



Gender and gender agreement in bilingual native and non-native grammars: A view from child and adult functional–lexical mixings[☆]

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Abstract

In this paper we analyze spontaneous and experimental data involving code-mixed DPs made up of English Determiners + Spanish Nouns (the *casa* “house”) and Spanish Determiners + English Nouns (*la* [the/feminine] house) from child English/Spanish simultaneous bilinguals and from L1 speakers of English, French and Spanish with different levels of proficiency in their respective L2s (Spanish in the case of L1 English and French; English in the case of L1 Spanish). We show that early child bilinguals and adult simultaneous bilinguals (production data) and L1 speakers of Spanish (experimental data) favor mixings where Spanish provides the functional category, the Determiner, over mixings where English does. We also show that when confronted with these mixed DPs adult L1 Spanish speakers and non-native speakers share a preference for the English D followed by a preference for the default gender marking in Spanish, the masculine (*el* [the/masculine] house). In the case of the L1 Spanish speakers, this preference is overridden by the “analogical criterion”, (*la* [the/feminine] house), which consists of assigning the gender of the Spanish translation equivalent (“*casa*” is feminine) to the English Noun. We provide a linguistic account of

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these preferences based on the intrinsic Gender feature of the Spanish Noun and the intrinsic Gender Agreement feature or the Spanish Determiner and argue that the cognitive mechanisms employed by the bilingual, the Spanish L1 speaker and the Spanish L2 speaker in spontaneous production and in the grammaticality judgments task make different use of these linguistic units.

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Keywords: Code-mixing; Functional–lexical mixings; Word-internal code-mixing; Determiner Phrase; Intrinsic Gender feature; Intrinsic Gender Agreement phi-feature; Agree operation; Grammatical Features Spell-Out Hypothesis; Uninterpretable Gender feature; Uninterpretable Gender Agreement phi-feature; Analogical criterion

1. Introduction

In this paper we address the issue of the similarities and differences in the mental representation of language in the simultaneous bilingual and the second language speaker.¹ We use spontaneous and experimental data on code-mixing involving functional and lexical categories (henceforth, ‘functional–lexical mixing’) from child English/Spanish simultaneous bilinguals and from L1 speakers of English, French and Spanish with different levels of proficiency in their respective L2s (Spanish in the case of L1 English and French; English in the case of L1 Spanish). We show that early child bilinguals and adult simultaneous bilinguals (production data) and L1 speakers of Spanish (experimental data) favor mixings where Spanish provides the functional category, as in (1), over mixings where English does, as in (2).

- | | | | |
|-----|----|-----------------------|----------------------------------|
| (1) | a. | La chair / La girl | [SP Det fem.] |
| | b. | La pencil / La boy | [SP Det fem.] |
| | c. | El pencil / El boy | [SP Det masc.] |
| | d. | El chair / El girl | [SP Det masc.] |
| (2) | a. | The silla / The chica | [SP chair-fem.] [SP girl-fem.] |
| | b. | The lápiz / The chico | [SP pencil-masc.] [SP boy-masc.] |

This preference is not attested in the grammaticality judgments produced by adult non-native speakers of Spanish. It is also the case that in functional–lexical DP mixings—i.e., involving a D(eterminer) and a N(oun)—early child and adult simultaneous English/Spanish bilingual production data reveal a clear-cut preference for the Spanish Determiner, without showing any specific preference for ‘translation equivalent’ items (i.e., those where the gender feature of the Spanish D agrees with the gender feature of the Spanish N that has been displaced by the equivalent English N), as in (1a) and (1c) versus (1b) and (1d). Based on the preferences with respect to intra-DP mixings shown by these populations (Table 1), we argue that the cognitive mechanisms involved in spontaneous production and in the grammaticality judgments task make different use of the linguistic units available to the bilingual, the Spanish L1 speaker and the Spanish L2 speaker.

¹ By simultaneous bilinguals we mean the individuals who acquire their two languages simultaneously from an early age (before puberty); in fact, in this paper we use ‘bilingual’ as a general label for the simultaneous bilingual, both child and adult. We use ‘second language speaker’, ‘L2 speaker’ and ‘non-native speaker’ to refer to adults who acquired their second language later in life.

Table 1

Intra-DP mixings preference by the simultaneous English–Spanish bilinguals and by the native and non-native Spanish speakers

Speakers	Type of data	Prefer Spanish D <i>la/el pencil</i> <i>la/el chair</i>	Prefer 'translation equivalent' <i>la chair/el pencil</i>	Prefer masc. as default <i>el chair/ el pencil</i>	Prefer English D <i>the silla/ the lápiz</i>
Simultaneous bilingual children	Spontaneous production	YES	RANDOM	RANDOM	
Simultaneous bilingual adult	Spontaneous production	YES	NO	YES	
L1 Spanish learners of English	Grammaticality judgments	NO	YES OPTION #1		YES OPTION #2
L1 English learners of Spanish	Grammaticality judgments	NO		YES OPTION #2	YES OPTION #1
L1 French learners of Spanish	Grammaticality judgments	NO		YES OPTION #2	YES OPTION #1

We finally show that when confronted with code-switched English/Spanish or Spanish/English DPs, adult L1 Spanish speakers and non-native speakers share a preference for the English D followed by a preference for the default gender marking in Spanish, the masculine (Roca, 1989; Harris, 1991). However, in the case of the L1 Spanish speakers, this preference is overridden by the 'translation equivalent' option (OPTION #1 in Table 1) as in (1a) and (1c). By OPTION #2 we mean that it is the second option in terms of preference.

These results, we argue, are consistent with an extended version of the Grammatical Features Spell-out Hypothesis (Liceras et al., 2005; Liceras et al., 2006b) according to which, in the process of activating the features of the two grammars, the bilingual child, who relies on one functional abstract lexicon, will make code-mixing choices that will favor the functional categories containing highly 'grammaticized' features.² This choice contributes to shaping the architecture of the native bilingual mind with respect to the feature Gender so that, in terms of production, the adult will also favor mixings where Spanish provides the functional category. However, while this is the case at the level of production, when confronted with code-mixed DPs in an experimental grammaticality judgments task (D-English/N-Spanish or D-Spanish/N-English), the requirements imposed by the task will lead the speaker to either favor the cases in which the valuation of the uninterpretable Gender Agreement phi-feature (ϕ)³ is not required (*the silla*) or to make use of their bilingual array of features (which include Gender) so that valuation of the uninterpretable N Gender feature of the D is possible via the assignment of the intrinsic Gender feature of the 'corresponding' (or displaced) Spanish N to the English N (*la chair* because *silla* is feminine but not *la pencil* or *la dedo* because

² In our initial formulation of the GFSH we put the main emphasis on the number of uninterpretable features borne by a given functional category (i.e., Number and Gender versus only Number in the case of the Spanish versus the English DP). However, we now believe that it is not the actual number of features as such but how these features are 'grammaticized', namely their degree of 'visibility' and their 'computational value' (see section 3).

³ As we have done in the text, we use F to represent the Gender Agreement ϕ -feature.

lápiz and *dedo* are masculine).⁴ Non-native speakers differ from native speakers in that they favor the English D option (*the silla*) most, followed by the Spanish D masculine default option (*el chair* and *el pencil*) rather than the option which is most demanding in terms of requiring the valuation of the uninterpretable N Gender feature of the Spanish D (*la chair* but *el pencil*).

