Glossa a journal of general linguistics

Bîlbîie, Gabriela and Israel de la Fuente. 2019. Can gapping be embedded? Experimental evidence from Spanish. *Glossa: a journal of general linguistics* 4(1): 110. 1–39. DOI: https://doi.org/10.5334/gjgl.782

RESEARCH

Can gapping be embedded? Experimental evidence from Spanish

Gabriela Bîlbîie[1] and Israel de la Fuente[2]

[1] University of Bucharest, RO

[2] University of Lille, FR

Corresponding author: Gabriela Bîlbîie (gabriela.bilbiie@gmail.com)

This paper discusses the No Embedding Constraint, considered to be a strong syntactic constraint on gapping and a diagnostic for this ellipsis type. As shown by two acceptability judgments tasks in Spanish, the assumptions related to the No Embedding Constraint are not borne out by our experimental results. Embedded gapping is acceptable in Spanish, and seems to be governed by a (more general) semantic constraint. Specifically, some predicates embed more easily than others, confirming, on the one hand, the asymmetry between non-factive and factive predicates, and, on the other hand, the dichotomy between semi-factive and true factive predicates. Embedded gapping and embedded coordinated clauses in general are thus sensitive to the semantic class of the embedding predicate. We argue that our data on embedded gapping in Spanish constitute a challenge for any Small Conjunct Gapping approach (in terms of subclausal/low coordination) and give support to a Large Conjunct Gapping approach (in terms of clausal/high coordination). In this paper, we adopt a constructional fragment-based analysis of gapping, which treats non-embedded and embedded gapping uniformly. More generally, this paper suggests that gapping is more similar to other ellipsis types than has been traditionally assumed.

Keywords: gapping; fragments; embedding; factivity; acceptability judgment tasks

1 The No Embedding Constraint

Gapping (Ross 1967; 1970) refers to any elliptical clause containing at least two remnants (one of them being generally – but not necessarily – the subject) and lacking at least the main verb (which is generally in non-final position in non-head-final languages, such as English or Romance languages). A common example of gapping is given in (1), where the gapped clause (= the target clause) contains two remnants *Bill* and *bourbon*, paired with two correlates *John* and *scotch* in the source clause. The material in the source clause that serves as antecedent to interpret the missing material (= the gap) in the gapped clause is, in this case, the verb *drinks*.

(1) John drinks scotch [and Bill bourbon].

It is usually assumed (from Hankamer 1979 onwards) that gapping is a root phenomenon; in other words, the gapped clause cannot be embedded within the conjunct to which it belongs. The classical examples of ungrammatical embedded gapping are given in (2). Embedding seems to be compatible only with full clauses (compare (3a) and (3b)).

(2) a. Hankamer (1979)
*Alfonso stole the emeralds, and **I think that** Mugsy the pearls.
b. Johnson (2009)
*Some had eaten mussels and **she claims that** others shrimp.

(3) a. *Bill went to Paris and **I think that** John to Rome.
b. Bill went to Paris and **I think that** John went to Rome.

In this respect, gapping differs from other elliptical constructions, such as pseudogapping (4a) or verb phrase ellipsis (VPE, as in (4b)), which can occur in embedded contexts (Sag 1976; Johnson 2004; 2009; Farudi 2013).

(4) a. Johnson (2009)
Some had eaten mussels and **she claims that** others had shrimp.
b. Farudi (2013)
The adults had eaten mussels, and **she claims that** the children did too.

Based on constructed data such as (2), Johnson (2014) builds on Hankamer's (1979) assumption that gapping cannot affect a verb that is in an embedded clause, i.e. it operates "strictly in structures directly conjoined with each other" (Hankamer 1979: 20). He proposes a formulation of Hankamer's "Downward Bounding" like that in (5).[1] According to him, gapping "is the only ellipsis process constrained by the No Embedding Constraint" (Johnson 2014: 8). Therefore, he takes it as a strong syntactic constraint on gapping and a diagnostic for this elliptical construction: "if an ellipsis obeys the No Embedding Constraint, it is Gapping" (Johnson 2014: 8).

(5) *The No Embedding Constraint* (Johnson 2014: (22))
Let A and B be conjoined or disjoined phrases, and β be the string elided in B whose antecedent is α in A. Then α and β must contain the highest verb in A and B.

The first reported counter-examples to the No Embedding Constraint come from Persian. Farudi (2013) claims that Farsi (the standard variety of Persian spoken in Iran) is an exception to Johnson's generalization. She observes that, in Persian, gaps are possible under a wide range of embedding verbs and argues that the subordinating heads are not parenthetical, but syntactically integrated. We report Farudi (2013: 77)'s elicited data in (6); according to these data, embedded gapping may occur in Persian regardless of the absence (6a) or presence (6b–c) of the complementizer *ke* 'that' and regardless of the embedding verb person: first (6a–b) vs. third singular (6c).

