

The Development of Child Code-Switching: Minimalist Constraints and The Role of Checking Theory

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It has been reported in the literature that language mixing at the Pre-Functional (Non-INFL) VP-stage does not follow any syntactic constraints, whereas mixing at the later Function IP-stage does (cf., Vihman: 1984, Toribio: 1994, Meisel: 1989, 1990, 1994a, Köppe & Meisel: 1995). These researchers in general, have argued that syntactic constraints on code-switching simply do not apply at the early prefunctional stage—owing to the fact that the essential components of the lexical item (viz. those functional components relating to INFL which inherently bring about the parameterization of phrase-structure) have not yet been acquired. Addressing notions of underspecification of functional features this is tantamount to saying that if functional constraints on code-switching are somehow dependent upon the existence of functional features, then at a stage where functional categories are underspecified in respect to functional features, we should expect the relevant constraint to be inoperative.

Terminology This paper adopts the following terminology (Meisel 1995: 414):

(i) *Language-Mixing* generally refers to all instances where features of the two languages are juxtaposed within a clause or across clausal boundaries. If such mixing can be attributed to grammatical incompetence (viz. failure to separate the syntax of the two languages involved—e.g. Single System Hypothesis) this mixing will be called *fusion*.

(ii) *Fusion* occurs when the young bilingual has integrated parts of the grammar of L₁ into the grammar of L₂. (However, it must be said here that Meisel's definition of fusion doesn't necessitate that the child is actually using elements from her particular language, but rather, fusion, as termed here, becomes synonymous with UG—that is, the child may simply be utilizing a number of possible UG-permitted

c. The Government Constraint (di Sciullo et al: 1986)—generally states that those elements which are in a government relation must remain in the same language. In other words, this constraint would predict that the complements of a verb and the verb itself must remain in the same language. Likewise, complement clauses, direct and indirect objects, and prepositional phrases must all remain in the same language as the verb. Furthermore, this constraint stipulates that adjectives must remain in the same language as the noun that is being modified.

d. The Functional Head Constraint (=FHC Belazi et al: 1994)—states that the language feature of the complement f-selected by a functional head, like all other relevant features, must match the corresponding feature of that functional head thus rendering (c') ungrammatical. (The functional head AUX in INFL binds the functional feature to the lexical/content word preserving appropriate f-selection. We will assume here that Comp, INFL, Neg., Det., and Quantifiers are all functional categories (Toribio et al. 1993:5).

It is worth noting that the *Government Constraint*, which is a far reaching constraint dealing with general surface syntactic structure, has been found (cf. Toribio et al. and Meisel) to be much too restrictive in nature. Briefly put, the problem with this constraint is that di Sciullo et al. themselves recognize that switching is possible between the subject and verb; only predicting that switching will not occur between verb and object. However, one inherent problem with allowing code-switching to occur between the subject and verb, as di Sciullo et al. do, is that it seems to undermine the important feature checking relation between the specifier and its head. Moreover, some data conversely suggest that although code-switching does occur between subject and verb, it remains most frequent between verb and object constituents (Meisel 1995:421). However, it also must be noted that a more recent interpretation of government seems to be consistent with di Sciullo's proposed government constraint. For example, Kayne (1993 cf. Chomsky 1995:413) claims that since c-command imposes a linear ordering of terminal elements, there consequently must be a universal Spec-Head-Complement

(SVO) ordering and that (Spec)ifiers universally function as Adjuncts. (Chomsky similarly concludes, albeit for different reasons, that there may be multiple specifier-adjunct (A-A') positions available within the universal minimalist hierarchical clause structure). From this, Kayne postulates for a primitive (sister relation) Head-Complement structure which formulates XP. Such a view of government stipulates for the Head to govern its specifier/(adjunct) and complement. This notion of government, (which in some ways resembles m-command), weakens the traditional local relationship between the verb and its sister argument and captures a newly defined relationship of the verb's overall argument structure at the maximal X-bar projection—for example, the entire *theme-goal* argument structure of the verb *give* in construction (2)

(2) [VP give [NP the money] [PP to Mary]],

would not only maintain its local sisterhood argument relationship between the verb and its NP, but would in addition allow for a second PP argument relationship to hold between the verb as governed via X-max projection (Williams 1995:104 cf. Webelhuth 1995). Taking Kayne's newly formulated Head-Comp structure of XP and applying it to di Sciullo's government constraint, it then suffices to stipulate for a head-complement constituency prohibiting code-switching; rendering a spec-head relationship redundant—this would predict that one would only find acceptable code-switching at the specifier/(adjunct) position. Meisel likewise attempts to remedy the problems of di Sciullo's constraint by applying Chomsky's m-command for government—where subjects are governed by INFL in SpecIP and objects are governed by the verb in SpecVP. The implications of a government based on m-command would, I suppose, postulate the following two points: firstly, since subjects are governed by INFL, (a functional projection), they would be more inclined to obey imposed government constraints; secondly, since objects are governed by the verb, (VP being a lexical projection), the object would be most prone to violate the constraint. In this sense, the more recent *Functional Head Constraint* comes closest in addressing specific distinctions laid out between *functional* and *lexical* features. However, while evaluating appropriate constraints, it becomes incumbent on us to seek out empirical data on the issue at hand: namely, do we have evidence for code-switching after subjects or not? For example, if the FHC were to hold, we should find no evidence of code-switching after subjects. Furthermore, let us recall that, in keeping with Meisel's terminology, *code-switching* is dependent upon the notion of language separation whereas *fusion* defines the notion of a single system. It is in this sense that FHC operates at the functional stage: (i.e Stage III).

