Gapping vs VP-ellipsis in Catalan Sign Language

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Abstract

Johnson (2014) defines gapping as being such only if the gap appears in the second conjunct of a coordination. Moreover, in English and in other spoken languages, gapping is considered a particular type of elliptical structure compared to other types of ellipsis. This is due to the restriction on gapping in appearing only in coordination and to its compliance with the *no embedding constraint* (Johnson 2014). Gapping in Catalan Sign Language (LSC), instead, presents different properties than English, showing similarity to VP-ellipsis (VPE). In this paper, I compare LSC to English, as representative of many other languages, and I consider the necessity of grouping gapping with other elliptical structures, contrary to analyses suggested based on English. I adopt a large coordination (Gengel 2006) and PF deletion (Coppock 2001 following Merchant 2001) analysis and I provide a unified deletion account for gapping and VPE.

Keywords: gapping, Catalan Sign Language, VP ellipsis, PF deletion

1 Introduction

Gapping is a type of ellipsis in which a verb is removed in one, or more, of a series of coordinations as defined by Johnson (2014). Differently from other types of ellipsis, gapping always shows, in the second conjunct, an element belonging to the VP even if the verb is missing. Moreover, for it to be considered gapping, the gap can only appear in the second conjunct of a coordination, as in (1a). When the verb is missing in the first conjunct, instead, as in (1b), it is a case of Right Node Raising (Johnson 2014, contra Ross 1970) while (1c) is an example of VP-ellipsis (VPE) where the whole VP is missing.

(1) a. John ate a doughnut and Mary, a croissant.
b. Watakusi wa sakana o, Biru wa gohan o tabeta.
I (prt) fish (prt), Bill (prt) rice (prt) ate
'I ate fish and Bill rice.' (Japanese, Ross 1970)
c. John ate a doughnut and Mary did, too.

In Catalan Sign Language (LSC), used by the Deaf community in the region of Catalonia (Spain), gapping is also attested. Despite being a head-final language, LSC gaps forward realizing an SOV-SO order, as in (2a). Right Node Raising (SO-SOV), instead, is not allowed (2b). Coordination in LSC, like in American Sign Language (ASL, Davidson 2013), it is expressed through juxtaposition, without the use of any overt coordinator, where "nonmanual intonation" is the only way to signal the presence of coordination, as in (2).

(2) a. MARINA COFFEE PAY, JORDI CHOCOLATE ~~PAY~~. (SOV-SO) (LSC)
'Marina paid for a coffee and Jordi for a chocolate.'
b. *MARINA COFFEE ~~PAY,~~ JORDI CHOCOLATE PAY. (*SO-SOV) (LSC)

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Gapping in LSC, then, respects Johnson's (2014) definition of gapping, since the gap appears in the second conjunct of a coordination, but it shows different properties than the ones that make it a special structure in English.

Therefore, this paper aims to compare the properties of gapping and VPE in English and in LSC in order to give a unified account for these two structures in LSC. The paper is organized as follows: in section 2 I compare gapping and VPE in English, while in §3 I do that for LSC. In §4 I go through the discourse properties of gapping in English and LSC and in §5 I present the main recent analyses of gapping that have been proposed till now. Finally, before concluding, in §6 I provide an analysis of gapping and VPE for LSC.

2 Gapping vs VP-ellipsis in English

In English, gapping is considered to be a special type of ellipsis. Other than the fact that it is only the verb that goes missing (Neijt 1979), gapping in English respects the *no embedding constraint* and it can only appear in coordination.

According to the *no embedding constraint*, the gapped verb cannot be embedded (Hankamer 1979), as shown in (3a). Moreover, the antecedent of the gapped verb cannot be embedded either (3b), where the sentence is taken (somewhat awkwardly) to be a conjunction of two clauses and not a single one with an embedded coordination.

(3) a. *Alfonse stole the emeralds, and I think that Mugsy ~~stole~~ the pearls.
b. *I think that Alfonse stole the emeralds, and Mugsy ~~stole~~ the pearls.
(Johnson 2014)

This principle is only obeyed by gapping, though, and no other type of ellipsis is affected by it. VPE is an example of that, as in (4). This characteristic is therefore considered by Johnson as a diagnostic for gapping.

(4) Mary ate a sandwich and I think that Mike did, too.

Based on this data, Johnson (2014) gives then the following definition in (5) for gapping:

(5) *Gapping*
In a structure A c B, where c is *and* or *or*, Gapping deletes a string in B that is identical to a string in A and satisfies the No Embedding Constraint.

