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Morphosyntactic doubling in language mixing: Some puzzles and challenges



ABSTRACT

In this paper, I will discuss two cases involving morphosyntactic doubling (doubling of possessive clitics and doubling of auxiliaries) in language mixing and show how features of language mixing reflect general principles of syntactic knowledge. The paper is couched in the line of recent work which employs realizational (and post-syntactic) models of morphology in the case of mixing and assumes that language mixing does not require special rules. Multiple exponents to realize particular morpho-syntactic features are more readily allowed if the items come from different languages. Moreover, the type of doubling discussed here will be shown to inform our theories of the syntax-morphology-PF interface as well as of the timing and ordering of morpho-phonological processes such as Vocabulary Insertion and Linearization.

KEYWORDS

language mixing; doubling; possessives; auxiliaries; vocabulary insertion; linearization; metathesis

see Hicks (2012), Chan (2015), Goldrick et al. (2016) and references therein for some implementations.

Blends of this type have been noted in bimodal language productions, where they are not unsurprising, see Goldrick et al. (2016) for discussion. Consider (3)–(4): negation is pre-verbal in Italian, (3), but appears post-verbal in Italian sign language, (4), (Branchini – Donati 2016: 11). The Italian sign language example is also marked by the required negative non-manual markings produced over the sign for negation and consisting of a left-to-right headshake and frowned forehead. As discussed in Branchini – Donati (2016), these two orders are produced simultaneously, i.e., both in the oral and sign modality, and obey the word order patterns of the respective language.

(3) Non ho capito.
NEG have.1SG.PRS understood
 ‘I don’t understand.’ (Italian)

(4) UNDERSTAND NOT
 ‘I don’t understand.’ (Italian sign language)

In this case, the two languages do not compete for the communication channel, and thus it is not surprising that mixes occur. In other words, in (3)–(4), each language can be realized independently, as the modalities differ, and as a result we have two derivations and two realization components (Sauerland – Alexiadou 2020; cf. Branchini – Donati 2016). Thus, in (3)–(4) we have simultaneous productions of strings that each obeys the linearization rules of the respective language.

The case of morpho-syntactic doubling involving oral languages in (1)–(2), however, is very different. In principle, as one simply cannot articulate an item in two positions within the same clause, it is not expected, see Goldrick et al. (2016). Nevertheless, according to these authors, since co-activation of both languages is a characteristic of language mixing, speakers may utter lexical items from both languages and integrate grammatical principles from each linguistic system at their disposal, producing thus doubling strings of the type seen in (1) and (2). Importantly, however, such doublings are not unrestricted: as Hicks (2012), and Goldrick et al. (2016) point out, a) the doubled elements locally respect the word order of the source

grammars, b) the doubled elements are typically heads, and c) doubling of elements from the same language are not observed during language mixing.

The phenomenon of doubling of the type in (1)–(2) is particularly interesting for syntactic theory, as it raises several issues for Spell-Out domains, phases, linearization and the realization of multiple copies. For instance, (1)–(2) are not compatible with the view of linearization within a single derivation put forth in Kayne (1994), where linearization statements within a single structure cannot contain both orders, as shown in (5).

(5) A linearization cannot contain both $a < b$ and $b < a$.

Moreover, (2) raises several issues pertaining to spell-out of copies: assuming that Aux raises to T in general, what we have in (2) seems to either involve spell-out of both copies, one in T° and one in a VP final position or simultaneous production of a T-initial and a T-final structure, in violation of (5). Typically, in movement dependencies *double pronunciation* is not possible, while resumption is generally possible across languages. As detailed in Nunes (2004), copy deletion is necessary to avoid conflicts in the realization algorithm, which obeys (5) above.²

From the perspective of Distributed Morphology, the above data seem to be problematic for several reasons. To begin with, they seem to violate *Uniqueness*, see (6) (Embick 2015: 98). Unless we assume that there are two morphemes for C and T respectively, one head initial and one head final in both (1) and (2), double exponence is not expected.

(6) In a derivation, only one Vocabulary Item may apply to a morpheme.

Furthermore, it is not clear how (1)–(2) fare with respect to linearization. As discussed in e.g., Embick (2010) and Embick – Noyer (2007), a set of operations in the PF part of the grammar linearize the hierarchical structure generated by the computational system. Linear order is a **binary** operator—represented by ‘*’ in (7), imposed by Lin. Again (1)–(2) are problematic from this perspective, as only one option may be chosen, i.e., the auxiliary in (2) cannot simultaneously both precede and follow the participle:

2 Note also that the case in (2) is different from VP doubling of the type discussed for Hebrew in Landau (2006), which have been argued to involve phrasal A'-movement of the VP to a left peripheral position.

(7) Lin [XY] - \rightarrow (X*Y) or (Y*X)

Another issue that is relevant here is the question of the timing of linearization and Vocabulary Insertion (VI) (Embick – Noyer 2001; Arregi – Nevins 2012; Schreiner 2021). If linearization takes place prior to VI, VI targets only whole terminals, and has no access to individual morphosyntactic features, (Arregi – Nevins 2012: 343). If linearization happens after VI, the information which VIs should be selected depends on hierarchical information (Schreiner 2021). Thus, the question is: to the extent that doubling involves the realization of multiple copies, how is multiple realization of a (morpho)syntactic feature under VI possible? Some options that could be entertained include *multidominance* (as in Citko 2005; de Vries 2009), *fusion* (as in Malanoski 2020), use of a *chain algorithm* (as in Lidz – Idsardi 1998), and *Generalized Reduplication* (as in Arregi – Nevins 2012).