The *Functional Head Constraint*, which restricts switching between a functional head and its complement (i.e. the functional head and its complement must be in the same language), could also be viewed as providing further argumentation for Chomsky's Minimalist Program. Furthermore, following V&T's use of *negation* as a means of determining syntactic structure, I similarly believe that this functional-head constraint (FHC) could be used as an additional empirical device for examining the SSH. This would be done in the following manner. One could speculate that if the child's observance to constraints on code-switching is maturationally determined, that is, his/her adherence of the constraints is not attested from the outset but only develops at a later stage, one could further advance the claim that the child is initially working with a single syntactic system (viz. SSH). In other words, one would predict the child to begin obeying these language specific grammatical constraints once certain functional properties are acquired in his/her lexicon (viz. INFL). In consequence, this would mean that a child's lexicon at the prefunctional stage would be unable to obey such language specific constraints leading to the speculation of a single (proto)grammar. If this claim were to hold, it would certainly give evidence in support of the SSH.

Feature Checking Revisited

In light of Chomsky's Minimalist Program, it becomes evident that language-specific features play a decisive role in accounting for the constraints placed on code-switching since grammaticality involves not only those more general principles determined by Universal Grammar (UG), but also those language-specific properties as they are associated with parameterization (Toribio 1993:10). Placing less emphasis on the role of independent phrase-structure principles, Chomsky (1992) rather turns his attention toward the lexical-item as the sole element which manifests language-specific syntactic and morphological features. This approach has been highlighted by recent theories of Case Checking and Finite Verb movement. For example, following Pollock (1989), Chomsky states that V to INFL movement in French is driven by a morphological checking operation which is specifically associated with the *parameterized features* carried by the *lexical item*. More specifically, Chomsky tentatively concludes that *parametric variation* is limited to functional categories; thus the Verb (+finite), carrying a parameterized feature, is obliged to move out of the lexical category VP and raise to the functional category INFL, either at Phonological Form (PF) or at Logical Form (LF), in order for the parameterized-feature (+finite) to check its agreement and acquire its case. In other words, only non-parameterized-features (e.g. verb (-finite)) and all other thematic elements (e.g. Nouns, Adjectives, Prepositions and their projections) are

allowed to remain within VP at the lexical stage: stipulating for Nouns (=AGRs/o) to raise and check their case properties at the functional stage. These checking domains are determined by (agreement) features that are present in the language specific parameters of the lexeme: these agreement domains can either be *strong* or *weak*. For example, the French Verb (+finite) carries strong agreement features thus allowing the verb ‘overtly’ to raise out of VP into INFL in order to check its agreement morphology. The English Verb (+finite) (except for Aux. verbs which have less semantic content) carries weak agreement features, therefore, ‘overt’ raising is unattested and agreement is therefore checked ‘covertly’ at LF.

Toribio et al. assert that these same constraints also apply in the area of code-switching. The functional-head constraint is thus seen as exemplifying this feature checking process: the lexeme, which in a given language is endowed with highly sensitive and language specific morphological checking features, is not permitted to check with lexical features of a different language where it would violate the checking constraint. Following Chomsky’s (1992) argument that the computational component of the grammar does not go beyond the lexical-item, Toribio et al. provide an additional uniquely lexical stipulation on code-switching. This stipulation, known as *The Word-Grammar Integrity Corollary* (WGIC) (Belazi et al. 1994) states the following:

WGIC *A word of language X, with Grammar G_x, must obey Grammar G_x.*

WGIC could be interpreted as functioning much in the same manner as the Principles and Parameters framework (P&P). More specifically, Toribio states that *many aspects of the grammar of a specific language will derive from UG, but others will not*. These ‘other aspects’, rather, are associated with language specific parameter settings—these parameters are specifically covered by WGIC (*emphases* belong to Toribio et al. 1993:11). In this sense, WGIC specifically correlates with the *parameterized stage* of language. Using English as an example, WGIC basically amounts to the claim that an English lexical item embodies its own entire range of possible grammatical-relations: viz. a lexical item can never be cut-off and isolated from its selectional properties. This is achieved by defining the lexeme as a bundle of selectional properties relating to the particular item. In other words, a verb like *Have* can either select its V-bar properties, albeit after raising to INFL at LF, i.e. selecting a DP and its projections—

- (3) [IP John [I_i] [VP [V has_i] [DP the syntax book]]],

or the verb *Have* can select its Fbar properties i.e. selecting perhaps a right-headed complement *taken* consisting of an +n participle morpheme—

- (4) [IP John [I has] [VP [V taken] [DP the syntax book]]].

From this, WGIC stipulates that the lexical item can only select those properties that the item recognizes as being part of its grammatical scope; therefore, any code-switching which violates the selective properties of that lexical item would violate WGIC. However, in consideration of WGIC, a serious question arises concerning the grammaticality of certain code-switching constructions. Evidently, WGIC does not wish to claim that all lexical items must remain in their respective language, for this would erroneously result in the ungrammaticality of all code-switching constructions. Rather, it is that aspect of parameterization that determines if the lexical item must select its appropriate grammatical properties. Thus, one could speculate that ‘lexical items’ are more apt to be involved with code-switching than ‘functional items’. It is in this sense that Toribio et al. associate language specific parameterization with WGIC.

INFL and the Functional Stage

Before expanding on the notion of a functional-head constraint, it is essential that we briefly review current positions regarding the nature of such a functional-stage. More specifically, the locating of the language-specific parameterized stage of language acquisition most directly correlates with our additional argument concerning SSH. It is not enough to state that parameterization occurs at the functional categorical stage simply due to the ambiguity of such a stage (i.e. the strong continuity school would merely state that the functional stage begins with the one word stage, etc.). Chomsky himself seems to evade the issue when he discreetly states without thorough elaboration that this parameterization is limited to functional properties of lexical items (Chomsky 1995:388). Therefore, following Guilfoyle & Noonan (1988), Lebeaux (1988), Radford (1990), and Meisel (1994), and keeping in-line with the intentions of the authors under review, we shall tentatively proceed in recognition of a (more) *maturational/structure- building* line of language acquisition which stipulates that language specific parameterization does not come on-line from the outset, but rather proceeds via a ‘bottom-up’ maturational schedule. More specifically, we will be adopting the view of parameterization given by Meisel (1994;1995). Meisel states that only those functional

categories that universally can host verbal elements like INFL and COMP, as opposed to nominal ones like DET, obey the Functional Head Constraint (FHC). This view has also been supported by Jake (1994) who reclassifies Pronouns/(D)eterminers as constituents maintaining certain thematic properties which behave much in the same manner as semantic lexical features.

