

3

On the Asymmetric Nature of the Operations of Grammar: Evidence from Codeswitching

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3.1 The Asymmetry Hypothesis

This chapter supports the Asymmetry Hypothesis, according to which asymmetric relations are core relations of the language faculty. This hypothesis is central to Asymmetry Theory (Di Sciullo, 2005). It has consequences for the properties of morphological structures (Di Sciullo 1996, 1999, 2000, 2004, 2014),¹ as well as for the relations between features in morphological derivations (Di Sciullo 1997, 1998, 2009; Di Sciullo and Tenny 1997; Di Sciullo and Slabakova 2005; Di Sciullo and D'Alessandro 2008; Di Sciullo and Landman 2009).² Furthermore, it provides a rationale for the presence of complement/noncomplement asymmetries in a variety of languages (Di Sciullo, Paul, and Somesfalean 2003; Jakab 2003; Di Sciullo 2006; Di Sciullo and Isac 2008b, a.o.). Moreover, it provides a novel approach to language development (Di Sciullo 2011, Di Sciullo and Nicolis 2011, Di Sciullo and Somesfalean, 2013).³

I consider here the consequences of the Asymmetry Hypothesis for intrasentential codeswitching and show that it predicts possible and impossible switch sites. If intrasentential codeswitching is governed by the properties of the language faculty (hereafter LF) and the core relations derived by the operations of LF are asymmetrical, then asymmetry is central in intrasentential codeswitching.

The theoretical framework that I assume is the Minimalist Program (Chomsky 1995, 1998, 2001, 2005, 2008, 2013). The empirical evidence that I bring forward is based on corpus data,⁴ and elicited judgments. The data suggest that the complement/noncomplement asymmetry with respect to the merger and the extraction of syntactic constituents also manifests itself in codeswitching.

The complement/noncomplement asymmetry underlies an array of apparently unrelated constraints. Such constraints include X-bar theory (Chomsky

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1970, 1981), the Internal Subject Hypothesis, (Koopman and Sportiche 1991) for asymmetries of projection; the Empty Category Principle (Chomsky 1981), the Condition on Extraction Domains (Huang 1982), Relativized Minimality (Rizzi 1990), and the Minimal Link Condition (Chomsky 1998) for asymmetries of extraction. If the complement/noncomplement asymmetry follows from the operations of LF and not from specific constraints, it is possible to envision a unified explanation for typical properties of the grammars of natural languages whether they are the manifestation of a unique set of parameters (monolingual grammars) or more than one set of parameters (multilingual grammars) giving rise to codeswitching.

The organization of this chapter is as follows. I start by identifying the main aspects of the Minimalist framework and codeswitching relevant to my purpose. I then consider the consequences of the Asymmetry Hypothesis for codeswitching and discuss three striking facts that emerge from the corpus. Lastly, I address the issue of crosslinguistic variation with respect to switch sites, and propose a way to account for the diversity.

3.2 Minimalism and Codeswitching

According to the Minimalist framework, LF provides (a) a set of features, valued or unvalued,⁵ (b) a set of principles for assembling features into lexical items,⁶ and (c) a set of operations, namely Internal and External Merge, which lead to feature valuation.⁷ The features include formal features, (including category, ϕ -features, Case, and EPP), semantic features and phonetic features. I refer to the full set of features of a grammar as the G-features. The G-features of a given grammar are carried through the derivations and feature valuation must take place before Spell-Out.⁸ Full Interpretation requires that no unvalued features reach the interfaces.

Given Merge and feature valuation, parametric variation is reduced to a minimal difference between lexical items. Parametric features are unvalued features associated to functional items, such as the unvalued feature D, attracting N to D, or the unvalued feature T, attracting V to T, or the unvalued feature EPP, attracting a constituent, say a subject, to the specifier of TP.

I take codeswitching grammars not to be different from noncodeswitching grammars in that they both rely on the computational procedure of LF;⁹ however, codeswitching grammars range over more than one set of G-features. I posit the following, which makes codeswitching a particular case of linguistic variation, namely the case where a change in G-features occurs in the course of the derivation of a linguistic expression.

(1) *Derivational codeswitching*

Given $\{G_1, G_2, \dots, G_n\}$, there are points in the derivation of a linguistic expression where G_2 can be substituted for G_1 .

I propose that this substitution may occur at the critical points in the derivation, where parametric features are valued. The mechanism responsible for this change is the very mechanism that makes grammars learnable and that allows linguistic variation.

Under the proposed view, codeswitching is basically a derivational substitution of G-features in a feature valuation site. Given that there is only one Grammar (LF), the asymmetric properties of LF are expected to be part of codeswitching grammars as well, and in particular, the complement/non-complement asymmetry should manifest itself in these grammars. All things being equal, codeswitching is expected to be possible in configurations where unvalued functional features are valued and impossible otherwise. Given the properties of feature valuation, codeswitching is more likely to take place in the functional field. In contrast, codeswitching is not likely to occur in sites where there is no functional head attracting a category for feature valuation, as is the case in the head-complement relations generated in the lexical field.