2. Functional–lexical mixings and the theory of grammar

Some researchers do not consider functional–lexical mixings such as the ones in (3) and/or (4), to be a grammatical option in adult bilingualism (Poplack, 1980; Joshi, 1985; Di Sciullo et al., 1986; Belazi et al., 1994; Toribio, 2001), despite the fact that such mixings have been widely attested in the literature (Poplack, 1980; Azuma, 1993; Myers-Scotton, 1997; Myers-Scotton and Jake, 2001; Jake et al., 2002; Cantone and Müller, 2008).⁵

- (3) a. No quiero chocAR [Simon 3;4 (Fernández Fuertes et al., 2002–2005)]
 -ar (Spanish infinitival marker)
 not want choke
- b. I am lavING myself [Leo 3;3 (Fernández Fuertes et al., 2002–2005)]
 (Spanish verbal root ‘wash’)
- c. Io trinkO [Giulia 3;9-4;5 (Taeschner, 1983)]
 -o (Italian 1st ps present marker)
- d. Nonours il a reitÉ [Ivar 2;00,29 (Köppe and Meisel, 1995)]
 -é (French participle marker)
 teddy bear he has ridden
- e. Me, me pu, me pushAS push [Lindholm and Padilla, 1978]
 a-s (Spanish 2nd ps present marker)
- (4) a. OTRO book [Manuela 1;9 (Deuchar and Quay, 2000)]
 another (sing.masc.)
- b. UN sheep [Leo 2;7 (Spradlin et al., 2003a)]
 a (sing. masc.)
- c. DAS bateau [Ivar 2;00 (Köppe and Meisel, 1995)]
 the (sing. neuter)
- d. LE man [Michael (Swain and Wesche, 1975)]
 the (sing. masc.)
- e. UNA bird [Lindholm and Padilla, 1978]
 a (sing. fem.)

⁴ A reviewer points out that grammaticality judgment tasks are not revelatory of processing abilities, but they are taken to be the clearest reflection of competence because they require the least processing resources. We thank this reviewer for making this point and are in complete agreement with the fact that a grammaticality judgment task does not specifically tap into processing capability. However, while as a task it may be closer to comprehension than to production, we believe that the lesser degree of processing resources required by this task allows the native speaker to make the ‘gender matching’ preferences that reflect his/her competence with respect to the Gender feature.

⁵ Poplack (among others) explains examples of intra-DP mixings in terms of lexical insertion, or nonce borrowings. In our view, such an explanation simply avoids the question of the morpho-syntactic relations that are involved in these types of mixings.

In the case of child bilingualism, these types of mixings, though not abundant, are pervasive enough to require explanation. Köppe and Meisel (1995), for example, argue that the types of mixings we refer to here as ‘functional–lexical’ mixings are possible in child language only before the corresponding functional category is projected or, if we rephrase this proposal in terms of features, before the specification of features for the two language systems has been fully implemented.

MacSwan (2000), following a tradition established by Woolford (1983), argues that the mechanisms and constraints that account for monolingual grammars should also account for code switching systems (or bilingual grammars), and that the Minimalist Program (Chomsky, 1995, 2000, 2001) is best suited to accomplish this.⁶ According to MacSwan, the bilingual language faculty has two lexicons and two phonological components but one computational system. However, since in Chomsky’s (1995) model, X⁰s (words) are inputs to Phonological Form (PF), he maintains that code-switching within X⁰ (or below) is not permitted.

We would like to take MacSwan’s (2000) proposal a step further in that we will assume that the lexicon has both stems and functional morphemes, as in Halle and Marantz’s (1993) Distributed Morphology. Therefore, as in the case of monolingual children who may access the various lexical pieces and produce overregularizations such as those in (5), the bilingual child may access the two lexicons and produce instances of functional–lexical mixings such as the ones in (3) above.

- (5) a. GO-ED
b. SAB-O [know + first person sing.]

The existence of two phonological components implies that constituents such as those in (3) will either be sent to the English or to the Spanish phonological component, and that adjustments may be made for ensuring their interpretation. Thus, we believe that cases such as (3) are possible even in a grammar where all features are fully specified. However, their productivity—their existence—will be dependent on their interpretability at the two interface levels, which implies that only when the meaning of the stems is preserved in the resulting morpho-phonological shape, with or without adjustments, will a given form make its way into the bilingual system. In this respect mixings such as the ones in (6) may be more successful than mixings such as those in (7).⁷ This would be so because, in the case of the former, an English pronunciation of the English roots *jump-* and *sleep-* may allow for the recuperation of the meaning of these English root morphemes. However, neither an English nor a Spanish pronunciation of the Spanish roots *salt-* and *ven-* would make that recuperation possible.⁸

⁶ In MacSwan (2005a,b) there is an update of this proposal which incorporates subsequent developments of Chomsky’s (1995) Minimalist Program.

⁷ However, there are attested mixings such as (3a) and (3b) which, in principle, should not be successful.

⁸ The fact that English bare roots are constantly produced and heard while Spanish bare roots are not, may contribute to this specific distinction. This may well be related to the morphological structure of English versus Spanish words in terms of how the word marker feature of Spanish (Harris, 1991; Piera, 1995), and therefore Spanish word structure, may place restrictions in terms of attachment to specific morphemes. In fact, adding the thematic vowel so that it is not the root of these Spanish verbs but the stem that enters into the code-switching relationship—as in *salt_a-ING* or *veni-ING/vene-ING*—would not facilitate the interpretation of these words. In this respect, word internal code-mixing data may prove to be an important ground for understanding how morpho-lexical knowledge is represented in the monolingual and the bilingual grammar.

- (6) a. Ana quiere jump-AR
Ana wants to jump + Spanish infinitive marker
- b. Ana quiere sleep-AR
Ana wants to sleep + Spanish infinitive marker
- (7) a. Ana is salt-ING
Ana is jumping
- b. Ana is ven-ING
Ana is coming

Thus, what we would like to argue is that the theory of grammar both accounts for and allows these types of mixings and that it is not a change in the computational system of the child as such (regardless of the fact that he/she has to activate the corresponding features) that forbids these types of mixings but a requirement of the articulatory–perceptual and the semantic–conceptual interfaces.

In this paper we analyze mixings of free morphemes and substantive categories, specifically Determiners and Nouns, as in (1) and (2). In order to account for the types of functional–lexical mixings in (4), we must assume that the realization (instantiation) of the computational system will have to conform to each of the two 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 (Chomsky, 1995, 2000, 2001) converge. It follows from this that the choices and code-mixing patterns that the bilingual emergent 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 (both simultaneous bilinguals and L2 speakers), 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/valuation requirements.