This view was borne out in the empirical findings taken from Jake's (1994) work on the behavior of pronouns in code-switching environments:

...[W]ithin developments of the government and binding model, pronouns are argued to be members of the functional category (D)eterminer (Abney 1987)... However, since pronouns do not behave as functional elements adhering to functional constraints, pronouns cannot be defined in terms of functional features. Consequently, we must conclude that those elements which have access to semantic or pragmatic features, such as pronouns and their associated (DP)s, do not necessarily need to follow grammatical constraints on code-switching—the results of which enable them to cut across syntactic boundaries (emphases belong to Jake 1994: 272).

In a nutshell, Jake reclassifies pronouns into two main categories: (i) *content* (lexical) and (ii) *system* (functional). Jake defines context (lexical) pronouns as those pronouns which are based on thematic content—e.g. the English *one, I* and French *moi, toi*; while defining system (functional) pronouns as non-thematic—e.g. the English *it, there* and the French clitics *je, te*. Jake maintains that these two types of pronouns exhibit different behaviors when inserted in code-switching environments. Consider the following code-switching constructions (Jake 1994: 27, Moroccan Arabic/French):

- (5) a. [CP Moi [IP *e* [VP *dxlt*]]
(I went in- the Arabic subj. pronoun *ana* is null=*e*)
- b. *[CP Moi [IP *ana* [VP *dxlt*]]
(I went in)
- c. *Je ghadi
(I go)

In example (5a) the French pronoun *moi* occurs in a discourse-thematic position rather than in a grammatical argument position; thus the position of *moi* remains congruent with the Arabic *ana* which similarly acts in this construction as a discourse-emphatic null pronoun. However, in example (5b) *ana* violates Arabic grammar in two ways. Firstly, the ‘overt element’ *ana* cannot occur as a discourse-emphatic pronoun, (as its null position does in example (5b) acting congruently with the French pronoun *moi*), and therefore it consequently acts as a ‘non-congruent’ non-thematic (system) pronoun. Jake suggests that this is due to a stipulation which forces all overt discourse-emphatic pronouns to occupy the SpecCP position—a position that is already filled by the French pronoun *moi* in example (5c). Secondly, any overt pronoun that is forced to remain in IP (due to SpecCP being already filled) would also violate the grammar of Arabic which requires agreement-licensed null pronouns in SpecIP position. In example (5c), the French system pronoun cannot occur with Arabic verbs, in contrast with the grammatical example (5a) (Jake 1994:281). In sum, Jake claims that one cannot classify all pronouns under a general heading such as DP, a functional category. Rather, Jake shows that it is the syntactic features of the individual pronoun itself (i.e., its morphosyntactic properties) that determine their configurational patterns in intrasentential code-switching. This leads Jake to an overall conclusion that pronouns generally fall under the broader category of (N)oun—with the additional stipulation that some pronouns take-on formal functional features. For example, one can argue that the properties for the two pronouns *which* and *who* operate in different ways: e.g. whereas the pronoun/(DET) *which* takes a null N complement, the pronoun (DET) *who* can take either the properties of (N)ouns and/or (DET)erminers.

Following Jake in distinguishing between thematic and non-thematic pronouns, Meisel further extends his analysis by postulating that only those functional categories which form extended projections above VP (i.e. NegP, IP and CP) contribute toward parameterization. Meisel’s hypothesis on parameterization would thus predict that bilinguals should only begin to observe grammatical constraints on code-switching (viz. FHC) once their grammars contain a fully-fledged INFL. The acquisition of functional features thus prevents the mixing of constituents which are contained in the INFL(ection) phrase (e.g. between NEG(ation) and Finite Verb, between an AUX(iliary) and a Main Verb, between Subject clitic and Finite Verb) (Köppe & Meisel 1992 cf. Toribio1995:6). Likewise, Meisel would predict that prior to the child's acquisition of INFL, constraints on code-switching would not apply. It is this very hypothesis regarding

parameterization that allows us to empirically test the FHC--perhaps yielding some tentative conclusions about SSH.

A Literature Review

In this subsection, we shall examine a small sample of code-switching data that have been reported in recent literature. Firstly, we shall begin by examining the earlier periods of language mixing: those periods which seem to precede the acquisition of functional heads (i.e., INFL) leading to *fusion*—recalling that we predict constraint violations at this stage. Secondly, we shall examine the latter period of code-switching proper (viz. that variety of language mixing that does abide by the stated syntactic constraints). Then, in the conclusion of this section, we will briefly sum-up those qualitative differences between the two periods which may help define the type of mixing involved.

Prefunctional Mixing

In what could be taken as support in favor of V&T's hypothesized single syntactic system (stage II), the literature on code-switching generally reveals a stage where examples of language mixing violate syntactic constraints. This observation has led researchers (e.g., Toribio et al; Belazi et al; Jake; Köppe & Meisel) to postulate a prefunctional stage which is marked by a lesser degree of syntactic competence--as opposed to a later functional stage where the child has developed two independent grammars. Toribio (1995:5) as well as Meisel (1995: 414,432) suggest that the *quantitative* high rate of mixing as well as *qualitative* differences at the earlier stages, may be attributed to the lack of appropriate features in the lexicon. This section following thus provides examples of *fusion* that form of language mixing which does not adhere to syntactic constraints.