As specified in the definition above, gapping in English, differently from other types of ellipsis, can only appear in coordination. (6) illustrates the ungrammaticality of gapping in clausal adjuncts (6a) and the opposite for VPE (6b), as underlined in Coppock (2001).

(6) a. *John will have caviar, although others beans.
b. John will have caviar, although others won't.

It is possible to conclude that in English, gapping and VPE clearly differ in their properties and that gapping is a special type of ellipsis. Let us turn now to Catalan Sign Language.

3 Gapping vs VP-ellipsis in LSC

Catalan Sign Language (LSC), contrary to the predictions made by Ross (1970), is a head-final language that shows forward gapping, i.e. it realizes an SOV-SO order. Other SOV languages like Farsi have been shown to have this word order as well (Hernández 2007; Farudi 2013).

Gapping in LSC does not fully share the same properties as English. The *no embedding constraint* is not respected, because the gapped verb can be embedded, as illustrated in (7a). Farudi (2013) noticed that it is also the case for Farsi, where both the antecedent and the gap can be found embedded. Differently from Farsi, though, the antecedent in LSC cannot occur in an embedded clause (7b).

(7) a. JORDI DOUGHNUT EAT, MARINA SAY IX-3$_j$ MARC$_j$ CROISSANT ~~EAT~~.
'*Jordi ate a doughnut and Marina said that Marc a croissant.'
b. *MARINA SAY JORDI DOUGHNUT EAT, MARC CROISSANT ~~EAT~~.

Similar to gapping, the *no embedding constraint* does not apply in VPE, as in English (8).

(8) JORDI DOUGHNUT EAT CAN MARINA SAY IX-3$_j$ MARC$_j$ CAN ~~EAT~~ ALSO.
'Jordi can eat a doughnut and Marina said that Marc can, too.'

Moreover, differently from English, gapping in LSC can also be found in clausal adjuncts (9a), as it is the case also for VPE (9b).

(9) a. MARINA FRUIT EAT BECAUSE JORDI CAKE ~~EAT~~.
'*Marina ate fruits because Jordi some cake.'
b. MARINA FRUIT EAT CAN BECAUSE JORDI CAN ~~EAT~~ ALSO.
'Marina can eat fruits because Jordi can, too.'

Comparing English and LSC with respect to gapping and VPE, it is clear that gapping in LSC is not different than VPE and it is therefore possible to consider them as similar types of ellipsis. In Table 1 there is a summary of the properties that define gapping and VPE and whether they apply in each of the languages.

Table 1: Properties of gapping and VPE in English and LSC.

		Gapping	VPE
English	No embedding constraint	Applies	Does not apply
	Exclusive to coordination	Yes	No
LSC	No embedding constraint	Does not apply	Does not apply
	Exclusive to coordination	No	No

Gapping in LSC is therefore not a special type of ellipsis compared to English. In Table 1 above, VPE in English is representative also for other types of ellipsis (i.e., pseudogapping and sluicing; cf. Coppock 2001). The data for VPE in LSC as well can be

extended to other types of ellipsis.

4 Discourse properties of gapping in English and LSC

Despite the syntactic differences, English and LSC display the same discourse properties in gapping-like structures. The next two sections will illustrate how information structure affects the prosody in the realization of gapping in both languages, thus showing a cross-linguistic and cross-modality pattern.

4.1 English

Taking into consideration question-answer pairs, a question like the one in (10A) can elicit gapping in (10B).

(10) (A: Who bought what?)
B: MARY bought a DRESS and JOHN a T-SHIRT.

It is important to notice that the two wh-elements generate sets of alternatives that are then contrasting in each conjunct. Therefore, the arguments of the first conjunct are contrasting with the ones of the second one. In the relation between two sentences contrasting with each other, Repp (2016: 1) asserts that "S1 and S2 may be construed as being in a contrastive relation if S1 contains an element α that can be construed as an alternative to an element β in S2, where being construed as an alternative reflects the notions of juxtaposition and comparison". Winkler (2005), looking at the prosody in the realization of gapping, states the *contrastive topic and contrastive focus principle,* where she assumes that the external arguments in each conjunct realize contrastive topics, while the internal ones realize contrastive foci (11).

(11) **Contrastive Topic and Focus Principle** (Winkler 2005)
In gapping, the first remnant is a contrastive topic, the second remnant a contrastive focus. The gapped elements must be given.

In (10) it is possible to see the peak accent on the arguments represented with capital letters, as repeated in (12) with the appropriate discourse categories.