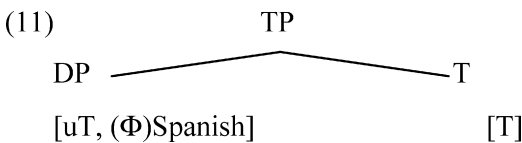
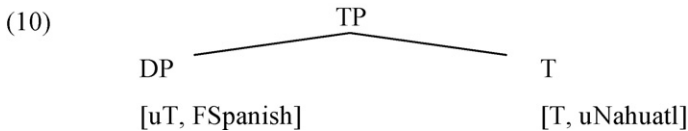
Drawing from the widely-acknowledged intuition that a basic conflict in the requirements of the two grammars is responsible for ungrammaticality in adult code-switching (Poplack, 1980; Di Sciullo et al., 1986; Woolford, 1983; Belazi et al., 1994; etc.), MacSwan (2000) adopts Chomsky’s (1995) stipulation according to which features cannot ‘mismatch’ if the derivation is to converge. Thus, he accounts for the different grammaticality patterns of the Spanish/Nahuatl code-mixing examples in (8) and (9) on the basis of the mismatch that occurs between the F-features (+/– Person, +/– Number and +/– Gender) of the Spanish pronominal system and the F-features (+/– Person, +/– Number and \emptyset Gender) of the Nahuatl verb encoded in Tense. This mismatch affects first and second person singular pronouns, which in Spanish are not overtly marked for gender, although it appears that MacSwan is attributing some sort of abstract or inherent lexical gender to all Spanish personal pronouns.⁹ In the case of the third person pronoun, there is no mismatch because, following Pollock (1994), MacSwan claims that there is no ‘null’

⁹ We thank an anonymous reviewer for pointing out that unless it is assumed that first and second person singular Spanish pronouns (*yo* and *tú*) have abstract gender features, it is not clear why these pronouns would clash with the Nahuatl agreement morpheme on the verb. While MacSwan (2000) does not comment on this, the only possible explanation is that the F-features of the first and second person Nahuatl verb fail to value and delete the Φ -features on the Spanish pronoun because they lack that ‘abstract’ Gender feature.

third person affix and, therefore, the Nahuatl verb does not enter into a checking relation with the DP (examples borrowed from MacSwan, 2000:49).

- (8) a. *Yo nikoas tlakemetl
yo ni-k-oa-s tlake-me-tl
I 1S-3Os-buy-FUT garment-PL-NSF
'I will buy clothes'
- b. *Tú tikoas tlakemetl
tú ti-k-oa-s tlake-me-tl
you/SING 2S-3Os-buy-FUT garment-PL-NSF
'You will buy clothes'
- (9) a. Él kikoas tlakemetl
él ø-ki-koa-s tlake-me-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 (8a) and (8b) are ungrammatical because the D Φ -features of the Spanish pronoun do not match the D Φ -features borne by T(ense) in the first and second person of the Nahuatl verb, as shown in (10). In the case of (9a) and (9b), there is no mismatch because no D Φ -features are borne by T on the third person of the Nahuatl verb, as shown in (11).



This proposal implies that the theory does not sanction all instances of functional–lexical mixings as ungrammatical in the adult bilingual grammar. However, in order to account for the mismatch, MacSwan must attribute an abstract Gender feature to the Spanish first and second person pronouns, since they do not display any Gender morphology. On the other hand, he assumes, following Pollock (1994), that third person verbal forms are not to be attributed an abstract Person feature, which allows him to posit that the third person form of the Nahuatl verb does not bear any Φ -features. This inconsistent way of dealing with the relationship between abstract features and overt morphemes does not seem to be the most desirable one, but it has its basis in

the fact that the Minimalist Program does not present a clear or explicit picture of the relationship between overt morphemes and abstract features.¹⁰ Even if this proposal reveals the shortcomings of the model itself, it represents an attempt to provide an analysis of attested and non-attested code-mixings via the same principles that account for non-mixed phrases, and it certainly opens up the door to provide an account of the functional–lexical mixings involving a D and an N attested in the adult bilingual data, as shown in (4) above and also in (12).

- (12) a. EL doorway (*Spanish* *la entrada de la puerta*, fem.) [Jake et al., 2002]
 EL research (*Spanish* *la investigación*, fem.)
 EL vacuum (*Spanish* *la aspiradora*, fem.)
 EL weekend (*Spanish* *el fin de semana*, masc.)
- b. UNA broom
 UNA pier
- c. AL (a + el/to + the) mall [Arias and Lakshmanan, 2003]
 UNA big ball

Mixings such as the ones shown in (12a), (12b) and (12c), where Spanish systematically contributes the Determiner, have also been attested in the data produced by bilingual speakers in Gibraltar (Moyer, 1993), as well as in the data produced by Martin, an English near-native speaker of Spanish, and by his L1 Spanish speaker interlocutor when code-mixing into English (Franceschina, 2001). However, according to Franceschina, while all of Martin’s examples have a masculine Determiner, the ones produced by the native Spanish speaker contain masculine and feminine Determiners which happen to match the word displaced by the English Noun.¹¹

MacSwan (2005a,b) draws on Moro’s (2001) account of the attested preference for the Spanish D in the English–Spanish code-mixing data in Moyer (1993) to illustrate how the Minimalist Program can explain these facts. What Moro (2001) assumes, following Chomsky (2001), is that the features of the D enter the derivation unvalued and have to be valued via AGREE with the corresponding N. Consequently, the unvalued features Person, Number and Gender in the Spanish Determiner can be valued via AGREE with the English Noun because the latter only bears a subset of these features (Person and Number), as in (13a).

- (13)
- | | |
|------------------------------------|---|
| DP | |
| D | N |
| a. La [Person, Number, Gender] | chair [Person, Number] |
| b. The [Person, Number] | silla [Person, Number, Gender] |

In the case of the English D and the Spanish N in (13b) the derivation crashes because the feature Gender of the Spanish N cannot be valued on the English D. Therefore, only when the features of the N are a subset of the features of D will the functional–lexical mixing converge. This follows from the assumption that F-features are deleted “as a unit” (Chomsky, 2000).

¹⁰ We thank an anonymous reviewer for pointing this out.

¹¹ See also Fuller and Lehnert (2000) for cases of German code-mixing into English.

Moro's (2001) account of Spanish/English code-mixed DPs, as adopted by MacSwan (2005a), is categorical and does not leave room for the fact that, even if it is not the preferred option, bilingual children produce instances of (13b), and both native and non-native speakers accept them in experimental situations. Furthermore, it cannot account for the "gender matching" preference shown by the native speakers in the grammaticality judgments task because F-features are not accessed independently but as "as a unit".¹²

In the next section we provide a possible account of the D + N code-mixings produced by simultaneous (English/Spanish) bilingual children and bilingual adults, as well as of grammaticality judgments on these types of mixings produced by native and non-native speakers of Spanish.

3. The bilingual (English/Spanish) DP system: inherent lexical gender (Gen) and gender agreement (Φ)

In order to account for the feature specification of the English DP and the Spanish DP, we rely on two different proposals: on the one hand, Pesetsky and Torrego's (2001) proposal concerning nominative Case and agreement, and, on the other, Kihm's (2005) proposal concerning an *n* functional category.

Under Pesetsky and Torrego's (2001) proposal, nominative Case is seen as a T feature on D and agreement as a D feature on T. What we assume for our study is that a parallel relation can be established between inherent lexical Gender (Gen) and Gender Agreement (Φ), so that Gender is seen as an N feature on D and Gender Agreement as a D feature on N.