(Bound Morpheme Mixing) Examples of *bound morpheme mixing* is attested in early language mixing. Recall that any type of morpheme mixing would violate the *free morpheme constraint* laid out by Poplack (1980: 585) (cf. (1a)). To recap, this morpheme constraint stipulates the following: *A code may be switched after any constituent in discourse providing that the constituent is not a bound morpheme.* The following examples are violations of such a constraint: example (6a) shows an English suffix attached to a Spanish stem; examples (b, c, and e) show an English suffix attached to a German stem; and example (d) shows a German circumfix attached to an English stem. However, particular tasks of individual feature assignments may complicate the whole matter of morpheme mixing. For instance, the above observations seem to cast a more

precise *lexical selective process* of affixation—i.e. the notion that affixes assign themselves general grammatical properties: (e.g. the properties of *ing* might simply define its structure as a *verbal affix* rather than as an affix specifically attaching to English verb stems (p.c. Radford) (See also (10) below).

- (6) a. Es de papa 's (Bergman:1976 cf. Toribio 1995:1)
(It is papa's)
- b. pfeifting (Danny 2.2: Redlinger & Park 1980:346 ex.27)
(whistling)
- c. Die madchen/ 's/ going night-night (Danny 2.2: Redlinger et al.)
(The girl's going night-night)
- d. Da Polizei geticketet (Danny 2.2: Redlinger et al. ex.30)
(There police ticketed)
- e. Der pushr der kleine Josef (Danny 2.2: Redlinger et al.)
(He pushes the little Joseph)

(*Syntactic Mixing*) A second type of mixing has to do with *syntax*. This stage, characterized by the absence of INFL, accounts for the high rate of mixing of function words (function words are exclusively defined here on the bases of two criteria. Firstly, as those elements which traditionally belong to functional categories; and Secondly, as those elements which can only manifest extended projections *within* VP: i.e., not *dominating* VP and therefore forming below INFL. The above defined function words would typically include (D)et. and (N)eg: (DET), in the sense that it typically can remain within VP without being obliged to raise, and (Neg) which tends to be somewhat indifferent toward raising in the sense that it can remain adjunct to VP, and not necessarily dominate VP. In other words, an immediate establishment of DPs and NegPs, within or adjoined to VP, doesn't seem to rely on a prior formation of IP. Thus, the intention of this section is to illustrate the high rate of mixing of such function words (*Das=This/That*, *Nein=No*) which, as Meisel terms it, do not necessarily dominate VP. Consider the following examples (Köppe & Meisel 1992: 22, Redlinger et al: 1980 as cited from Toribio et al. 1995a: 7):

- | | | | |
|-----|----|---|---------------|
| (7) | a. | das <i>bateau</i> (=This ship) | (Ivar 2;0) |
| | b. | deddy [re]sucht (=Teddy seeks again) | (Ivar 2;4) |
| | c. | nein <i>canard</i> (=No duck) | (Annika 1;10) |
| | d. | das <i>petit tigre</i> (=That little tiger) | (Ivar 2;0) |
| | e. | Tombé <i>Eisenbahn</i> (=Train fell) | (Marc) |

(ex. (e) is taken from Redlinger et al. 1980: 345)

The above example of mixing all seem to violate some syntactic constraint. In examples (7a-d) mixing occurs between function words in violation of the *Government/Functional-Head Constraint(s)*. In example (7e), the *Equivalence Constraint* on word order mapping is violated. Furthermore, Meisel clearly states that there is a stage in language acquisition, (a period lasting from approx. age 1;10 until 2;4), where mixing between two *constituents* (standing in a government relation) frequently occurs—commonly mixed elements taken from this stage include the following: (*Negation* (non), *encore* ('more') and past participles *parti* ('gone' as in 'all-gone'), *tombé* ('fallen') etc. (Meisel 1995:431). Meisel interprets this stage of mixing as being consistent with what we know about *fusion*: since the child (at this stage) still lacks the kind of grammatical competence needed for proper code-switching (viz. the functional category INFL which triggers the constraints on code-switching), his/her mixing must be classified as *fusion* (Meisel 1995: 417). Meisel goes on to state that this type of mixing abruptly stops at around age 2;4, an age classically associated with the development of INFL (cf. Radford: 1990).

Functional Mixing

The second stage of mixing, which begins with the appearance of INFL, respects the grammatical constraints on code-switching. More specifically, the *Functional Head constraint* (Belazi et al: 1994) now becomes applicable—functional-heads are now seen as playing a significant role in constraining code-switching. Thus, this second stage of code-switching represents a real qualitative shift in the nature of the child's code-switching behavior. In contrast to the first stage, where elements were seen to mix frequently, code-switching within functional boundaries remains unattested at the second stage. In other words, with the application of the Functional-Head Constraint, the following functional categories—(C)omplementizers, (D)eterminers, (A)uxiliaries, and (Q)uantifiers must remain in the same language as their complement. In other words, the code-switch (i.e. head-complement relations) should be disallowed between immediate constituents of C-bar, I-bar, and D-bar. This takes into account that the cited constraint

has no such stipulation for specifier positions. Consider the following sentences (Toribio 1995a: 8) (X-bar is used as a means to indicate functional boundaries):

- (8) (1a) [IP The students [I' had] [VP [V seen] *la película italiana*]].
 (1b) * The students [I' had] [VP [V visto] *la película italiana*.
 (1c) * The students [I' had] [VP [Vseen] [DP the *película italiana*]].
 (The students had seen the Italian movie)
- (2a) The child is [DP *un encanto*].
 (2b) *The child is [an *encanto*].
 (The child is a delight)
- (3a) The medicine [CP *que el médico me dio no tuvo efecto*].
 (3b) *The medicine [that *el médico me dio no tuvo efecto*].
 (The medicine that the doctor gave me had no effect)