I assume that a direct object (DO) is generated in the complement position of the VP, as depicted in (2). This head-complement relation is derived by the first application of External Merge, assuming as in Chomsky 1998 that arguments must be initially merged in thematic positions, and as in Di Sciullo and Isac 2008a that items lacking unvalued features are merged as soon as possible in a derivation. The representation in (3) illustrates the configurational difference between direct objects (DO) and subjects (SU). The SU is generated in the specifier of the functional category v .

(2) $[_{VP} V DO]$

(3) $[_{vP} SU [_v [_{VP} DO [V \text{ } \emptyset]]]]$

The DO is generated in the lexical field at a given point in the derivation, whereas the SU never is,¹⁰ even though both DO and SU are in Spec-head relation after Internal Merge has applied.¹¹ Codeswitching is unlikely to occur at the juncture of V and DO in the lexical field. In contrast, codeswitching may occur in the functional field where parametric feature valuation may take place. This is the case, for example at the juncture of the subject and the T head hosting the internally merged V in languages such as French and Italian, (4). This is also the case at the juncture of an adverbial adjunct and the vP it modifies, (5).

- (4) $[_{TP} SU [_{V-T} [_{VP} S\bar{U} [\bar{V} [_{VP} DO [V \bar{\Delta}\bar{\Theta}}]]]]]]]$
- (5) $[_{TP} SU [_{V-T} [_{FP} ADV [_F [_{VP} S\bar{U} [\bar{V} [_{VP} DO [V \bar{\Delta}\bar{\Theta}}]]]]]]]]]$

Given the properties of the operations of LF, while External Merge derives head-complement relations, Internal Merge targets noncomplement positions. Furthermore, the complement (object) of a lexical head is derived by the first application of External Merge; while the complement of a functional head is generated by a further application of External Merge. The complement/non-complement asymmetry relativized to the lexical/functional fields has empirical consequences for codeswitching, as evidenced in section 3.

In sum, according to the asymmetry-based approach, codeswitching may take place when G-features, say the G-features of Italian, are substituted for other G-features, say the G-features of French, at a certain point in the derivation, via the operations of LF, Merge and feature valuation. Assuming that parametric features are unvalued functional features and that code switching is one case of variation, subsumed under feature valuation, codeswitching sites are likely to be located in functional feature valuation sites and not in sites where there is no parametric feature-valuation. This follows from the Asymmetry Hypothesis, according to which asymmetric relations are core relations of LF.

In the following sections, I provide evidence to show that intrasentential codeswitching is a manifestation of the complement/noncomplement asymmetry. This predicts the following three striking facts that emerge from our Italian-French-English conversation corpus. The first fact is that objects generally have the same G-features as the verbs they are dependent on. The second fact is that adverbs and adjectival modifiers need not share the same G-features with the category they are related to. The third fact is that functional heads, including determiners and complementizers, may differ in G-features from the categories they are associated with. I consider these facts in turn.

3.3 Consequences of the Asymmetry Hypothesis

The consequences of the Asymmetry hypothesis for the analysis of codeswitching are both theoretical and empirical.

The theoretical consequence is that it simplifies previous accounts of the phenomena and extends their empirical coverage. For example, there are basic similarities as well as basic differences between the proposed asymmetry approach and the government approach of Di Sciullo, Muysken, and Singh 1986 to codeswitching. While both approaches are configurational and capital-

ize on the difference between the lexical field versus the functional field, the notions of government and L(language)-carrier are dispensed with in the current asymmetry approach. Di Sciullo, Muysken, and Singh 1986 proposed a configurational constraint on codeswitching based on the notion of L-carrier. This notion determines the configurational site of the switch, and it is proposed to capture the fact that, within a sentence, elements bearing a certain type of relation to each other (government) must be drawn from the same lexicon, or have the same language index. In the asymmetry-based approach to codeswitching, no additional constraint, including government is required to account for the difference between subjects and objects with respect to codeswitching. The asymmetry-based approach captures the generalization expressed in terms of the notions of government and L-carrier without appealing to these notions or to any additional constraint, given the independently needed notion of G-features including valued and unvalued functional features. Differences between possible and impossible switch sites are reduced to the derivational asymmetry between External Merge and Internal Merge relativized to the lexical/functional fields. Furthermore, the independently needed notion of feature valuation is used in the asymmetry-based approach to identify the possible switching sites, which is not the case in the government approach. Moreover, given that feature-valuation can be achieved by Merge, either Internal or External, it is possible to account for variation between codeswitching grammars, that is grammars where switches do occur in head-complement (government) relations, as well as grammars where switching does not occur in such relations, as detailed below. This result is beyond the scope of the government approach.