Regarding the functional category *n*, Jakubowicz and Roulet (2007), following Kihm (2005), propose that 'gender' is a formal property of nouns as opposed to verbs and functions as a nominalizer, an *n* category similar to verbalizing *v* proposed by Marantz (1997) in the framework of Distributed Morphology. Without going into detail, what matters to us here is the possible existence of *n* and the fact that *n* has two values in Spanish, feminine and masculine. This is what we have schematically represented in the tree diagrams in (14), (16) and (17). This way, our previous parallelism with Pesetsky and Torrego's (2001) proposal involving T and D, can also be extended to the DP involving the functional categories D and *n*, so that Gender is seen as an *n* feature on D and Gender Agreement as a D feature on *n*.¹³

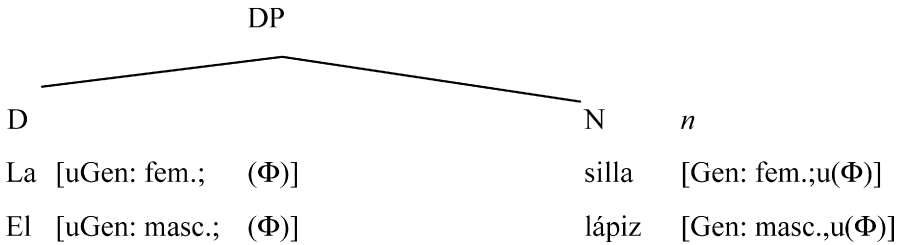
Thus, Gender (Gen) and Gender Agreement (Φ) have to be valued and deleted in the case of Spanish DPs, as in (14), but not in the case of English DPs, as in (15).¹⁴

¹² Pesetsky and Torrego (2007) provide an account of agreement as 'feature sharing' which they illustrate with an example of DP agreement in Latin. What these authors argue is that Determiners, Adjectives and Nouns all bear the value masculine or feminine for the feature Gender but only the Noun is listed in the lexicon with one of the two values. They argue that the Gender feature for Determiners and Adjectives is lexically unvalued and gets valued as a result of agreement with the Noun. They also argue that valuation should only be indirectly related to interpretability. While we are in agreement with the 'feature sharing' nature of AGREE, we would like to suggest that an analysis of agreement which assumes that the Determiner is listed in the lexicon with a Gender Agreement Φ -feature allows us to provide a better account of both the spontaneous and the experimental data produced by the simultaneous bilinguals, the native Spanish speakers and the non-native Spanish speakers.

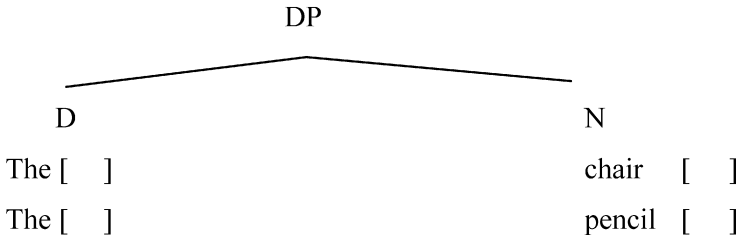
¹³ See Cantone and Müller (this volume), for a proposal where gender is considered as a lexical feature that applies exclusively to nouns.

¹⁴ This is a simplified version of the proposed analysis. There are also alternative proposals that fulfil a similar objective (see for example, Fábregas, 2005).

(14)

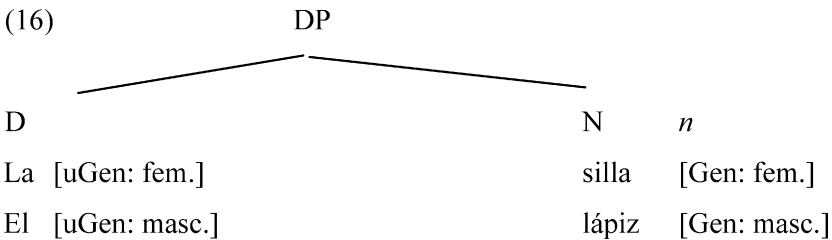


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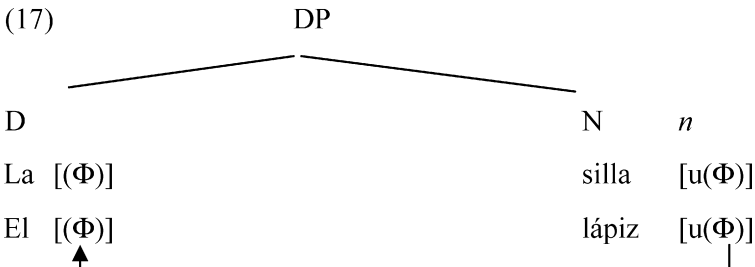


In the case of the Spanish DPs in (14), and regarding inherent lexical Gender (Gen) as in (16), D has the uninterpretable Gender feature (feminine in *la* and masculine in *el*) that needs to be valued and properly deleted when matched with the interpretable gender feature in N (feminine *silla* and masculine *lápiz*). Regarding Gender Agreement (Φ), as in (16), N contains the uninterpretable Gender Agreement feature that, equally, needs to be valued via matching with the corresponding interpretable Gender Agreement feature in D.

(16)

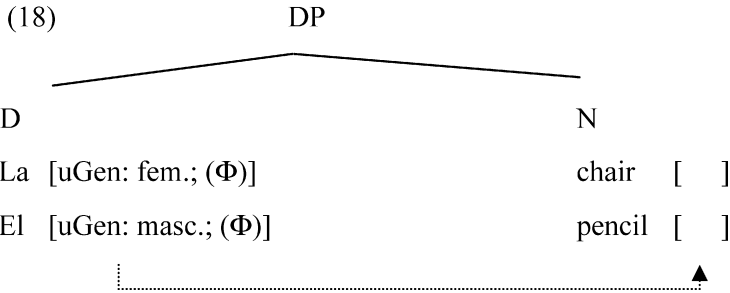


(17)

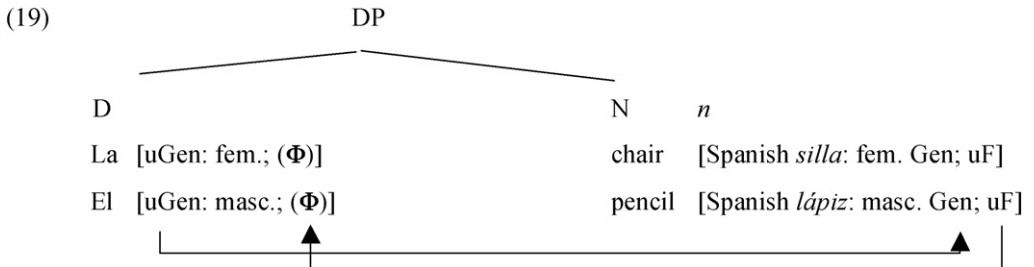


When it comes to English/Spanish code-mixed DPs, all instances of mixed DPs would be possible because, in the case of Spanish D + English N as in (18), even though the Spanish D

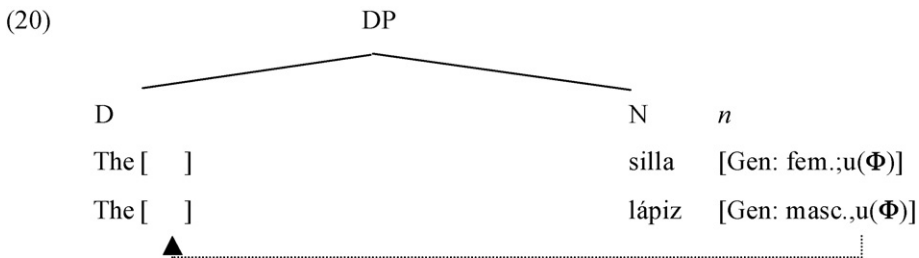
bears the unvalued N Gender feature and its Gender Agreement feature, the English N does not bear either.



However, if we assume that the Gender Agreement feature of Spanish D requires that N bear the matching uninterpretable D feature, none of the mixings in (1) with Spanish D + English N would be possible. The only option for the acceptance of these mixings would be to assign to the English N the corresponding Gender feature (N feature) that the displaced Spanish N would bear. The need of the Spanish D to share its features imposes its N inherent Gender Agreement Φ-feature on the English N, even though it is not phonetically realized. In this case, (1a) and (1c) would be grammatical in an English/Spanish bilingual grammar, as in shown in (19).