(6) a. Māmān chāi xord va **fekr mi-kon-am** bābā qahve.
mother tea ate.3SG and think IPFV-do-1SG father coffee
'Mother drank tea and I think Father (drank) coffee.'

b. Jiān be Sārā gol dād va **fekr mi-kon-am ke** Ārtur be Jian to Sarah flower gave.3SG and think IPFV-do-1SG that Arthur to Giti ketāb.
Giti book
'Jian gave flowers to Sarah and I think that Arthur (gave) books to Giti.'

c. Mahsā in ketāb-ro dust dār-e va **Minu mi-dun-e ke** Mahsa this book-OBJ like have-3SG and Minu IPFV-know-3SG that māmān-esh un ketāb-ro.
mother-3SG that book-OBJ
'Masha likes this book and Minu knows that her mother (likes) that book.'

[1] A similar constraint is postulated by Boone (2014), who calls it the "Equal Conjunct Requirement" (ECR): "Gapping only occurs in coordinations where gap and antecedent are directly conjoined." (Boone 2014: 11).

The main goal of our study is to show, based on empirical evidence from two acceptability judgment tasks in Spanish, that the No Embedding Constraint is less strict and less universal than was traditionally assumed (based on Germanic languages, in particular on English). Therefore, the No Embedding Constraint does not seem to be an appropriate diagnostic for gapping. Furthermore, the experimental findings we present here show that some predicates embed clauses better than others, suggesting that a more general semantic constraint seems to be at work.

The present paper is structured as follows: In Section 2, we present previous work on embedded fragments, which led us to take into consideration semantic distinctions in our own study. Section 3 details the two acceptability judgment tasks for Spanish (design, results and discussion). Section 4 discusses some consequences on the syntactic analysis of gapping and proposes a construction-based analysis compatible with the experimental findings. Section 5 contains some concluding remarks and perspectives.

2 Embedded fragments and semantic constraints

The discussion about the (im)possibility of embedding concerns not only gapping (= elliptical clauses with two remnants), but also other elliptical constructions such as fragments in dialogue, in particular short answers, which have been more largely discussed than embedded gapping. While the same ban on embedding a fragment under a complementizer is noted for short answers in English (and other Germanic languages such as Dutch or German, cf. Stainton 2006, Temmerman 2013, Vicente 2013), there are some languages which seem to allow embedded fragments under an explicit complementizer (Spanish, Polish, Hungarian, cf. Vicente 2013). Thus, the example (7a) is supposed to be ungrammatical in English because of the complementizer, while (7b) seems to be acceptable without complementizer (Weir 2014). On the other hand, Spanish allows embedding but mandatorily under an overt complementizer (8a). Weir (2014) argues that (7b) and (8a) are cases of true syntactic embedding, and that these cases must be distinguished from parenthetical uses,[2] such as (7c) in English and (8b) in Spanish.

(7) Weir (2014: 213–214)
Who left?
a. *I think that John.
b. I think John.
c. John, I think.

(8) Examples adapted from de Cuba & MacDonald (2013)
¿Quién robó las joyas?
'Who stole the jewels?'
a. Creo *(que) tu hijo.
believe.1SG that your son
'I believe your son.'
b. Tu hijo, creo (*que).
your son, believe.1SG that
'Your son, I believe.'

Importantly, previous work on Spanish embedded fragments (de Cuba & MacDonald 2013; Fernández-Sánchez 2017) insists on the crosslinguistic relevance of the semantic

[2] See Temmerman (2013) for more details about the parenthetical analysis.

distinction between factive and non-factive predicates as a very strong constraint for fragment embedding: only non-factive verbs can embed fragments.[3] Therefore, non-factive predicates such as *creer* 'believe', *suponer* 'suppose', *imaginarse* 'imagine', *pensar* 'think' in (9a) allow embedded fragments, whereas factive predicates such as *lamentar* 'regret', *saber* 'know', *sorprenderse* 'be surprised', *desagradar* 'dislike' in (9b) do not allow embedded fragments. Crucially, the same contrast is observed in (10) with embedded gapping in Spanish, according to Fernández-Sánchez (2017): embedded gapping with non-factive verbs is grammatical (10a), while embedded gapping with factive verbs is considered ungrammatical (10b).[4]

(9) de Cuba & MacDonald (2013: 321)
¿Quién robó las joyas?
'Who stole the jewels?'

a. {Creo / supongo / me imagino / pienso} que tu hijo.
believe.1SG / suppose.1SG / me imagine.1SG / think.1SG that your son
'I {believe/suppose/imagine/think} your son did.'

b. #{Lamento / sé / me sorprende / me desagrada} que tu hijo.
regret.1SG / know.1SG / me surprise.3SG / me displease.3SG that your son
'I {regret/know/am surprised/dislike} your son did.'