The Asymmetry Hypothesis also has empirical consequences for codeswitching in head-complement as well as in noncomplement sites. I consider them in turn in the following paragraphs.

3.3.1 Head Complement

I discuss two cases of head-complement sites originating within the VP with respect to whether or not they qualify as possible codeswitching sites. The first is the verb-direct object configuration and the second is the verb-cognate object configuration, which is a configuration where the object is morphologically related to the verb.

According to my hypothesis, the juncture of a verb and its object is not a likely codeswitching site, because there is a point in the derivation of a verb-object configuration, in fact the initial point derived by the first application of External Merge, where a parametric feature valuation, and thus a possible G-feature change, is unlikely to take place.

3.3.1.1 Head Complement in the VP

3.3.1.1.1 Verb Object A striking fact that emerges from our multilingual conversation corpus is the absence of codeswitching between a V and its DO. Thus, expressions such as the ones in (6) and (7) are excluded by our Italian-English-French informants in elicitation judgment tasks.

- (6) a. *Gianni beve *le vin*.
 b. *Gianni beve (*the*) wine.
 ‘Gianni drinks (the) wine.’
 c. *Maria ascolta *la musique*.
 d. *Maria ascolta *to (the) music*.
 ‘Maria listens to the music.’
- (7) a. *John drinks *le vin*.
 b. *John drinks (*il*) vino.
 ‘Gianni drinks (the) wine.’
 c. *Mary listens *la musique*.
 d. *Mary listens *musica*.
 ‘Maria listens to (the) music.’

In the examples in (6), the verb is in Italian and the DP object is in French in (6a) and in English in (6b). In (6a–b), the Italian verb selects a DP complement. In the examples in (6c–d), the verb to *listen* takes a DP object in French and a PP object in English. The examples in (7) are parallel cases with the verb in English and the object in Italian or French. Interestingly, the judgments are constant, whether or not the object differs in categorial selection (DP vs. PP) in the grammar of the languages under consideration. This suggests that configurational relations, such as the head-complement relation, override differences in lexical selection and thus brings empirical support to the asymmetry approach to codeswitching.

The absence of codeswitching at the juncture of a verb and its object follows from our proposal, because an object is merged with a verb and is part of a head-complement configuration derived by the first application of External Merge. All things being equal, no parametric feature valuation, and possibly parametric feature change, takes place in that configuration.

3.3.1.1.2 Verb-Cognate Object The Italian-English-French corpus does not include cases of codeswitching in cognate object contexts. This is exemplified with the Italian-English examples in (8), where the cognate object [*a song*] shares the G-features of the verb, contrary to the DP [*Un Piccolo Topo*] (I), which is an appositive DP and not a complement of the verb. Cognate objects

can be passivized, questioned and relativized, like objects, e.g. *a song has been sung, what did you sing?, a song that you sang*. This is not the case for appositive DPs, **Three Nice Mice has been sang a song, *what did you sing a song?, *Three Nice Mice that you sang a song*.

- (8) a. *Well, sing a ... song*, Un Piccolo Topo.
 ‘Well, sing a song, A Small Mouse.’
 b. *Yeah, sing it*, Un Piccolo Topo.
 ‘Yeah, sing it, A Small Mouse.’

Codeswitching may not occur at the juncture of a verb and its cognate object. This fact is corroborated by our informants, as the following examples illustrate.

- (9) a. *Gianni ha vissuto *sa vie*.
 b. *Gianni ha vissuto *his life*.
 c. *John lived *la sua vita*.
 d. *John lived *sa vie*.
 e. *Jean a vécu *sua vita*.
 f. *Jean a vécu *his life*.
 ‘John lived his life.’
- (10) a. Gianni ha vissuto *la sua vita, une bonne vie*.
 b. Gianni ha vissuto *la sua vita, a good life*.
 c. John lived his life, *una buona vita*.
 d. John lived his life, *une bonne vie*.
 e. Jean a vécu *sa vie, una buona vita*.
 f. Jean a vécu *sa vie, a good life*.
 ‘John lived his life, a good life.’

These data further illustrate that the juncture between a head and its complement generated in the VP is not a possible codeswitching site. They also illustrate the effect of the complement/noncomplement asymmetry on codeswitching: according to our informants, codeswitching is impossible in head-complement configurations, including V-cognate object sites, and possible in non-complement configurations, including appositive contexts.

3.3.1.2 Head Complement External to the VP

Because functional projections are the locus of feature valuation, including parametric feature valuation, we expect purely functional head-complement sites—that is, configurations derived by the application of External Merge in the functional domain—to be possible sites for codeswitching. This is in fact what is observed in our corpus, which includes several cases of switches

between a functional head and its complement. The examples below illustrate this point.