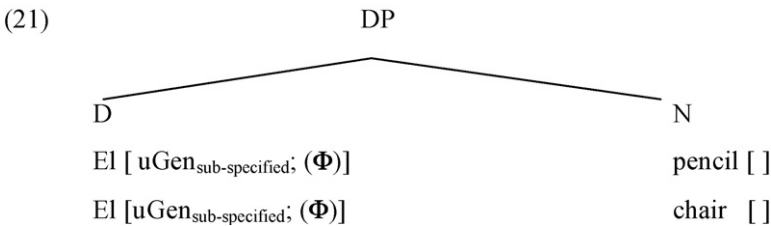
In the case of English D + Spanish N phrases in (2), the prediction would also be that both of the examples are possible, as in (20), because the English D does not bear an N Gender feature or a Gender Agreement feature.



Alternatively, if the presence of the corresponding uninterpretable Gender Agreement feature in the Spanish N is required to be valued and deleted via the interpretable Gender Agreement feature in D, none would be possible.

Provided that, in accordance with the theory, all four types of functional–lexical mixings in (1) and (2) are possible, the GFSH restricts the power of the theory by proposing that the code-switched DPs which contain the Spanish functional category will be the preferred option for the bilingual child and the bilingual adult.¹⁵ However, within this choice of Spanish D there are still two options that must be contemplated: the option which favors the masculine D because it is considered the default option, and the option which imposes the requirement on the valuation of the Gender feature (the choice of the gender specification of the ‘translation equivalent’).

As we have indicated above, Spanish grammarians (e.g., Roca, 1989; Harris, 1991) have proposed that the masculine D is the default form. If this is interpreted as implying that it can value a masculine or a feminine Gender Agreement F-feature, a masculine-by-default D as in (1d) and (12a) would also be a grammatical option, as in (21).



In fact, based on the code-switched DPs produced by Martin, the near-native speaker of Spanish, and his native interlocutor, Franceschina (2001) argues that the masculine D 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 Ds with English Ns.¹⁶ Thus, in terms of feature matching as in (18)–(20), it appears as if the theory would allow any or none of the possible code-mixing alternatives, depending on whether or not the absence of a feature is considered to lead to convergence, as in (19), and depending on whether or not the uninterpretable features have to be valued and deleted, as in (18) and (20).¹⁷

Within this system, and provided we take the view that these mixings are grammatical, can we predict any preference in terms of directionality? In principle the alternatives are as follows:

- (a) In a Spanish D + English N DP, the D Gender Agreement Φ-feature is not borne by the N and the N itself does not have the intrinsic Gender feature that is borne by the Spanish D (see (18)).

¹⁵ In this refined version of the GFSH, what we argue is that the features that guide the bilingual child code-mixing preferences are those which have a special status in the computational component. In the case of the features Gender and Gender Agreement the interpretative value is mostly relevant at the level of narrow syntax rather than at the semantic-interpretative interface.

¹⁶ White et al. (2004), who also refer to similar findings by other researchers, report that English and French learners of Spanish, both in production and in comprehension tasks, tend to use masculine Determiners and Adjectives with feminine Nouns but not the opposite. White et al. (2004) suggest that this is consistent with the proposal that if masculine is the default form (Harris, 1991), and features in the lexical items can be underspecified (Lumsden, 1992), there should not be a clash of features when a masculine Determiner or a masculine Adjective co-occur with a [+fem] Noun, since they bear default agreement (non-specified). The opposite would result in a clash of features because a feminine Determiner and a feminine Adjective would bear the features [+fem] and would therefore clash with a [+mas] Noun. The SLI children in Jakubowicz and Roulet’s (2007) study also seem to make errors which show that, in the case of French, masculine is also the default form.

¹⁷ All options would be possible if we adopt Lumsden’s (1992) proposal that features in the lexical items can be underspecified.

Table 2
Child bilingual D–N mixings: Spanish/English, French/English and Italian/German

	Manuela [Deuchar and Quay, 2000] [CHILDES MacWhinney, 2000]	Mario [Fantini, 1985]	Leo [Fernández Fuertes et al., 2002–2005]	Simon [Fernández Fuertes et al., 2002–2005]	5 children [Lindholm and Padilla, 1978]	Michael [Swain, 1972]	Lisa [Taeschner, 1983]	Giulia [Taeschner, 1983]
	Sp/Eng	Sp/Eng	Sp/Eng	Sp/Eng	Sp/Eng	Fre/Eng	It/Ger	It/Ger
Def Art 'the'	1/–	18/–	1/–	3/–	7/2	1/–	10/4	5/6
Ind Art 'a/n'	4/–	16/–	3/–	1/–	5/1	2/–	1/6	1/8
Dem. 'this'	–/2	2/–	–/–	–/–	6/–	–/–	1/–	8/1
Indef. 'another'	11/–	1/–	17/–	–/–	–/–	–/–	–/5	–/–
Poss. 'my'	–/–	6/–	1/–	1/–	–/–	3/2	1/1	3/2
Total	16/2	43/–	22/–	5/–	18/3	6/2	13/16	17/17

(b) In an English D + Spanish N DP, the intrinsic N Gender feature is not borne by the English D, and the D does not have the intrinsic Gender Agreement Φ -feature which is borne by the Spanish *n* (see (20)).

If not valuing and deleting uninterpretable Gender (an N feature in Determiner), as in (18), is less problematic than not valuing the uninterpretable Gender Agreement Φ -feature (a D feature in *n*), as in (20), the Spanish Determiner mixings would be the preferred option. If the opposite is the case, the mixings where English provides the Determiner will be preferred.

4. D–N mixings in child bilingual spontaneous data

Table 2 depicts a summary the production of mixed DPs by nine Spanish/English bilingual children (columns 2–6), one French/English bilingual child (column 7) and two Italian/German children (columns 8 and 9).

The Spanish/English mixings show that for these simultaneous bilinguals the Spanish D is the preferred option, since they produced 104 instances of Spanish D + English N DPs (the total number of items listed under Sp., in columns 2–6) and only 5 instances of English D + Spanish N DPs (the total number of items listed under Eng. in columns 2 and 6). We have argued that this is so (Liceras, 2002; Liceras et al., 2003, 2005; Spradlin et al., 2003b) because, as predicted by our Grammatical Features Spell-out Hypothesis (GFSH), the Spanish Determiner, which projects to form a DP, bears the uninterpretable *n* Gender feature and the intrinsic Gender Agreement F-feature which happens to be responsible for AGREE, an operation that is very important for the computational component. Child bilinguals systematically choose the Spanish D because they have to specify the features that will make the computational component of the Spanish system work, and this computational component happens to require this type of AGREE operation. In fact it follows from our Grammatical Features Spell-out Hypothesis that the free morphemes which encode highly 'grammaticized' features are especially important for the requirements of the computational system and therefore for L1 acquisition.

This preference for the D which is marked for gender also shows in the case of the French/English bilingual in Table 2 (column 7) since, although there are only eight DPs in total, six have

a French D and only two an English D.¹⁸ Our GFSH also predicts that in a language pair where gender is equally ‘grammaticized’ in both Ds, there will not be a preference for one of the two Determiners because children will have to activate both features in the two languages. As Table 2 shows (columns eight and nine), the code-mixed utterances produced by Lisa and Giulia (Teschner, 1983) support this prediction.¹⁹

5. D–N mixings in adult bilingual spontaneous data

In the case of the adults, the computational component of the Spanish system is already in place, which implies that: (a) adult simultaneous bilinguals would also show a clear-cut preference for the Spanish D; (b) adult simultaneous bilinguals would add a requirement to the code-mixed pattern: that the Spanish D agree with the Spanish equivalent of the English N (or that some sort of inherent lexical gender be assigned to the English N). The reported production data that are available (Moyer, 1993; Myers-Scotton and Jake, 2001; Jake et al., 2002 citing work by Milian, 1996 and Pfaff, 1979) do support the first assumption but not the second one.