In this paper, I will discuss two cases of morpho-syntactic doubling in language mixing that will inform us with respect to these issues. The first one involves doubling of possessive clitics and is illustrated in (8)–(10), where it is shown that both prenominal vs. post-nominal clitic possessors may occur in mixing, whereby the English/German noun carries Greek/Bulgarian inflectional morphology. As we will see in Section 2, Greek disallows clitic doubling in the DP, and while it is possible in Bulgarian to double a PP possessor, doubling never involves two items of the same type, namely clitics:³

(8) my book-i mu
my book-ic7 my
'my book' (English-Greek)

(9) mein hund-i mu
my dog-ic7 my
'my dog' (German-Greek)

(10) my book-a mi
my book-MASC.SG.DEF my
'my book' (English-Bulgarian)

3 The data are the author's own productions, confirmed with other bilingual speakers. The Bulgarian data have been provided courtesy of Roumiana Pancheva.

In the above examples, the conflicting requirements are as follows. In both Greek and Bulgarian, the possessors in (8)–(10) are clitics, see Giusti – Stavrou (2008) for discussion. In Greek, possessive clitics generally cliticize on the noun, although they may cliticize on modifiers as well, while in Bulgarian they cliticize on the first head in the DP. In both languages, the position of possessive clitics is PF driven, albeit for different reasons that will be discussed in Section 2. Possessive clitics never appear in prenominal position in Greek, and the language lacks possessive adjectives of the Italian type. Bulgarian has possessive adjectives that may appear in initial position; however, these are never doubled by a possessive clitic as the English possessive is in (10). English and German have prenominal possessors, which never co-occur with the definite articles. For these languages, it has been argued that the pre-nominal position is derived, as illustrated in (11). According to Picallo (1994) and Cardinaletti (1998), building on Cardinaletti – Starke (1999), possessive elements are generated within the nP and depending on their type, clitic or weak, they move to positions outside the nP. In languages where possessors do not co-occur with articles, possessives move to D°. This will be discussed in detail in Section 2:

- (11) [_{DP} derived [_{FP} derived [_{nP} possessor]]]
 clitic/weak weak strong

Thus in (8)–(10), the English/German possessor appears in its canonical position. Assuming that this is a derived position, it could be argued that the post-nominal clitics in both Greek and Bulgarian instantiate the basic position of the possessive element. In other words, (8)–(10) violate the ban on double pronunciation, with no additional or different meaning, see also Chan (2015) for discussion. While at first sight the two positions in (8)–(10) seem to be in a syntactic dependency relation, I will show that this is not the case. This will be contrasted with auxiliary-doubling in (2). As I will show, possessive doubling should not be treated on a par with auxiliary doubling. (2) indeed involves syntactic movement and double realization of the derived and base position.

Both patterns will be shown to inform our theories of the timing of V1 and linearization. In both cases, doubling is the result of lexicalizing a structure with items from the two languages speakers have at their disposal, as is generally assumed in the mixing literature. I assume that in mixing speakers have a wider variety of exponents at their disposal, leading them to provide

more overt material for certain structures, see Alexiadou – Lohndal (2018), López (2020), Alexiadou (2024) for various implementations of this idea and also Sauerland – Alexiadou (2020). Specifically, as detailed in López (2020), within the framework of Distributed Morphology, bilinguals have a single List 1, which contains roots and functional morphemes. List 1 elements are the input to the computational system. Bilinguals also have a single List 2, which contains Vocabulary Insertion Rules that provide exponence to the syntactic terminals post-syntactically. As López (2020) further points out, however, linearization and stress assignment are language specific. To the extent that two positions within a syntactic structure are somehow available, they could be filled from exponents of two different languages.

The paper is structured as follows. In Section 2, I will provide some background concerning the structure of possessives in general and in Greek and Bulgarian in particular. In Section 3, I will turn to a discussion of doubling of possessive clitics in mixing. In Section 4, I will discuss auxiliary-doubling and I will conclude in Section 5.

2. The structure of possessives

Cardinaletti (1998: 19ff.), building on Picallo (1994), and extending the tripartite analysis of pronouns in Cardinaletti – Starke (1999) to the possessive system, proposed that possessive pronouns also come in three types. These correlate with the positions they may occupy in the DP. The empirical observation discussed by Cardinaletti is as follows: In Paduan, a variety of Italian, possessives may appear in three positions, post-nominal, (12a), prenominal following the article (12b), and prenominal in the absence of an article doubling a PP possessor (12c):

- (12) a. el libro mio
 the book my
 b. el me libro
 the my book
 c. so pare de Toni
 his father of Toni

Cardinalletti (1998) argued that post-nominal possessors in Paduan are strong and appear in their base generated position, Spec,nP in (13).

By contrast, prenominal adjectival possessors co-occur with definite articles are weak and appear in an intermediate position in the extended projection of the noun, Spec,FP in (13). Finally, possessors in (12c) are clitics, they never co-occur with articles and thus always appear in derived positions, which is D° in (13). Being clitics, they may double a phrasal possessor within the DP. As detailed in Cardinaletti (1998), strong possessors but not clitic and weak ones have special properties. Among other things they bear focus/contrastive stress, they can be coordinated, modified, and are restricted to human referents. Italian has only weak and strong possessive pronouns, and English *my*, which never co-occurs with the article, cliticizes on D, thus behaving like a clitic possessor;⁴ in German, prenominal possessives are analyzed as weak elements in Spec,DP by Cardinaletti (1998).

