

6. SOME IMPLICATIONS FOR EDUCATION

This dissertation has addressed grammatical aspects of intrasentential code switching, aiming to show their relevance to issues in education and schooling. In chapter 1, I focused on ways in which a misunderstanding of code switching may lead to tacit tracking effects for language-minority children.

Several findings from original experimental and naturalistic Spanish-Nahuatl code switching corpora, collected in Southeast Puebla, were presented and analyzed in terms of Chomsky's (1995a) minimalist program. The approach taken in chapter 5 was *minimalist* in two respects. First, it is hypothesized that nothing constrains code switching apart from the requirements of the mixed grammars, an assumption which makes use of minimal theoretical apparatus (corresponding to "virtual conceptual necessity"). Second, the particular analyses developed for data presented in the dissertation were restricted as much as possible to mechanisms made available in the minimalist program, as Table 8 (page 284) shows. Other recent theories of code switching were also reviewed in terms of the Spanish-Nahuatl corpus, and each one was disconfirmed in turn. Some attention was then given to extending the approach developed here to an analysis of other corpora; in many cases, the apparent conflicts in basic findings, listed in Table 1 (page 68), were reconciled.

Advances in our understanding of code switching in particular, and of bilingualism in general, should provide a foundation for better educational treatments for bilingual children. Indeed, as foreshadowed in chapter 1, some of the conclusions reached in this dissertation regarding code switching have an immediate application to

issues of policy and tracking; this connection will be made explicitly in section 6.1. The relevance of a related topic--specifically, the rejection of “semilingualism” and prescriptivism--will be discussed with respect to its impact upon issues of curriculum (§6.2), teaching (§6.3), assessment (§6.4), and the psychology of language and cognition (§6.5).

6.1 Policy: Tacit Tracking and Code Switching

Educational policy dictates what course of action a school or district will take in relation to students, but such policy does not need to be overtly stated or implemented. In fact, it is most often imposed by social structures and practices which stem from the larger society, as noted at least as early as Dewey (1916).

More recently, Oakes’ (1985) study of school tracking noted that ability grouping for children correlated highly with children’s self-perceptions for ability and career promise. She concluded that children who had been treated as “good students,” destined for success and achievement, wound up in higher tracks, while other children found themselves in lower tracks. In this regard, according to Oakes, numerous school practices conspire to subtly put tracking structures in place, either overtly or covertly. Thus, Oakes (1985) sees tracking as a mechanism used in schools to *structure* social inequality.

Tracking may thus be used to reproduce class structure, with poor children themselves often being complicitous in their own subjugation. In Willis’ (1981) view, children in impoverished schools have a realistic view of options available to them in the work force, a view they acquire from peers, family members, and the values of their

community. These children view the “mental labor” of school work as a ploy to control their free time. By contrast, manual work is creative, satisfying and independent. Thus, by resisting school labor, children participate in their own subjection to the dominant classes, who are able to justify this state of affairs by pointing to defiance of school authority on the part of these children.

If teachers believe that code switching relates to an inherent disability in children which might be remedied with sufficient instruction, then children’s perceptions of their own “natural abilities” as severely limited, conveyed by classroom teachers, will impact upon their success in school, as Oakes’ (1985) study suggests. This may have the effect of perpetuating poverty and inequality.

The thesis articulated at the end of chapter 1 and confirmed in chapter 5 assumed that all code switching data could be explained by positing that

- (1a) nothing constrains code switching apart from the requirements of the mixed grammars; and
- (1b) bilinguals who code switch have the same underlying linguistic competence as monolinguals for the languages they use.

Indeed, the data explored in chapter 5 show that code switchers are sensitive to extremely subtle requirements imposed by their languages, just as monolinguals are.

Consider, for instance, the remarkable contrast in (2) (§5.2.2.4).

- (2a) *Estoy *nitlajtohtoc*
estoy ni-tla-toh-toc
be/PRES/1Ss 1S-INDEF-speak-DUR
‘I’m speaking’

- (2b) Estoy *tlajtohtoc*
 estoy tla-toh-toc
 be/1Ss INDEF-speak-DUR
 ‘I’m speaking’

In normal, monolingual Nahuatl, the durative form *tlajtohtoc* is required to carry an agreement prefix such as *ni-*. The notion expressed in (2b), then, would have the form (3) in monolingual Nahuatl.

- (3) Nitlajtohtoc
 ‘I’m speaking.’

However, agreement morphology causes verbs to undergo LF checking with T, resulting here in X^0 -level compounding of Nahuatl V with Spanish *estar* and T. Since a compound of this sort cannot be interpreted by either PF component (since morphological words are mixed below X^0 here), it constitutes an illegitimate object at PF. However, since verb movement is not forced in (2b), the construction is well-formed.

In determining the judgments in (2), a bilingual is exquisitely sensitive to a range of extremely subtle grammatical requirements, just as a monolingual is. For instance, (2a) is regarded to be ill-formed due to the speaker’s tacit knowledge that the ordered phonological rules which map $N \rightarrow \pi$ cannot be merged for code switching, since ordering relations are not preserved under union. The construction in (2b) is well-formed even though the Nahuatl verb does not agree with the null subject; this fact reflects the speaker’s tacit knowledge that (2b) is the only derivation in the class *S* of all convergent derivations identical to (2b) except for uninterpretable case and ϕ -features (see section 5.2.2.4 for discussion). These same subtle mechanisms (along with others) determine

grammaticality judgments for monolinguals as well as for bilinguals who do not code switch.