Myers-Scotton and Jake (2001) comment on two studies dealing with spontaneous code-switching by adult Spanish/English bilinguals. According to these authors, in the Milian (1996) corpus, 63 out of 67 English Ns produced in so-called Matrix Language contexts appeared with Spanish Ds. In the Pfaff (1979) corpus, 747 out of 757 English Ns appeared with Spanish Ds. Jake et al. (2002), in their analysis of a corpus of spontaneous production by Spanish/English adult bilinguals, found that of a total of 230 English Ns, 161 appeared with a Spanish D, 21 were full English DPs and 48 had Ø D. In fact, they reported no instances of English D + Spanish N mixing having found none in their data (Myers-Scotton, personal communication). In terms of gender, they report that out of the 161 Spanish Ds, 151 are marked for gender (the other 10 are possessives or appear with proper nouns) and 78 (52%) out of the 151 match the gender of the Spanish counterpart. Thus, the authors conclude that, as in Poplack et al. (1982), neither phonology nor the displaced Spanish word predict the gender of the determiner in a code-switched DP.²⁰ 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 default since out of the 78 matching DPs, 64 (82%) are masculine and out of the 73 non-matching, 71 (almost 100%) are masculine too.

¹⁸ Bernardini and Schlyter (2004) propose that their ‘Ivy Hypothesis’ accounts for sentence-internal code-mixing in the case of some young bilingual children with uneven development. They specifically argue that “bilingual children with uneven development project more syntactic structure in the Stronger Language than in the Weaker Language” (p. 50). This implies that, according to this hypothesis, the lower portion of the syntactic structure contains elements from the Weaker Language, so that a Swedish-French bilingual whose Weaker Language is French will not produce functional-lexical mixings such as (i):

(i) * une bord
 a_(French) table_(Swedish)

Our prediction would be that these children would prefer the French (or the Italian) determiner because it is more ‘grammaticized’ than the Swedish one. However, this can only be the case if the Italian/French determiners are already part of the children’s lexicon.

¹⁹ German determiners have Case but the Case feature is not checked within the DP (see Spradlin et al., 2003a,b; Müller and Cantone, this volume).

²⁰ According to DuBord (2004) the so-called ‘analogical criterion’ (i.e., attributing the gender of the displaced Spanish N to the English N) is the category that has the least effect in the assignment of gender to an English word in the Spanish of Southern California. Otheguy and Lapidus (2005) also report that their analysis of English lexical insertions in the Spanish spoken in New York City does not support the ‘analogical criterion’.

6. D + N mixings in adult experimental data: native and non-native speakers

Based on the confirmation that the spontaneous production code-mixing patterns seem to provide for the GFSH, we hypothesize that the representation of gender in the Spanish DP would also prevail in the case of native speakers of Spanish and could be a diagnostic for native-like competence in the case of L2 learners of Spanish. We also hypothesize that in the case of L1 French learners, the same would obtain when confronted with code-mixing in their L3 (Spanish) and their L2 (English), since the French D shares the Gender feature with the Spanish D. In order to test these hypotheses we formulated a series of research questions and carried out an experiment as follows.

6.1. Subjects

We carried out an experiment on a group of native English speakers learning Spanish as an L2 and a group of L1 French speakers learning Spanish as an L3 (their L2 is English) in an institutional setting at the university level, as well as a group of native Spanish speakers learning English as an L2 also in an institutional setting at the university level. For the L2 English group there were 72 participants, while for the L2 Spanish group there were 142 participants ($N = 61$ with L1 English and $N = 74$ for L1 French), 7 of which were excluded either because they rejected language mixing outright or because they gave the same response for every item. The two groups (native Spanish/non-native Spanish speakers) were further classified according to proficiency in the L2/L3, which we measured, in the case of English, via the CLOZE test and the reading comprehension section of the CANTEST, a proficiency test in English used at the University of Ottawa and, in the case of Spanish, with the SGEL test, a widely used multiple choice test of proficiency in Spanish. The subjects were assigned to four different levels of L2/L3 proficiency (Table 3).²¹

Subjects were also given a general questionnaire designed to determine their age, time spent in a Spanish or English speaking country, knowledge of other languages, etc.

6.2. Code-switching test

The main features of the code-switching test were as follows. Subjects were presented with a series of sentences in a group setting and asked to rate each sentence on a scale of 1–5 (1 = sounds bad; 5 = sounds good). Each sentence appeared on a large projector screen for a total of 15 s, after which the following sentence would appear. All of the sentences were between 7 and 10 words in length and, in the case of verbs, past and future tenses were avoided so that the sentences would be transparent to subjects at each of the 4 proficiency levels. In some cases, certain common contractions in English were included among the sentences (e.g., *I'm, it's*). To avoid problems of gender having to do with animacy, all of the Ns included among the experimental items were [-animate]. All of the entries were highly frequent words; cognates in the two languages were excluded (e.g., 'suéter'), as were words from English or Spanish that are used in the other language (e.g., 'fiesta') including geographical place names (e.g., 'ciudad' as in 'Ciudad Juárez', a town in the U.S.). To avoid possible processing difficulties arising from phonological clashes,

²¹ We would like to thank Doreen Bayliss for letting us use one of the versions of the proficiency test CANTEST administered by the Institute of Official Languages of the University of Ottawa, Canada. SGEL is the Spanish as a second language proficiency test made available by the Sociedad General Española de Librería, Madrid, Spain.

Table 3
Proficiency levels in L2 (lowest = A; highest = D)

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

no nouns from English beginning with a vowel or a vowel sound appeared with a Spanish D; additionally, no Ns from English beginning with the consonant/l/ appeared with the Spanish masculine D *el*. In no case were any of the Ns repeated in any of the items, nor were any translation equivalents of any of the Ns either in English or Spanish used among the items.

The subjects were asked to rate a total of 100 sentences. Of these, 64 involved a switch between a D and an N and comprise the experimental items that concern us here. These 64 items were divided equally so that 32 of them appear with a Spanish D and an English N, and 32 appear with the opposite formulation, i.e., an English D and a Spanish N. In the case of the former construction (Spanish D + English N), these were divided again so that 16 of the items involved the masculine article *el* while the other 16 contained the feminine article *la*. We then further subdivided the 16 items involving the Spanish masculine article *el* so that the Spanish translation equivalents of 8 of the corresponding English Ns would result in a match with the gender of the D, as in (22a), and 8 would result in a mis-match as in (22b). The same procedure was carried out for the Spanish feminine article *la*, as shown in (23a,b). Regarding the 32 items involving a mix between an English D and a Spanish N, since the English article carries no gender feature, we divided these equally so that 16 English Ds appear with masculine Spanish Ns, as in (24), and 16 with feminine Spanish Ns as in (25).

