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## **L2 Acquisition as a Process of Creolization: Insights from Child and Adult Code-Mixing\***

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Language contact which manifests itself as “code-mixing” constitutes a natural ground for investigating possible commonalities and differences between the L2 acquisition and pidginization/creolization processes. In this paper, we analyze spontaneous and experimental functional-lexical DP mixings in order to address the differences and similarities between the mental representation of language in the bilingual child, the bilingual adult and adult non-native language. Drawing a parallel with Pesetsky and Torrego’s (2001) proposal concerning the relationship between nominative case (nominative case is a T feature on D) and agreement ( $\phi$ ) (agreement is a D feature on T), we assume that Gender is an N feature on D and Gender Agreement is a D feature on N. This dichotomy allows us to make a number of predictions as to how the native and non-native mental representation of these features determines the directionality of code-switching (which language contributes the functional or the lexical category). We will argue that the comparative priorities for the specification of uninterpretable features in a given pair of languages that are already present in the emergent bilingual grammar are transferred to the adult bilingual grammar but do not show up in the case of the non-native grammar. We attribute this to the fact that adult native speakers do not process and internalize formal abstract features from input in the same way as children do (Licerias 2003). Thus, in the spirit of Bickerton (1984, 1996, 1999), we will argue that adults do not “create” language and, in this respect, adult non-native systems and pidgins may share a number of properties, as initially proposed by Schumann (1978) or Andersen (1983) and recently discussed by DeGraff (1999) and Winford (2003), among others. However, in the case of the pidgin/creole continuum, the non-native system will eventually become a native-like system as it develops into a creole, although due to the special language contact situation, some formal features may only make it into the creole system in cases where contact between the creole and the lexifier persists through several generations.

### **1. Introduction**

A large body of researchers shares the assumption that first language (L1) grammars and second language (L2) grammars are both constrained by Universal Grammar (UG), in the latter case via direct

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access to UG principles and/or via their implementation in the L1 (see Epstein, Flynn & Martohardjono 1996, and commentaries thereon). However, some argue that L1 and L2 acquisition differ with respect to the actual ways in which parameters are set (Liceras, Laguardia, Fernández, Fernández & Díaz 1998; Strozer 1994; Tsimpli & Roussou 1991) or in terms of how the features of functional categories are activated (Beck 1998; Eubank 1996; Hawkins & Chan 1997). For those researchers who do equate the L1 and L2 parameter-setting mechanisms and/or the activation of features (Bruhn de Garavito, forthcoming; Lardiere 1998; Schwartz & Sprouse 1996; Slabakova & Montrul, forthcoming; Sprouse 2004; White 2003, among many others),<sup>1</sup> accounting for the actual differences in the language development and ultimate attainment of L1 and L2 learners requires resorting to transitional L1 interference or to problems in the articulatory-perceptual or semantic-conceptual module. Thus, within the body of researchers who share a mentalist, UG-based view of the nature of the native and the non-native systems, whether differences are accounted for in terms of L1 influence, critical period or age factor effects affecting “narrow” syntax or interfaces, the fact is that not only are these differences acknowledged but also that second language acquisition (L2A) literature has systematically made L1 transfer and the activation of UG principles an intrinsic part of the L2A process. In some cases, metalinguistic abilities or processing mechanisms specific to adult L2 acquisition have been explicitly added as a third fundamental component of the L2A model (Adjémian & Liceras 1982; Liceras 1996, 1998; Sprouse 2004).

Within the field of L2A, there have also been proposals equating the early stages of interlanguage development with the pidginization process (Schumann 1978) and attributing the idiosyncratic linguistic nature of both systems to the specific cognitive and social constraints that characterize these language contact situations. Expanding and elaborating on this proposal, Andersen (1979, 1983) described all four processes (L1A, L2A, pidginization and creolization) as constituting either

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<sup>1</sup> Lardiere (forthcoming) argues that the parameter-setting metaphor is too comprehensive to account for the problems that adult L2 learners face when determining how the various features are distributed across the functional categories of a given language, and she suggests that what learners have to figure out is how features are assembled.

nativization or denativization, depending on whether growth was characterized as independent (moving away from the L1/L2 or the substratum/superstratum system) or dependent on the external norm (moving towards the L1/L2 or the substratum/superstratum system).

In the case of the creation of pidgin and creole languages, the mentalist, UG-based positions can be described in terms of whether the main role in the process is attributed to language universals, the L1 (substratum language) or the L2 (superstratum or lexifier language), thereby echoing the L2A/L1A relationship debate. In the view of some authors (Bickerton & Givón 1976; DeGraff 2005; Kay & Sankoff 1974), the language universals that are responsible for the development of any natural language are also responsible for the pidginization and creolization process. However, according to Bickerton (1981, 1984), creoles are not only “unique” (they have morphosyntactic characteristics specific to creoles) but, unlike pidgins, they are the result of L1 acquisition (Bickerton 1984).<sup>2</sup> According to Lefebvre and Lumsden (1994), Lefebvre (1996) and Lumsden (1999), the L1 (substratum language) plays the major role in the projection of the pidgin/creole grammar, while the L2 or superstratum language (also known as the lexifier) contributes the lexical resources. Researchers such as Chaudenson (2001) argue that the origin of the creole grammar is not a pidgin but an L2 variety of the superstratum, which gradually diverges from this L2 target via a process of “basilectalization” (Mufwene 1996). There are also compromise positions (DeGraff 1999; Mufwene 1990) which, as in the case of the L2A literature, maintain that the L1, input from the L2, principles of UG and very complex social and/or psychological constraints shape the projection of the creole grammar (see also Cornips & Hulk, this volume).

Researchers who share the mentalist, UG-based view of L1A and L2A, as well as of pidgin and creole formation, agree that all four systems are constrained by UG principles. However, they differ on

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<sup>2</sup> The “unique” nature of creoles has been challenged by many researchers (i.e., commentary on Bickerton 1984; DeGraff 2005; Plag 1994) and it is difficult to accommodate within a mentalist, UG view of language. While admitting that creoles are UG-constrained, Bickerton (1999) argues that what makes creoles “unique” is their potential to be “pure” representations of the unmarked (default) options of the various parameters.

how to account for the differences and similarities between L1 and L2 acquisition, on the one hand, and the role of the L1 and L2 in the projection of the creole grammar, on the other. In line with Smith and Tsimpli (1995), Strozer (1994), Otero (1996), Liceras (1996) and Hawkins and Chan (1997) for adult L2 acquisition, and Bickerton (1996) for the formation of creole languages, we assume that some sort of critical period or age factor effect, which affects L2 learners' sensitivity to language input, compromises their activation of features in the target grammar (Liceras 2003). In the case of the DP component, for instance, we have argued (Liceras 2003) that while L1 learners of Romance languages produce monosyllabic placeholders that demonstrate how these learners go about encoding the Gender D feature and the Gender Agreement noun feature which has to be activated, L2 learners do not seem to follow a similar path.<sup>3</sup>

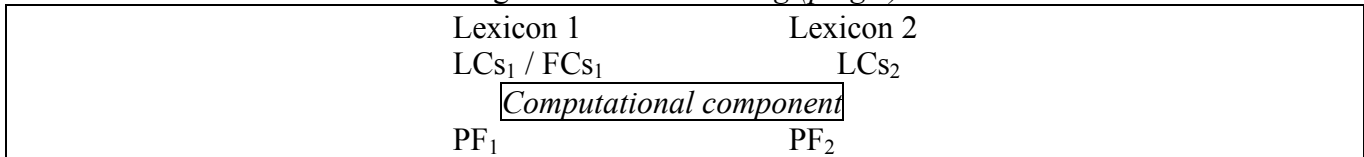
Code-switching constitutes a natural ground for investigating possible commonalities and differences between the L2 acquisition and pidginization/creolization processes because, in a highly idealized view, creole formation may be seen as a continuum going from a code-switching stage to an internalized diglossia stage along the lines proposed by Kroch (1994) for diachronic change processes, until it reaches the final full-fledged creole stage, where parameters (and feature activation) are set via L1 acquisition. Taking the Relexification Hypothesis (Lefebvre 1998; Lefebvre & Lumsden 1989; Lumsden 1999) as a point of departure, it would be plausible to assume an initial code-switching stage where, building on MacSwan's (2000) assumptions about the bilingual language faculty, the learner's grammar would contain two lexicons, a computational system and a phonological system. However, given the special circumstances of language contact in the pidgin-creole continuum, the two lexicons could initially result in an "unbalanced bilingual grammar" (as in Figure 1). In code-switching communities, access to the two systems is considered to be the basis for native-like competence in both

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<sup>3</sup>The placeholders that have been isolated in child L2 data do not seem to have the same status as their apparent equivalents in child L1 data (Liceras 2003); at least, this seems to be the case of the *is* that appears, if not massively then rather systematically, in the L2 English of Spanish and Spanish/Basque children (Fleta 1999; García Mayo, Lázaro & Liceras 2005; Lázaro 2000).

languages. However, most of the literature on creole formation assumes that full access to the L2/lexifier does not exist. This leads us to propose that in the initial stage of pidgin formation, one of the lexicons—the superstrate/L2—might not contain functional categories. The issue is whether the language contact situation in which the pidgin is emerging leads to the spelling-out of functional categories at all and, if so, which L1 functional categories are spelled out.