Recall Commins and Miramontes' (1989: 445) conjecture that "a popular belief is that children who code-switch . . . do so because they do not command enough pieces in either language to form a complete code; thus, they are considered semilingual." The example in (2) illustrates that code switchers not only know "enough pieces" in each language, but are actually privy to extremely subtle grammatical requirements, some of which lead to the formation of constructions which would not be possible in either language taken alone, making the attribution of "semilingualism" to these speakers not just unfounded but utterly absurd. (Of course, many other examples analogous to (3) are discussed and reviewed in section 5.2.2.)

In addition, note that code switching enhances rather than limits the expressive capacity of an individual, if we construe "expressive capacity" to refer to the range of constructions permitted by a grammar (or mixture of grammars). This may be shown by considering the simple context-free grammars in (4) for small subsets of Spanish and English.

- (4a) *(Little) English*
S → NP VP
VP → V NP
NP → Det N

V → loves, entertains, reads
Det → the, a, this
N → boy, girl, book

- (4a) *(Little) Spanish*
 $S \rightarrow NP VP$
 $VP \rightarrow V Prt NP$
 $NP \rightarrow Det N$
- $V \rightarrow \text{ama, elige, mira}$
 $Det \rightarrow \text{el, un, este}$
 $Prt \rightarrow \text{a}$
 $N \rightarrow \text{muchacho, libro, perro}$

Because these simple grammars are not recursive, each generates a finite number of strings -- just 243 sentences in each case ($243=3^5$, three lexical choices on five terminal nodes in each grammar). A bilingual who does not code switch could produce twice as many sentences ($243 \times 2 = 486$) by using the English of (4a) and the Spanish of (4b) separately. However, mixing the grammars generates 7,776 ($=6^5$), a striking increase in expressive capacity. Because the grammars of natural languages are recursive, we cannot count the strings they generate; however, the same conclusion holds as in the case of the finite grammars in (4): $G_1 \cup G_2 > L_1 \cup L_2$. That is, putting the recursive grammars of two languages together generates infinitely many strings that are not in either infinite language taken separately.¹²⁶

As teachers become aware of the nature of code switching and bilingualism, their perceptions of children who code switch should alter accordingly. The conclusion reached in chapter 5, that code switchers do not have limited linguistic competence in comparison with others, should lead teachers to a posture of tolerance toward the

¹²⁶I am indebted to Edward P. Stabler for this observation.

practice. In the next section, I explore some possible new directions in curriculum based upon the conclusions in chapter 5.

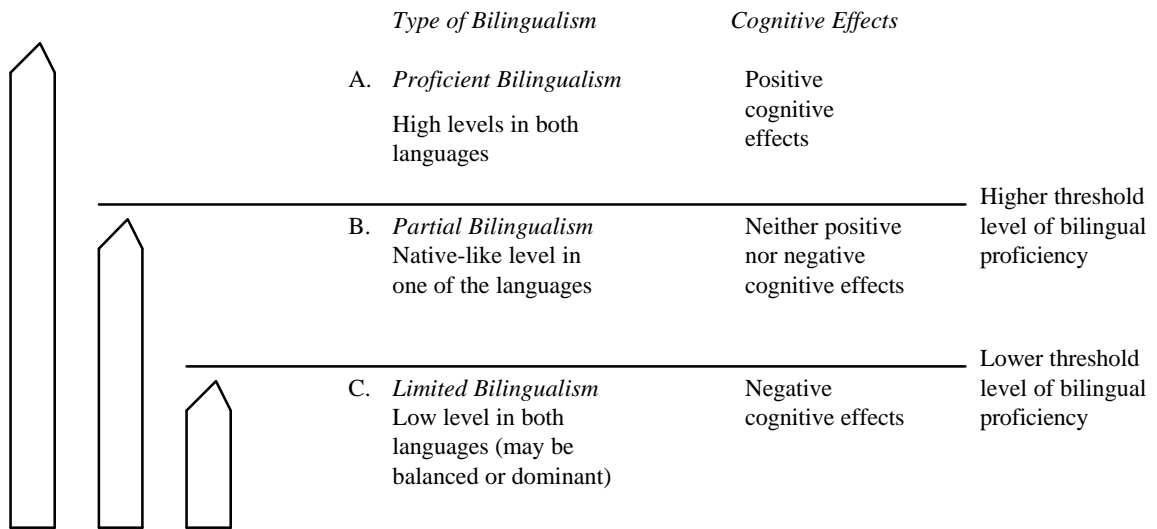
6.2 Curriculum

Our rejection of the notions of “semilingualism” and prescriptivism have important consequences for curriculum. In particular, if “semilingualism” is rejected, the Threshold Hypothesis of Cummins’ (1981), adapted from Toukomaa and Skutnabb-Kangas (1977), will need to be revised to treat only two kinds of bilingualism, proficient or competent bilingualism and partial bilingualism, as I will discuss in section 6.2.1. In section 6.2.2, the consequences of rejecting prescriptivism will be explored with respect to the language arts curriculum.

6.2.1 Revising the Threshold Hypothesis

Cummins’ (1981) version of the Threshold Hypothesis, represented in Figure 10 below, is adapted from Toukomaa and Skutnabb-Kangas (1977) in whose version of the diagram “limited bilingualism” is termed “semilingualism.”

Figure 10: Cummins' (1981) Model of the Cognitive Effects of Different Types of Bilingualism



Cummins regards literacy to be one aspect of language acquisition, so that children on the lower threshold may be individuals who cannot read or write. In section 1.3.2, I argued that reading, writing and other aspects of literacy crucially must be separated from knowledge of language if the harmful effects of ability labels are to be avoided. Regarding preliterate Spanish-speaking children as “limited” or “semilingual” makes no more sense than regarding adults in cultures which lack writing systems as “non-proficient” speakers of their own languages. In addition, what Cummins regards as “cognitive effects” in Figure 10 might better be dubbed “academic effects.” This term is neutral with respect to the cognitive value of school content, much of which has the sole purpose of thought control (see section 1.1).