In summary, these findings generally support the claims advanced by Toribio (et al.) and Meisel (et al.) that bilingual children begin to respect syntactic constraints on code-switching once they acquire functional projections, namely IP. Thus, it can be hypothesized that the pattern of progression which culminates into the developed and mature stage of code-switching proceeds as follows. Firstly, there exists an early *prefunctional stage* of mixing which does not adhere to syntactic constraints. Although this first stage may contain ‘traditional’ function words, (e.g. Determiner and Adjectival heads) their heads lack the specific functional projections (ibid Jake). In other words, even though functional heads may be in place in the language, their functional projections, as determined by the specific head, can only be realized once those functional elements which dominate (or project on-top of) VP are in place (viz. IP, and then CP). For example, (D)eterminers do not fall into the same category distinction as IP/CPs in the sense of their inherent projection since they dominate only lower NPs and are consequently categorized as heads of indeterminate NPs). Therefore, as they are defined as ‘low-level’ (albeit functional categories) DPs alone cannot trigger parameterization. The absence of this parameterization thus prevents any observance of the syntactic constraints. In conclusion, Meisel goes on to define this early stage of mixing as a stage where the mixed elements have only *loose grammatical relations*—thus the grammatical constraints do not apply (Meisel 1995:436). Secondly, the later *functional stage* represents a qualitative shift in the behavior of mixing involved. This

shift is highlighted by the fact that functional projections emerge and that their constituent boundaries are kept within the respective language of the head: i.e. functional heads/complements remain in the same language).

The Data: 7 Case Studies on Mixing and Underspecification

In this section I shall attempt to characterize the developmental nature of language mixing that occurs in my own corpus. If we are correct in assuming the above argued hypothesis concerning code-switching as dependent upon syntactic constraints and functional feature specification, then general predictions (via extension) on early language mixing would naturally fall out as follows: (i) We should find either higher (or at least) equal rates of mixing at the Pre-Functional Stage-1, as compared to the Specified/Functional Stage-2 of acquisition. (ii) If there is evidence for *Underspecified Phrases Structures* (=UPS) at Stage-2, an underspecification somehow affecting INFL, then we should find that the majority of mixing (at stage-2) indeed occurs within such UPSs (rather than within fully INFL *Specified Phrase Structures* (=SPS). (iii) Instances of language mixing should be kept to a minimum for SPSs (and at target Stage-3) since such mixing would undoubtedly compromise some form of syntactic constraint brought about by the formalization of INFL—such (appropriate) mixings that do occur at these latter stages would be rather classified as (conscious and pragmatically-based) ‘code-switching’ *par excellence* (sometimes referred to a *flagged switching* (Poplack & Sankoff: 1988). (NB. I should stress, we have no concerns about this latter, proper switching which commonly takes place in bilingual conversation.). The above predictions indeed are born out in my data and suggest that the protracted emergence of a ‘fully-specified’ INFL contributes to the higher rates of mixing found at the earlier stages:¹

(9) Table: 1 Frequency of Mixing

		<u>Mixing in %</u>		<u>Syntactic Stage</u>
<u>1. Files 1-7</u> (1;10-2;3)	n.=	30% (averaged)	=>	Lexical VP: No INFL =>Stage-1
<u>2. Files 8-25</u> (2;4-3;6)		14% (averaged)	=>	Optional Functional => Stage-2
<u>3. Files 24-25</u>		3% (averaged)	=>	" "

1. Note that the higher rates of mixing found between files 1-7 match what we found regarding the English Data--i.e., the lexical VP-Stage-1 represented files 1-7, the Optional Functional stage-2 started with file 8.

(*Checking Theory*) In sum, the three point developmental scheme above (statistically drawn-out in 9) reduces to a hypothesis which predicts mixing to occur only when it doesn't result in a *Checking Failure* (Radford pc), notably instigated by INFL specification. In other words, a more liberal definition might suggest that mixing is allowed to manifest on the sole condition that the lexical requirements involved in the mixing continue to be satisfied. In short, the theory on code-switching reduces further to a mere facet of *Checking Theory*. Thus, I believe, recent formalizations on the Theory of Underspecification, as it regards checking theory, can help to account for the distribution of mixing found in my data.

(10) Checking Theory Constraint (Radford) Similar to the *Government & Functional Head* constraints proposed above, this constraint on language mixing more generally states that those features which are contained within a 'Checking Relation' based on INFL must remain in the same language. Whenever features of the two languages are adequately similar in composition, the features may converge creating a language mix; however, when the features are sufficiently different (as marked by particular language specific idiosyncratic features) then the mix can't converge.

6.3.1 Case # 1: Mixing between Lexical V^[+F] and Noun

The first Case of mixing reports instances where general mixing is allowed to occur between a Verb and (lexical) Noun/DP. The term 'lexical' here denotes the VP constituency (in this case, the Object) where the result of the *mix* occurs (viz., between the (functional) Verb and (lexical) Noun/DP in the (lower) VP where it is the Noun/DP that is being mixed). Within the general mixing scheme, there are several types of structures which need to be differentiated, namely:

- (11) a. English Verb + French Noun:
 e.g., I want *chaussure* (2;8); I want *bateau* (2;10); I want *glace* (3;2)
 I want *pomme* (3;4); I want *voiture* (3;6).
- b. English Verb + French DP:
 e.g., I want *encore banane* (2;11); I want *encore monnie* (3;2)

c. English Determiner + French Noun:

e.g., I want a *bain* (3;2); I want my *chaussure* (2;8); Where daddy('s) *chaussure* (3;2); My/Mine *chaussure* (2;4); A big *bateau* (3;0)

d. French Verb + English Noun/Pronoun:

e.g., (Daddy) *Viens me* (3;0); *Bébé pousse car/me* (3;4);
Pousse me (3;4); *Viens kids!* (2;9);

e. English Subject + French Verb

e.g., *Où est daddy?* (2;6).