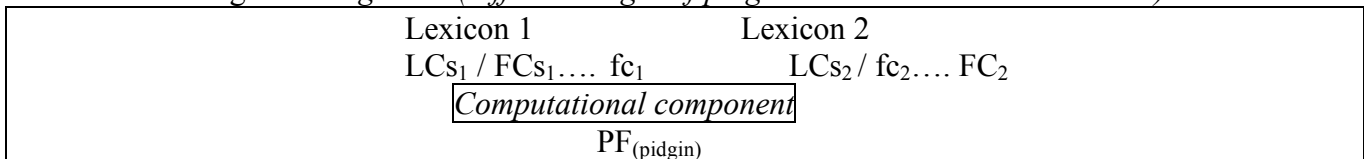
Figure 1. *Code-switching (pidgin)*



LC = lexical category; FC = functional category; PF = phonological form

This period would be followed by an internalized diglossia stage, in which the fact that functional categories from both languages are at work in the speaker’s grammar would be reflected in the existence of competing grammars, as in Figure 2.

Figure 2. *Diglossia (different stages of pidginization: towards creolization)*



In the initial diglossia stage, spelled-out L1 functional categories (if any) would predominate. However, more contact with the lexifier language could result in a subsequent diglossia stage with more reliance on L2 functional categories. Finally, the full-fledged creole would appear when L1 acquisition entered the picture and the child would project a single grammar “disregarding” the diglossic nature of the primary linguistic data and not necessarily relying on default forms (contra Bickerton 1999). In other words, the monolingual or bilingual acquirer of the L1 creole will regularize (or level out the variability of) the adult diglossic system.<sup>4</sup>

<sup>4</sup> We will not try to account for the very complex scenarios that obtain in many language contact situations (i.e., the case of plantation creoles) since we simply want to depict a scenario where L1 (monolingual or bilingual) and L2 contact with a given language input are compared.

Within the specific type of “language contact” that manifests itself as code-switching, we investigate the characteristics of Determiner + Noun code-mixings produced and/or interpreted by child and adult English-Spanish bilinguals and non-native speakers of English and Spanish, and extrapolate our findings to the characteristics of DPs in the pidgin/creole continuum.

Our chapter is organized as follows: section 2 provides an account of how syntactic theory deals with functional-lexical mixings. In section 3 we follow Pesetsky and Torrego’s (2001) “dual” feature-checking mechanism to analyze the status of the Gender features in D + Noun English-Spanish and Spanish-English lexical-functional mixings, paying special attention to the issue of the directionality of the code-switched items (i.e., whether Spanish or English contributes the functional category). In section 4, after discussing the code-switched DP data produced by English-Spanish bilingual children and adults, we present the research questions we attempted to answer in the experimental study described in section 5. In section 6, we provide a succinct overview of the DP in pidgin and creole languages, paying particular attention to creoles with Romance lexifiers, and discuss the implications of our findings with respect to the bilingual and the native and non-native code-mixing patterns for the theories of creole formation. The last section of this chapter is devoted to conclusions and suggestions for further research.

## **2. Functional-lexical mixings and the theory of grammar**

Some researchers do not consider functional-lexical mixings such as those in (1), which are produced by early bilingual children, to be a grammatical option in adult bilingualism (Belazi, Rubin & Toribio 1994; Di Sciullo, Muysken & Singh 1986; Joshi 1985; Toribio 2001), even though they have been widely attested (Azuma 1993; Jake, Myers-Scotton & Gross 2002; Myers-Scotton 1997; Myers-Scotton & Jake 2001; Poplack 1980).

- (1) a. Un rabbit [Mario 3;5 (Fantini 1985)  
a (masc. sing.)

- |  |  |
|--|--|
| b. OTRO book<br>footnote that CHILDES is a database<br>another (masc. sing.) | [Manuela 1;9 (Deuchar CHILDES)] <sup>5</sup> You should say in a |
| c. UN sheep<br>a (masc. sing.)   | [Leo 2;7 (Spradlin, Licerias & Fernández Fuertes 2003)]          |
| d. DAS bateau<br>the (neuter sing.)  | [Ivar 2;00 (Köppe & Meisel 1995)]                                |
| e. LE man<br>the (masc. sing.)   | [Michael (Swain & Wesche 1975)]                                  |
| f. UNA bird<br>(fem. sing.)  | [Lindholm & Padilla 1978]  |

In the case of child bilingualism, these types of mixings are rather pervasive (though not abundant). Köppe and Meisel (1995) argue that functional-lexical mixings are possible in child language only before the corresponding functional category is projected or, if we rephrase this in terms of features, before the features for the two language systems have been fully specified.

## 2.1 Code-mixing and feature matching

In order to account for the types of functional-lexical mixings shown in (1), we have to assume that the realization (instantiation) of the computational system accesses the lexicons of both languages. Therefore, the bilingual child will have to specify the array of features that give form to the functional categories in each language so that the operations MERGE, AGREE and MOVE converge. It follows that the choices and code-mixing patterns that the emergent bilingual systems display may provide us with information about the features that are activated and how this is accomplished, thus constituting a reflection of how language is represented in the mind of the bilingual child. In the case of the adult bilingual systems, the code-mixing choices and patterns should also respect the constraints imposed by the computational system in that MERGE, AGREE and MOVE should not violate any checking requirements.

It has been argued that a basic conflict in the requirements of the two grammars is responsible for ungrammaticality in adult code-switching (Belazi et al. 1994; Di Sciullo et al. 1986; Poplack 1980;

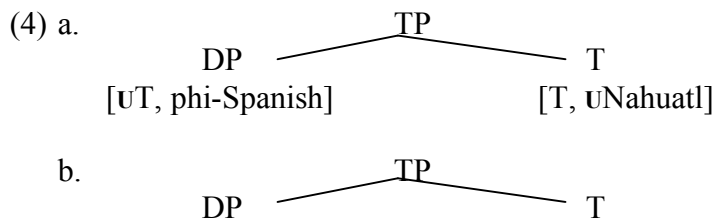
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<sup>5</sup> MacWhinney, B. 2000. *The CHILDES project: tools for analyzing talk*. Third Edition. Mahwah, NJ: Lawrence Erlbaum Associates.

Woolford 1983, 1984). Along these lines, MacSwan (2000) adopts Chomsky’s (1995) stipulation that features cannot “mismatch” if the derivation is to converge, and accounts for the (un)grammaticality of the Spanish-Nahuatl code-mixing examples in (2) and (3) on the basis of a mismatch in the phi-features (person and gender) of the Spanish versus the Nahuatl pronominal systems (examples from MacSwan 2000: 49)<sup>6</sup>.