One of the goals of Cummins' (1981) schema in Figure 10 is to capture the widely attested benefit which first-language literacy holds for second language literacy. In a recent review of work on “literacy transfer,” Krashen (1996) argues that the basic similarities between reading in one language and reading in another, even when the

alphabets are radically different, suggest that basic text decoding skills transfer between languages. This prediction appears to be confirmed in a number of studies which Krashen (1996) reviews. Indeed, because readers heavily rely upon the phonological, morphological and syntactic structure of the text they are decoding (Adams, 1990), it makes no sense to begin teaching children to read in a language they do not know (since these linguistic resources would be unavailable). As Wong Fillmore and Valadez (1988) put it,

There is no other area of the curriculum in which the arguments for beginning with native language instruction are clearer. Reading is unquestionably a language-dependent skill. . . . What the reader must apply in this constructive process, as we have learned from studies of reading comprehension, is knowledge that is *not* encoded in the written word: knowledge of the language, of conventions of its use, of the real world, and of the topics treated in the text . . . [661].

In a comparison of immersion and early-exit transitional bilingual education programs which used a large national sample of 1,054 students, Ramirez *et al.* (1991) found that the early-exit programs did better in reading but not in language and math (where no difference was found). Commenting on this result, Rossell and Baker (1996) consider the following possibility:

Bilingual education may be superior to all-English instruction in the very beginning when a student literally knows no English, but as the student's English language knowledge increases and English becomes more comprehensible, time-on-task in English becomes more important because it becomes *effective* time-on-task [32].

Rossell and Baker (1996: 43) go on to conclude that "it seems more likely that a threshold in the second language, not the native tongue, needs to be passed before the second language instruction is consistently superior to the native tongue instruction." In

other words, once a child has developed a sufficiently high level of competence in the second language, instruction in content areas and literacy may proceed in the L₂. But in the early years, when students know no English, they can only realistically be taught to read in the L₁; their knowledge of language is crucially involved in the development of reading skills.

Applying similar concerns to the model in Figure 10, Cummins may have intended to postulate “low levels” of literacy in a child’s native language as the source of trouble (producing negative “cognitive effects”) in second language reading and content instruction. However, the distinction between “low or poor literacy” and “low or poor language ability” is a crucial one which Cummins’ model unfortunately does not make. The relationship between the development of first language literacy and academic success may be represented graphically without assuming that some bilingual children have the special status of “limited bilinguals” or “semilinguals,” as I will show.

With these factors in mind, a revision of Toukoma and Skutnabb-Kangas’ (1977) and Cummins’ (1981) model might be proposed, as in Figure 11.

Figure 11: Academic Effects of Different Types of Literacy Programs for Bilinguals

<i>Type of Bilingualism</i>	<i>Type of Literacy Program</i>	<i>Academic Effects</i>
<i>Competent bilingualism</i> Native-like in both languages	<i>L₁ Program</i> Reading instruction for L ₁	Positive
	<i>L₂ Program</i> Reading instruction for L ₂	Positive
	<i>L₁ and L₂ Programs</i> Reading instruction for both languages	Positive (best case)
<i>Partial bilingualism</i> Native in one language and limited in the other	<i>L₁ Program</i> Reading instruction for L ₁	Positive
	<i>L₂ Program</i> Reading instruction for L ₂	Negative
	<i>L₁ and L₂ Programs</i> Reading instruction for both languages	Positive, but only if L ₁ literacy is reasonably strong

Here L₁ denotes the language spoken at home, and L₂ the language spoken by school personnel and the dominant social group. The existence of only two types of bilingualism is acknowledged: *competent bilingualism*,¹²⁷ in which speakers, naturally native in one language, have native-like ability in a second; and *partial bilingualism*, in which speakers have only partial or incomplete knowledge of a second language.

The academic effects of different literacy programs are then compared, indicating a preference for literacy development in both languages for competent bilinguals but for literacy development in L₁ for partial bilinguals. Naturally, once partial bilinguals have become competent speakers of both languages, they would benefit from literacy development for either language, ideally for both. They might even begin to learn to read

¹²⁷I use the term “competent bilingualism” instead of “proficient bilingualism” because the latter is defined in the Bilingual Education Act of 1978 to include knowledge of reading and writing. See Macías (1993).

in an L₂ after they have developed reasonably strong L₁ literacy. Note, too, that Figure 11 is neutral with respect to a school's choice of effective LEP programs (structured immersion, transitional bilingual education, or two-way immersion) (Wong Fillmore and Valadez, 1988).

6.2.2 Language Arts and Linguistic Inquiry

The claim of linguistic equality for code switchers is related to a more general claim, discussed at length in chapter 1, namely, that all human beings possess languages and language varieties of equal richness and complexity. This proposition is the denial of prescriptivism. A worthwhile language arts curriculum, rather than targeting stigmatized language for “remediation,” should use language diversity as a *resource* (Ruíz, 1988).

One way in which such diversity can be of use in a language arts curriculum is in the form of linguistics lessons. Honda and O’Neil (1993) used linguistics to teach scientific inquiry to secondary students in the New England area and found that students in their after-school program were engaged and grew in intellectual confidence. The experience with linguistic inquiry also influenced children’s work in science class:

Another measure of success was the new intellectual confidence that the students showed as they moved from the linguistics lessons to other subjects in the science curriculum. For example, after completing the linguistics lessons in regular seventh-grade science classes, students began a new unit on weight and density. The science teacher noted that the seventh graders used the methods of inquiry and the relevant terminology of the linguistics lessons. When asked to record their observations of things that sink and things that float, several students noticed there was no space available on their worksheets for their hypotheses. Students spontaneously suggested the need to make a hypothesis, test it, and then try to “find something that doesn’t follow our hypothesis”--that is, a counterexample [244].