(10) Fernández-Sánchez (2017: (24))

a. Alfonso robó las esmeraldas y {creo / imagino / supongo / …} que Mugsy las perlas.
Alfonso stole the emeralds and think.1SG / imagine.1SG / suppose.1SG that Mugsy the pearls
'Alfonso stole the emeralds and I {think/imagine/suppose} that Mugsy (stole) the pearls.'

b. *Alfonso robó las esmeraldas y {lamento / me encanta / odio / …} que Mugsy las perlas.
Alfonso stole the emeralds and regret.1SG / me love.3SG / hate.1SG that Mugsy the pearls
'Alfonso stole the emeralds and I {regret/love/hate} that Mugsy (stole) the pearls.'

[3] A similar semantic sensitivity is observed in English by Weir (2014), who notes that only "bridge verbs" can embed:

(i) examples adapted from Weir (2014: 233, 280)
What did John eat?
a. I think the cookies.
b. I {??found out / *know} the cookies.
c. *I am surprised the cookies.

The first work mentioning some examples of embedded English fragments is Morgan (1973). The key example is given in (ii) below: the answer *I think with a fork* is considered to be fully acceptable in the following context, as a reply to the question *How does Nixon eat his tapioca*?.

(ii) Morgan (1973: 732)
Q: How does Nixon eat his tapioca?
A: I think with a fork.

[4] Note the different diacritic marks used by de Cuba & MacDonald (2013) and Fernández-Sánchez (2017) respectively, to judge the Spanish examples with factive predicates: '#' vs. '*'. Weir (2014: 233) comments on de Cuba & MacDonald's notation, considering these cases as syntactically ungrammatical rather than semantically infelicitous; therefore, one should use '*' instead of the '#' diacritic. We will come back to the question of ungrammaticality vs. infelicity in Section 3, after we have presented the experimental results on Spanish embedded gapping.

García-Marchena (2015; 2018) reports naturally occurring data from the CORLEC[5] spoken Spanish corpus, where gapping appears indeed in embedding contexts under non-factive predicates (11).

(11) a. CONV 033A
Pero el chico la ama y **dicen** **que** ella a él.
but the boy her love.3SG and say.3PL that she DOM he
'But the boy loves her and they say she him.'

b. CONV 012A
Ella se lo va a comer todo pero **me** **parece** **que** yo solo un poco.
she REFL it go.3SG to eat all but me seem.3SG that I only a little
'She is going to eat everything but I think I only a bit.'

c. DEB 026A
Luisa ha estado en ese club muchas veces pero **por** **supuesto** **que** yo nunca.
Luisa has been in that club many times but of course that I never
'Luisa has been in that club many times but I, of course, never.'

The semantic sensitivity observed by previous studies on embedded fragments in Spanish recalls Kiparsky & Kiparsky (1971)'s and Karttunen (1971; 1973)'s distinction between two classes of predicates: those that presuppose the truth of their complement, assigning to it the status of an established fact (= factive predicates) and those that are not accompanied by a similar presupposition, leaving room for doubt and uncertainty (= non-factive predicates). Several syntactic asymmetries have been noted in the literature based on this semantic distinction between factive and non-factive predicates, e.g. factives do not allow embedded root phenomena (Emonds 1969; Hooper & Thompson 1973; Green 1976; Heycock 2006, etc.).

Coming back to Spanish, there are two problems with the previous (constructed) data from de Cuba & MacDonald (2013) and Fernández-Sánchez (2017). First, most factive verbs on their lists are emotion verbs (e.g. *lamentar* 'regret', *odiar* 'hate', *encantar* 'love', *desagradar* 'displease'), which usually require the subjunctive mood in Spanish. In (12), if one reconstructs the verb in the gapped clause embedded under an emotion verb such as *lamentar* 'regret', we observe that the preferred mood will be the subjunctive and not the indicative. This would lead to a mood mismatch, which may be problematic under gapping. According to Repp (2009), tense, aspect and mood (TAM) are means to anchor a proposition in the factual world. The gapped clause has no anchoring, i.e. the referential anchoring of the proposition is elided. Therefore, the gapped clause has to recover the anchoring of the proposition to the factual world from its antecedent in the source. This would explain why TAM properties have to be identical between the gapped clause and its source. Under such a view, the mood mismatch under gapping is not expected. So, in principle, one cannot know whether the ungrammaticality of emotion verbs with gapping is due to embedding or rather to a mood mismatch (indicative/subjunctive).

(12) Alfonso robó las esmeraldas y **lamento** **que** Mugsy {??robó / robara}
Alfonso stole the emeralds and regret.1SG that Mugsy stole.IND / stole.SBJV
las perlas.
the pearls
'Alfonso stole the emeralds and I regret that Mugsy stole the pearls.'

[5] *Corpus de Referencia de la Lengua Española Contemporánea: Corpus Oral Peninsular* (Marcos-Marín 1992).

Second, the remaining factive verbs (i.e. knowledge predicates, such as *saber* 'know', *descubrir* 'discover', *observar* 'notice', *ver* 'see') are argued by previous studies (de Cuba & MacDonald 2013; Fernández-Sánchez 2017) to be ungrammatical with embedded fragments/gapping in Spanish; nevertheless, these verbs could easily occur in some embedding contexts (web data, as in (13)), cf. Bîlbîie & García-Marchena (2016). It seems paramount, therefore, to take into consideration the heterogeneous behavior of factive verbs, which is something that all previous studies on embedded fragments miss.