- (2) a. \*Yo *nikoas tlakemetl*  
 yo ni-k-koa-s tlake-me-tl  
 I 1S-3Os-buy-FUT garment-PL-NSF  
 ‘I will buy clothes.’  
 b. \*Tú *tikoas tlakemetl*  
 tú ti-k-koa-s tlake-me-tl  
 you/SING 2S-3Os-buy-FUT garment-PL-NSF  
 ‘You will buy clothes.’
- (3) a. Él *kikoas tlakemetl*  
 él ø-ki-koa-s tlak-eme-tl  
 he 3S-3Os-buy-FUT garment-PL-NSF  
 ‘He will buy clothes.’  
 b. Ella *kikoas tlakemetl*  
 ella ø-ki-koa-s tlake-me-tl  
 she 3S-3Os-buy-FUT garment-PL-NSF  
 ‘She will buy clothes.’

Sentences (2a) and (2b) are ungrammatical because the D phi-features of the Spanish pronoun do not match the D phi-features borne by T in the first and second persons of the Nahuatl verb, as shown in (4a). In the case of (3a) and (3b), there is no mismatch because no D phi-features are borne by T on the third person of the Nahuatl verb, as in (4b).



<sup>6</sup>The U which appear on the trees besides some of the categories stands for ‘unvalued’. The abbreviations below the Nahuatl examples should be interpreted as follows:

1S = first person subject agreement (unspecified for number)  
 2S = second person subject agreement (unspecified for number)  
 3Os = third person singular object agreement  
 3S = third person subject agreement (unspecified for number)  
 FUT = future tense  
 NSF = noun suffix (sometimes called absolutive)  
 PL = plural marking (on nouns or verbs)  
 SING= singular



[ $\bar{u}$ T, phi-Spanish]

[T]

This implies that not all instances of functional-lexical mixing are necessarily ungrammatical in the adult bilingual grammar and that we should be able to account for the functional-lexical mixings involving a determiner and a noun attested in the adult bilingual data in (5).

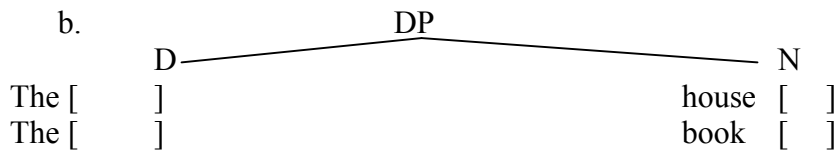
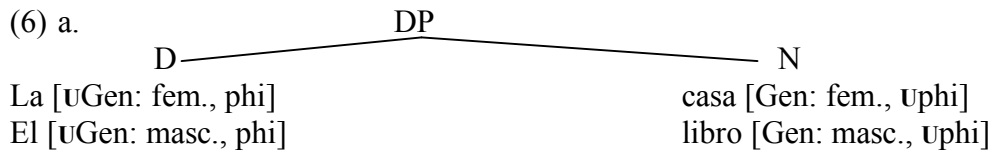
- (5) a. SE *hombre* kikoas se kalli [MacSwan 2000]  
se hombre 0-ki-koa-s se kalli  
a man 3S-3Os-buy-FUT a house  
'A man will buy a house.'
- b. EL doorway [Jake et al. 2002]  
EL research  
EL vacuum  
EL weekend  
UNA broom  
UNA pier  
TANTAS things  
TUS co-workers
- c. AL (a + e) [to + the] mall [Arias & Lakshmanan 2003]  
UNA big ball

Franceschina (2001) also maintains that these types of mixings are produced by Martin, an English near-native speaker of Spanish, and by his L1 Spanish-speaking interlocutor when code-mixing with English. However, according to Franceschina, while all of Martin's examples have a masculine determiner, those produced by the native Spanish speaker contain masculine and feminine determiners that abide by the so-called "analogical criterion" (Otheguy & Lapidus 2005) in that the English noun is assigned the gender of the Spanish lexical item that it displaces.

## 2.2 The bilingual (English-Spanish) DP system

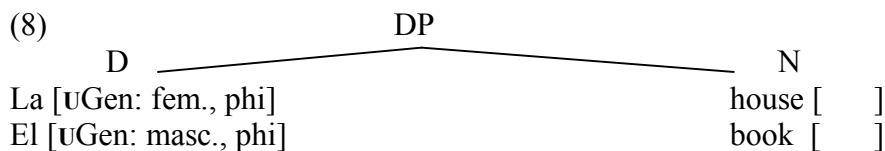
The English DP and the Spanish DP share the feature Number but not the feature Gender. We will assume, drawing a parallel with Pesetsky and Torrego's (2001) proposal concerning the relationship between nominative case (nominative case is a T feature on D) and agreement (phi) (agreement is a D feature on T), that Gender is an N feature on D (thus, it is interpretable on N and uninterpretable on D) and Gender Agreement (phi) is a D feature on N (thus, it is interpretable on D and uninterpretable on

N). This implies that Gender and Gender Agreement must be valued and deleted in the case of the Spanish DPs in (6a), but do not have to be valued in the case of the English DPs in (6b).



If we follow MacSwan's (2000) rationale that ungrammaticality occurs only when there is a feature mismatch, all the code-mixed DPs in (7) would be possible because, even though the Spanish determiner bears the uninterpretable N feature Gender and the interpretable Gender Agreement feature, the English N does not bear either of the two features, as shown in (8).

- (7) a. La house / La woman  
 b. La book / La man  
 c. El book / El man  
 d. El house / El woman



However, if we assume that the D feature of the Spanish determiner requires the noun to bear a matching feature, none of the mixings in (7) would be possible, unless the English noun is assigned the D feature of the Spanish translation equivalent, in which case (7a) and (7c) would be grammatical in a Spanish-English (or English-Spanish) bilingual grammar.

Spanish grammarians (Harris 1991; Roca 1989) have proposed that the masculine determiner is the default form. If this is interpreted as implying that it can value a masculine or a feminine Gender Agreement phi-feature, (7d) would also be a grammatical option. In fact, based on the code-mixed DPs produced by Martin, the near-native speaker of Spanish and his native interlocutor, Franceschina

(2001) argues that the masculine determiner may be the default form for non-native and near-native speakers but not for native speakers, since only the latter use both masculine and feminine Spanish determiners with English nouns.

With respect to the cases of code mixings where the determiner is provided by English, the prediction would also be that both of the examples in (9) would be possible because the English determiner does not bear any N Gender feature, as shown in (10).

- (9) a. The casa / The mujer  
 b. The libro / The hombre



Alternatively, none would be possible if the presence of the corresponding Gender Agreement phi-feature on D is a requirement.

Thus, in terms of feature matching, it would appear that the theory allows any or none of the possible code-mixing alternatives (depending on whether the absence of a feature is considered to lead to convergence or not). What the child and adult code-mixing data tell us is that we may have to review the theory because there are some clear-cut tendencies that should be accounted for.

Within this system, provided we take the view that all these mixings are grammatical, can we predict any preference in terms of directionality? In a DP consisting of a Spanish D + English N such as the one in (8), the D Gender Agreement phi-feature is not borne by the noun, and the N itself does not have the intrinsic G feature that is borne by the Spanish determiner. On the other hand, in a DP consisting of an English D + Spanish N such as the one in (10), the N Gender feature is not borne by the English determiner, and this determiner does not have the intrinsic Gender agreement phi-feature which is borne by the Spanish noun. Thus, assuming that valuing and deleting are operations of the computational system that is also active in the code-mixing grammar (Chomsky 1998), the question is, which operation is more problematic: not valuing and deleting Gender Agreement (the D phi-feature

which is uninterpretable in N) or not valuing and deleting Gender (the N feature which is uninterpretable in D)? In the former case, the English D mixings would be the preferred option, while the mixings where Spanish provides the D would be preferred if the latter obtains.

### 3. D + N mixings in child and adult bilingual spontaneous data

Table 1 provides a summary of the D + N mixings produced by English-Spanish and German-Italian children growing up with two languages. In the case of the English-Spanish data, the DPs with a Spanish D are more abundant than the DPs with an English D. We believe that this is so because the Spanish determiner projects the interpretable Gender Agreement feature, which is responsible for the Agreement operation, and it also carries the uninterpretable inherent Gender feature of the noun. In other words, it is the determiner (the functional category that projects) that imposes agreement on the DP. Thus, for a child who has to activate the Gender and Gender Agreement features, a D (the Spanish one) that has this potential is more salient than a D (the English one) that does not. In the case of the German and Italian DPs, determiners in both languages bear the Gender Agreement feature and the uninterpretable N feature Gender; they are equally important for the activation of these features by the bilingual children and, therefore, no clear preference for either D is observed.