(13) [_{DP} [_D clitic] [_{FP} weak [_{NP} strong [_n [_{NP}]]]]

Turning to Greek and Bulgarian, possessors appear in post-nominal position in both languages. They may have a clitic form or be full DPs in Greek and clitics or PPs in Bulgarian:

(14) to vivlio tu / tu Jani
 the.NOM.SG.N book his the John.GEN
 ‘his book/John’s book’ (Greek)

(15) kniga-ta mu / na Ivan kniga-ta mu / na Ivan
 book-the he.DAT to Ivan book-the he.DAT to Ivan
 ‘his book/Ivan’s book’ (Bulgarian)

With respect to the case the clitic bears, Pancheva (2004) argues on the basis of the distribution of clitic doubling, that Greek clitics bear genitive, while Bulgarian ones dative: Pancheva’s argument is as follows. Her starting point is the observation that Greek disallows possessor doubling with full DPs, while doubling of an indirect object is allowed, see (16), and Alexiadou – Stavrou (2000), Giusti – Stavrou (2008), and Anagnostopoulou – Sevdali (2020):

4 Bernstein (2005) argued that *my* is a weak XP in Spec,DP, similar to German possessive adjectives.

- (16) a. petaxa to vivlio (*tu) tu fititi.
 threw.1SG the book his the student.GEN
 ‘I threw away the student’s book.’
- b. *petaxa tu fititi to vivlio tu.
 threw.1SG the student.GEN the book his
 ‘I threw away the student’s book.’
- c. Tu telefonisa tu Petru.
 he.GEN called.1SG the Peter.GEN
 ‘I called Peter.’ (Greek)

By contrast, DPs in PPs and non-clitic pronominals can be doubled by possessive clitics in Bulgarian, see Giusti – Stavrou (2008), Pancheva (2004), Stateva (2002) and others. According to Pancheva (2004), possessive Ps in Bulgarian are the morphological realization of dative case valued DP-internally and therefore, their cooccurrence with clitics (and their forming a chain with them) suggests that the clitics themselves are dative rather than genitive:

- (17) novi-te mu knigi na Ivan
 new-the he.DAT books to Ivan
 ‘Ivan’s new books’ (Bulgarian)

It has been argued that while the Greek clitic is base generated in the same position as the full possessor DP, this is not so in Bulgarian. According to Pancheva (2004), as the clitic in Greek (a) does not double a possessor DP and (b) is in ‘complementary’ distribution with such a full DP, this leads to an analysis according to which, the possessor and the clitic compete for the same position within the DP. For the purposes of this paper, let us identify this with Spec,nP in (13).

Post-nominal clitic possessors in Greek have all the typical properties of clitic elements in Cardinaletti (1998), see Alexiadou – Stavrou (2000), Giusti – Stavrou (2008), albeit they do not permit clitic-doubling with full DPs. As discussed in Alexiadou – Stavrou (2000) and references therein, in Greek the possessive clitic is always enclitic, never proclitic. The clitic can express any relation with its host noun, i.e., inalienable possession (18a), a theme argument (18b) and alienable possession (18c), but never a kind reading (18d):

- (18) a. to heri mu
 the hand my
 ‘my hand’
- b. i katastrofi tis
 the destruction hers
 ‘her destruction’
- c. to vivlio tu
 the book his
 ‘his book’
- d. to vivlio tis (*istorias)
 the book hers history
 ‘*history’s book’ (Greek)

Moreover, as detailed in Alexiadou – Stavrou (2000), the clitic may cliticize on an adjective modifying the noun (19a). When this happens, the clitic is not proclitic to the noun but enclitic to the prenominal adjective. Evidence for this comes from the observation that the prenominal clitic causes *Stress Readjustment* (Nespor – Vogel 1986: 153). Specifically, this placement gives rise to the emergence of a ‘secondary’ stress if more than two unstressed syllables (including the clitic itself) follow the main stress (of the adjective in this case), as shown in (19b):

- (19) a. to prósfato áρθρο mu
 the.NEUT recent article my
 ‘my recent article’
- b. [to prósfatò mu] [arthro]
 the recent my article
 ‘my recent article’

Another observation discussed in Alexiadou – Stavrou (2000) is the fact that when the clitic appears on a prenominal adjective, this positioning yields interpretative effects. A first such effect is shown in (20). In Greek, *pedhika* means both ‘naive’/‘childish’ and ‘something belonging to childhood’. While (20a) has both these readings, the latter reading is the only one available in (20b). Moreover, when the clitic appears following the adjective, it must refer to a human possessor, (21a)–(21b):

- (20) a. ta pedhika shedia mu
the childish plans my
‘my naive/from childhood plans’
b. ta pedhika mu shedia
the childish my plans
‘the plans I used to make as a child’
- (21) a. o trelos odhigos tu
the crazy driver its
‘its crazy driver/the crazy driver of the lorry’
b. *o trelos-tu odigos
the mad-his driver

In Greek, the clitic does not cliticize on the first head in the DP. As discussed in Alexiadou – Stavrou (2000), when the prenominal adjective is modified by a degree adverbial, the clitic has to appear following the adjective (22a) and cannot cliticize onto the adverbial, (22b). When the adjective itself takes complements, then the clitic cannot cliticize onto the head adjective at all, but has to obligatorily cliticize onto the noun, (22c):