(13) a. A: ¿Fumas? B: - Ya **sabes que** yo muy poquito.
A: smoke.2SG B: you know that I very little
'A: Do you smoke? B: You know that I smoke just a little bit.'

b. A: ¿Fumas? B: - Ya **has visto que** casi nada.
A: smoke.2SG B: you have seen that almost nothing
'A: Do you smoke? B: You have already seen, almost nothing.'

Because of these possible confounds, previous constructed data do not seem to be very reliable. In Section 3, we test experimentally the acceptability of embedded gapping in Spanish, by taking into account the semantic distinction discussed in this section, and simultaneously controlling for any other possible confounds.

3 Experimental evidence for embedded gapping

3.1 Research questions and hypotheses

As seen in the previous sections, most studies on embedded gapping in English and in Spanish have taken a binary perspective in terms of grammaticality: grammatical non-embedded gapping vs. ungrammatical embedded gapping in English, and grammatical embedded gapping with non-factive verbs vs. ungrammatical embedded gapping with factive verbs in Spanish.

It seems that by confining oneself to the grammatical/ungrammatical contrast, one does not manage to have a complete perspective on the functioning of the embedding of fragments in general and of gapping in particular. Adopting an approach based on acceptability makes it possible to address certain limitations of the traditional binary classification of sentences. In light of this, the following research questions guided our study:

> RQ1. Is there an interaction between gapping and embedding (in other words, is embedded gapping considered acceptable)?
>
> RQ2. Is there an interaction between gapping and factivity (in other words, is gapping considered acceptable if it is embedded under a factive verb)?

With regard to RQ1, we hypothesize that constraints on gapping constructions are less strict than what the literature on ellipsis has traditionally claimed, and, thus, embedded gapping should be acceptable in Spanish (at least with some verbs). With regard to RQ2, we hypothesize that the acceptability of embedded gapping is sensitive to the semantic class of the embedding predicate and that there is an interaction between gapping and factivity; in particular, we expect that gapping constructions embedded under a factive verb would be less acceptable than their full counterparts. Overall, we expect a gradience in acceptability rates, far from the categorical distinctions in terms of grammaticality that we see in previous studies.

In order to test these two hypotheses, we ran a first acceptability judgment task, which was followed by a follow-up experiment (which addressed the issue of mood alternation with emotion verbs in Spanish). We present these experiments in the following lines.

3.2 Experiment 1

3.2.1 Participants

A total of 33 Spanish native speakers completed Experiment 1. Participants were all from Spain and were recruited through social media. Four participants grew up in a bilingual environment and were, therefore, excluded from the analyses. We report thus results from the remaining 29 participants (mean age: 36; range: 19–49).

3.2.2 Materials

We created 24 experimental items following a 2 × 3 factorial design with the factors GAPPING (Gapping, No Gapping) and EMBEDDING COMPLEXITY (No Embedding, Embedding Non-factive, Embedding Factive) as independent variables. This manipulation gave rise to the 6 experimental conditions shown in (14). We compared elliptical occurrences (conditions a–c) with non-elliptical ones (conditions d–f), in order to better control our two factors and to rule out other explanations for any treatment effect that we might observe.

(14) ¿Qué bebidas pidieron los dos amigos en el bar?
'What drinks did the two friends order in the bar?'

a. *[Gapping, No Embedding]*
Pablo pidió una cerveza y Juan un whisky.
'Pablo ordered a beer and Juan a whisky.'

b. *[Gapping, Embedding Non-factive]*
Pablo pidió una cerveza y **sospecho que** Juan un whisky.
Pablo ordered a beer and suspect.1SG that Juan a whisky
'Pablo ordered a beer and I suspect that Juan ordered a whisky.'

c. *[Gapping, Embedding Factive]*
Pablo pidió una cerveza y **me molesta que** Juan un whisky.
Pablo ordered a beer and me bother.3SG that Juan a whisky
'Pablo ordered a beer and I am bothered that Juan ordered a whisky.'

d. *[No Gapping, No Embedding]*
Pablo pidió una cerveza y Juan pidió un whisky.
'Pablo ordered a beer and Juan ordered a whisky.'

e. *[No Gapping, Embedding Non-factive]*
Pablo pidió una cerveza y **sospecho que** Juan pidió un whisky.
'Pablo ordered a beer and I suspect that Juan ordered a whisky.'

f. *[No Gapping, Embedding Factive]*
Pablo pidió una cerveza y **me molesta que** Juan pidió un whisky.
'Pablo ordered a beer and I am bothered that Juan ordered a whisky.'