Considering the extended projection of V, the examples in (11) show that codeswitching may occur at the juncture of a C head and its TP complement. In (11a) the C head has French G-features, and its TP complement has English G-features. In (12), codeswitching occurs between the DP subject *lu fattore* (I) ‘the postman’ and the adverbial phrase *demain* (Fr) ‘tomorrow’ in its complement domain.

- (11) a. Il me dit que *it's hard to fix it.*
 he me said that it's hard to fix it
 ‘He tells me that it’s hard to fix it.’
- b. Mo ti dicco mo io la trovo che *watch, you know.*
 now (I) (to) you say-1sg-Pres now I her find that (she) watch,
 you know
 ‘Now I am telling you now I find her that she watches, you know.’
- (12) Lu fattore, *demain, pas de malle, porte pas de chèques.*
 The postman tomorrow no of mail, brings no of checks.
 ‘The postman, tomorrow, no mail, he brings no checks.’

Considering the extended projection of N, codeswitching is possible between a D head and a constituent in its complement domain. Examples from our corpus include the cases in (13) where codeswitching occurs between the D head and its nominal complement, as well as cases such as (14), where the switch occurs between a quantifier and its nominal complement.

- (13) a. C’era il *blé d’inde.*
 there was the corn
 ‘There was corn.’
- b. Li voglio lu *juice.*
 it want-1sg-Pres the juice
 ‘I want the juice.’
- c. Perche a mezzì giorn ciud la *shop.*
 because at noon closes the shop
 ‘Because the shop closes at noon.’
- (14) C’era troppo *noise* e nu realiza le parecchie che e troppe quete.
 there was too much noise and NOT realize the plane that is too quiet
 ‘There was too much noise and one does not realize that the plane is too quiet.’

These facts from our Italian-English-French corpus, corroborated by acceptability judgments from our informants, point to the correctness of the proposed

hypothesis according to which head-complement sites in the functional field, because they are part of the feature valuation sites, are likely to allow codeswitching.

3.3.2 Noncomplement Sites

The asymmetry approach also predicts that codeswitching may occur in specifier-head relations in the functional field, which may host noncomplements. The following paragraphs provide evidence that this is indeed the case.

3.3.2.1 Spec-Head Relation

3.3.2.1.1 Subjects Subjects are generated by External Merge in the functional field, in a specifier-head relation within the vP and they may be displaced in the specifier of TP by Internal Merge for feature valuation.

As predicted, our corpus presents cases where codeswitching occurs between the subject, in Spec TP, and the T head. This is the case in (15), where codeswitching occurs at the juncture of the pro subject, which occupies the specifier of TP in pro-drop languages such as Italian, and T the head of TP. T includes the verb and the French accusative clitic *le*, assuming that object clitics are adjoined to V, which has been merged to T, given that the unvalued features of T attract V in Romance languages (V-to-T parameter), as represented in (16).

- (15) È buon perche *si le laisse tranquille* nin gi sta quest odio.
 (it) is good because if them leave alone NOT there is this hate
 'It is good because if we leave them alone there is not this hate.'

- (16) [_{CP} C [_{TP} pro [_T [[cl V]T]] [_{vP} ...

Specifier-head relations derived in the functional field are canonical configurations for parametric feature valuation, and according to our hypothesis, possible sites for G-features changes.

The example in (17) also points in the same direction. The verb *dit* (Fr) 'to say' and its CP complement *que fait la même chose* (Fr) 'that it does the same' have the same G-features, as predicted. This is also the case for the dative complement of the verb, which takes the form of the clitic pronoun *m'* (Fr) 'to me'. Codeswitching occurs in the matrix clause between the subject pronoun *lu*, a reduced form of Italian *lui* 'he' in Spec TP, and T. It also occurs in the embedded clause, between the covert pro subject and T. This is possible in a pro-drop language such as Italian, but not in a non-pro-drop language such as French, where the pronoun *ça* 'it' would be pronounced in this position.

- (17) Lu *m'a* *dit* *que* *fait* *la* *même* *chose*.
 he to me have said that does the same thing
 'He told me that it does the same thing.'

This example illustrates further that G-feature changes may occur in the functional field where unvalued parametric features are valued.

Judgments from our informants point in the same direction. Codeswitching is possible at the juncture of a DP subject and a T head hosting a clitic pronoun, as in (18a), but not at the juncture of the clitic and the T head hosting the object clitic as in (18b).

- (18) a. Questo studente *le* *lit* *souvent*.
 this student it read often
 'This student reads it often.'
- b. *Questo studente lo *lit* *souvent*.
 this student it read often
 'This student reads it often.'

These facts point to the correctness of my hypothesis, according to which codeswitching is likely to occur in a specifier-head configuration, at the juncture of a subject and a verb, but not at the juncture of a verb and its object, in a configuration derived by the first application of External Merge. Because the subject is in a functional specifier-head relation through the derivation, parametric feature valuing, including G-feature changes, may occur between the subject and the head of its TP complement.