(12) [$_{\text{C. TOPIC}}$MARY] bought a [$_{\text{C. FOCUS}}$ DRESS] and [$_{\text{C. TOPIC}}$JOHN] a [$_{\text{C. FOCUS}}$T-SHIRT].

According to this line of analysis, information structure is then clearly marked prosodically in gapping.

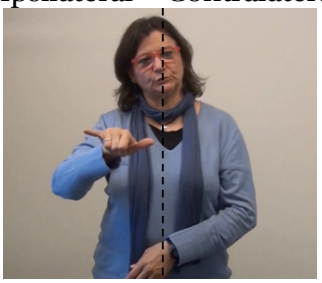
4.2 LSC

In LSC, as in English, the same relation between conjuncts in gapping is realized prosodically as well. Differently than spoken languages, sign languages use non-manual marking (NMM) to express prosody (Quer & Pfau 2010). NMM involves the use of the body through facial expressions, body and head movement and eye gaze, among other markers. The expression of contrastive topic and contrastive focus also involves the use of the signing space. In Figure 1 it is possible to see how the horizontal plane of the

signing space is mapped. The ipsilateral side corresponds to the position of the dominant hand of the signer while the contralateral one to the non-dominant hand.

Figure 1: Use of space in LSC, producing the sign for CROISSANT.

Ipsilateral Contralateral



The following example (13) illustrates the distribution of NMM in gapping in LSC. Both subjects are marked with raised eyebrows that express topic (t) and they are contrasting with each other thanks to the use of head lean (hl) on the subject of the second conjunct towards the ipsilateral side of the space that marks that contrast. In some other examples, head leans can be found on both subjects towards opposite sides of the space; in others, if the head leans are on the same side, the contrast between the two topics is guaranteed by the parallelism between the two conjuncts and the contrast in the use of space in at least one sign in each conjunct. The two objects in (13), COFFEE and CROISSANT, are marked as contrastive foci. Contrast is similarly marked with the use of head leans towards opposite sides of the signing space. Also for contrastive focus, the movement of the head towards the same side of the space in both conjuncts can be compensated by a contrastive use of space in placing each object. Moreover, head leans on the objects are accompanied in (13) by a movement forward of the head or in other cases by raised eyebrows, head nods and body leans, especially on the object of the first conjunct. These NMMs have been claimed to be markers of contrastive focus also in ASL, French Sign Language (LSF) and Sign Language of the Netherlands (NGT) (Wilbur 2012; Schlenker et al. 2015; Crasborn & Van der Kooij 2013). On the object of the second conjunct, mainly head leans and contrast in the space are found. A different distribution of NMM where, for instance, there is absence of contrast in the space or head leans, would result in an ungrammatical sentence.

			hl contral.	hl ips.	hl ipsilateral
	t			t	
(13)	MARINA	COFFEE	PAY	JORDI	CROISSANT

'Marina paid for a coffee and Jordi for a croissant.'

Example (13) shows that also gapping in LSC respects the *contrastive topic and contrastive focus* principle, as in English. This confirms the need for both languages to provide a proper syntactic representation of information structure, and suggests that a large coordination structure also involving the left periphery of the sentence for each conjunct must be present.

5 Previous analyses of gapping

It has become clear that gapping in LSC and English do not behave alike syntactically, even if they show the same discourse properties. In the following sections, we will go through the two main recent analyses that have been proposed for gapping in English and we will see the data that favor one analysis over the other for LSC.

Two of the most recent main analyses that have been proposed for gapping are the one by Johnson (2014), which involves low coordination of vPs and Across-the-board (ATB) movement of the verb, and the ones by Coppock (2001) and Gengel (2006), which follow Merchant (2001) in providing a PF-deletion account for ellipsis. They both exclude the approaches that assume that the missing material is not present in the structure in the first place or it is unpronounced due to a null lexical element.

5.1 Low coordination and ATB movement

Johnson (2014), following some previous work, analyzes gapping as involving low coordination of vPs under T and ATB movement of the verb, roughly like in (14).

(14) Ward hasn't prepared natto and his guest kumquats. (Johnson 2004)
$[_{TP}$Ward$_1[_T$hasn't $[_{PredP}$prepared$_3$ $[_{vP}[_{vP}[_{VP}[$e$_1$e$_3$ $[_{DP}$natto]]]and[_{vP}[_{DP}$his guest] $[_{VP}$e$_3$[kumquats]]]]]]

In (14), gapping is conceived as two vPs coordinated under TP and Predicational phrase (PredP) that hosts the verb that is moving out from both conjuncts via ATB movement. The subject in the first vP reaches the specifier of TP for EPP reasons while the one in the second conjunct stays in-situ (see Johnson (2004: 41-49) for discussion about it).