Table 1. *Child bilingual D-N mixings: Spanish-English; French-English and Italian-German*

	<i>Spanish D</i>	<i>English D</i>
Manuela [Deuchar & Quay, 2000]	16	2
Mario [Fantini 1985]	43	0
Simon and Leo [Fernández Fuertes, Licerias & Spradlin 2002–2005]	27	5
5 children [Lindholm & Padilla 1978]	18	3
	<i>German D</i>	<i>Italian D</i>
Lisa [Taeschner 1983]	13	16
Giulia [Taeschner 1983]	17	17

Thus, what these data suggest is that child bilinguals have to specify the features that adjust the computational component to two different types of input data, which leads them to prefer the items that are involved in Agreement operations. This happens because L1 children are extremely receptive to the

cues provided by the input, and when a given feature must be activated, they do not shy away from it. Children's receptiveness to gender features is also obvious in the case of the "old" bilingual (Dutch-Heerlen dialect) children discussed in Cornips and Hulk (this volume), since they activate the neuter gender feature of standard Dutch faster than monolinguals and do not fossilize it like the "new" bilinguals (the children whose parents are new immigrants), who are exposed to their parents' adult L2 Dutch. These speakers "frequently delete the [Dutch] determiner and/or overgeneralize non-neuter gender."

In Liceras (2002), Spradlin et al. (2003) and Liceras and Fernández Fuertes (2005), we argued that child bilingual language dominance should not be defined in terms of the language that provides the functional category in a functional-lexical mixed utterance, as argued by Petersen (1988) and Lanza (1993), but in terms of the language whose functional category is made up of more uninterpretable features.<sup>5</sup> Thus, in the case of English and Spanish, mixings where Spanish provides the functional category (*la house*) should be favored over mixings where English does (*the casa*) because the Spanish DP bears Gender and Number features, while the English DP only has Number features. We have formulated this account of code-mixing priorities, the Grammatical Features Spell-Out Hypothesis (GFSH), as follows: in the process of activating the features of the two grammars, the bilingual child will make code-switching choices that favor the functional categories containing the largest array of uninterpretable features.<sup>6</sup>

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<sup>5</sup> Language dominance has been defined in various ways, including relative proficiency (Grosjean 1982), the language that is developing more rapidly than the other (Wapole 2000), and/or relative vocabulary size in each of the two languages (Nicoladis & Secco 1998). Genesee, Nicoladis and Paradis (1995) propose four indices of relative dominance, including MLU and upper bound, multimorphemic utterances, and word types. Bernardini and Schlyter (2004) also used the MLU and upper bound as quantitative criteria to differentiate between Weaker and Stronger Languages, a distinction which is at the center of their "Ivy Hypothesis."

<sup>6</sup> Our hypothesis differs from Bernardini and Schlyter's (2004) "Ivy Hypothesis" in that the main tenet of their proposal is that in a code-switching utterance, the Stronger Language contributes the higher projection in the tree, which implies that at the DP level, the Stronger Language would always provide the determiner, while the Weaker Language would contribute the noun. However, Weak and Strong are not defined in terms of the array of formal features in a given functional category but in terms of the comparative structural development of the two languages in a given bilingual speaker.

In the case of the adult bilingual, the process of feature activation has already taken place (the DP is specified for the Gender and the Gender Agreement features that are valued and deleted upon projection), which implies that the English-Spanish bilinguals may apply the “analogical criterion” to the code-mixed pattern so that the Spanish D agrees with the Spanish N displaced by the English noun. In other words, it is possible that the valuing and deleting requirements were met by assigning inherent gender to the English noun. However, the recent production data that are available (DuBord 2004; Jake et al. 2002; Myers-Scotton & Jake 2001; Otheguy & Lapidus 2005) do not support this assumption.<sup>7</sup>

In terms of Gender, Jake et al. (2002) report that, of the 161 Spanish determiners that appeared with English nouns, 151 were marked for gender (the other 10 were possessives or appeared with proper nouns) and 78 (52%) out of the 151 matched the gender of the Spanish counterpart. Thus, the authors conclude, like Poplack, Pousada and Sankoff (1982), that neither phonology nor the translation equivalent predicts the gender of the determiner in a code-switched DP.

These adult bilinguals do not behave like the native Spanish speaker in Franceschina’s (2001) study but rather like Martin, the near-native speaker, in that they seem to use masculine as a default: out of the 78 matching DPs, 64 (82%) are masculine, and out of the 73 non-matching DPs, 71 (almost 100%) are masculine as well.

In the data from the New York contact Spanish speakers reported in Otheguy and Lapidus (2005) masculine determiners are predominant with English nouns, regardless of whether the Spanish equivalent would be masculine or feminine. In fact, they report that their subjects are even reluctant to make English lexical insertions feminine when they end in /-a/.

The production of these bilinguals shows that, with English lexical insertions, they choose the masculine as the default option, in spite of the fact that their Spanish grammar has the Gender feature. In other words, it seems that they do not establish Gender Agreement with the “displaced” noun (the analogical criterion does not apply).

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<sup>7</sup> Zamora (1975) and Weinreich (1953) maintain that bilingual production adheres to the “analogical criterion.”

#### 4. D+N mixings in adult experimental data

Based on the confirmation that the code-mixing patterns support the GFSH in that the Spanish D + English N DPs are the preferred option, we hypothesized: (i) that the representation of Gender and Gender Agreement in the Spanish DP would also lead native Spanish speakers with English as a second language to favor the Spanish D when presented with code-mixed DPs; and (ii) that the GFSH could be a diagnostic for native-like competence in the case of L2 learners of Spanish. In order to test these hypotheses, we formulated a series of research questions and carried out the experiment that is described below. The second aim of our study was to determine whether the experimental data would shed light on the mixed results reported with respect to the analogical criterion in the case of the bilinguals, and the different results reported for the Spanish native speaker and the near-native speaker in Franceschina's (2001) study.

#### 4.1 Subjects

We tested 72 native speakers of Spanish studying English at a Spanish university and 61 native speakers of English and 74 native speakers of French studying Spanish at a Canadian university.

Subjects were assigned to four different levels (Table 2) determined by the CANTEST (Cloze test and reading comprehension) and the SGEL test (multiple choice test).

Table 2. *Distribution of subjects according to proficiency levels in L2*

	<i>L1 English</i>	<i>L1 French</i>	<i>L1 Spanish</i>
A	N = 20	N = 12	N = 6
B	N = 15	N = 24	N = 23
C	N = 15	N = 24	N = 36
D	N = 11	N = 14	N = 7
TOTAL	N = 61	N = 74	N = 72

Lowest = A; highest = D

Subjects were also given a general questionnaire to find out their parents' native language, their age, time spent in a Spanish- or English-speaking country, knowledge of other languages and languages spoken at home, at school and at work, if applicable.

#### 4.2 Code-switching test

The main features of the code-switching test were as follows:

- Subjects rated each sentence on a scale of 1 to 5 (1 = sounds bad; 5 = sounds good).
- [+animate] nouns were not included.
- All entries included very frequent words.
- We avoided cognates and loan words that are used in English or Spanish (*suéter, pueblo, Ciudad Juárez*), as well as words that graphically could be interpreted as belonging to either language (e.g., *pared* ‘wall,’ which could also be an English verb).
- None of the nouns started with a vowel.
- No words starting with “l” after *el* were included.
- We used different nouns in Spanish and English.
- Each sentence had between 7 and 10 words.
- Past and future tenses were avoided so that the sentences would be transparent for bilinguals at all levels.
- Common contractions were used.
- The gender of all the French nouns used in the experiment matched the gender of their Spanish equivalents.

The test items were distributed as follows:

- **32 Spanish determiner + English noun:** 16 with the article *el*, as in (11)—8 matching/8 non-matching—and 16 with the article *la*, as in (12).
- (11) a. Me resulta difícil dormir en el plane.  
‘I find it difficult to sleep on the plane.’  
b. Voy a comprar flores para el church.  
‘I’m going to buy flowers for the church.’
- (12) a. Adriana se pasa las vacaciones en la beach.  
‘Adriana spends her vacation at the beach.’  
b. Los pájaros están haciendo un nido en la tree.  
‘The birds are making a nest in the tree.’