Traditionally, language arts curricula regard English to have “rules” which native speakers sometimes erroneously fail to follow, either due to ignorance or a lack of practice. This conception of a rule relies on some authority external to students, even external to their teacher; to the extent that children follow such rules, they may be counted on to be controlled by schools and other authoritarian institutions. Similar authoritarian aspects of curriculum and schooling focus on simple factual recall, known-answer questions, drills, tedium, punctuality, and general obedience to authority and ideology. In the sheer service of authority and ideology, students are “reduced to mere servants of attaining pleasure and avoiding pain” (Dewey, 1916: 84).

According to Dewey (1916), it is in the interests of powerful elites to limit students’ recourse to individual thinking and the free exchange of ideas; doing so allows elite groups to continue to maintain control over others. Control is thus a function of isolation. On the other hand, diversity, inquiry, and freedom of thought and expression result in democratic progress:

Lack of the free and equitable intercourse which springs from a variety of shared interests makes intellectual stimulation unbalanced. Diversity of stimulation means novelty, and novelty means challenge to thought. The more activity is restricted to a few definite lines--as it is when there are rigid class lines preventing adequate interplay of experiences--the more action tends to become routine on the part of the class at a disadvantage, and capricious, aimless, and explosive on the part of the class having the materially fortunate position [Dewey, 1916: 84-85].

Challenge to thought, in the context of the free exchange of novel perspectives, presupposes a system of intellectual self-defense, a notion which Chomsky has often employed:

Doing things that will stimulate critical analysis, self-analysis, and analysis of culture and society is very crucial. In fact, it seems to me that part of the core of

all education ought to be the development of systems of intellectual self-defense and also stimulation of the capacity for inquiry, which means also collective inquiry [Chomsky, in Olson and Faigley, 1991: 16].

Put even more strongly in Deweyan terms, the process of collective inquiry in the free and equitable exchange of ideas *results in* the development of systems of intellectual self-defense, the ability to express and rationally defend one's own ideas and views.

Thus, a language arts curriculum which asks students to reflect on their own native intuitions about the languages they speak does more than help them construct theories about the world and themselves. It also conveys the sense that their own intrinsic rational nature determines what is correct or incorrect, setting the stage for genuine education. The language arts curriculum is therefore an ideal place to stimulate intellectual independence, but this can only occur if students are asked to engage in rational inquiry. The use of prescriptive, authoritarian rules of “correct use” will assure that students can be controlled, but it will not lead to education or liberation.¹²⁸

6.3 Teaching: Bilingual Instruction and Code Switching

A central concern in bilingual education programs has been “language management.” What percent of time should be devoted to L₁ and what percent should be devoted to L₂ during instruction? How should languages be separated in a bilingual education program -- by time (hours, days of the week), subject, teacher?¹²⁹

¹²⁸Naturally there is an important role for reading and writing in language arts curriculum as well. See Krashen (1993) for discussion.

¹²⁹For a review of work on these topics, see Wong Fillmore and Valadez (1988).

Jacobson's (1983) view is that languages are best mixed in the classroom by code switching. Conventional approaches, Jacobson argues, in which languages are separated, lead to numerous quandaries. For instance, if languages are separated by *time*, then teachers will have to teach each subject twice, once in English and once in, say, Spanish, a practical problem of significant proportions. If, on the other hand, language separation is based on *content*, Jacobson argues, then it will be impossible to decide which subjects should be taught in which language: Children who learn math in English, for example, may later have difficulty talking about it in Spanish (for lack of appropriate vocabulary), or they may come to view English differently from Spanish because math is a highly valued subject in our society.

Jacobson (1983) believes that by code switching in the classroom students will acquire subject-appropriate vocabulary in L_1 and L_2 , and none of the practical problems of other approaches will be present. However, this switching may not be done haphazardly or randomly, according to Jacobson. In order for it to be educationally effective, four criteria must be met: (1) the languages must be distributed at an approximate ratio of 50/50; (2) the teaching of content must not be interrupted; (3) the teacher must be conscious of her alternation between the two languages; and (4) the alternation must accomplish a specific learning goal. Code-switched instruction which does not meet these criteria Jacobson calls the "unstructured approach."

One consequence of (3), in Jacobson's New Concurrent Approach (NCA), is that teachers only use *intersentential* code switching. Jacobson fears that otherwise, if *intrasentential* code switching is used, "the child is not exposed long enough to any one

language to derive from the teacher's talk the grammatical, semantic and lexical rules of English nor Spanish" (1983: 5).¹³⁰ Jacobson (1983) disapprovingly gives the following, presumably contrived example of "flip-flopping" (intrasentential code switching) between Spanish-English for purposes of instruction:

- Teacher: This is a seed, ¿entienden? We plant it en la tierra para que eche raíces. To make it grow fast, we water it. Le echamos agua and then the plant grows a stem and leaves. ¿Qué más tiene la planta?
- Student: Hojas and a flower.
- Teacher: Have you all seen plants with leaves and flowers?
- Students: (No response.)
- Teacher: ¿Han visto ustedes plantas con hojas y flores?
- Students: Yes.

Jacobson (1983) recasts the same exchange in intersentential code switching, where the NCA is used correctly:

- Teacher: This is a seed. We plant it in the soil to develop roots. To make it grow fast, we water it. Después que la planta ha echado sus raíces y la hemos regado bastante, produce un tallo y las hojas. ¿Qué más tiene la planta?
- Student: Tiene hojas y una flor.
- Teacher: Muy bien, tiene hojas y a veces tiene también flores. Have you ever actually seen plants with leaves and flowers?
- Student: Yes, in my backyard.