- (22) a. o kapos ipervolikos-tis enthusiasmos
the.MASC somewhat excessive-hers enthusiasm
‘her somewhat excessive enthusiasm’
b. *o kapos-tis ipervolikos enthusiasmos
the somewhat-hers excessive enthusiasm
c. o iperifanos jia ta pedhgia tu pateras-tis
the proud for the children-his father-her
‘her father who is proud of his children’
d. *o iperifanos-tis jia ta pedhgia tu (*-tis) pateras
the proud for the children his -her father (Greek)

Alexiadou – Stavrou (2000) concluded that the post-nominal and post-adjectival position of possessive clitics are syntactically distinct. The post-nominal position is the basic one, which we can equate here with Spec,nP, as in Cardinaletti’s (1998) analysis. The higher position could be equated with FP in Cardinaletti (1998), see Giusti – Stavrou (2008). Alexiadou – Stavrou

(2000) remark the following: the properties associated with postnominal possessors in Cardinaletti (1998), e.g., (focus/contrastive stress, etc.) are clearly lacking from the Greek post-nominal (clitic) possessor: they cannot be conjoined, stressed etc. in either cliticization site, due to the clitic nature of the element involved in both. In Greek, in both positions the clitic is phonologically dependent on what precedes it, adjective or noun, and it does not have a strong counterpart. Furthermore, [+human] reference is associated with strong elements only in Cardinaletti – Starke’s (1999) system, but in Greek it is possible only in the higher position. Thus, while the possessives occupy the two distinct positions these are not to be understood in terms of the strong vs. deficient opposition. In both instances, according to Alexiadou – Stavrou (2000), the clitic undergoes morphological Merger with the adjacent noun or adjective, a process that interacts with phonological processes like stress placement.

We may thus conclude while in English the prenominal possessive is base generated in Spec,nP and moves to D, in Greek, the clitic is also generated in the same position as the full DP possessor, i.e., Spec,nP, but does not move to D, although it may move to a higher position within the DP.

Turning now to Bulgarian, in this language possessive clitics appear in definite DPs only and follow definite nouns either overtly marked definite, or kinship terms like ‘mother’, ‘brother’ that are interpreted as definite. As in Greek, they can express various theta-roles within the DP (see Franks 1998).

- (23) a. knigi-*(te) mu
 books-the he.DAT
 ‘his books’
- b. Brat mu naxrani kuèeto.
 brother he.DAT fed the.dog
 ‘His brother fed the dog.’ (Bulgarian)

As Giusti – Stavrou (2008) detail, there is no doubt that the possessive in Bulgarian is really a clitic, as it can never be stressed, it attaches to a very restricted number of hosts, i.e., the definite article and demonstratives, (24a-b), and can double a phrasal possessor as we have seen. In support of their clitic status, possessives in Bulgarian end up in second position, after the first head within the DP (see, e.g., Tomić 1996; 2006; Franks 1998;

Dimitrova-Vulchanova – Giusti 1999; Schürcks – Wunderlich 2003; Giusti – Stavrou 2008; Harizanov 2011 among others). As shown in the examples below, from Harizanov (2011: 6), in the presence of modifiers, possessive clitics follow the adjective and the definite article, (24a); if the adjective is accompanied by a PP, then the clitic appears on the left-most head in the nominal phrase, (24b), and not the left-most phrase, (24c), unlike what we saw above for Greek:

- (24) a. novi-te mu knigi
 new-the he.DAT books
 ‘his new books’
- b. tazi mi nova kniga
 this my new book
 ‘this new book of mine’
- c. blizkija im do našť kəšť magazin
 the.close 3PL.DAT to our house store
 ‘their store (that is) close to our house’
- d. *blizkija do našť kəšť im magazin *blizkija do
 the.close to the.our house 3PL.DAT store the.close to (Bulgarian)

A further difference between Bulgarian and Greek concerns the availability of long possessive forms, which bear adjectival inflection, (25). Possessive adjectives seem to have mixed strong and weak properties in Bulgarian (see Schoorlemmer 1998 for discussion). They appear high in the DP, preceding modifiers, see (25a) (Dimitrova-Vulchanova – Giusti 1999: 168). Possessive adjectives do not co-occur with the possessive clitic, (25c) (Pancheva 2004: 200). Greek lacks possessive adjectives:

- (25) a. moja-ta nova kniga
 my-the new book
 ‘my new book’
- b. negovi-te knigi
 his.PL-the books
 ‘his books’
- c. negovi-te (*mu) knigi
 his.PL-the his books (Bulgarian)

The literature on Bulgarian possessive clitics has treated them in at least two ways: some authors have argued that clitics are generated below DP, in a designated Clitic Phrase. Alternatively, it has been argued that Bulgarian clitics are associated with the position that encodes reference, namely D (see Tomić 1996; Schoorlemmer 1998; Franks 1998; Stateva 2002; Embick – Noyer 2001; Schürcks – Wunderlich 2003; Pancheva 2004; Giusti – Stavrou 2008; Harizanov 2011 for alternatives). Specifically, Harizanov (2011) has argued that possessive clitic placement is a result of *Clitic Metathesis*, which applies after linearization of a syntactic structure if the clitics are initial within a Spell-Out domain to invert them with the element to their right. According to Harizanov, *Clitic Metathesis* applies post-syntactically after Lin and prior to VI (see Arregi – Nevins 2012).