3.3.2.1.2 Modifiers I assume that adverbial and adjectival modifiers occupy the specifier position of a functional (F) category asymmetrically c-commanding the lexical projections it modifies. The lexical heads V and N are displaced in the domain of a functional projection for feature valuation. Given the copy theory of movement, configurations such as the ones in (19) and (20) can be generated in the derivation of adverbial and adjectival modifications.

- (19) [_{FP} ADV [_F V-F ... [_{VP} [V
 (20) [_{FP} ADJ [_F N-F ... [_{NP} [N

Codeswitching is correctly predicted to be possible in these sites, as attested by the following expressions observed in our corpus. The examples in (21)-(24) show that VP adverbs may have different G-features than the verbal head they are related to. The examples show that temporal adverbs (21) and (22), as well as subject-oriented (23) and speaker-oriented (24) adverbs, may also

have different G-features than the projection they are associated with. This suggests that codeswitching is independent of semantic features, but is dependent on functional feature valuation.

- (21) La lascia *toujours* sulla tavola.
 it leave always on the table
 ‘She always leaves it on the table.’
- (22) *Addesso*, will sing for Christmas.
 now, will sing for Christmas
 ‘Now, we will sing for Christmas.’
- (23) *Spontaneamente*, tu vas parler français.
 spontaneously, you going speak French
 ‘Spontaneously, you are going to speak French.’
- (24) *Naturalmente*, la plupart des Canadiens
 naturally, the most of Canadians’
 ‘Naturally, most Canadians’

PP modifiers, generated in the functional field by External Merge, do not differ from other modifiers with respect to codeswitching, as evidenced in examples (25)-(28) from our corpus. Here again the facts indicate that codeswitching is not dependent on semantic features. In the example in (25) the PP modifier has temporal features; in (26), it has locative features; in (27), directional features; and in (28), manner features.

- (25) Tu mangi quelle piccole cose *in* *between* *meals*.
 you eat those little thing in between meals
 ‘You eat those little things between meals.’
- (26) a. Ma, *in* *Italy* anche
 but, in Italy as well
 ‘But, in Italy as well’
 b. C’era un, *à* *la* *radio*, un’ a la radio italiana,
 there was one, at the radio, one at the radio Italian
 ‘There was one, on the radio, someone on the Italian radio,’
 c. E vo sciar all’ *Ice Follies*.
 and go skiing at *Ice Follies*
 ‘And (I) go skiing at the Ice Follies.’
- (27) Tony, va piglia la frutta *en* *bas*.
 Tony, go take the fruit in down
 ‘Tony, go take the fruit downstairs.’

- (28) La pizza la faccio *all dress*.
 the pizza it make-3sg-Pres all dress
 'The pizza, I make it all dress.'

AP modifiers, like adverbial and prepositional modifiers, are noncomplements. As predicted, the expressions in (29) from our corpus illustrate that switching may occur at the juncture of an Adj and an N, as Adj are generated by External Merge in the specifier of a functional category.

- (29) a. Little *topo* was going away, another one, then another one.
 small rat was going away, another one, the another one
 'A small rat was going away, another one, then another one.'
- b. *Un hotel* pulito ... non era lussuoso ah.
 an hotel clean ... it was not luxurious eh.
 'A clean hotel ... it was not luxurious eh.'
- c. *Puo fa le belle party*.
 (she) can give the nice parties
 'She can give nice parties.'
- d. *Ma ci stanno dei smart italiani*.
 but there are some smart Italian
 'But there are smart Italians.'

That similar facts are observed in other corpora, including English-Spanish, brings further empirical evidence to the phenomenon, which follows from the Asymmetry Hypothesis without further stipulation.

- (30) a. *Es eso color come* [[muy dark] maroon].
 'It's that color like very dark maroon.'
 (Pfaff 1979, 256)
- b. *Uno no podia comer carne every day*.
 'One cannot eat meat every day.'
 (Sankoff and Poplack 1981)

According to Mahootian and Santorini 1996, all possible codeswitching combinations are attested in noun-adjective contexts. This generalization has been disputed in several works including MacSwan 1999, where it is suggested that it is the language of the determiner that sets possible and impossible switches between adjectives and nouns. I will not try to resolve this question here. However, I will make the following observation that bears on the issue.

There is a parameter differentiating Italian and English with respect to the distribution of modifying adjectives. This parameter involves aspectual features, because we observe that in Italian, individual-level adjectives may precede or follow the nominal head, as illustrated in (31), whereas stage-level

adjectives follow the noun, as exemplified in (32). In English all adjectives are prenominal.