The notion I am on about here regarding a checking theory of mixing, as within the lower DP>VP constituency, is that in instances of e.g., *want encore banane* (cf., 11b) & *Bébé pousse me* (cf., 11d), we could say *want/pousse* have objective case features (for their complement), and D/D+N structures in French & English can be nominative or objective in case—hence, checking within the lower object can proceed unscathed (or alternatively, the DP may altogether be void of checking material and rather instantiate a default setting). In a similar vein, *Est* (cf. 11e) requires a nominative subject—as proper names in French & English can be nominative or objective, checking proceeds. Regarding mixings between a Det and N (e.g., a *bain*), here the English Det specifies for a singular count Noun as its complement: *Bain*, being singular, therefore doesn't impede on the feature checking process.

(Possible Counter Evidence) As opposed to the V+N mixing (cited above), there are no reported instances of I+V mixing where formal language feature specifications would seem to manifest contrary to checking theory. For instance, I have no reported instances of e.g., @*I can nager* (=I can to swim), or @*Je sais swim* (=I can swim (bare Verb)) (@=unattested in the data). In terms of Checking, the non-occurrence of the two examples could be accounted for by taking the following lines:

(i) *Can* can only select a complement headed by a feature-less (default) verb (bare verb) and not a verb with any feature specificity (e.g., +/-finite, progressive, participle, passive, etc.). *Can* is restricted from selecting *nager* in this respect primarily because of the features associated with *nager* [+Infinitive]. What one might expect is: *I can NAGE* where the feature selection matches.

(ii) *Sais* similarly must select a specified verb [+Infinitive] (e.g., *Je sais nager*), and when it can't, the mix crashes.

Case # 2: Mixing between Lexical N+N (Genitive)

The first stage of (lexical) Genitive realization comes in the form of N+N (Gen):

- (12) a. Where daddy *chaussure*? (file 20: 2;11)
- b. It's me *chaussure* (file 22: 3;1)
- c. I work *papi* car (file 23: 3;2)
- d. It's a baby *voiture* (file 23: 3;2)
- e. Mine/me *chaussure* (file 20: 2;11)

The feature specifications relating to D+N constructions are possibly more robust and may allow mixing as long as the selected complement bares one or more of its primitive nominal properties (e.g. phi-features, etc). In the case of pure N+N (Gen) constructs, mixing occurs unconstrained. In the freest sense possible, all that matters is that a Noun sits alongside another Noun with informal phi-features easily matched. The arrangement however gets more complicated with the emergence of myriad formal properties. For instance, examples such as @*John's bateau* (=boat)--with INFL *row* emerging on the scene may also be allowed to check-off features since the English feature associated with possessive 's simply selects a noun for its complement (the non-occurrence of such constructs in my data could be an accidental gap). However, in a reverse application regarding constructs such as e.g., *L'enfant's boat* (=the child's boat), checking may be impossible given that possessive 's should be unable to attach to a Latin Noun. The amount of data regarding this construction is insufficient to determine if this proposed checking constraint is on the right line. Notwithstanding a potential accidental gap in the data, the non-occurrence of constructs such as e.g., *John's bateau* might, however, suggest that once INFL is acquired (here, triggered by the Agreement reflex of a possessive 's, cf. Kayne: 1994: 105), the rate of early mixing more-or-less subsides or is at least suspended until such a later stage where the child is said to engage in proper code-switching (flagged switching). It must be said that this absence of INFL-related mixing, as it concerns possessive constructs, found in my corpus gives tentative *prima facie* evidence in support Meisel's general claim that any mixing within a DP will mostly be held among either lower DPs (DP>VP) (e.g., objects) as opposed to higher DPs (DP>IP) (e.g., subjects, SpecIP), or some form of underspecified DP.

Case # 3: Mixing between D+N

As just cited above, this sub-section closer examines Meisel's initial claim that mixing should be reserved to the 'lower'/non-INFL-related DP (DP>VP) (as opposed to the 'upper'/INFL-related DP (DP>IP). Namely, Meisel et al. (op.cit.) claim that mixing among D+Ns should only occur within the environment of Objects and not Subjects—in other words, where syntactic constraints (attributed to INFL) may not be able to penetrate down in the tree. Meisel claims that mixings are rarely reported higher-up the tree e.g., among Ds of IP: [_{IP} *My *chaussure* is big]. Recall Meisel's claim that Ds (lower down in the tree from IP) don't abide by proper syntactic constraints and that Ds above IP should. In examining my data here, I find (contra Meisel) that mixing is generally allowed to occur among D+N in any environment—be it Subject or Object. The more specific notion being proposed here that it is *Checking Theory* that contains Language Mixing easily accounts for the three types of mixing found between D+N presented below:

- | | | |
|------|---------------------------------------|--------------------------------------|
| (13) | a. My <i>chaussure</i> (2;11) | f. Where's my <i>chaussure</i> (3;2) |
| | b. A <i>bateau</i> (2;9) | g. I get your <i>chaussure</i> (3;3) |
| | c. (The other) one <i>jaune</i> (3;0) | h. Where my <i>gâteau</i> (3;2) |
| | d. Two <i>chaussure</i> (3;0) | i. I got my <i>gâteau</i> (3;2) |
| | e. There <i>my chaussure</i> (3;1) | |