To summarize, while in Greek, possessive clitics originate in argument position and undergo Merger with the head noun, in Bulgarian they are initially merged as X°s in the extended projection of the noun. They do not originate in an argument position (see also Franks – King 2000). This leads us to conclude that in the mixing cases, if it turns out that the whole DP obeys the syntax of Bulgarian or Greek, double pronunciation of the base and derived position is not an option for either language: in Greek, because possessors never move to D, and in Bulgarian, because clitics are not generated in Spec,nP.

Before we turn to the doubling cases in mixing, it should be noted that double possessives, involving a clitic, and importantly a strong possessor, have also been discussed in varieties of Spanish. Old Spanish and American Spanish may express the possessor twice in a noun phrase, as illustrated in (26), from Huerta Flores (2009: 731):

- (26) Su libro de Lydia Cacho
 Her book of Lydia Cacho
 ‘Lydia Cacho’s book’ (Mexican-Spanish)

As detailed in Eguren (2018) and references therein, this pattern was attested in Old Spanish and its source is related that to the ambiguity of the third person possessive *su* ‘his/her/their’. Interestingly, as noted in Eguren (2018: 9), varieties of Central American and Mexican Spanish also allow double possessives with pronouns. Note here that in (27) the postnominal possessor bears the strong form, and is best analyzed as being in Spec,nP in Cardinaletti’s (1998) system:

- (27) mi marido mio
 my husband mine
 ‘my husband’(Mexican-Spanish)

Eguren (2016) notes that double possessives have a stronger presence in contexts where Spanish has been in contact with indigenous languages that allow doubling expression of possessive, such as Quechua and Nahuatl (see also Adelaar – Myusken 2004). Eguren (2016) provides detailed arguments as to why (26)–(27) is not a clitic doubling possessive structure of the type discussed in Paduan, (12c), or French, e.g., *son livre à lui* ‘his book to him’. Eguren (2016) brings the following arguments in support of this conclusion. To begin with, the Spanish construction is limited to third person possessives, while this is not the case in French. Second, the clitic in French can only double a pronominal possessor, and not a full DP, as is the case in Spanish. Third, the French clitic doubling construction has a contrastive interpretation, which the Spanish one lacks. Eguren (2016, 2018) proposes that non-canonical pronominal possessives are directly merged in D and function as definiteness markers, echoing Postal’s (1969) analysis of pronouns. This explains the observation that the pronominal possessive a) alternates with the article, (28a), and (28b) lacks a true possession meaning. The additional possessive apparently just indicates that there is a close connection between the two members of the possession relation. Eguren (2018) discusses data showing that the pronominal possessive is interpreted as evaluative. Evidence for this claim comes from the fact that restrictions apply to the nouns that can function as possessed, they must be entities or individuals that may enter a close relation to the possession, e.g., kinship terms or abstract properties of the possessor, see (28b)–(28c), from Company (1993: 83) and Company (1993: 79) respectively (see also Company 2002).

- (28) a. la/su casa de mi mamá
 the/her house of my mom
 ‘my mother’s house’
 b. sus papás de Maru
 her parents of Maru
 ‘Maru’s parents’

- c. su cama de ellas
 their bed of theirs
 ‘their bed’ (Mexican-Spanish)

This discussion presents us with a further analytical possibility of double possessives in mixing, certainly for Greek: in principle, these could either be instantiations of two copies, with multiple pronunciation of the possessive or involve base generation of the post-nominal possessor in Spec,nP and lexicalization of the D layer via an English possessive, signaling an emotive context.

3. Possessives in language mixing

There is some work on strong vs. weak pronouns in language mixing by various authors (see, e.g., Jake 1994; van Gelderen – MacSwan 2008; Koronkiewicz – González-Vilbazo 2013). This literature has argued that in mixing switches between languages may occur after DPs but not after pronominal subjects but see Bellamy et al. (2022) for a more nuanced view. In addition, pronouns that are coordinated (and modified/prosodically stressed) can be switched due to their DP-like structure, confirming their status as strong pronouns. Possessives are closed class elements and as such are expected not to allow switches (Joshi 1985). Thus, from this perspective the patterns in (8-10) are unexpected. In other words, we do not expect switches between English weak possessives and Greek/Bulgarian nouns, and importantly, we do not expect doubling to occur.

Beginning with the Greek mixing cases, note first that they observe the canonical placement for Greek possessive clitics, i.e., the clitic appears following the noun, (29). The post-nominal clitic appears only if an e.g., English noun is made to look Greek-like, as in (29a) vs. (29b), where Greek inflection class (IC) information appears on an English noun, or a definite determiner signaling that a Greek DP is involved, as in (29c)–(29d):

- (29) a. my dog-i mu
 my dog-ic7 my
 ‘my dog’

- b. *my dog mu
my dog my
'my dog'
- c. to/*the affiliation mu
the my
'my affiliation'
- d. to/*the pet mu
the my
'my pet'
- (English-Greek)

If there is an English/German adjective that can be made to look like a Greek one via the addition of inflectional class information, as in (30a)–(30b), the clitic may cliticize on the adjective. However, in the absence of IC information, this is not possible, (30c)–(30d). In fact, in the presence of a Greek determiner, all adjectives must be made to look like Greek ones, presumably as a result of determiner-adjective agreement:

- (30) a. to/mein schön-i-mu hund-i
the/my beautiful-ic7-my dog-ic7
'the/my beautiful dog' (German-Greek)
- b. my cut-i-mu dog-i
my cute-ic7-my dog-ic7
'my cute dog' (English-Greek)
- c. *to schön-mu hund-i
the beautiful-my dog-ic7 (German-Greek)
- d. *my cute-mu dog-i
my cute-my dog-ic7 (English-Greek)

The Greek morpho-phonological rule Alexiadou – Stavrou (2000) proposed (interestingly) applies in (29) and (30), irrespectively of the form of the noun, as long as it is clear that the DP domain is Greek. That the presence of a Greek determiner renders the whole string Greek is unsurprising. The surprising thing is that the DP is still Greek for morphophonology even when English *my* or German *mein* appears in D/Spec,DP.

