and India, http://www.ucl.ac.uk/english-usage/ice.

Jespersen, Otto 1917. *Negation in English and other Languages*. Copenhagen: A.F. Høst.

Jespersen, Otto 1922. *Language*. London: Allen & Unwin.

Joseph, John 1988. "New French: A Pedagogical Crisis in the Making". *Modern Language Journal*: 31-36.

Kayne, Richard 1994. *The Antisymmetry of Syntax.* Cambridge: MIT Press.

Kayne, Richard 1999. "Prepositions as Attractors". *Probus* 11, 39-73.

Kuhn, Hans 1968. *Edda II, Kurzes Wörterbuch*. Heidelberg: Carl Winter.

Lambrecht, Knut 1981. *Topic, Antitopic, and Verb Agreement in Non Standard French*. Amsterdam: John Benjamins.

Leiss, Elisabeth 2000. *Artikel und Aspekt*. Berlin: Walter de Gruyter.

Li, Fang Kuei 1967. *Chipewyan*. Viking Fund Publications in Anthropology 6.

Lightfoot David 1999. *The development of Language*. Malden: Blackwell.

Montgomery, Michael & Guy Bailey 1991. "*In Which*: A new form in written English". *American Speech* 66.2: 147-163.

Newmeyer, Frederick 1998. *Language Form and Language Function*. Cambridge: MIT Press.

Oxford English Dictionary, OED, 1933. Oxford: Oxford University Press, and online version.

Roberts, Ian & Anna Roussou 2003. *Syntactic Change*. Cambridge: Cambridge University Press.

Simpson, Andrew & Xiu-Zhi Zoe Wu 2002. "Agreement Shells and Focus". *Language* 78.2: 287-313.

Slobin, Dan 1985. "Cross-linguistic evidence for the language-making capacity". In Dan Slobin (ed.), *Studies of Child Language development*. Hillsdale: Erlbaum.

Smyth, Herbert 1920[1974]. *Greek Grammar*. Cambridge: Harvard University Press.

Solstad, Dag 1977. *Svik: F Orkrigsår.* Oslo: Forlaget Oktober A/S.

Sollid, Hilde 2002. "Features of Finnish in a northern Norwegian dialect". (www.joensuu.fi/fld/methodsxi/abstracts/sollid.html).

Taraldsen, Tarald 1985. "On Verb-second and the Functional Content". In Hubert Haider & Martin Prinzhorn (eds), *Verb-Second Phenomena in Germanic Languages*, 7-25. Foris: Dordrecht.

Tauli, Valter 1958. *The Structural Tendencies of Languages*. Helsinki.

Trosterud, Trond 1994. "Auxiliaries, negative verbs and word order in the Sami and Finnic Languages". In: Ago Künnap (ed.), *Minor Uralic Languages*, 173-181. Tartu.

Weir, Helen 1986. "Footprints of yesterday's syntax". *Lingua* 68: 291-316.

Wessén, Elias 1970. *Schwedische Sprachgeschichte III*. Berlin: Walter de Gruyter.

Westergaard, Marit 2005. The Development of Word Order in Norwegian Child Language. PhD Tromsø.

Wu, Xiu-Zhi Zoe 2000. *Grammaticalization and the Development of Functional Categories*. USC Diss.