• **32 English determiner + Spanish noun**: 16 masculine nouns, as in (13), and 16 feminine nouns, as in (14).

(13) Peter's mother wants him to sweep the suelo. ('floor')

(14) You have to be careful when driving in the nieve. ('snow')

• **18 distracters**, which consisted of intrasentential code-switchings at the pronominal subject/verb point: 9 begin in Spanish and finish in English, as in (15), and 9 begin in English and finish in Spanish, as in (16).

(15) a. Ana sabe que nosotros eat dinner late.

b. 'Ana knows that we eat dinner late.'

(16) a. Professor Martin says that you eres un buen estudiante.

b. 'Professor Martin says that you are a good student.'

• **18 fillers**, which consisted of sentences with possible and impossible deverbal compounds, 9 in Spanish and 9 in English, as in (17) and (18), respectively.

(17) a. En esa estación de tren hay dos **botaslimpia**. [limpiabotas]

b. 'In that train station there are two shoe-shine stands.'

(18) That boxer looks like a real **breaker-bone**. [bone-breaker]

### 4.3 Research questions

Our research questions were the following:

(i) Is there a preference for Spanish D in mixed DPs, as in the case of the production data from child and adult L1 bilingual English-Spanish speakers reported in the previous section?

(ii) Do the L1 English speakers prefer the English D?

(iii) Do the L1 French speakers behave like the L1 Spanish speakers or like the L1 English speakers?

(iv) Is there evidence supporting the analogical criterion in that matching items (i.e., items in which the Spanish translation of the English N matches the gender feature of the Spanish D) are more acceptable than non-matching items?

(v) Is there evidence for the claim that masculine is the default form?

### 4.4 Results

Figure 3 shows that all three groups gave higher ratings to mixed DPs with an English determiner (13 and 14) than to sentences containing mixed DPs with a Spanish determiner (11 and 12). The difference is significant in the case of all three groups.

[INSERT FIGURE 3 HERE]

Figure 3. *English D versus Spanish D overall by L1*

When we compare the choice of English D (13 and 14) with the choice of Spanish D in the cases of gender-matching DPs (11a and 12a), the results are radically different for the L1 Spanish group, since this group shows a significant preference for the matching items (they abide by the analogical criterion). However, the non-native Spanish groups continue to show a significant preference for the English determiner, as shown in Figure 4.

[INSERT FIGURE 4 HERE]

Figure 4. *English D versus Spanish matching D by L1*

In fact, as shown in Figure 5, the non-native Spanish speakers do not follow the analogical criterion at all. This coincides with the pattern reported by Franceschina in the case of Martin, the L1 English near-native speaker of Spanish, who always produces Spanish masculine articles with English nouns. It looks as though non-native speakers do not process the phi-feature of the Spanish determiner, which results in their choice of the masculine as the default form.

[INSERT FIGURE 5 HERE]

Figure 5. *Matching versus non-matching patterns by L1*

The Spanish speakers, on the other hand, show a strong preference for matching DPs (the ranking of the Spanish matching D in L1 Spanish versus L1 English is significant: DF1; f-value 27.398; p-value = .0001),<sup>8</sup> which we interpret as evidence that their computational system requires the English N to bear the interpretable Gender feature and the uninterpretable Gender Agreement feature of the “displaced” Spanish N, so that these features can be valued and deleted. Thus, their preferred choice is a DP as in (19), which has the same feature specification as the Spanish one in (6a) above.

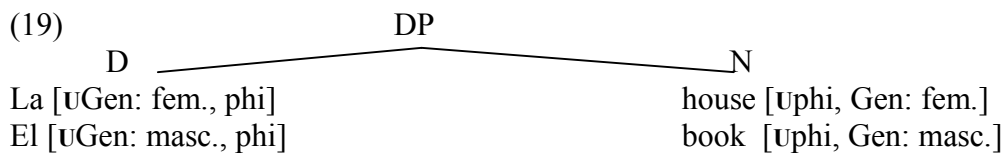
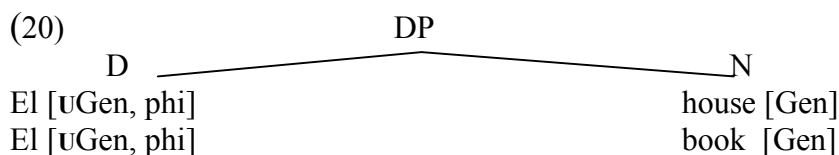


Figure 6 shows that the L1 Spanish subjects prefer both MM (masculine Spanish D, “masculine” English N) and FF (feminine Spanish D, “feminine” English N) significantly more than the L1 English speakers (p-value < .0001). The L1 Spanish speakers also disprefer the MF pattern significantly compared to the MM pattern (DF 1; f-value = 9.362; p = .0024). The L1 English subjects differ in that masculine is preferred over matching. In fact, they rate matching MM (mean = 3.023) and non-matching MF equally (mean = 3.022) and they prefer MM over FF and FM (p < .0001).

[INSERT FIGURE 6 HERE]

Figure 6. *Mixing pattern preferences by L1*

These results confirm that masculine is the preferred option for non-native speakers, which implies that they only deal with the unspecified phi-feature (the masculine as default—compare (8) above and (20) below).



<sup>8</sup> A paired t-test (DF 71; t-value = 4.010) indicates that the L1 Spanish groups significantly prefer Spanish matching D over English D (p-value = .0001).

With respect to whether competence in L2 makes a difference, Figure 7 shows that there is a negative correlation between proficiency and acceptance of code-switched DPs only in the case of the French subjects.

[INSERT FIGURE 7 HERE]

Figure 7. *English D versus Spanish matching D by L2 proficiency*

It also shows that greater proficiency in L2 Spanish does not lead to native-like judgments in terms of preference for the Spanish D in matching DPs versus the English D, a preference that the Spanish L1 group shows regardless of their proficiency in English. Paired t-tests indicate that the choice of Spanish matching D over English D is significant for all groups except the most advanced one (the group labeled SD in the chart). This seems to suggest some kind of “language attrition.” However, we think it best to be cautious when dealing with these groupings because we do not think that the version of the CANTEST that we used allows us to discriminate proficiency levels in a refined way.

Based on the results described so far, the research questions that we formulated in the previous section can be answered as follows:<sup>9</sup>

(i) *Is there a preference for Spanish D in mixed DPs, as in the case of the production data from child and adult L1 bilingual Spanish-English speakers?*

In contrast to the results of the child and adult bilingual production data, the L1 Spanish group does not show an overwhelming preference for the Spanish DP. In fact, overall, they prefer English D + Spanish

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<sup>9</sup> A reviewer points out that D/N is robustly attested in the production data analyzed by Bernardini and Schlyter (2004). However, they only provide five examples of mixed DPs: one is a combination of French D + Swedish N (*une bil* ‘a car’), two are combinations of Swedish D + French N (*en bacca* ‘a berry’/*en dame* ‘a lady’) and one is a combination of French N + Swedish D (*bouch-en* ‘mouth-the’). According to these authors, whose Ivy Hypothesis predicts that the Stronger Language will contribute the higher category, the only exception would be the case of French D + Swedish N because Swedish was the children’s Stronger Language. Since we are not given all the examples of mixed DPs, it is very difficult to compare these data with our own. Furthermore, the authors do not take into consideration the fact that there may be a period in which these children produce monosyllabic placeholders, which implies that what are interpreted as instances of the Swedish determiner *en* may in fact be schwas. There is another issue that makes Swedish + Romance mixings different from English + Romance or German + Romance mixings: the existence of the postposed definite article in Swedish, as well as the special status of bound morphology in L1 acquisition (Liceras 2003).

N DPs. We would argue that this preference is due to the need to facilitate the interpretation of the code-switched DPs that they are presented with. Since it is the D that projects and triggers agreement, the English D is the one that creates fewest problems for the computational system: it does not have to trigger valuing and deleting the Gender features because it does not carry the uninterpretable Gender feature that is present in the Spanish D, nor does it have an intrinsic Gender Agreement feature. Because it is the D that projects, we assume that this judgment task favors the most neutral possible choice in terms of features: the one represented by the English D + Spanish N DP. However, in the case of the L1 Spanish speakers, this choice is overridden by the analogical criterion.