As the example above shows, the experimental sentences were preceded by a question that served as a contextual anchor (cf. Kuno 1976; Prince 1986; Steedman 2000).[6] The experimental items were all coordinated sentences joined by the coordinative conjunction *y* 'and'. Each of the two conjuncts introduced a character by means of a proper name or a definite NP. The main verb (elided in the second conjunct in the Gapping conditions and repeated in the No Gapping conditions) was always a transitive verb in the past tense indicative.[7] The subject of the verb was always an animate agent and the object an inani-

[6] We make use of *wh*-questions as context sentences, giving rise to two contrastive pairs. See Prince (1986: 212): "gappings are felicitous in case they can be taken to instantiate an open proposition".

[7] In order to be consistent with the other conditions, we decided to use the indicative mood also for the [No Gapping, Embedding Factive] condition, shown in (14f). As previously mentioned, the subjunctive mood would be more appropriate with emotion factive verbs in Spanish. However, note that the indicative mood is not completely ruled out and seems to be accepted in certain contexts (see Lope Blanch 1958; Borrego et al. 1987; Bosque 1990; Porto Dapena 1991; Real Academia Española 2010).

mate theme, in order to avoid the use of the differential object marker that is obligatory with animate objects in Spanish. For the embedding predicates in the second conjunct, we employed 8 non-factive verbs (epistemic and communication verbs, repeated in three different items: *creer* 'believe, *imaginarse* 'imagine', *parecer* 'seem', *pensar* 'think', *sospechar* 'suspect', *suponer* 'suppose', *decir* 'say', *rumorearse* 'be rumored') and 8 factive verbs. We paid attention to the heterogeneous behaviour of factive predicates (Karttunen 1971; Hooper & Thompson 1973; Hooper 1975), and considered a more fine-grained distinction. The factive verbs were carefully chosen according to whether they were true factives (= emotion verbs, as in (15)) or semi-factives (= knowledge verbs, as in (16)): there were 5 true factive emotion verbs (each repeated 3 times: *impresionarse* 'be impressed', *gustar* 'like', *horrorizarse* 'be horrified', *molestarse* 'be bothered', *sorprenderse* 'be surprised') and 3 semi-factive knowledge verbs (each repeated 3 times: *observar* 'observe', *saber* 'know', *ver* 'see').

(15) La madre encargó un collar grabado y **me gusta** **que** el padre un
the mother ordered a necklace engraved and me like.3SG that the father a
reloj de marca.
watch of brand
'The mother ordered an engraved necklace and I like that the father (ordered) a big-brand watch.'

(16) La mujer recibió 35.000€ y **veo** **que** el marido 200.000€.
the woman received 35.000€ and see.1SG that the husband 200.000€
'The woman received 35.000€ and I see that her husband (received) 200.000€.'

In addition to the experimental items, 24 filler items from an unrelated experiment were also included in order to drive the participants' attention away from the phenomenon under investigation. The filler items were also introduced by a contextual question, and were complex sentences presented in four conditions, according to two factors: structure canonicity (canonical vs. clefted) and grammaticality (grammatical vs. ungrammatical). A simplified version of a filler item is given in (17), where ungrammatical items contain subject-verb agreement errors or verbal tense errors, e.g. *seremos* instead of the grammatical verbal form *era*. The ungrammatical items were used as control items in order to monitor whether or not participants were completing the task carefully.

(17) ¿Cuándo golpeó Pedro a Juan?
'When did Pedro hit Juan?'

a. Pedro golpeó a Juan cuando {era / **seremos**} joven.
Pedro hit DOM Juan when was / be.FUT.1PL young
'Pedro hit Juan when {he was / we will be} young.'

b. Fue Pedro quien golpeó a Juan cuando {era / **seremos**} joven.
CLEFT Pedro who hit DOM Juan when was / be.FUT.1PL young
'It was Pedro who hit Juan when {he was / we will be} young.'

3.2.3 Procedure

The experiment was administered on IbexFarm (Drummond 2013). Sentences were presented in a Latin Square within-subjects design, so that participants were exposed to all 6 experimental conditions, but never to the same item in more than one condition. After reading the instructions and answering some language background questions, participants

judged the acceptability of 9 practice items, in order to become familiar with the format of the experiment.

Participants were instructed to read the sentences carefully and to judge their acceptability by using a 7-point Likert scale, where 1 means completely unacceptable and 7 means completely acceptable. Participants did not have the option to go back to change a previous judgment. The experiment took 10–15 minutes to complete.

3.2.4 Analyses and results

Acceptability judgments (1–7) were entered into a mixed-effect linear regression analysis using the *lme4* package (Bates et al. 2015) in *R* (R Development Core Team 2008) with the predictors Gapping and Embedding Complexity and random intercepts and slopes for Gapping and Embedding Complexity for Items and Subjects (Barr et al. 2013). A more detailed explanation of the models used for the data analysis, as well as tables summarizing the models' fixed effects are given in the Appendix.