One of the main arguments used by Johnson to justify low coordination concerns the scopal properties of gapping with modals and negation. In this paper I focus only on negation, but the data presented for English on modals, when compared to LSC, bring us to the same conclusions as data on negation. Focusing on negation, Oehrle (1987), among others, discovered that modals and negation can scope over both conjuncts. Wide scope of these two elements is crucial in Johnson's analysis because they show the need of having them above the two vPs. Low coordination suits this purpose very well. In example (15), the negation scopes over both conjuncts giving the reading proposed.

(15) Kim didn't play bingo and Sandy ~~didn't sit~~ at home all evening.
not ((Kim played bingo) and (Sandy sat at home all evening)
(based on Oehrle 1987, from Johnson 2014)

Johnson (2014) generalizes claiming that "[i]f a modal or negation Gaps with a following verb, then it may scope over the coordination or be understood in each conjunct".

5.2 Against Johnson (2004) and LSC facts

In relation to the data used by Johnson, Winkler (2005) gives a description of the prosodic contour that distinguishes wide scope negation in gapping in English. She claims, though, that this reading of negation needs a special context to be realized. Repp

(2009), moreover, analyzes wide scope negation as being present in cases of denial, while the default interpretation of negation is the distributed one. In (16) the prosodic distinction in the realization of wide (¬(A∧B)) and distributed (¬A∧¬B) scope on negation in gapping in English is illustrated, as reported in Winkler (2005).

(16) a. Wide scope/denial (¬(A∧B))
Leon CAN'T eat CAViar and Anna BEANS.
'It is not possible that (Leon eats the caviar and Anna the beans).'
b. Distributed scope (¬A∧¬B)
LEon can't eat CAViar and ANna BEANS.
'It is not possible that Leon eats the caviar and it is not possible that Anna eats the beans.'

In (16a), the pitch accent in gapping expressing denial, marked with capital letters, is also on the negation. In (16b), instead, where there is distributed scope, the pitch accent is on the internal and external arguments of the verb expressing contrastive topic and contrastive focus, as we saw in §4.1.

As explained in §4.2, LSC shows the same discourse properties found in English in the expression of gapping, and that is also the case when using negation. The prosodic contour to realize distributional scope of negation in LSC corresponds to the one found for English. Also in LSC, the internal arguments are marked with contrastive focus intonation, while the external ones with contrastive topic intonation (17). Negation does not have any particular NMM other than head-shake.

(17) Distributed scope (¬A∧¬B)
MARINA CHOCOLATE LIKE NOT JORDI CHEESE (LSC)
'Marina doesn't like chocolate and Jordi (doesn't like) cheese.'

Wide scope negation in gapping in LSC, realized in a context that elicits denial, is prosodically similar to English, but not syntactically. Although the negation is prosodically marked with a larger articulation in the signing space of the negative sign NO, at the end of the sentence it is obligatory to have a polarity sign that is glossed as ALSO-NOT 'either', as in (18). The use of ALSO-NOT 'either' makes the scope of negation distributed, as in the English translation.

(18) Denial: *(¬(A∧B))
A: YESTERDAY MARINA JORDI SEE. MARINA T-SHIRT BUY JORDI SHOES.
B: IMPOSSIBLE! IX-1 SEE MARINA JORDI. IX-3$_j$ MARINA$_j$ T-SHIRT BUY NOT JORDI SHOES *(**ALSO-NOT**)!
A: 'Yesterday I saw Marina and Jordi. Marina bought a t-shirt and Jordi a pair of shoes.'
B: 'It's impossible! I saw Marina and Jordi. Marina didn't buy a t-shirt and Jordi a pair of shoes either.'

The overt negative marking in the second conjunct in the expression of denial in LSC rules out the potential parallelism between English and LSC in the need of having low coordination. Moreover, it is confirmed by the data in (17) and (18) that the default reading for negation in gapping is the distributed one, as claimed by Repp (2009). Finally, the presence of contrastive topic and contrastive focus also suggests that large

coordination needs to be used since the left periphery (CP) is involved.