- (31) a. Una persona brava/intelligente
 ‘A person good/intelligent’
 b. Una brava/intelligente persona
 ‘A good/intelligent person’
- (32) a. Una persona pronta/disponibile
 ‘A person ready/available’
 b. *Una pronta/disponibile persona
 ‘A ready/available person’

If MacSwan is right, it is predicted that the expressions in (33), where the determiner is in Italian and where a stage-level adjective precedes the noun, should be impossible, as well as expressions such as (34), where the determiner is in English and the stage-level adjective follows the noun. In contrast, expressions such as the ones in (35), where the determiner is in Italian and the individual-level adjective precedes or follows the noun, as well as cases such as (36), where the determiner is in English and the adjective, whether individual or stage, precedes the noun, are possible. The elicited judgments obtained from my informants indicate that this is correct.

- (33) a. *Il *available* professore
 ‘The available professor’
 b. *Il *ready* professore
 ‘The ready professor’
- (34) a. *The professor *pronto*
 the professor ready
 ‘The ready professor’
 b. *The professor *disponibile*
 the professor available
 ‘The available professor’
- (35) a. Il *nice* professore
 b. Il *bright* professore
 c. Il professore *nice*
 d. Il professore *bright*
- (36) a. The *bravo* professor
 b. The *intelligente* professor
 c. The *pronto* professor
 d. The *disponibile* professor

In the asymmetry-based approach, nothing requires codeswitching to occur in a specifier-head configuration; this configuration is however a possible locus for G-feature changes which may give rise to codeswitching.

The facts presented in this section provide further evidence for the Asymmetry Hypothesis, one consequence of which is that codeswitching is possible in modification sites. The features of the modified category are valued in the specifier of a functional projection. According to our proposal, this site is a possible codeswitching site, because it is a point in the derivation where a change may arise in G-features.

3.3.2.1.3 Extractions Evidence from the Italian-English-French corpus shows that codeswitching may occur in relative clauses and in *wh*-questions at the juncture of the extracted constituent and the CP or TP it has been extracted from. The examples in (37) and (38) are cases where the extracted constituent originates from a specifier position, viz., the subject position in (37), and from an adjunct position in (38). Thus, in (37a), *la strega* (I) ‘the witch’ originates in the subject position of the verb *scared* (E), in (37b) *la persona* (I) ‘the person’ originates from the subject position of the verb *parle* (Fr) ‘speak’. In (38), the *wh*-constituents originate in adjunct positions.

- (37) a. È la strega ... who scared the mouse.
 is the witch ... who scared the mouse.
 ‘It is the witch who scared the mouse.’
- b. *La musique* è trop forte e la persona qui parle je peux pas la comprendre.
 the music is too loud and the person who speaks I cannot CL understand
 ‘The music is too loud and I cannot understand the person who is speaking.’
- (38) a. *Pourquoi* sonne così?
 why rings like that
 ‘Why does it ring like that?’
- b. Frank, quand finisse?
 Frank, when finishes
 ‘Frank, when does he finish?’
- c. *Come* disons en italien?
 how say-1pl-Pres in Italian
 ‘How do we say in Italian?’

There are no cases of *wh*-extraction from the complement position in our corpus. The elicited judgments obtained from our informants indicate that codeswitching is not possible in these contexts, as it is the case in the examples in (39), using italic for Italian:

- (39) a. **Qu'est-ce que dici?*
 what is it that say
 'What are you saying?'
- b. **Que fai?*
 what do
 'What do you do?'
- c. **Cosa dis?*
 (what) thing say
 'What do you say?'
- d. **Che dit Marie?*
 what say Mary
 'What is Mary saying?'

Our corpus also includes cases of switching within an extracted constituent. In (40a), *compound* (E) is the complement of the functional head *quel* (I) in the PP *con quel compound* (I) originating in an adjunct position. Similarly, in (40b) *street* (E) is the complement of the functional head *questu* (I) in the DP *questu street* (I), extracted from the subject position of the verb *piace* (I).

- (40) a. Io, con quel *compound* che dico faccio tutti questi piedi qua.
 Me, with that compound that say do all these legs here
 'Me, with that compound that I am saying I do all these (table) legs here'
- b. Come si chiama *questu street* che ti piace a te, Angelo?
 how SELF called his street that CL like at you, Angelo
 'What is the street called that you like, Angelo?'

There are no clear cases of codeswitching in the context of extraction of a complement of a lexical V in our corpus. In (41), *fanno* (I) can be both a causative verb and a light verb.¹² As a light verb, it is a functional head, and thus, the DP *l'échantillon* (Fr) would not be extracted from a lexical complement position.

- (41) *l'échantillon* che fanno ...
 the sample that (they) do-3pl-Pres
 'the sample that they do ...'

These facts provide further evidence that codeswitching is sensitive to the complement/noncomplement asymmetry relativized with respect to the functional/lexical field. Codeswitching is, in my view, a particular manifestation of the asymmetry of the operations of the grammar. In the next section, I consider variation between codeswitching grammars.