The results of Experiment 1 revealed no main effect of Gapping, as participants judged equally acceptable the Embedded Gapping conditions compared to their non-elliptical counterparts. Overall, these results go against what has been reported in the literature for English: based on two experimental studies (a written questionnaire and an auditory comprehension study), Carlson (2001) shows that in English there is a preference for non-gapping over gapping structures. The same preference for non-gapping structures in English is confirmed by Bîlbîie et al. (2019), who show that languages may differ with respect to the preference between an elliptical construction and its non-elliptical counterpart. Coming back to our Spanish data, Table 1 summarizes the mean acceptability judgments in raw scores and z-scores. These results are shown in Figure 1.[8]

The linear mixed model revealed, however, a main effect of Embedding ($p < .01$), as embedded configurations were judged less acceptable than non-embedded ones (mean rates: 5.44 vs. 6.58). As Figure 2 shows, this penalty for embedding is not related to gapping. In addition to the main effect of Embedding, there was a significant main effect of Factivity ($p < .001$), as embedded clauses under a factive verb are less acceptable than embedded clauses under a non-factive verb (mean rates: 4.63 vs. 6.24). Once again, as Figure 3 illustrates, this was regardless of whether there is gapping or not. We explored further this sensitivity to the semantic type of embedding predicates by distinguishing between (emotion) true factive verbs and (knowledge) semi-factive verbs. As shown in Figure 4, embedding predicates under true factive verbs were rated as less acceptable than predicates under semi-factive verbs (mean rates: 3.9 vs. 5.6).

The interaction between Gapping and Embedding was not significant, and neither was the interaction between Gapping and Factivity.

Table 1: Mean acceptability judgements for Experiment 1 (SD in parentheses).

	Gapping		No Gapping	
	raw scores	z-scores	raw scores	z-scores
No Embedding	6.55 (1.32)	0.44 (0.67)	6.61 (0.98)	0.45 (0.57)
Emb. No Factive	6.28 (1.28)	0.25 (0.75)	6.21 (1.56)	0.23 (0.89)
Emb. Factive	4.66 (1.98)	−0.67 (1.09)	4.61(1.94)	−0.70 (0.99)

[8] Figures plot standardized scores (= z-scores) for the acceptability judgments. The z-score transformation centers the scores around the mean 0, and it converts the units to standard deviations.

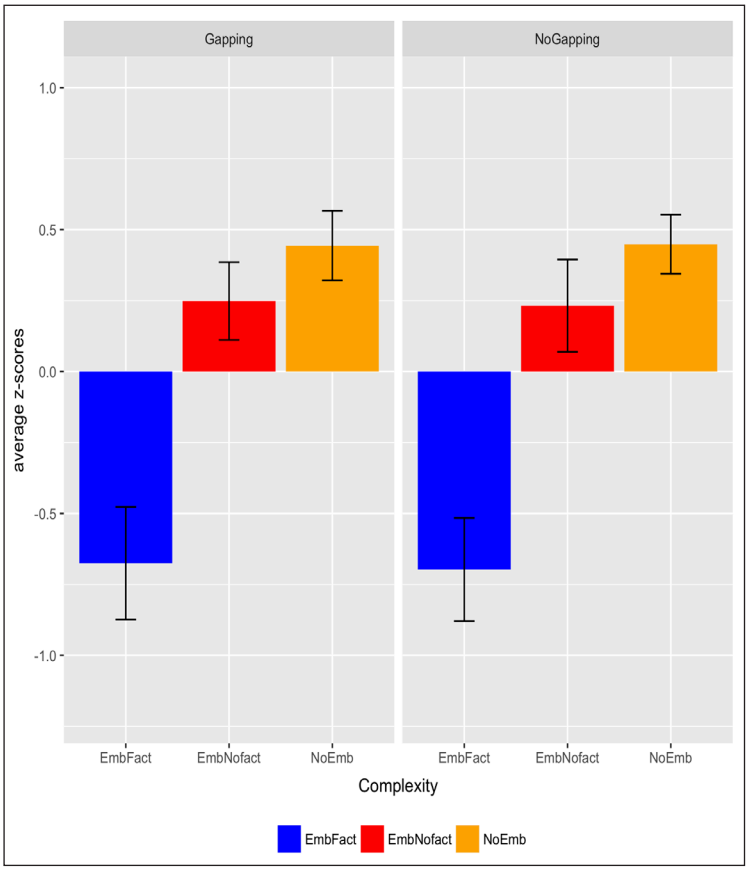

Figure 1: Mean acceptability judgments in z-scores for Experiment 1.