5.3 PF deletion in English and LSC

Following Merchant (2001), several authors proposed an analysis for gapping that involves PF-deletion of VP or TP, assuming the presence of structure in the ellipsis site. Merchant (2001) claims that the material that is missing needs to be in a relation of identity with the antecedent and therefore it needs to be given to respect the e-GIVENness condition. Coppock (2001) follows this analysis given for sluicing and VPE and she applies it to gapping. Moreover, Gengel (2006) adds the need for accounting syntactically for the presence of contrastive topic and contrastive focus by moving the arguments of the verb to the left periphery (CP, Rizzi 1997) and therefore arguing for the deletion of the whole TP left empty of non-given material.

In order to justify the presence of structure in the elliptical site, Coppock (2001) uses the test by Merchant (2001) with "propositional islands", such as relative clauses. Example (19) is ungrammatical because there is a violation of the island realized by the relative clause.

(19) *Suzy doesn't like men who play instruments, and Mary, sports. (Coppock 2001)

The ungrammaticality of the sentence shows that the presence of structure in the ellipsis site is detected.

In LSC, as in English, gapping is sensitive to propositional islands. Following Coppock (2001), we can see that also in LSC there is structure in the elliptical site that gets detected and makes the sentence ungrammatical, as in (20).

(20) *MARINA [MAN SAME HOUSE BUILD] LIKE, JORDINA [~~MAN SAME~~ SWIMMING POOL ~~BUILD] LIKE~~.
rel rel
'*Marina likes men who build houses and Jordina ~~likes men who build~~ swimming pools.'

The data in (20) justifies the adoption of deletion at PF for gapping in LSC and, as claimed by Coppock (2001) for English, I will show that it is possible to give a unified deletion account for gapping and VPE also in LSC.

6 Analysis of gapping and VP-ellipsis in LSC

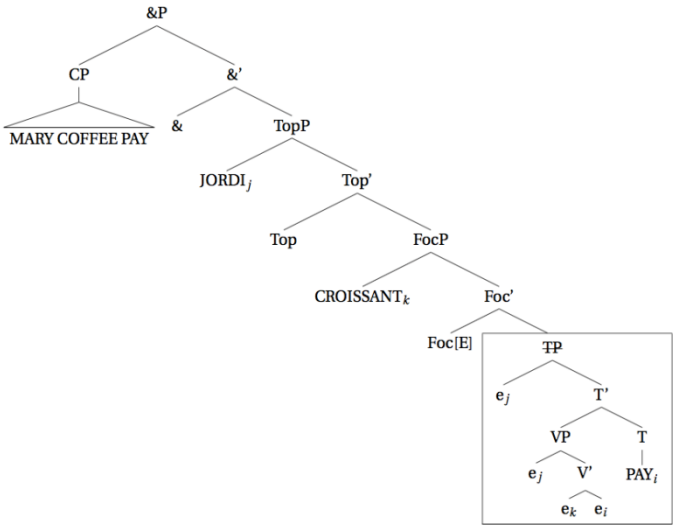
Until now we have seen different properties that characterize gapping in LSC, and we have started to shape the syntactic structure to account for it. The absence of wide scope negation justifies the absence of low coordination and the presence of contrastive topic and contrastive focus supports the need of having CP coordination. Moreover, as we just saw in §5.3, gapping in LSC can be derived via PF-deletion, since the presence of structure in the ellipsis site is proved.

As for the part of the structure that gets deleted, English does not have V to T movement of the verb, therefore it is plausible to propose the deletion of either VP (Coppock 2001; Toosarvandani 2013) or TP (Gengel 2006). In LSC, though, I claim that such movement takes place. Recent accounts of agreement in SLs following a

minimalist approach (Pfau et al. 2017; Costello 2016) assume that in SLs the verb moves to T via ϕ-feature checking, independently of the verb class. I assume the same for LSC. Therefore, differently than English, it is necessary to exclude the possibility of having deletion of VP, since the verb moves to the head of TP, which suggests the need of deleting the whole TP.

My proposal for the derivation of gapping in LSC resorts then to CP coordination where the arguments are merged in their positions in each conjunct and unvalued features get checked and the verb moves to the head of TP. After the EPP is satisfied with the movement of the external arguments to SpecTP in each conjunct, the external and internal arguments move respectively to Top(ic)P(hrase) and Foc(us)P(hrase) in order to satisfy the discourse properties of contrastive topic and contrastive focus. To indicate the material that will be deleted at PF, Merchant (2001) uses a [E] feature, that he places on the head of the sister of the phrase that needs to be deleted. In gapping in LSC, once the whole TP is vacated, the [E] feature on the head of FocP indicates the deletion of the whole TP. In (21), the structure of the second conjunct of the corresponding example is illustrated.