3.4 Variation

In Belazi, Rubin, and Toribio (1994), the Functional Head Constraint is proposed to account for Tunisian Arabic-French and Spanish-English bilingual intuitions about possible versus impossible codeswitching.

(42) *Functional Head Constraint*

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. (Belazi, Rubin, and Toribio 1994, 228)

The Functional Head Constraint predicts that switching is disallowed between C and TP, between D and NP, between Num and NP, between Neg and VP, as well as between ADV and VP. In contrast, switching between a lexical head and its complement occurs quite freely. According to Belazi and colleagues, switching is possible between a verb and its complement, as well as between a preposition and its complement. Some examples are given below.

(43) a. Ktib *dix* *livres.*

wrote-he ten books

‘He wrote ten books.’

b. *Ktib *ζasra* *livres.*

wrote-he ten books

‘He wrote ten books.’

(Belazi, Rubin, and Toribio 1994, 229)

(44) The police officers have seen *un* *ladron.*

*the police officers have *visto* *un* *ladron*

‘The police officers have seen a thief.’

(Belazi, Rubin, and Toribio 1994, 230)

(45) They used to serve *bebidas* *alcoholicas* *en* *ese* *restaurante.*

they used to serve drinks alcoholic in that restaurant

‘They used to serve alcoholic beverages in that restaurant.’

(Belazi, Rubin, and Toribio 1994, 230)

As we have seen above, codeswitching is impossible in these sites for Italian-English-French speakers. These sharp differences between possible and impossible switch sites, if correct, have to be accounted for. Moreover, if, as they assume, inflectional affixes are functional categories, Belazi, Rubin, and Toribio predict that switching is not possible under the word level, at the site between what they analyze as a functional head and its complement. Some examples of under the word-level impossible switch sites are illustrated below:

- (46) **Suf*-t *da:r*-s.
 saw-I house-PL
 ‘I saw the houses.’
 (Belazi, Rubin, and Toribio 1994, 231)
- (47) *We dance-*amos* cha-cha.
 we dance-1pl cha-cha
 ‘We dance cha-cha.’
 (Belazi, Rubin, and Toribio 1994, 231)

The Functional Head Constraint, proposed to account for the nonoccurrence of switching between a functional head and its complement, makes the wrong predictions with respect to the Italian-English-French facts. Our hypothesis makes the wrong predictions with respect to the Tunisian Arabic-French and Spanish-English codeswitching data, because it predicts that a complement has the same G-features as the lexical head on which it is dependent.

If as I propose, codeswitching is one manifestation of the asymmetry of the operations of LF, it is possible to reconcile the apparently contradictory facts above by assuming that LF includes the following parameter.

- (48) Parametric feature valuation is done by operation X.

I propose that LF does not specify the operation X by which feature valuation is performed. It leaves this choice to individual grammars, as a parametric option. This choice however is very limited, because there are only two core operations, Internal Merge and External Merge. Parameter (58) is a possible parameter in our model, which is based on a limited set of configurational asymmetries, including the head-complement configurations, lexical and functional, derived by External Merge and the specifier-head configurations derived by Internal Merge. Given (48), feature valuation can be done by an operation X, either External Merge, Internal Merge, both, or none. The last option is that X is not a syntactic operation and thus feature valuation would not be performed by syntactic operations, but by operations applying in another plane of the grammar, such as the morphological or the phonological planes of the computational space. See Di Sciullo, 2005 and 2011 for discussion.

I thus identify four sorts of codeswitching situations according to the value attributed to X in parameter (48). Consider the following chart.

X	G1	G2	G3	G4
Internal Merge	+	-	+	-
External Merge	-	+	+	-

In G1, purely lexical Merge does not give rise to possible head-complement switch sites, but purely functional Merge does, as well as the specifier-head

relation derived by Internal Merge. Thus, switching is impossible between a verb and its complement, but it is possible between Comp and TP as well as between Neg and VP, D and NP, and Num and NP. This is the case with our Italian-English-French grammar. In contrast, in G2, purely functional head-complement relations would not constitute possible switch sites. Thus switching between Comp and TP, Neg and VP, D and NP, as well as Num and NP is impossible. However, switching between a lexical head and its complement would be possible. This would be the case with the Tunisian Arabic-French grammar discussed in Belazi, Rubin, and Toribio (1994). In G3, codeswitching may occur between a head, lexical or functional, and its complement, derived by Internal Merge, as well as in specifier-head configurations derived by External Merge. In G4, switching is, in addition, not possible between a lexical or functional head and its complement, the facts reported in MacSwan 1999.