In terms of issues discussed in this dissertation, it would be surprising if a child could not acquire two separate, distinct codes using only intrasentential code switching as input. In the minimalist program, language learning consists in acquiring values for lexical parameters associated with functional projections. For instance, a Spanish learner must determine that ϕ -features in T are *strong* (evidenced by overt V movement),

¹³⁰See Faltis (1989) for an extensive and sympathetic review of Jacobson's New Concurrent Approach (NCA).

whereas an English learner determines that they are *weak* (evidenced by covert V movement). A bilingual learner acquires both Ts (or both values for ϕ in T), one with strong features and another with weak ones, under evidence that some verbs move covertly (English) and others overtly (Spanish). English T may be deduced without a full English clause structure; the English Vs are observed to remain in situ in relation to adverbs and other clausal elements, none of which need be in English, implying that ϕ in T is weak. The same procedure works for Spanish V, with the conclusion that ϕ in T is strong.¹³¹

In addition, while code switching is a frequent and natural practice among bilinguals, school children in the U.S. would probably never have *only* code switching to use as the basis for language learning. They will inevitably come into contact with monolinguals, so in addition to learning the separate grammatical systems of their two languages children will come to understand that different groups have different “ways of talking” (English, Spanish) which may or may not make full use of their language system. In addition, children’s linguistic development is quite advanced by the time they enter school, essentially complete, for at least one language, so Jacobson probably overstates the role of the teacher as a language model.

With respect to the use of code switching in the classroom, then, Jacobson’s (1983) suggestion that code switching may be the best way to mix languages appears to be on the right track, but his concern that *intrasentential* code switching (as opposed to

¹³¹Stabler (1997a) presents formal learnability models in which bilingual learners succeed in

[footnote continues on next page]

intersentential code switching) will impede children's linguistic development is, I think, misguided.

However, the question of whether a child can acquire two separate languages using only intrasentential code switching as input is empirical in nature. As has often been noted, children exposed to two languages acquire them simultaneously, and the grammars "separate." Still, language learning based solely upon intrasentential code switching may produce a creolization effect, resulting in the formation of a new, uniform system that is distinct from both languages. This question cannot be answered without further inquiry.

Of course, there are other factors involved in language acquisition which must not be overlooked. Crucially, children must have sufficient exposure and practice with the L₂, or they will not acquire it. The amount of time required is a matter of some controversy (Wong Fillmore and Valadez, 1988; Jacobson, 1989; Krashen, 1996). In addition, as in all arenas of academic content, affect may play an important role in L₂ success (Rolstad, 1996a, 1996b).

6.4 Bilingualism and Assessment

Because of Cummins' belief that a child's level of attainment in a first language facilitates development in a second, considerable effort has been directed toward assessing language-minority children's first language. According to data reviewed by De George (1988) and Williams and Gross (1990), the most widespread language

acquiring both their languages in a mixed-language environment.

proficiency test used for this purpose is the *Language Assessment Scales (LAS)* (Duncan and De Avila, 1986a).

The LAS evaluates students for placement purposes in exact parallel with Toukoma and Skutnabb-Kangas' (1977) and Cummins' (1981) Threshold Hypothesis represented in Figure 10; possible results are "fluent," "limited," and "non" (Duncan and De Avila, 1986b: 9), corresponding to Cummins' three levels of language proficiency. Note that the LAS does not include a literacy component for young children, so a child in elementary school may be evaluated as "non-non" (non-English, non-Spanish) on the basis of oral language alone. In Los Angeles Unified School District, 6,800 students were identified as "non-nons" in 1996, as reported by Pyle (1996). Tragically, some teachers and bilingual coordinators responsible for the placement of LEP children conclude that "non-nons" should be placed in all-English classrooms, reasoning that they know "so little Spanish" that it does not matter which language is used for instruction.¹³²

No large-scale study of the "non-non" crisis has been undertaken; however, it may be instructive to examine one child's Spanish responses to the Pre-LAS Español which earned her the special status of a "non-non." The Pre-LAS Español is the version of the LAS designed for children aged 4-6. I begin with a discussion of the test.

The Pre-LAS Español consists of six parts. In part I (Tío Simón), the child is asked to repeat a set of ten phrases verbatim; any phrase that is not repeated verbatim

¹³²Two fully-certified bilingual teachers, a resource specialist in charge of special education, and two bilingual coordinators, from several different schools, made this statement independently of one another during conversations about LEP children. It remains to be seen just how widespread this ill-conceived placement strategy is.

counts as an incorrect response. In part II (La Casita), the examiner points to ten items in a small line drawing of a house; each item that is incorrectly identified counts as incorrect. Part III (Dibujos y Frases) requires a student to identify one of two cartoonish line drawings that corresponds to a phrase which the examiner utters. Ten phrases must be repeated verbatim in part IV of the test, very much like the task in part I, but here each item will count as incorrect only if a particular subpart of the expression is “omitted or transformed” (Duncan and De Avila, 1986b: 2). The child is asked to complete five incomplete sentences in part V, where each response is evaluated on a scale 0-3 (0 for no response, 1 if “clauses are awkward and/or unintelligible,” 2 if the child uses an irregular verb incorrectly or uses inappropriate tense or person markings, and 3 for “no syntactic errors”; Duncan and De Avila, 1986b: 3). Finally, part VI asks the student to answer comprehension questions for two short children’s stories; her performance is rated 0-5 for each story (0 for no response, 1 if the child uses only isolated words and expressions, 2 if the child uses only “fragments or very simple sentences,” 3 for complete sentences which contain some “syntactic errors,” 4 if the response contains few errors for fluent Spanish, and 5 for language representative of “an articulate, proficient Spanish speaker”; Duncan and De Avila, 1986b: 4).