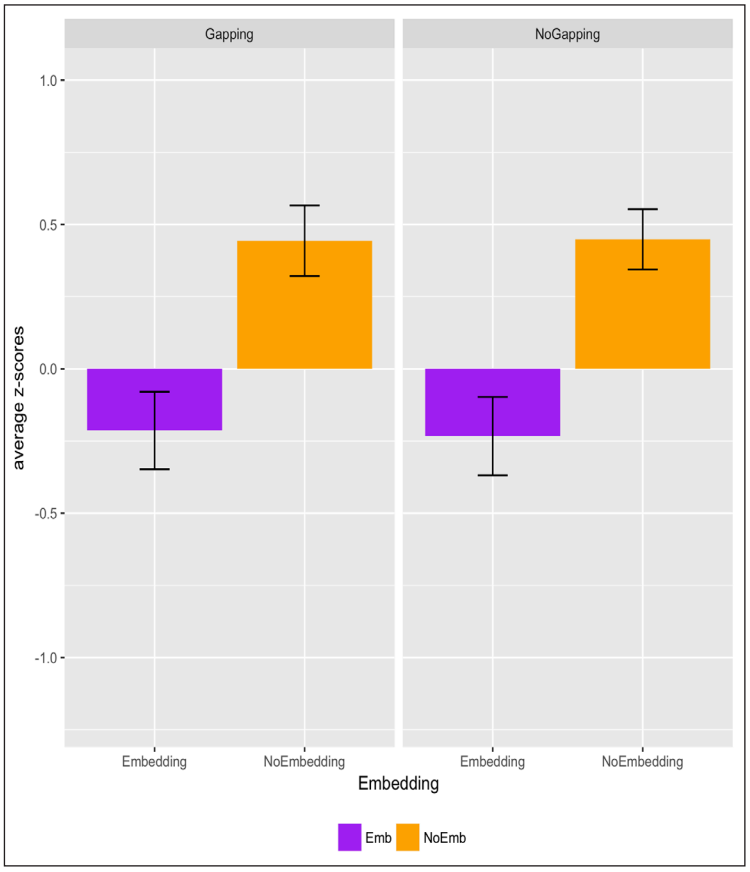

Figure 2: Effect of Embedding.

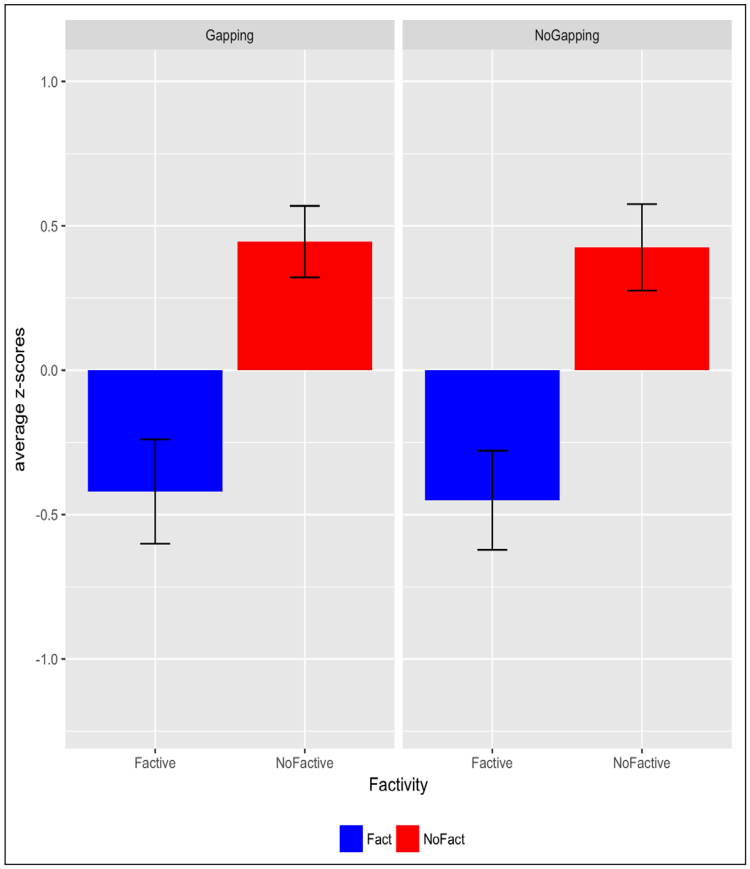

Figure 3: Effect of Factivity.