It might be the case that basic morphosyntactic properties could allow us to predict which language pair would fall under which setting of the parameters. These basic properties would possibly give rise to differences in the derivation of lexical and functional relations with respect to feature valuation. It is well known that Romance and Semitic languages differ in this respect, just as languages with very poor morphology such as Chinese differ from languages with very rich morphology such as Turkish. I leave this conjecture open to further research.

3.5 Summary

I have discussed three striking facts that emerge from a spontaneous Italian-English-French conversation corpus as well as from data obtained by elicited judgments. The facts suggest that the complement/noncomplement asymmetry, relativized with respect to the functional/lexical domain, also manifests itself in codeswitching grammars.

In the proposed view, the complement/noncomplement asymmetry follows from the basic asymmetry of the operations of the grammar. The asymmetry also has consequences for differentiating possible from impossible codeswitching sites, given the setting of parameter (48). The Asymmetry Hypothesis accounts for the facts in a unified way.

Notes

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laborative Research Initiative (MCRI) on Asymmetries in Natural Languages, grant number 214-97-0016 and by funding from the Fond de Recherche du Québec (FQRSC) for the Dynamic Interface Research project, grant number 137253, www.interfaceasymmetry.uqam.ca.

1. Asymmetry, as a property of the configurations underlying the linguistic expressions, is expressed in terms of the asymmetrical c-command relation, as defined in Kayne 1994.

2. Asymmetry, as a property of the features associated to the elements undergoing the operations of the language faculty, is expressed in terms of the proper subset relation, as defined in Di Sciullo 2005.

3. The Asymmetry Hypothesis has consequences for the understanding of the resetting of parameters in language development, where periods of fluctuating asymmetry are followed by periods of directional asymmetry. See Di Sciullo 2011 and related works for discussion.

4. The corpus is the one I gathered by recording spontaneous conversations between three groups of four Italian-English-French multilingual speakers in 1973 and 1974, as part of a research program on multilingual interaction funded by the Social Sciences and Humanities Research Council of Canada (cf. Di Sciullo et al. 1975). This is one of the corpora used in Di Sciullo, Muysken, and Singh's 1986 study on government and code-mixing. Furthermore, for the present study, six Italian-English-French multilingual speakers participated in the judgment tasks. I will use the following abbreviations for expressions Italian (I), French (Fr) and English (E) when necessary.

5. The valued features include categorial features (+/-N, +/-V, D, T, etc.), the ϕ -features of N (person, number, gender), and the [+wh] feature of *wh*-phrases. The unvalued features include the ϕ -features and the Case features of T, and the EPP feature.

6. Lexical items are bundles of features, and they may enter the derivation with valued or unvalued features. For example, the functional head T carries unvalued person, number and gender features, and DPs are unvalued for Case. The principle of Full Interpretation ensures that unvalued features are valued before Spell-Out, to be legible by the external systems. Unvalued features are valued by entering into an Agree relation with valued features. The Agree relation is generally followed by movement (pied-piping), and is defined as follows:

Agree: α Agrees with β iff: a. α and β are non-distinct for some formal feature F;

b. α and β are active (i.e. have at least one unvalued feature); c. α asymmetrically c-commands β ; there is no γ , an active goal, which is both asymmetrically c-commanded and asymmetrically c-commands β .

7. External Merge applies to two syntactic objects that have not been merged before. Internal Merge remerges a syntactic object that has already been merged in the derivation.

8. Spell-Out is the point in the derivation where linguistic expressions are no longer subject to syntactic operations leading to the semantic interface, while they are subject to phonological operations leading to the phonetic interface.

9. Several constraints were proposed to account for the properties of codeswitched grammars, see Pfaff 1979, 1982; Poplack 1980, 1993; Joshi 1982; Di Sciullo, Muysken,

and Singh 1986; Belazi, Rubin, and Toribio 1994; Mahootian and Santorini 1996; Treffers-Daller 1997; Halmari 1993, 1998; Muysken 1995, 2000 a.o.. The asymmetry-based approach I propose here does not require codeswitching-specific constraints, an approach also taken in McSwan 1999, 2000, 2013.

10. The projection of subjects has been discussed in various works, see Arab 1998, Chomsky 1998, Koopman and Sportiche 1991, and Williams 1980, a. o.. The projection of a constituent within or outside of the minimal argument structure projection of a lexical head has been implemented in various ways, see Di Sciullo and Williams 1987, Jackendoff 1977, Kayne 1994, Chomsky 1998, as well as Hale and Keyser, 2002, a.o. In the Minimalist framework, the subject is generated within the vP.

11. The effects of the copy theory of movement are represented in the structures by crossing out the copy of the moved constituent.

12. Light verbs have defective argument structure properties (Grimshaw and Mester 1988, Di Sciullo and Rosen 1990, a.o.). They are generally analyzed as functional heads, and thus they are not part of the canonical lexical head-complement relations. See Muysken (2000) Hok-Shing Chan (2008) a.o. for discussion on codeswitching in light verbs contexts.

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