The test items were distributed as follows:

- (22) a. Me resulta difícil dormir en el plane [el_{masc} avión_{masc}]
I find it difficult to sleep on the plane
- b. Voy a comprar flores para el church [la_{fem} iglesia_{fem}]
I'm going to buy flowers for the church
- (23) a. Adriana se pasa las vacaciones en la beach [la_{fem} playa_{fem}]
Adriana spends her vacation at the beach
- b. Los pájaros están haciendo un nido en la tree [el_{masc} árbol_{masc}]
The birds are making a nest in the tree.
- (24) Peter's mother wants him to sweep the suelo [floor]
- (25) You have to be careful when driving in the nieve [snow]

Of the remaining 36 sentences our subjects were asked to rate, 18 were included as distracters and involved intrasentential code-mixing between a pronominal subject and a verb. As seen in (26) and (27), respectively, 9 of these begin in Spanish and end in English while the other 9 begin in English and end in Spanish.

- (26) Ana sabe que nosotros eat dinner late
Ana knows that we eat dinner late
- (27) Professor Martin says that you eres un buen estudiante
Professor Martin says that you are a good student

Additionally, there were 18 fillers in which no code-mixing appeared. Instead, the subjects were asked to rate 9 sentences which were entirely in Spanish and 9 which were entirely in English, and which involved possible (i.e., grammatical) and non-possible (i.e., ungrammatical) deverbal compounds in each of the two languages, as in (28) and (29).

- (28) En esa estación de tren hay dos botaslimpia [limpiabotas]
In that train station there are two shoe shines
- (29) That boxer looks like a real breaker-bone [bone-breaker]

6.3. Research questions

Based on the predictions made by the GFSH, we formulated the following research questions:

- (a) Is there a preference for the Spanish D in mixed DPs as in the production data for L1 Spanish?
(b) Are matching/non-matching items equally acceptable for L1 Spanish?
(c) Is there evidence for the claim of masculine as being the default form?
(d) Do the L1 English speakers prefer the English D?
(e) Do the L1 French speakers behave like L1 Spanish speakers?

6.4. Results

Fig. 1 shows that all three groups rate higher the sentences containing mixed DPs with an English D (24 and 25) than sentences containing mixed DPs with a Spanish D (22 and 23). The difference is significant in the case of the L2 Spanish groups and in the case of the L1 Spanish group, though to a lower degree in the case of the latter (p -value .0001 versus p -value <.0007).

However, when we compare the choice of English D (24 and 25) with the choice of Spanish D in the cases of gender matching DPs (22a and 23a), the results are radically different for the L1 Spanish group, in the sense that the latter significantly prefer the matching items over the non-matching ones. However, the non-native Spanish groups continue to show a significant preference for the

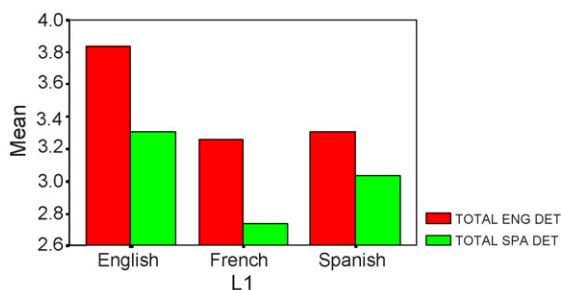


Fig. 1. Total English Determiner vs. Spanish Determiner by L1.

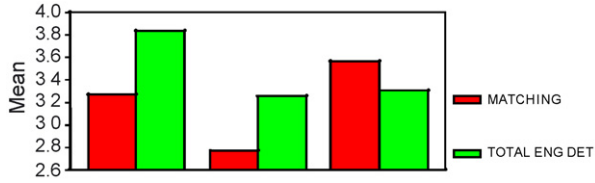


Fig. 2. English Determiner vs. Spanish Matching Determiner by L1.

English D as shown in Fig. 2. This is unexpected for the French L1 group, something to which we will return below.

In fact, as shown in Fig. 3, matching is not important for the non-native Spanish speakers. 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 Ns. It appears as if non-native speakers are not sensitive to the uninterpretable Gender feature of the Spanish D. These results also suggest that the L1 French speakers do not transfer the Gender value of the French determiner into the L2, in spite of the fact that all the Spanish Ns in the experiment have the same Gender (masculine or feminine) of their French translation equivalents.

The Spanish speakers, on the other hand, show a strong preference (the difference is significant; p -value = .0001) for the matching DPs, which we interpret as evidence that their computational system requires that the English N ‘bears’ the Gender feature of the displaced Spanish N and the uninterpretable D F-feature so that both can be valued and deleted (as in 19 above).

What Fig. 4 shows is that masculine is the preferred option for non-native speakers, which confirms that they are only sensitive to the unspecified Gender (the masculine as default) as shown in (21) above. The native Spanish speakers prefer to somehow ‘force’ agreement (using the specified fem./masc. F-feature) upon the English N, as in (19). Once again, the results for the French L1 group show that the gender value of the French DP is not transferred into the L3.

In terms of whether the degree of L2 competence makes a difference, what Fig. 5 shows is that, in the case of the French group, the more proficient subjects get, the less they favour code-switched DPs.

It also shows that L2 Spanish competence does not lead to the grammaticality judgments made by the L1 Spanish speakers in terms of preference for the Spanish D versus the English D in matching DPs, a preference that the Spanish L1 group shows regardless of their competence in English. The behaviour of the most advanced L2 English group (the L1 Spanish speakers, though

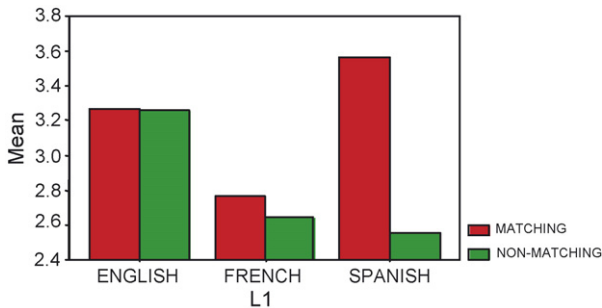


Fig. 3. Matching vs. non-matching patterns by L1.

los rockets	the _{masc} pl	(Mario 3;8 Fantini, 1985)
el sidewalk	the _{masc}	(Mario 5;8 Fantini, 1985)
el piggy	the _{masc}	(Leo 2;7 Fernández Fuertes et al., 2000–2005)
el otro birdy	the _{masc} other _{masc}	(Simon 2;7 Fernández Fuertes et al., 2000–2005)

We would like to suggest that at this stage these children's mixed DPs are non-specified for the interpretable Gender Agreement F-feature as shown in (31). The difference between (31), the early child bilingual option, and (21), the masculine-as-default option, lies in the fact that in the case of the child, it is the D Gender Agreement F-feature on D that is still non-specified (no agreement is triggered), while in the case of the masculine-as-default option, it is the value of the N Gender feature (masculine or feminine) that is sub-specified.

(31)

DP	
D	N
El/La [uGen;(Φ) _{non-specified}]	house []
El/La [uGen;(Φ) _{non-specified}]	book []

If they continue to produce code-mixed DPs as adult bilinguals, rather than choosing both Ds, they seem to opt for sub-specification of the N Gender feature by choosing the masculine, the default form as in (21) above.