Recall the structure of possessives discussed in the previous section, based on Cardinaletti (1998), see (31). English *my* appears in D° , and Greek possessives in Spec,nP. In the case of German possessives, as already mentioned, I assume that they are weak possessives in Spec, DP:

(31) [_{DP} derived my [_{FP} [_{nP} mu]]]

I mentioned above that the post-nominal placement of the clitic respects the Greek word order, suggesting that the whole domain is classified as a Greek DP. This is also supported by the facts in (30). In principle, we could analyze the post-nominal possessor as a copy of *my* on its way to DP, however, in Greek DPs, there is no possessive to D movement, this only takes place in English/German DPs. Rather, following Eguren's (2016; 2017) argumentation for doubling possessives in Spanish, it seems more likely that we see is the result of the requirement that D in possessive DPs cannot remain empty, as argued by Schoorlemmer (1998). In other words, the DP may be lexicalized by a possessive or an article. In English and German, the article and the possessive compete for insertion in D° . In Greek, the article is the only option. In the mixing cases, either the Greek determiner or the English/German possessive may appear. In the case of the possessive, the form must come from English/German, since Greek possessives never appear in D. When this happens, we have two instantiations of the possessive. Since we see the complementarity in distribution between the article and the possessive and we can exclude doubling of the type discussed in Cardinaletti (1998) as well as dual pronunciation, since a) the whole DP is Greek and b) there is no Poss to D° movement on Greek, an analysis in line with Eguren's (2016; 2018) analysis view of dialectal Spanish seems on the right track.

Turning now to Bulgarian, consider the relevant data again, (32). The clitic may appear following an English noun, under the condition that this is made look like Bulgarian, i.e., the Bulgarian determiner attaches to it. This is exactly as we saw above for Greek; in case *-a* is absent the Bulgarian clitic is not really acceptable:

(32) my book-a mi
 my book my
 'my book' (English-Bulgarian)

Let us now discuss two possible derivations of Bulgarian possessive clitics in the standard and in the mixing variety. Consider first the analysis in Giusti – Stavrou (2008). According to these authors, in Bulgarian the clitic appears in a dedicated clitic position, FP in (33). The affixed determiner *ta* is located in a low dP position and the word order *kniga-ta* is derived via N-to-d movement. dP to FP movement yields the order *knigata mi* ‘book-the my’.

(33) [_{DP} [_{FP} mi [dP ta [_{NP} kniga]]]]

In case the noun is modified by an adjective, (34), it is the adjective that moves to dP and the constituent is subsequently fronted to Spec,FP. When a possessor PP precedes the adjective and the clitic, Giusti – Stavrou (2008) propose that it is merged in Spec,DP, having a topic feature, and hence it is not in the Spell-Out domain of the clitic, (35) from Dimitrova-Vulchanova – Giusti (1999):

(34) xubavi-te mu knigi
 good-the his books
 ‘his good books’ (Bulgarian)

(35) na Ivan xubavi-te mu knigi
 to Ivan good-the his books
 ‘Ivan’s good books’ (Bulgarian)

To begin with, for the mixing cases, we cannot appeal to a movement dependency, as possessive clitics in Bulgarian are not generated in the same position as argumental possessors. In the case of mixing involving an adjective, the possessive clitic goes to the adjective, behaving as in the canonical Bulgarian DP, (36). The adjective may come from English but combines with the Bulgarian article suggesting a derivation as outlined above for (33). If we now compare (35)–(36) to (37a)–(37b), we note that the following. First, since English *my* is a weak element, namely a clitic in D°, the Bulgarian clitic cannot resume it, i.e., (36) cannot be analyzed on a par with (35), where the clitic resumes an XP located in Spec,DP. Because of this, the English possessive does not behave like the Bulgarian demonstrative, which suspends the presence of the article. Second, the Bulgarian definite article does not go on the English possessive, while it may go on the Bulgarian possessive. These

observations suggest that the English possessive does not behave like a Bulgarian possessive adjective, which cannot co-occur with the clitic, neither it is treated as a possessor XP in Spec,DP.

(36) my new-ta mi kniga
 my new-the my book
 ‘my new book’ (English-Bulgarian)

(37) a. moja-ta nova kniga
 my-the new book
 ‘my new book’
 b. тази mi nova kniga
 this my new book
 ‘this new book of mine’ (Bulgarian)

We must thus conclude that while the structure of the DP is Bulgarian, English *my* in the mixing cases realizes D°, although D° may remain empty in Bulgarian, according to Giusti – Stavrou’s (2008) analysis.