The three token-types of mixing found: between (i) *Subject* (cf. e,f,h), (ii) *Object* (cf. g,i), and (iii) *Sentence fragments* (cf.a,b,c,d) indicate that mixing occurs within all environments. In sum, under the proposed Checking Theory constraint (and contra Meisel), switching is permitted irrespective of where the DP is positioned in the tree—subject, object position alike. For instance in (13f) *Where's my chaussure* (=My *chaussure* is where?), the (Subject) D *my* has no special phi-features to offer which need checking, so *my* can converge on any noun—e.g., be it a French or English noun, masculine/feminine, sing/plural—since any feature matching here would be universal and unconstrained. However, it is noteworthy that Subject mixings are indeed statistically less productive than the other two forms. For instance, out of a total number of 105 SVO code-switching environments, only 8 mixed constructs were reported to involve the subject. The 8 counter-examples to Meisel are given below:

- (14) a. OÙ est *daddy*? e. Where is *my chaussure*?
 b. *Me dodo* a baby. f.. *The wind* pousse the door
 c. *Daddy* vient me. g. Where is *daddy chaussure*?
 d. *My chaussure* broke train. h. *Mouche* want out.

In sum, an INFL-related checking theory on mixing offers an overall account for all of the above constructs found in (13-14). Regarding the more specified INFL cases involving the subject, one could assume that since INFL is finite and requires a nominal subject, any nominal constituent from either language can enter into the checking relation and converge--given that nominal constituents can be either Nominative or Objective in French or English.

Case # 4: Mixing and Lexical NegP

Mixing never occurs in NegP when NegP is sentence internal--all mixed examples in my data show Neg to be misanalyzed by the child and wrongly positioned within an underspecified C (above IP) (e.g., utterances such as e.g., @*I no pousse* are unattested in my data). This 'C treatment' of early Neg (cf. Laka) was considered as one possible account of Neg initial constructs which showed Nominative Subjects (e.g., *No I want one* (=I don't want one)). In terms of a checking theory of mixing being proposed here, the *Underspecified 'No'* simply requires a sentential complement—French or English sentential complements equally meet the requirement. The absence of Neg Medial mixing is therefore a result of the mis-specification of Neg in C. On other words, as soon as Neg (possibly triggered by the 'Neg parameter') becomes fully 'set' to a sentence internal fixed NegP (above VP), then those ordinal feature specifications of NegP which force specific lexical-selectional requirements will become operational. Hence, like all the previously considered token cases above, the nature of language mixing here reduces to an Underspecification of either lexical items and/or categories.

- (15) a. *No* viens daddy (file 22: 3;1)
 (=Daddy doesn't come)
 b. *No* on mange (file 23: 3;3)
 (=We don't eat)
 c. *No* me dodo (file 16: 2;8)
 (=I don't sleep)

Case # 5: Mixing and Lexical Adjectives, Adverbials and PPs

A fair amount of mixing goes-on within other typical lexical environments:

- (16) a. I want *encore* juice (file 21: 3;0)
- b. I got *beaucoup* money (file 21: 3;0)
- c. I want baby *encore* (file 22: 3;0)
- d. I make *encore* kick (file 25: 3;6)

In (16) above, there is nothing intrinsically odd about adjectives selecting a noun—the [+Interpretable] properties would be that it requires a sing/mass or count noun. Moreover, it is likely that the such adjectives (cf. 16a,b,d) are treated by the child as Determiners where its selectional properties would likewise reduce to requiring only a Noun. In any event, feature checking of more primitive lexical Phi-features may be more robust, enabling the given complement to enter into the checking relation without fear of language specific feature mismatch regarding French and English.

Case # 6: Mixing and SVV Structures

There are few examples which show mixing between Verb [+F] and Verb [-F] of SVV constructs (all appearing with the initial verb *want*):

- (17) a. I want *viens* (x4) (file 16: 2;8)
- b. I want *pousse* (file 23: 3;3)
- c. I want *mange* (file 22: 3;1)

These SVV structures surely tie-up with previous examples in English Data which show the usage of *Want+Verb* constructions without infinitival *To*. These structures also highly favor a checking theory account of mixing in the respect that an Underspecified Verb *Want* might only select a *Bare verb* for its complement. More specifically, since *Want* is underspecified for its complement selection features, it may only require a base-form/default verb form with not features to check. Forms like *Mange*, *Pousse* and *Viens* are considered as defaults in French--which accounts for their usage as opposed to infinitive forms which would require a specified Headed VP.

Case # 7: Mixing between Subject and Finite Verb

The following examples run counter to Meisel's refinement of the Functional Head constraint (ibid) in that the Subject of a perfectly specified IP mixes with the finite verb (an upper DP>IP). These examples however should be permissible under a Checking Theory basis of mixing. For instance, the verb is finite in each case and requires a Nominative subject. In all the attested examples of a Subject + Verb[+F] construct, Nominative case is used--indicated that the features are indeed matched and so are allowed to converge.

- (18)
- | | |
|---|----------------|
| a. The wind <i>pousse</i> (pushes) the door | (file 23: 3;3) |
| b. I <i>pousse</i> (x3) | (file 23: 3;3) |
| c. I <i>dors</i> (sleep) | (file 23: 3;3) |
| d. It <i>marche</i> (works) | (file 24: 3;4) |
| e. You <i>souffles</i> (blow) | (file 25: 3;6) |

(NB. There were no reported instances of clitics which would fall under the 'Free Morpheme constraint': e.g., @He l'eats, @Je t'give, are unattested in my data).

Reconsidering Syntactic Constraints in light of Checking Theory

To recap, it seems that all of the above stated constraints on mixing can be further reduced to general principles of checking theory.

(19)

(i) *The Free Morpheme constraint* which focuses on constituents of bound morphemes can easily be captured by a checking theory. Clearly, such language specific feature specifications which exists between bound morphemes equally apply, ruling out **eat-iendo* (English/Spanish), **Je'm crying* (=Je +am>I am, French/English) if a feature mismatch ensues.