Now consider the performance of a child who was evaluated as a “non-Spanish speaker” by the Pre-LAS Español. Gabriela (as I will call her) speaks Spanish at home, and is a five-year-old Latin American child now residing in Los Angeles. Gabriela’s performance on parts I and IV was flawless. On parts II and III, however, she incorrectly matched verbal expressions with line drawings on four occasions, leaving her with a raw

score of 16/20 = 80% for these parts of the test. The incorrect responses in part II (La Casita) were a *peine* ‘comb’ and a *taza* ‘cup,’ extremely small items which the tester cannot easily point to in the very small, cluttered line drawing of the house. The two incorrect responses in part III (Dibujos y Frases) may follow from the frequently observed tendency of very young children to point to the picture they like best, not the one that corresponds to a sentence uttered by an examiner.

In Part V, Gabriela was asked to orally complete five sentences, reproduced in (5) below, where Gabriela’s contributions are given in *italics*, followed by her score for each item (scored 0-3) and my translation in square brackets. (Note that *hicieron* is misspelled as *hizieron* in (5b) by the examiner, not by Gabriela.)

- (5a) Si me levanto temprano *como* (3)
[‘If I get up early *I eat*’]
- (5b) Los niños tenían hambre así que *hizieron* *sopa* (3)
[‘The children were hungry so *they made soup*’]
- (5c) Fuimos a la fiesta y luego *compramos un pastel* (3)
[‘We went to a party and then *we bought a cake*’]
- (5d) Antes de vestirme *fui a una fiesta* (2)
[‘Before getting dressed *I went to a party*’]
- (5e) Después de jugar un rato *me siento* (3)
[‘After playing a while *I sit down*’]

Gabriela’s total score for this part of the test was 14. She was marked down for her response in (5d) presumably because one usually gets dressed up *before* going to a party. The same logic should lower Gabriela’s score in (5c), since one would usually buy a cake *before* going to a party; also, notice that the response in (5d) is primed by the prompt in (5c). However, note that none of Gabriela’s responses is grammatically ill-formed in any way.

The final section of the Pre-LAS Español is weighted to account for 30% of a child's total score. The child is required to respond to comprehension questions about two stories which the examiner presents. Gabriela gave no response for this section of the test; presumably she lost interest, got tired, did not remember the stories, or was bored with the content of "Pérez y Martina" and "El Globo Amarillo." This resulted in a score of zero on this section of the test, giving Gabriela a converted score of 63. The scoring manual for the Pre-LAS Español defines children aged 5 and 6 as "non-Spanish speakers" if their total score is below 79. Had Gabriela provided just a few mediocre comments during the final section of the test (scoring, say, a 3 for her response to each story), she would have joined the ranks of the "fluent (proficient) Spanish speakers," based on the scoring criteria of the test (Duncan and De Avila, 1986b: 9).

Note that *no linguistic aspect* of Gabriela's performance was ever evaluated by the Pre-LAS Español; this would require an analysis of the well-formedness of her responses. Her poor performance could be attributed to her inability to visually identify very small objects inside a line drawing of a house, her preference for some pictures over others, and a lapse of party etiquette (you get dressed up and buy a cake *before* going to parties). Most damaging for Gabriela, her *lack of response* was erroneously interpreted as a *linguistic inability* to respond, placing her among the "non-nons."¹³³ This very same egregious error was committed by school psychologists in the 1960s who interpreted the

¹³³Note, too, that the Pre-LAS Español scoring manual specifically requires that a lack of response ("the child produces no language") in this section receive a score of zero (Duncan and De Avila, 1986b: 4). Thus, the problem of mis-assessment in Gabriela's case cannot be correctly attributed to faulty "test administration."

lack of response among African American children to be a sign of mental retardation (Labov, 1975). Just as in the case of the mis-labeling of these African American children, thousands of Latino children are now being mis-labeled as “non-nons,” a nearly complete erasure of their human identities, and assigned either to all-English programs or to special classes aimed at fixing up their “limited linguistic ability.”

The Pre-LAS Español scoring manual (Duncan and De Avila, 1986b) cautions that children’s responses should not be marked wrong for dialectal variation in pronunciation;¹³⁴ it further prescribes that the use of a second language within a response (code switching) be bracketed off and ignored for purposes of the test. Confusingly, however, instances of code switching are offered as examples of *incorrect* responses. If a child repeats (6a) as (6b) in part IV of the test, for instance, her response should be marked as incorrect for this test item, according to the test scoring manual, which explicitly refers to (6b) as “a grammatical error” (Duncan and De Avila, 1986b: 2).

(6a) Voy a la casa de María
[‘I’m going to Maria’s house’]

(6b) Voy a *María’s* casa
[‘I’m going to Maria’s house’]

However, none of the data reviewed in chapter 5 suggest that (6b) is unacceptable as a code-switched utterance, and it is certainly a mistake to infer that a child who says (6b) could not have just as easily said (6a).

¹³⁴There is a general tendency among prescriptivists to be more tolerant of linguistic variation that relates to phonology and much less tolerant of morphological, syntactic and semantic/lexical variation. This follows from the prescriptivist notion that languages/dialects should be valued in proportion with their *literary* output, where phonological variation generally goes unnoticed. See section 1.2 for discussion.

All of the evidence I have reviewed strongly suggests that there is simply no such thing as “semilingualism.” No normally developing child will fail to acquire a language to which she is exposed; in some cases, children will even add rich grammatical structure which was absent from the input, as in the case of creolization. This conclusion forces us to reject the Threshold Hypothesis of Figure 10 (page 296), which specifically postulates that some children have a “low level in both languages,” and adopt instead some conception developed along the lines of Figure 11 (page 299).