*(ii) Do the L1 English speakers prefer the English D?*

Just like the Spanish speakers, the English speakers also prefer the English D. For these speakers, this choice is also the least costly in terms of the demands that it imposes upon the computational system.

*(iii) Do the L1 French speakers behave like the L1 Spanish speakers or like the L1 English speakers?*

The French speakers in our experiment are closer to the English speakers in terms of choosing the English D. They differ from both the Spanish and English groups in that they are much more reluctant to accept mixed DPs. In terms of forcing agreement by choosing the matching DPs, it looks as if the phi-feature of the French D (and its computational value) is not “transferred” to their Spanish L2. This comes as no surprise to us because of the nature of this grammaticality judgment task: the fact that their L1 has the feature Gender brings these subjects closer to the Spanish subjects in terms of their sensitivity to the valuing and deleting Gender features. However, applying the analogical criterion (attributing the gender of the determiner to a displaced noun) would entail retrieving a lexical item in their L1, French, while the mixings that they are being asked to judge involve lexical items from their L2 and L3. In this respect, we should point out that, as stated above (section 4.2), all the Spanish translation equivalents of the English nouns bear the same inherent Gender feature as the French translation equivalents (i.e., *the house/la casa/la maison*). Nevertheless, these learners do not apply the “analogical criterion,” which we attribute to the fact that being confronted with code-mixings in two

non-native languages places greater cognitive demands on these subjects. This, we believe, explains why these subjects do not show a need to value the uninterpretable Gender feature of the Spanish determiner.

*(iv) Is there evidence supporting the analogical criterion in that matching items are more acceptable than non-matching items?*

Unlike the bilingual production data, which do not provide conclusive evidence regarding the analogical criterion, the L1 Spanish speakers in our experiment definitely abide by this criterion. In fact, this is by far the preferred option. We interpret these results as indirect evidence in favor of the GFSH in that the initial preference for the Spanish D by the child bilinguals—their need to activate the Gender features of the Spanish DP—is a reflection of how Gender features will be represented in the mind of the native speaker: the DP carries the inherent Gender Agreement and an interpretable Gender feature that the computational system requires to be valued and deleted, an operation that, in the case of the Spanish D + English N DP, is facilitated by the analogical criterion. This computational operation in relation to Gender is etched in the mind of the native speaker.

*(v) Is there evidence for the claim that masculine is the default form?*

This is the choice favored by the non-native speakers of Spanish (Figure 6 above), as was the case with Martin, the near-native speaker. We would like to argue that the different representation of Gender in the case of native and non-native speakers accounts for these choices. It is important to note that this choice is also mentioned as being the one preferred by some bilinguals, such as the ones in Otheguy and Lapidus's (2005) study.

## **5. The creole DP and gender features**

In this section, we will briefly summarize the basic characteristics of the creole DP as far as Gender is concerned. We will also test the traditional generalizations of the creole DP system against a small corpus of data from different Atlantic creoles. As Holm (1988) noted, the elements that are present in

the configuration of the creole DP—number, possession, definiteness or word order, to name a few—are so closely interrelated that none of them can be analyzed without reference to the others. Consequently, word order will be a key element in indicating natural gender, as we will see.

Since the seminal works of Bickerton (1984) and Holm (1988), two main assumptions have been made in the literature on creole DPs: on the one hand, the generalization that creoles labeled as “radical” or “basilectal” do not have any bound morphology at all; on the other hand, an assertion that creole languages lack Gender marking. In Table 3, we present a sample of the forms taken by determiners (definite articles and demonstratives) in different creoles:

Table 3. *Determiners in various creole languages*

	<i>the man</i>	<i>this man</i>	<i>these men</i>
Principe CP	omi <i>sé</i>	omi <i>faki</i>	<i>ine</i> omi <i>sé</i>
Haitian CF	nom <i>la</i>	nom <i>sa-a</i>	nom <i>sa-yo</i>
Papiamentu CS	<i>e</i> homber	<i>e</i> homber <i>aki</i>	<i>e</i> homber- <i>nan</i> <i>aki</i>
Saramaccan CE	<i>di</i> omi	<i>di</i> omi <i>aki</i>	<i>dee</i> omi <i>aki</i>
Sranan CE	<i>a</i> man	<i>a</i> man <i>disi</i>	<i>den</i> man <i>disi</i>
Jamaican CE	<i>di</i> man	<i>dis</i> man ( <i>ya</i> )	<i>dem</i> man <i>ya</i>

CE: Creole English; CF: Creole French; CP: Creole Portuguese; CS: Creole Spanish  
(Adapted from Holm 1988: 191)

As Table 3 shows, creoles do not typically take over the definite articles of the lexifier language. Rather, they create them through a process of grammaticalization, usually taking the demonstratives of the lexifier as a point of departure.<sup>10</sup> However, in the so-called “decreolized” varieties of some Atlantic creoles, such as Jamaican CE, definite articles are borrowed from the lexifier language.<sup>11</sup> Furthermore, the uses of articles in Atlantic creoles do not necessarily parallel those of the lexifier languages. As noted by Bickerton (1981), creoles frequently have (i) a definite article to mark presupposed-specific NPs, (ii) an indefinite article for asserted-specific NPs, and (iii) a null article for nonspecific NPs.<sup>12</sup>

<sup>10</sup> Note that this process of grammaticalization is very frequent in language change processes. For instance, and similarly to what we just saw for creoles, Romance languages created their determiner systems from certain elements of the Latin demonstrative paradigm.

<sup>11</sup> For the role of “decreolization” in the changes in the feature configuration in the creole DP, see section 6.

<sup>12</sup> For a discussion of these claims and partial counterevidence, see Holm (1988).

We generally do not find Gender distinctions in creoles, as was mentioned above and shown in (21), although biological gender is marked in these languages in certain cases, exemplified in (22) through (24):<sup>13</sup>

- (21) un kasa ma bonito [Palenquero]  
 ‘a prettier house’  
 (cf. Spanish *una casa más bonita*, with *casa* ‘house’ feminine)
- (22) a. rei (‘king’) [Papiamentu]  
 (cf. Spanish *rey* ‘king’)  
 b. reina (‘queen’)  
 (cf. Spanish *reina* ‘queen’)
- (23) a. mucha homber (‘boy’) [Papiamentu]  
 (cf. Spanish *muchacho* ‘boy’ and *hombre* ‘man’)  
 b. mucha muhe (‘girl’)  
 (cf. Spanish *mujer*, ‘woman’)
- (24) a. gró (‘fat’) [Guyanais]  
 (cf. French *gros* ‘fat’)  
 b. gros (‘pregnant’)  
 (cf. French *grosse* ‘fat’ feminine)

As shown above, Gender distinctions made by the use of inflections in the European lexifier languages were not maintained in the creole nouns and adjectives. As (21) shows, the Gender agreement of the Spanish DP *Una casa más bonita* is not found in Palenquero *un\_ kasa ma bonito*. In some cases, natural gender oppositions have been maintained in certain nouns, for instance the Papiamentu *rei/reina* opposition in (22). Natural gender distinctions can also be expressed through the juxtaposition of a noun indicating sex, as shown in (23). According to Holm (1988), these cases appear to be calques on idioms of the African substrate languages of these creoles. Finally, (24) shows that even though most creole adjectives with European lexifiers have been built on the lexifier’s masculine form, certain feminine forms have been preserved, sometimes with a distinction in meaning. Therefore, these data show that grammatical Gender is generally not marked in creoles; in the specific cases where they display some sort of natural gender marking, the mechanisms used do not rely on inflectional

<sup>13</sup> Examples taken from Holm (1988).



morphology. However, Robert Papen (p.c.) notes that in Indian Ocean s, where (similarly to Atlantic creoles) Gender is not generally marked, there are a number of (relatively productive) derivational suffixes, such as *-ar* (derived from French *-ard*) and *-ris* (from French *-rice*) that indicate natural Gender:

- (25) a. *ris-ar* [Mauritian Creole]  
rich-natural masculine gender  
'rich man'  
b. *direkt-ris* [Mauritian Creole]  
director-natural feminine gender  
'director (feminine)'

Therefore, we can conclude that so-called “radical” creole languages do not have grammaticalized Gender. That is to say, they do not have Gender markers such as free or bound morphemes, or any other grammatical means of marking Gender on [-animate] entities.