Consider now Harizanov’s (2011: 14) analysis, according to which, obeying *NonInitiality*, clitics cannot be the first element in a Spell-Out domain. As a result, they are inverted to the left to of the first element after linearization, which takes place pots-syntactically, as illustrated in (38). The inversion does not take place when a demonstrative is DP, as then the clitic is not the first element in the relevant domain.

(38) a. [DP clitic + D [FP modifier [NP noun]]] *Syntax*
 b. [clitic modifier noun] *Linearization*
 c. [_ modifier clitic noun] *Clitic Metathesis*
 d. [DP dem clitic + D [FP modifier [NP]]] *Syntax*
 e. [dem clitic modifier noun] *Linearization*
 f. [dem clitic modifier noun] *No Clitic Metathesis*

Arregi – Nevins (2012) discuss in detail that assuming a process of *Metathesis* as just outlined predicts that cases of synchronic morpheme *Metathesis* are likely to be accompanied by dialectal and diachronic doubling.

Consider their discussion of clitic placement in Spanish imperatives (Arregi – Nevins 2012: 244; based on Harris – Halle 2005):

- (39) a. Venda-n lo
 sell-IMP.2PL CL.ACC.M.SG
 ‘Sell (PL) it.’
 b. Venda -lo -n
 c. Venda-n -lo -n

In (39a) the clitic attaches to the right of the verbal inflection. There are however some varieties, where the clitic surfaces further to the right, as in (39b). According to Harris – Halle (2005), the pattern in (39b) involves *Metathesis*. A dialectal variant of this displacement is doubling, where the plural marker appears twice, preceding the clitic in the original position, and following the clitic after displacement (39c). Arregi – Nevins (2012: 245) point out that from their perspective one expects to find variation in intra-linguistic varieties separated in time and space. Recall that in their system doubling occurs after linearization and prior to VI.

This analysis opens up the possibility that the doubling found in Bulgarian mixing is precisely the result of double realization with distinct exponence, i.e., D may be spelled out as English *my*, in the position prior to *Metathesis* and as Bulgarian *mi*, following *Metathesis*. This is perhaps a consequence of *Maximize Exponence*, according to which all functional layers must receive lexicalization in language contact situations, see Alexiadou (2024), cf. the principle of exhaustive lexicalization in Fábregas (2009), and similar in spirit general such approaches in Sauerland – Alexiadou (2020), Guasti et al. (2023) and Hein et al. (2023). In turn, this means that doubling of possessives relates to the availability of more than one exponent to lexicalize a specific morpho-syntactic representation. In the mixing cases, English *my* signals the definiteness of the DP, which is not overtly spelled-out in the standard grammar.

4. Auxiliary doubling

The question that arises is how to go about the cases in (2). Here a rather different picture emerges. Martin – Alexiadou (2022) discuss data collected from

two French-German bilingual children living in Germany except for 0.5–1.5 years of age (Au.) and 5.5–6.5 years of age (An.), when they lived in France. Both visit monolingual German schools, and they are raised by following the one parent one language principle at home. The older child spoke only French at home from 0 to 3 years of age. The data involve diary notes from 2;06–8;10 years (Au.) and 6;02–13;11 years (An.), focusing on code-mixed and/or non-target productions. Martin – Alexiadou (2022) noted that most of the doublings found in their corpus involve auxiliaries and/or light causative verbs.

Let us have a closer look at example (2), repeated below:

- (2) Quand j'ai ça angezogen habe.
 when I.have this on.put have.1SG
 'When I have put that on.' (French-German)

Martin – Alexiadou (2022) observed that the two auxiliaries do not always match in features, as illustrated in (40), where the German auxiliary bears 1PL morphology, while the French auxiliary bears 3rd person singular, agreeing with *on*:⁵

- (40) on a gekauft haben
 one have.3SG bought have.1PL
 'we have bought' (French-German)

One might question, however, as to whether or not this is a true mismatch. It has been argued that *on* in colloquial French has 1st person plural features; Creissels (2011) states: "in Colloquial French, *on* has a fully grammaticalized use as 1st person plural subject clitic, in which it simply substitutes for the subject clitic *nous* of Standard French". This is shown in (41) where we see that the possessive is first person plural, but it is bound by *on*. Creissels (2011) further notes that *on* triggers 3rd person singular

5 An anonymous reviewer asks how we know that in (40) *haben* corresponds to the first-person plural and not to the infinitive. Since the speaker who uses such mixes does not seem to have problems with agreement in German, we assumed that this is the appropriate form for 1 person plural in German. Nevertheless, even if it were the infinitive nothing would change with respect to the derivation: while in the analysis in the text, semantic agreement with *on* is assumed, if indeed *haben* were the infinitive, this could be seen as the use of a default form, since German verbs must bear some inflection.

agreement on verbs, as is the case also in (41), but plural agreement on adjectives, participles and pronouns. In view of this, we may suggest that the local French auxiliary in T agrees grammatically with *on* in Spec,TP, while the non-local German auxiliary shows semantic agreement with 1st person plural (see Landau 2016 for an implementation of mixed agreement).