(ii) *The Equivalent constrain* also bares a checking relation in the sense that in unattested examples such as e.g., **I saw Lo* (=I saw him, English/Spanish), the clitic feature of the Spanish pronoun *Lo* can't be checked-off in English simply because clitics attach to a Functional Head (FP)—if English has no such FP to host the clitic, checking outright fails (Uriagereka: 1995).

(iii) *The Government* constraint simply doesn't hold empirically and that a 'Government relation' simply must be replaced by a 'Checking Relation'.

(iv) *The Refined Functional Head* constraint (cf. Meisel) might be viewed as the closest constraint which could be interpreted within our Checking Theory proposal of mixing. Meisel's notion that a fully specified INFL plays a decisive part in containing code-switching is well taken. However, as was demonstrated by the data, the constraint must reduce to a checking framework which capitalizes on the underspecification of features only, and not categories. It is this sense that Meisel's belief in an unconstrained mixing only within the 'lower' Non-INFL-related DP>VP must be dispelled.

Final Remarks and Summary

(Overview of Literature) This chapter has attempted to demonstrate that language mixing is most frequent during the prefunctional/lexical stage-1 of language acquisition: e.g., the rate of mixing seems to decline at the later functional stage. However, Meisel (1994: 414) notes that such prefunctional mixing does not constitute code-switching/flagged switching *per se*, since an evident prerequisite for proper code-switching in this respect is that the child is able to differentiate the two distinct grammars—a condition that is not yet met at the early prefunctional stage. Rather, Meisel terms this stage of early mixing as *fusion*. At this stage, the child's developed sensitivity toward syntactic constraints, which marks a *Qualitative Shift* in the nature of language-mixing, is attributed to the child's acquisition of abstract grammatical features associated with a fully specified INFLection (IP). Furthermore, I believe, the data presented can be interpreted as lending support to the SSH. This support is basically warranted in the following two ways. Firstly, since the child does not immediately adhere to those syntactic constraints placed on code-switching, there is some reason to speculate that the child is functioning with a broad and unitary undifferentiated system. Secondly, indications of a drop in mixing as MLUw increases could suggest that early language mixing might be attributed to the lack of appropriate *formal features* (relating to IP) in the early lexicon.

(Conclusions on the Data) In conclusion, my data as presented above has shown no real ‘Qualitative/Quantitative Shift’ in the nature of intra-sentential language mixing between the discussed Pre-Functional Stage-1 and Optional-Functional Stage-2 (contra Meisel: *ibid*)—viz., mixing continued to occur even at the supposed functional stage. However, (and in support of Meisel’s more general claim), a closer look at the general state of (functional) ‘Stage-2 Mixing’ yields some interesting results: namely, there is some empirical evidence that Underspecified Phrase Structures (UPSs)—at the e.g., O(ptional) I(nfinitive) Stage-2 (cf. Wexler: 1994)—does affect mixing in accordance to Checking Theory. In sum, the tentative hypothesis reached is that Phrase Structures (PS) which go Underspecified in respect to an ‘INFL-based’ theory of checking act somewhat similarly to their Non-specified counterparts found at Stage-1. In this sense, either version of feature-underspecification (i.e., stage-1, and/or stage-2) represents a (uniform) stage where syntactic constraints on code-switching seem to go unheeded. This amounts to saying that UPSs demote the given PS to a quasi-non-functional status regarding adherence of constraints—thus leading to a sort of *fusion* (using Meisel’s terminology) of the two syntactic systems. Hence, in consideration of the data above, an INFL-based theory on checking must not just be (generally) acquired (as once thought), but more specifically, must also ‘fully-project’ within the actual clause in order for the relevant syntactic constraint to become ‘operative’ over that entire clause (i.e., hence the term Underspecification).

A Theory of Code-Switching based on ‘Feature Checking’

In a finer grain account of mixing, *A Theory of Code-Switching* as proposed here amounts to the claim that switching is only possible where it doesn't result in an INFL-based Checking Failure (I refer to an INFL-based checking here only in the sense that functional-categories, namely IP, is responsible for the onset of formal features which require checking). Hence, it follows that code-switching will be allowed whenever the (formal) lexical-feature specifications involved within the switch remain (somehow) satisfied. This essentially accounts for the higher rate of mixing found at the earlier stages—simply because the (non-functional) lexical items pertaining to this VP lexical Stage-1 don’t intrinsically carry the full array of ‘language-specific’ Uninterpretable features [-Interp] which need to get checked. Once Formal Interpretable [+Interp] features get acquired (typically associated with INFL), checking becomes highly complex and will fail more often than not if switching takes place between a given checking relation which stipulates a *mismatch* of features. (NB. Switching which do seem to

manifest in spite of such (formal) checking relations might be said to have feature specifications which allow for the dual language ‘cross-overs’.)

The above hypothesis paves the way for eliminating an array of superfluous syntactic constraints as cited in above. The one remaining and closest *Syntactic Constraint* which would be most compatible with our proposed Checking Theory on Mixing is the *Functional Head Constraint* (FHC) (cf., Toribio et al., Meisel: *ibid*)—although, it may turn out that we need to refashion the FHC to the extent that it encompasses the overall range of *Checking Theory*.

In conclusion, the data taken from the above 7 cases can be further reduced to a dual staged development whereby the *Single System Hypothesis* (SSH), as it has to do with the acquisition of functional categories, continues to hold some empirical relevance to how we come to consider language-mixing at the very earliest syntactic stage-1. As it was the central theme of this thesis, this stage-1 is arguably without language specific and functional [-Interp] features.

Text taken from Chapter 6 of Galasso 1999 (Ph.D. Diss. Univ. of Essex).

For complete References, see J. Galasso (1999) *The Acquisition of Functional Categories* (IULC Press).