It further casts doubt on the need to test children’s native language ability at all. Trying to determine “how well” a child knows her language is nonsense, except in rare, pathological cases where specific impairments are suspected.¹³⁵ While it may sometimes be useful to know what language or dialect a child speaks, this information can generally be easily obtained from a simple home language survey. Notice, also, that nobody thinks for a moment about assessing the linguistic abilities of monolingual English speakers to determine if their language is “good enough” for kindergarten. It is mystifying that some policy makers perceive a need to test Spanish-speaking children in this way.

Finally, I will review some of Valdés and Figueroa’s (1994) conclusions about the testing differential observed for bilinguals in the next section, since they account for the difference by appealing to a proposed difference in the cognitive makeup of bilinguals and monolinguals.

¹³⁵Here, too, caution must be exercised. Children evaluated as “clinically disfluent,” whom Valadez, MacSwan and Martínez (1997) found to be linguistically similar to other children, were also tested using instruments which did not assess any linguistic aspect of their performance, much like the Pre-LAS in Gabriela’s case.

6.5 Bilingualism, Cognition and Mental Architecture

Early in generative grammar, Chomsky (1957) noticed that semantics and syntax appear to be distinct, mentally separate entities in human cognition, as illustrated by the now famous example in (7).

(7) Colorless green ideas sleep furiously

While (7) might be appropriate as a line of poetic discourse, it is semantically nonsensical (or semantically anomalous) as ordinary language. There is no such thing as a “green idea”; if there were, it could not be both “green” and “colorless” at the same time. Despite this and other anomalies, the sentence is *structurally* (syntactically, morphologically, phonologically) well-formed.

These observations, together with other aspects of the innatist perspective, developed into a much broader claim about psychology by the early 1980s. Chomsky (1980, 1984) and Fodor (1981) began to suggest that the mind is organized as a system of interrelated *modules*, each of which is task-specific and independent. Considerable evidence has also been accumulating which indicates that these modules can be selectively impaired or developmentally disassociated (Curtiss 1981, 1988, 1989; Yamada, 1990; Grinstead, MacSwan, Curtiss and Gelman, 1997).

These developments also showed up in new proposals regarding the internal organization of the grammar. In Government-Binding (GB) Theory (Chomsky, 1981), for instance, an interrelated system of independent grammatical modules was posited which, taken together, might explain a wide range of data. For reasons briefly discussed in section 2.4, GB Theory developed into a system in which parameters were viewed as

lexically encoded, and only a very small set of computational operations, taken to be invariant across languages, mapped these parametric settings into permissible derivations (the minimalist program).

However, as pointed out in section 5.1, in GB Theory (or other frameworks in which parameters are set within the computational system), we might expect intrasentential code switching to be impossible, at least without some mediating “control structure” or third grammar to determine where switches can occur. This expectation follows from the possibility of contradictory requirements¹³⁶ in mixed GB-style grammars, or the use of ordered transformations in EST and previous models.

However, given recent developments in the minimalist program, we may think of a bilingual as having two separate lexicons, one associated with each language. These lexicons may be united for the purpose of code switching, as the model in Figure 9 (page 231) shows, but their PF components may not. No code switching is allowed in phonology, because phonological rules are ordered with respect to each other, and these orders vary cross-linguistically.¹³⁷ Thus, conclusions reached in chapter 5 inform us with respect to the essential architecture of the bilingual language faculty as well.

These conclusions, together with other aspects of psychological modularity, may be useful in making sense of the “CUP Principle,” also related very much to the notion of

¹³⁶For instance, the GB framework allows for a parameter setting in the computational system which tells complements to branch left or right. Which way should complements branch under the union of two grammars, one with a left-branching and the other with a right-branching setting? It would seem that this would have to be mediated by an external control structure.

¹³⁷See section 5.2.2.3, where the PF Disjunction Theorem is discussed at length.

“transfer” in bilingual education. Cummins (1981, 1994) posited the “common underlying proficiency principle” (CUP) in an effort to refute the common-sense notion of “separate underlying proficiency” (SUP) for bilinguals. According to Cummins, SUP is problematic for the concerns of bilingual education because it suggests that proficiency in L₁ is separate from proficiency in L₂, leading to the conclusion that children who are deficient in English are best treated by instruction in English, not instruction in their native language.¹³⁸ By contrast, the CUP model advocates that there is a common underlying proficiency to both L₁ and L₂, such that “significant transfer of conceptual knowledge and skills across languages” results (Cummins, 1994: 17-18). Cummins sustains these claims by pointing to studies in which transfer of content and skills across languages appears to be evident.

Note that here Cummins not only includes literacy as a component of knowledge of language, but also appears to include “conceptual knowledge and skills.” In addition, in an effort to argue that transfer between content and skills is possible, Cummins reasons that “if L₁ and L₂ proficiency are separate, then content and skills learned through L₁ cannot transfer to L₂ and vice versa” (1995: 17). However, on the modularity thesis discussed earlier, content and skills learned through L₁ *are independent* of both L₁ and L₂ (independent of the language faculty generally, for monolinguals and bilinguals).

¹³⁸Of course, taken literally, SUP should imply that a bilingual could not talk in an L₂ about concepts learned through an L₁, or even be cognizant of concepts learned in an L₁ while speaking an L₂. This is plainly false, as any bilingual will report.

Thus, Rossell and Baker (1996), who also appear to confuse literacy with knowledge of language, correctly criticize Cummins' model (what they term "the facilitation theory," the idea that academic development in a first language facilitates academic development in a second) as "a poorly cast theory." Moreover, they say,

There is no underlying psychological mechanism that accounts for the facilitation effect. Rather than being deduced from well established mental processes, the facilitation effect has to be accepted as a fundamental characteristic of the brain itself [31].