Unlike “radical” creoles, languages such as Reunion Creole French (RCF) do encode a gender distinction in the DP. In fact, in the written and oral data analyzed by Pierozak (2003) the articles *le* (*lo*)/*la* agree with masculine and feminine nouns. This distinction also seems to be present in the demonstrative system. Note that some linguists argue that this creole is in the process of decreolization or that it is not a creole at all but a variety of French (Pierozak 2003 and references therein).

Also unlike “radical” creoles, but at the other end of the spectrum, was the so-called Lingua Franca, the trade language used by many communities around the Mediterranean from the beginning of the sixteenth century until the end of the nineteenth century, when it disappeared. There remains a written corpus of approximately 5,000 words (Arends 1998), which suggests that this language played a role in the formation of “classic” creoles (Arends 1999). The main lexical items in this language come from Italian and Spanish, although there also contributions from Arabic and Turkish. According to Muusse and Arends (2003), who analyze a corpus of three different sources consisting of approximately 1,500 words, this language constitutes an exception to prototypical “classic” creoles in that it has a rather rich inflectional morphology. For instance, besides the case and [+/-] definite markers on the DP system,

which, interestingly, are not present in Italian or Spanish, it displays agreement between nouns and articles, demonstratives, possessives, numerals and adjectives. Specifically there is gender agreement between the noun and both the definite and indefinite articles (*il/oun café* ‘the/a coffee,’ *il/oun padre* ‘the/a father,’ *la/ouna parté* ‘the/a part,’ *la/ouna maré* ‘the/a mother’).

In the following sections we will explore the possible consequences of a specific language contact situation for the creole DP system. We will investigate how the GFSH could explain some of the facts related to this system—namely the differences in the DP system at different stages of the pidgin-creole continuum—and also the possible ways in which this system could be implemented via a continued language contact situation.

## **6. Bilinguals, native speakers, non-native speakers and the pidgin-creole continuum**

In what follows, we discuss various issues and raise a number of questions, some of which we leave open for further research.

With respect to the functional category that is favored by English-Spanish bilinguals, the production data that we analyzed in Spradlin et al. (2003), Liceras and Fernández Fuertes (2005) and Liceras, Spradlin and Fernández (2005) show that L1 bilingual children prefer the Spanish D because they are in the process of specifying the uninterpretable features of the Spanish DP. In the early stages, their mixed DPs do not provide evidence that the masculine is the default form nor that they are following the analogical criterion. Some children, such as Mario (Fantini 1985), seem to avoid underspecification by choosing the default form, as in (20). This is also the choice that seems to be favored by many adult bilinguals, even though the feminine form emerges sometimes, as we saw in section 3. In fact, while the results of the recent production studies of adult bilinguals suggest a clear-cut preference for the masculine as default and a very minor role for the analogical criterion, native speakers of Spanish who happen to know English, such as the man in Franceschina’s (2001) study, and the data from similar subjects cited by Zamora (1975) and Weinreich (1953), among others, display a

clear preference for the analogical criterion. Again, the only data from a near-native Spanish speaker that we came across (Martin in Franceschina's 2001 study) suggest that, unlike the Spanish native speaker, the masculine as default defines this subject's code-switched DPs. This is also what our experimental data show overall: the Spanish speakers show a significant preference for the analogical criterion, while the non-native speakers show a preference for the English D + Spanish N DPs, with a secondary preference for the masculine as default.

Even though mixed DPs with English D have not previously been reported in adult bilingual speakers' output, the experimental data show that DPs with English or Spanish Ds can be rated in terms of their degree of grammaticality. However, for the L1 Spanish population, unless there is matching, the English D lacking Gender features seems to be the less problematic option. The presence of an underspecified phi-feature (the default option) is also less problematic than the presence of a specified phi-feature that does not trigger agreement. This is the reason why matching is the preferred option for the native speakers. The production data are not this clear-cut. Thus, we suggest that the GFSH accounts for how children activate features from a language contact situation and how features are represented in the minds of adult monolingual speakers but not adult bilinguals.

We will now speculate on the status of the GFSH in the case of permanent contact between two languages and language contact under special circumstances, such as the pidgin-creole situation. In other words, can the code-switching options be extrapolated to the pidgin-creole situation?

Let us assume, as we suggested above, that creole formation can be seen as a continuum which goes from a code-switching stage (Figure 3) to an internalized diglossia stage (Figure 4) and finally to the full-fledged creole stage, in which features are activated as in the case of child L1 acquisition. In the pidgin-creole continuum, the initial grammar is created by adult speakers. These non-native speakers seldom make use of the functional category that displays the largest array of formal features and certainly do not activate heavily grammaticalized features such as Gender and Gender Agreement. Although there are special cases such as that of Lingua Franca, which seemed to be the outcome of a

language contact situation where all the various L1 languages had this specific feature, the limited input from the lexifier language, together with the adult's lack of sensitivity to the realization of abstract features in the input, will make the lexifier the source of the pidgin's content words but not of its functional categories in most cases of language contact. Functional categories realized as free or bound morphemes could eventually be provided by the substratum, but such a choice would interfere with the much reduced chances of communication, since the native speakers of the lexifier language would not know the substratum language (or languages). Therefore, most pidgins do not display a DP system, which implies that the "unbalanced bilingual grammar" depicted in Figure 1, where the L1 provides the functional categories, is rarely realized, unless there are special circumstances as in the case of the *Lingua Franca*.

In the pidgin-creole continuum, further adult contact with the lexifier language may give rise to an L2-based grammar via relexification (i.e., the choice of the demonstrative as definite article), which is in fact a default representation of one of the languages in contact, namely the lexifier language, as is the case of the creoles presented in Table 3 above. This period may be followed by one where more balanced bilinguals go through an internalized diglossia stage in which functional categories from both languages are at work in the speaker's grammar so that we would have a situation of competing grammars, with a display of default forms.

Finally, the full-fledged creole comes into existence when the child (L1 acquisition) "regularizes" the creole system. If this child is confronted with a creole with a variable determiner system or with a system that contains feature agreement mismatches, he/she may make this system categorical and get rid of the mismatches.

The code-switching data that we have analyzed parallels the tension that any language contact situation reflects between production and judgments: in production, non-native speakers and bilingual speakers seem to favor the default options or the lexical realizations of functional categories that contain the smallest array of formal features (English D and masculine as default), while L1 children

favor the most grammaticalized functional category. When it comes to judging mixed DPs, the L1 Spanish speakers favor the valuing and deleting of the Gender and Gender Agreement features via the analogical criterion. We do not have grammaticality judgment data from fluent bilingual speakers, but if the most advanced group of L2 English learners (the Spanish-speaking group from the Spanish university) is in fact different from the other groups because of its degree of bilingualism, we could conclude that bilinguals refrain from imposing the analogical criterion upon code-switched DPs. This leads us to speculate that highly grammaticalized features such as Gender and Gender Agreement may only enter a creole when there is already a determiner system in place and when second language learners with a dominant language that contains these features force the “analogical criterion” upon [-animate] nouns in the creole. It is at this point that L1 children learning the creole “analogical forms” coined by these second language speakers would assign an intrinsic Gender feature to the creole nouns—a feature that would have to be valued and deleted via its corresponding uninterpretable feature in the determiner. Thus, it looks as if complex processes of grammaticalization and “decreolization” have to be in place for highly grammaticalized features to enter the creole system.