(21) [$_{\text{C. TOPIC}}$MARINA] [$_{\text{C. FOCUS}}$COFFEE] PAY [$_{\text{C. TOPIC}}$JORDI] [$_{\text{C. FOCUS}}$CROISSANT] (LSC)
'Marina paid for a coffee and Jordi for a croissant.'



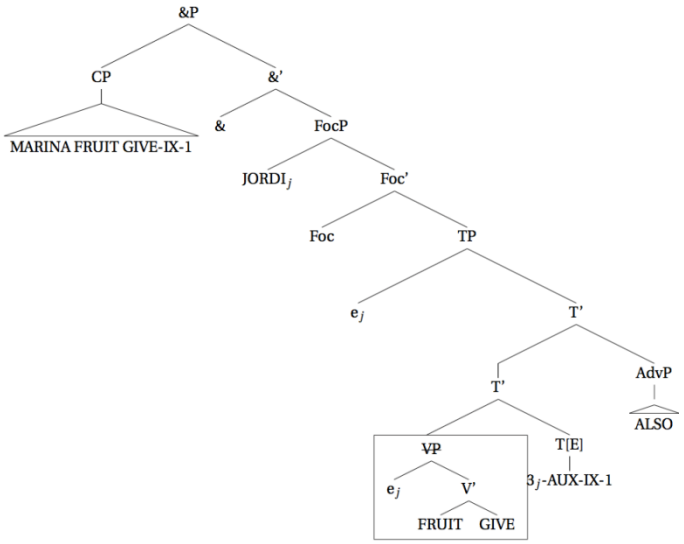
In §3 we saw the similarities between gapping and VPE, assuming the possibility to argue that gapping and VPE belong to same category. Therefore, as suggested by Coppock (2001) for English, it is possible to give a unified account for the two structures also in LSC. In fact, another aspect that they have in common are their similar discourse properties. As in gapping, also in VPE there is contrast between the subjects since a set of alternatives is generated, as claimed by Rooth (1992). Moreover, as reported in Frazier et al. (2007) for English, both subjects are accented due to the contrast between them. In example (22) we see the presence of contrastive focus on the subjects for both English and LSC. In LSC, the contrast between the two subjects is again marked by head lean (hl) towards opposite sides of the signing space, produced in combination with body shift (bs) and raised eyebrows (re), which are markers of contrastive focus.

(22) a. [$_{\text{C. FOCUS}}$ Marina] gave me some fruit and [$_{\text{C. FOCUS}}$ Jordi] did, too.
(English)
re re re
hl+bs ipsil. hl+bs contral.
b. MARINA FRUIT GIVE-IX-1 JORDI$_j$ 3$_j$-AUX-IX-1 ALSO (LSC)
'Marina gave me some fruit and Jordi did, too.'

As in gapping, in VPE in LSC it is possible to apply the e-GIVENness condition as firstly proposed by Merchant (2001), assuming identity between the antecedent and the second conjunct.

Due to the presence of the auxiliary in T for both English and LSC, the [E] feature will be placed in the head of T in order to have the whole VP deleted. Moreover, as assumed for gapping, in VPE there is movement of the external arguments to FocP, marked with contrastive focus. In (23) we can see the representation of the syntactic structure of the second conjunct of the VPE example saw in (22b) and repeated in (23).

(23) [$_{\text{C. FOCUS}}$ MARINA] FRUIT GIVE-IX-1 [$_{\text{C. FOCUS}}$ JORDI$_j$] 3$_j$-AUX-IX-1 ALSO (LSC)
'Marina gave me some fruit and Jordi did, too.'



As in English, LSC facts can be explained under a unified deletion account for both gapping and VPE even if the part of the structure that gets deleted is different, respectively TP for gapping and VP for VPE.

7 Conclusions

Gapping in LSC, differently from English, shows similarities with VP-ellipsis because it does not obey the *no embedding constraint* and it can appear also in clausal adjuncts. Moreover, the presence of only distributed scope negation (¬A&¬B) and the use of contrastive topic and contrastive focus require a large coordination structure, namely CP. In order to syntactically represent gapping, it is necessary to move the arguments to TopP and FocP followed by the deletion of TP at PF as a result of having [E] feature in the head of FocP. For VPE, instead, the [E] feature is in T, since it is the VP that gets deleted after the external arguments move to FocP.

Following Coppock (2001), among others, this account supports a unified PF-deletion approach to gapping and VPE cross-linguistically and cross-modally.

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