Of course, it is important to distinguish carefully between the effects of school programs on children (the facts, as they are understood) and the psychological theory which accounts for them. As discussed earlier, there indeed appears to be "significant transfer" of content knowledge and literacy skills across languages, and the early gains for children in transitional bilingual education programs seem to suggest that first language instruction is superior as an initial strategy for instruction of language-minority children. Thus, while Rossell and Baker's (1996) criticisms of the psychological merits of Cummins' model are correct, this matter is independent of the facts regarding transfer.

There is a better way of understanding the psychological effect of "transfer" which Cummins' attempted to characterize. The mechanism which accounts for the facilitation effect is not at all a *mechanism* in the usual sense of the term. Rather, transfer is epiphenomenal of a particular mental architecture in which the language faculty

constitutes a discrete module that is tightly related to other modules which govern conceptual knowledge, pragmatics, vision, number, and literacy.¹³⁹

Therefore, as discussed in relation to Figure 11 (page 299), while it certainly makes sense to teach children content and literacy in the language they know best, at least until they have acquired a sufficient command of English,¹⁴⁰ this conclusion does not follow from Cummins' concern with separate and underlying proficiency for L₁ and L₂. Rather, it follows from general principles of psychological modularity: Since knowledge of content and skills is independent of knowledge of language, choice of language of instruction for content and skills has no relation to questions of language proficiency. We might therefore revise Cummins' (1994) well-known Linguistic Interdependence Principle in (8) to the much simpler, more theoretically sound form in (9). In (9), "content area knowledge" refers to knowledge corresponding to *curricular* content (math, reading, social science, and so on).

(8) *The Linguistic Interdependence Principle*

To the extent that instruction in L_x is effective in promoting proficiency in L_x, transfer of this proficiency to L_y will occur provided there is adequate exposure to L_y (either in school or in the environment) and adequate motivation to learn L_y.

¹³⁹As Jackendoff (1993) suggests, reading (or more broadly, literacy) appears to involve a host of interacting mental modules, minimally language and vision. Thus, while reading puts knowledge of language to use, just as it puts visual information processing to use, it is no more a *component* of our knowledge of language than it is a *component* of our knowledge of vision.

¹⁴⁰In the U.S., there has been a historical pressure to redesignate children as FEP ("Fluent English Proficient") as early as possible, at which time instruction in their home language ends. Meanwhile, children are encouraged to study literary and prestigious "foreign languages" in school, also as early as possible. Figure 11 (page 299) indicates that the best treatment for bilingual children is continued instruction in both languages throughout their educational experience, a treatment that should result in a high level of mastery of both languages.

- (9) *The Linguistic Independence Principle*
Language is independent of literacy and content area knowledge.

Finally, after reviewing numerous pitfalls in the assessment of bilingualism, Valdés and Figueroa (1994) attempt to account for the fact that “circumstantial bilingual individuals have not done well on standardized tests” (204). Historically, they point out, researchers have tried to explain these differences in terms of (a) the characteristics of standardized tests themselves, (b) the inherent talent and/or academic achievement of non-whites, and (c) the degree to which individuals have mastered the language of the test.

However, in their effort to account for the differences, Valdés and Figueroa (1994) suggest that “attention must be focused on . . . the unique mental processing characteristics of bilingual minds” (205). While various conflicting evidence is considered which might bear on this topic, no conclusions are reached which clearly suggest that bilingual minds have unique mental processing characteristics.

It is true that bilingual minds are different in some way from monolingual minds; after all, bilinguals know two languages. While bilingualism may or may not be statistically typical for human beings, it nonetheless appears to be an adaptation of the language faculty. Rather special social circumstances are required in order to maintain stable diglossia, as Fishman (1991) has argued. Edward P. Stabler (personal communication) has suggested that creolization may result from a kind of pressure which the language faculty imposes upon linguistic input in order to achieve uniformity, a pressure which is evident quite generally in the acquisition of new (morphologically-encoded) lexical items. Yet, under the right set of circumstances, the language faculty is

capable of representing two, three or even more distinct languages, generally with only stylistic and pragmatic cross-linguistic interference. It would be surprising, however, if this adaptation had the side effect of creating “unique mental processing characteristics” in bilingual minds, as Valdés and Figueroa (1994) suggest. The question is empirically rich, and deserves further inquiry.

The specific issues raised in Valdés and Figueroa (1994), however, concern testing. Why certain ethnic or linguistic groups perform better than others on standardized tests is a complex matter, addressed at some length in Block (1995).

Chomsky (1972) noted years ago with respect to IQ testing, a similar enterprise, that

. . . it seems that the question of the relation, if any, between race and intelligence has very little scientific importance (as it has no social importance, except under the assumptions of a racist society). A possible correlation between mean IQ and skin color is of no greater scientific interest than a correlation between any two other arbitrarily selected traits, say, mean height and color of eyes.

Testing, particularly standardized testing, provides little or no help to school children.

Rather, it creates a seemingly objective mechanism for excluding certain individuals and groups from access to privilege and comfort, and casts doubt on the general competence of some groups in relation to others. Native language testing, as noted in the earlier discussion of the Pre-LAS Español, is a particularly pernicious threat to the well-being of language-minority children.

Other educational issues might be discussed in relation to the conclusions drawn in chapter 5; here I have addressed only a few. I hope that future work, both my own and others', will refine the analyses in chapter 5, perhaps impacting upon the general

conclusions reached, and expand discussion of the ways in which our understanding of bilingual code switching might inform educational practices.