## **7. Conclusions**

We have proposed that code-switching data from children and adult bilinguals and from native and non-native speakers may shed light on the nature of the pidgin-creole continuum. Specifically, we have argued that the GFSH accounts for the code-switching options selected by L1 children and adult native speakers. We have also argued that the masculine as default option can be taken as a diagnostic for the role of bilingualism in creole formation, in that it is the bilingual speakers who incorporate an underspecified or unspecified YESoption (via the analogical criterion) of the lexifier language into the creole system, thereby “decreolizing” it. Bilingualism seems to be behind the change from a demonstrative to a definite article in Jamaican Creole, while the creoles with a Romance lexifier always display the masculine (underspecified) form. If a creole is created via L1 acquisition and

children are not in contact with a lexifier language that has Gender features, they have no reason to incorporate Gender features into that creole. However, if the creole speakers grow up in a bilingual situation (creole and lexifier), they would choose the lexifier language's determiner to activate the Gender feature. However, as they become adult bilinguals, they will keep the two systems separate and will make default choices in their potential mixed production. Furthermore, since Gender related to [-animacy] is a highly formal feature which, unlike elements such as the TMA (Tense/Mood/Aspect) markers or even Case, does not play any role in terms of semantic interpretation or theta-roles (agent, theme, benefactive), this feature may never make it into a creole system. We have speculated that, if it does, a complex contact situation where grammaticalization and "decreolization" processes such as the process triggered by the analogical criterion may have to be in place. This is precisely the contact situation that led to the implementation of the Gender feature in Reunion Creole French.

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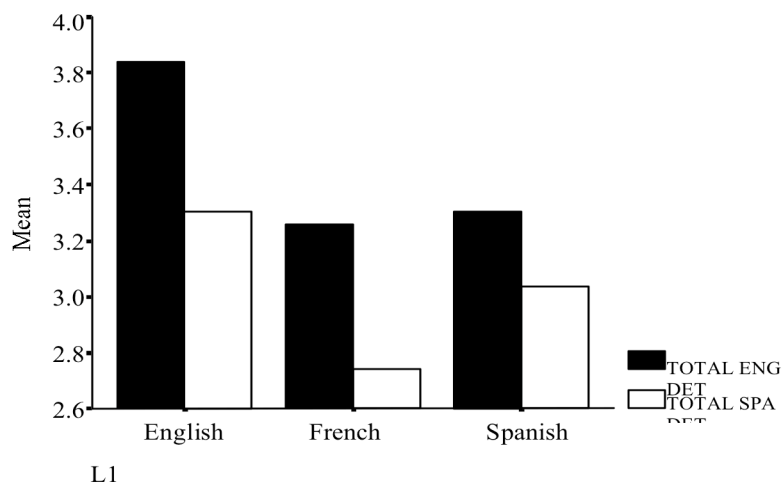


Figure 3. English D versus Spanish D overall by L

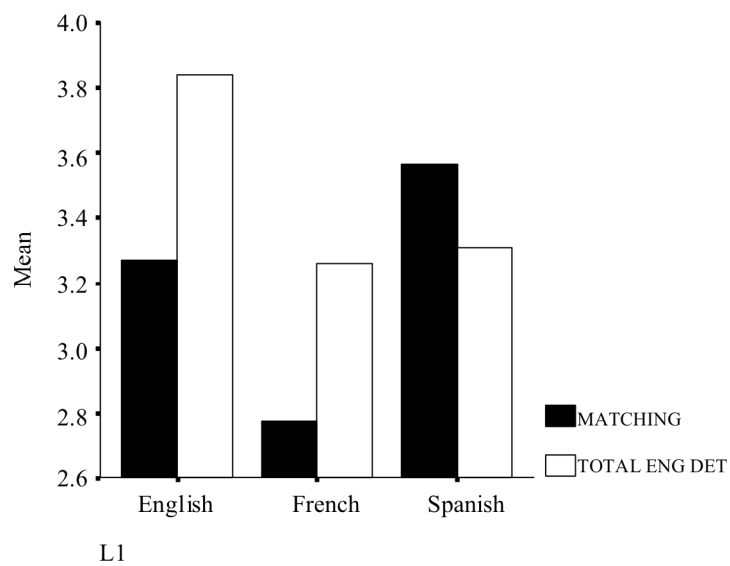


Figure 4. English D versus Spanish matching D by L1

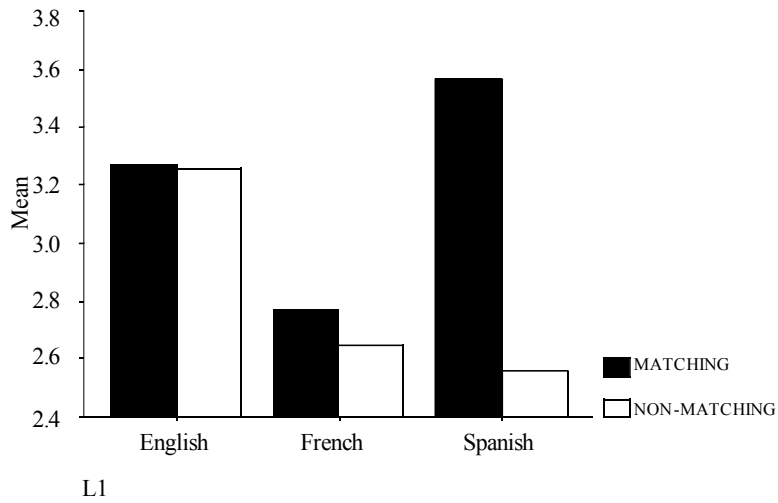


Figure 5. Matching versus non-matching patterns by L1

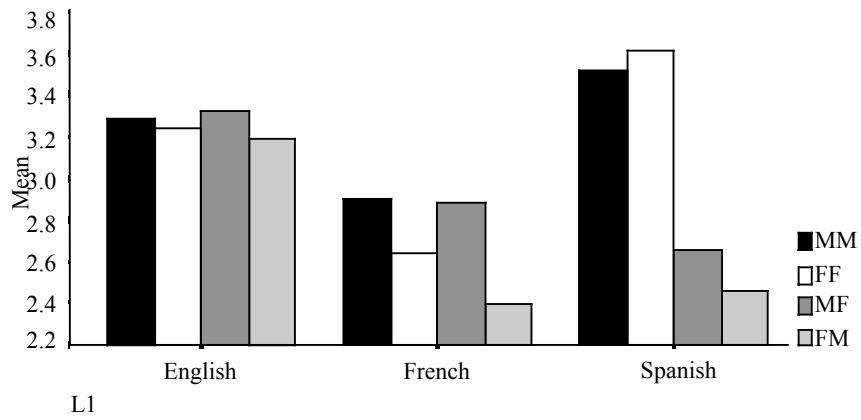


Figure 6. Mixing pattern preferences by L1



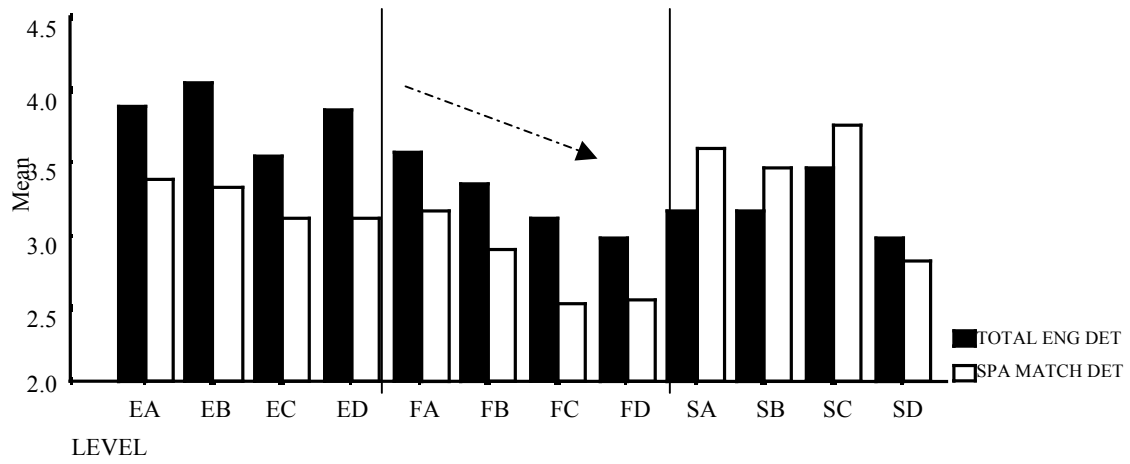


Figure 7. English D versus Spanish matching D by L2 proficiency