7.2. *Experimental data: native and non-native speakers*

These experimental data allow us to investigate the acceptance of sentences with code-switched elements by native speakers of Spanish and English but, in terms of their comparability with the production data, we have to keep in mind that the subjects who participated in the experiment were not simultaneous bilinguals but rather non-native speakers of English or Spanish with different levels of proficiency. Nonetheless, these data allow us to answer the research questions formulated on the basis of the GFSH as follows:

- (a) Is there a preference for Spanish D in mixed DPs as in production data for L1 Spanish? The answer is no. In fact, overall, our subjects prefer the English D. We believe that this is so because, since it is the D that projects and triggers agreement, by choosing a D without an uninterpretable N Gender feature they avoid valuing and deleting it. This implies that they can judge these DPs without creating problems for the computational system. Therefore, this leads us to conclude that in terms of having to provide a grammaticality judgment on a mixed DP, not valuing and deleting the uninterpretable N Gender feature of the Spanish D is more problematic than not valuing and deleting the uninterpretable D Gender Agreement F-feature of the Spanish *n*. In other words, Ds which do not have an interpretable D Gender Agreement F-feature are less problematic for the computational system. This preference also provides evidence for the irrepressible nature of agreement in the adult grammar argued for by Jakubowicz and Roulet (2007) in that, when speakers are faced with having to accept or reject code-switched DPs which do not implement the agreement operation, their preferred option

is the D which does not have an inherent Gender Agreement F-feature and does not make visible (does not bear) the inherent lexical Gender feature of *n*.

- (b) Are matching/non-matching items equally acceptable for L1 Spanish? Matching items are the significantly preferred option for the L1 Spanish speakers, a pattern that is very different from the one that has been reported in the case of the spontaneous data produced by adult simultaneous bilinguals. Once more, we interpret these results as evidence that when L1 Spanish speakers must process a code-switched DP whose D carries the inherent Gender Agreement Φ -feature and the uninterpretable N Gender feature, they need to implement the AGREE operation and value this feature, which they do by assigning the gender specification of the displaced Spanish N (the masculine or feminine interpretable N Gender feature) to the English N. If there is a feature mismatch between the D and the N (one is masculine and the other is feminine or vice-versa), the DP is highly dispreferred.
- (c) Is there evidence for the claim of masculine as being the default form? In the case of the results obtained from the non-native speakers there seems to be evidence that masculine is the preferred form of the Spanish D. This unspecified form is the second option, the first one being the English D, the least costly for the computational system. However, in the case of the L1 Spanish speakers our experimental data clearly show a preference for the matching over the masculine-as-default alternative.
- (d) Do the L1 English speakers prefer the English D? Our results indicate that they do, which supports our claim that the English D also creates the least problems for the computational system of these non-native speakers of Spanish.
- (e) Do the L1 French speakers behave like L1 Spanish speakers? Even though the French D also bears an inherent Gender Agreement F-feature and an uninterpretable N Gender feature, our L1 French speakers do not deal with the Spanish D the way the L1 Spanish speakers do. In fact, these L1 French subjects are closer to the L1 English subjects in terms of choosing the English D. Furthermore, these subjects are different from both the L1 Spanish and the L1 English group in that they are much more reluctant to accept mixed DPs in general. Finally, in terms of having the inherent Gender Agreement F-feature forcing agreement by choosing the matching DPs, it looks as if neither that feature (and its computational value) nor the N uninterpretable Gender feature of the French D are ‘transferred’ to these subjects’ non-native Spanish.²²

7.3. *The representation of the Gender feature in the mind of simultaneous bilingual speakers, L1 speakers and non-native speakers*

Our data show that, in terms of production, the Spanish D is the preferred code-mixing option for child and adult bilinguals. This is so, we argue, because in the process of acquisition, children have to activate the interpretable D Gender Agreement F-feature and the N Gender feature of the Spanish DP and eventually establish the AGREE relationship with the Spanish *n*, an operation which is very important for the computational component and which has a special status in the mind of both the monolingual and the bilingual speakers. We have argued that this rather clear preference for the Spanish D in the production data of the early simultaneous bilingual children follows from the GFSH, which stipulates that since the bilingual child has to activate all the

²² This was so even though, as indicated above, all the Spanish equivalents of the English Ns in the experimental task shared the same Gender feature (masculine or feminine) with the corresponding French N (e.g., *house*: *casa*_{fem}/*maison*_{fem}).

features in the two languages, he/she will tend to favor the functional–lexical items which make more demands on the computational system in terms of their being exponents of grammaticization. This is different from the way in which adults confront input data in L2 acquisition, and is also different from the way in which they confront data to create pidgins (Licerias et al., 2006b).

In terms of making judgments on code-mixed DPs, both options (English D/Spanish D) can be interpreted but, unless there is matching, not valuing and deleting the N uninterpretable Gender feature of Spanish *n* (i.e., choosing the English D) and avoiding AGREE seems to be the least problematic. The underspecified N uninterpretable Gender feature (the masculine as default) is also less problematic (as in White et al., 2004). However, for the L1 Spanish speakers, the Spanish D + English N DP is the least costly option in terms of the grammaticality judgments task. This type of mixed DP implements the AGREE operation and allows for the Gender Agreement uninterpretable Φ -feature borne by *n* on the English N to be valued and deleted. In other words, when they are confronted with a D which bears the inherent Gender Agreement Φ -feature and an N uninterpretable Gender feature, they naturally assign inherent lexical Gender to English N. We argue that this is so because native Spanish speakers cannot refrain from performing the operation AGREE on the DP. This is the reason why matching is the preferred option for the Spanish native speakers. In fact, based on the strength of the matching requirement, and even though the two lexicons may be separated at a superficial level, we would like to speculate that the Gender features are available at a more abstract level, the level which contains only ONE functional lexicon (as in Libben's (2000) Homogeneity Hypothesis), and AGREE is an irrepressible operation for the L1 Spanish speakers (late bilinguals). However, this does not seem to be the case for the simultaneous bilinguals, for whom the feature specification of the two lexicons is kept separate, and it is not the case for the non-native (English and French) speakers.²³

Given our data sources, the dissociation between the spontaneous production data and the experimental data with respect to preference for the Spanish D and for gender matching may be interpreted as evidence that the bilinguals', the L1 speakers' (the Spanish speakers) and the non-native speakers' (English and French L2/L3 speakers of Spanish) representations of Gender are different. However, in order to confirm that this is the case, we would need to show that the differences between the adult simultaneous bilinguals and L1 Spanish speakers are not to be attributed to the different demands made by the two elicitation tasks: spontaneous production versus grammaticality judgments. In other words, we would need to obtain similar experimental data from child and adult simultaneous bilinguals.

In terms of how the two different types of data reflect actual competence, we would like to argue that the grammaticality judgments task provides strong evidence for the status of 'grammaticized' functional categories in the L1 grammar. The bilingual production data (assuming that these speakers have two L1 grammars) is less transparent (there is no clear evidence for the matching requirement).²⁴ In fact, one of the questions that our data raise is whether it is the demands that the production task places on the processor that are less conducive to reflect grammatical competence by imposing the matching requirement, or whether Gender is

²³ Libben (2000) maintains that, since experimental evidence indicates that words in the bilingual lexicon activate one another while, at the same time, a bilingual is able to produce relatively pure forms of more than one language, there must be a way in which elements of individual languages can be selected and deselected in the bilingual lexicon.

²⁴ Even though the results of the adult spontaneous data are in agreement with those in Cantone and Müller (this volume), who find that balanced bilinguals do not abide by the analogical criterion, a careful analysis of Moyer's (1993) data shows that this criterion is respected in a significant percentage of the items produced by the English/Spanish bilinguals in Gibraltar (Licerias et al., 2006a).

represented differently in the L1 and the simultaneous bilingual mind. In order to provide an answer to this question we would need to have, on the one hand, L1 speakers producing code-mixed DPs and, on the other, similar experimental data from simultaneous bilinguals.

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