- (41) *on a envoyé nos enfants à la campagne.*
 one have.3sg sent our children to the countryside
 ‘We have sent our children to the countryside.’ (French)

Assuming that a rather simplified analysis of auxiliaries, according to which these are functional heads above VP, it is standardly assumed that across languages there is Aux-to-T movement (see Pollock 1989 and much subsequent work). For the purposes of exposition, I take auxiliaries to be in vP, (42):

- (42) [TP [vP Aux [VP]]]

French is a head initial language, while German is a head final language in non-V2 contexts. Specifically, vP is v-initial in French, while it is v-final in German. The status of TP is controversial in German (Haider 2010), but it is generally assumed that the language is T-final. In (2) T seems to both precede and follow the vP, which is not expected in view of the remarks in Section 1. To analyze the pattern in (2), I will employ one key proposal in the mixing literature: linearization is determined by properties of phase heads (see González-Vilbazo – López 2012; López et al. 2017; López 2020). Two phase heads are relevant for my discussion, v and C.

With respect to the VP, González-Vilbazo – López (2012) proposed that the linearization of the VP in mixing is determined by the properties of the phase head v, as in (43):

- (43) v determines the linearization of the selected VP in mixing

As González-Vilbazo – López (2012) observe, in mixing, if vP is v-initial, we get VO orders; if vP is head-final, we get OV orders. This is illustrated with examples from Portuguese (a head initial language) and Japanese (a head final language) as well as Spanish (a head initial language) and German (a head final language) from González-Vilbazo – López (2012: 42):

- (44) a. Segunda-feira-ni Telegrama-o manda shimashita.
 Monday-ni Telegram-o send did
 ‘He/she sent the telegram on Monday.’ (Portuguese-Japanese)
- b. hace kaufen ein Buch
 does buy a book
 ‘She/he buys a book.’ (Spanish-German)

The examples in (44) show that when the light verb in *v* comes from the head initial language the word order conforms to the patterns of the that language, namely Spanish. When, however, *v* comes from the head final language, the word order conforms to that of Japanese. In this light, consider our French-German data. As we see in (45), the word order within the VP is OV, conforming to the requirements of German, i.e., head final. This means that the *vP* domain follows the German word order pattern. Nevertheless, the French auxiliary is also spelled-out:

- (45) Quand j’ai ç’ angezogen habe.
 when I.have this on.put have when
 ‘When I have put that on.’ (French-German)

Notice now that (45) contains a French complementizer, located in C° , Gledhill (2003). Following López, Alexiadou – Veenstra (2017) and López (2020), the French *C*, being a phase head, determines that the complement has the order *T + vP*, i.e., the French word order, and not the German order. López (2020: 29) discusses the data in (46) in support of the view that *C* determines the order of its complement. As López points out, “since *C* is Spanish, *C* is the phase head and Spanish is a head-complement language, the end result it that *T* precedes *vP* – even though both *T* and *vP* consist of German constituents. On the other hand, *vP* is German, as shown by its spell-out in the form of the auxiliary *ist*. Consequently, the order of the constituents within the *vP* follows the German pattern rather than the Spanish pattern.”

- (46) a. Puesto/ya que Juan ist spät angekommen...
 placed/already that Juan is late arrived
 ‘Since Juan arrived late...’

This in turn means that in this case Lin must occur after VI, if a French *v* exponent triggers the VO order, while a German *v* exponent the OV order. In cases where we have a single pronunciation of an auxiliary, we could employ the idea that *v* bears a diacritic, i.e., [v_{rench}^f] as argued in López (2020) and González-Vilbazo – López (2012). This, however, cannot extend to the doubling cases, as the auxiliary is spelled out twice, both in the base and in the derived position. Instead, in order to make sense of these patterns we must assume that linearization is very late, i.e., it is dependent on properties of exponents (see Schreiner 2021). As in Schreiner’s discussion of Classical Greek, “if linearization were to occur entirely before Vocabulary Insertion, the hierarchical information needed to determine the winning Vocabulary Items would be unavailable.”

5. Conclusions and outlook

In this contribution, I discussed two examples of mixed discourse and showed how features of code mixing reflect general principles of syntactic knowledge. A better understanding of this type of discourse is very informative as far as the syntax-morphology-PF interface(s) and the timing and ordering of morpho-phonological processes is concerned. The two cases were resolved by employing tools developed for the description and analysis of phenomena independently of mixing, thus making a further case that language mixing does not require special rules. In the spirit of the *Null Theory* approach to mixing, the same kind of theory accounts for the competence of Ln speakers, independently of the type of bilingual population these may belong to (see Lohndal – Putnam 2024, extending Mahootian 1993). These types of mixings are expected, as in the case of bilinguals, none of the two languages is ever turned-off (see also Libben – Swieter 2019 for discussion and experimental evidence).

In particular, mixing of this type makes a strong case for realizational (and post-syntactic) models of morphology (see Alexiadou et al. 2015; Alexiadou – Lohndal 2018; López 2020; Lohndal – Putnam 2024; Sauerland – Alexiadou 2020 and many others). Multiple exponents are more readily allowed if the items to realize a particular structure come from different languages. Moreover, we have seen that it is possible to preserve distinct word orders by employing the notion of phase heads which determine the properties of their complements. Specifically, as we saw in the case of aux-

iliary doubling, it is possible within a single clause to have two distinct linearization patterns, which can be filled with items from the two languages that participate in mixing.

It remains to be seen whether this type of analysis may generalize to other types of blended representations, see (49), from Schönenberger – Haeberli (2018), which typically have been treated as involving multi-dominance as in Citko (2005), grafts or even amalgams (see Schönenberger – Haeberli 2018; Meinunger 2015; van Riemsdijk 2006 and related work).

(49) Er hä irgendwie Handòrgl hä er organisiert.

He has somehow accordion has he organized

‘He has somehow organized an accordion.’

(German)

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