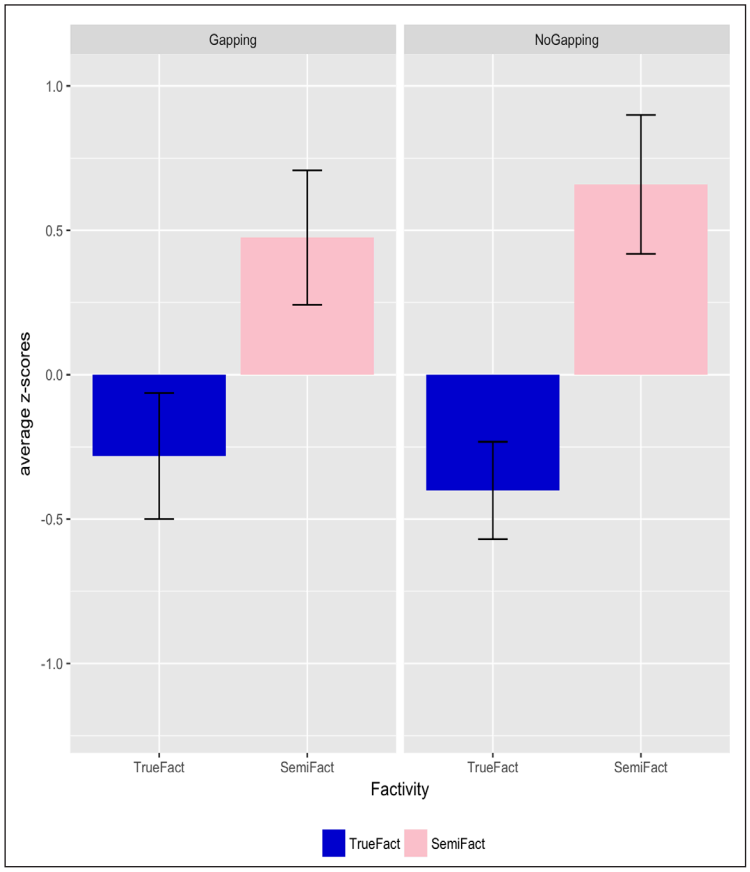

Figure 4: Zoom into the different kinds of factive verbs.

3.2.5 Discussion

Coming back to our first research question, we hypothesized that embedded gapping should be acceptable in Spanish. Our results show that, although items with embedding are rated lower than items with no embedding, embedded gapping is indeed acceptable in Spanish (the Embedded Gapping conditions are significantly different from the ungrammatical controls $p < .001$),[9] and this is so regardless of gapping. Concerning our second research question, we hypothesized a gradience in acceptability rates with respect to the semantic class of the embedding predicate and an interaction with gapping. In particular, we expected that sentences that contain an embedded clause introduced by a factive verb would be judged less acceptable with gapping than with full sentences. This hypothesis was not borne out by our results, as both conditions [Gapping, Embedding Factive] and [No Gapping, Embedding Factive] were judged equally (un)acceptable by our participants.

There are two reasons which may have disfavored factive verbs in our experiment. First, this finding may be related to our choice of mood for the verb in the embedded construction in the [No Gapping, Embedding Factive] condition. Recall that, for consistency reasons, we decided to employ the indicative mood in this condition. While the indicative form is grammatical in contexts with emotion factive predicates, this remains the more marked form, compared to the subjunctive (Lope Blanch 1958; Borrego et al. 1987; Bosque 1990; Porto Dapena 1991; Real Academia Española 2010). This probably translated into the lower acceptability judgments in this condition. A second possibility is that our results may have been influenced by the context *wh*-question we used before the target experimental sentences. Note that the second conjunct introduced by a factive verb does not answer that question; rather it addresses a different QUD (= Question Under Discussion), e.g. no longer what someone did, but what effect it had on the speaker, leading to a discourse incoherence (see Section 4.2 below). These two aspects (i.e. mood selection and context *wh*-question) were addressed in Experiment 2.

3.3 Experiment 2

3.3.1 Participants

A total of 56 Spanish native speakers completed Experiment 2. Six of these participants had grown up bilingual (Spanish-Catalan or Spanish-Galician) and were not considered for the analyses. The remaining 50 participants (mean age: 32.7; range: 18–53) were from different Hispanic countries: Spain (n = 23), Mexico (n = 12), Argentina (n = 5), Colombia (n = 4), Peru (n = 3), Chile (n = 2), and Venezuela (n = 1). None of these participants had previously participated in Experiment 1. A subset of the participants was recruited via Amazon's Mechanical Turk. These participants were paid $1.25 in exchange for their participation.

3.3.2 Materials

The same 24 experimental items, in the same 6 experimental conditions, employed in Experiment 1 were used in Experiment 2. There were, however, two important modifications. First, in the [No Gapping, Embedding Factive] condition, we took into account the mood preferences of the embedding predicate: the verb in the embedded construction was presented in its subjunctive form if the embedding predicate was a true factive (= emotion verb) as in (18), but in its indicative form if the embedding predicate was a semi-factive (= knowledge verb) as in (19).

[9] The difference between the [Gapping, Embedded Factive] condition and the ungrammatical controls is also highly significant ($p < .001$).

(18) En el bar, Pablo pidió una cerveza y **me molesta que** Juan pidiera un whisky.
in the bar Pablo ordered.IND a beer and me bother.3SG that Juan ordered.SBJV a whisky
'At the bar, Pablo ordered a beer and I am bothered that Juan ordered a whisky.'

(19) Para la fiesta, Juan trajo zumos de frutas y **veo que** César trajo bebidas alcohólicas.
for the party Juan brought.IND juices of fruits and see.1SG that César brought.IND drinks alcoholic
'To the party, Juan brought fruit juices and I see that César brought alcoholic drinks.'

Second, in order to avoid discourse incoherence, the contextual *wh*-question was replaced by an initial locative/temporal adjunct that served the same function of contextual anchor (i.e. circumstantial frame setter). These changes are shown in the sample item in (20).

(20) a. *[Gapping, No Embedding]*
En el bar, Pablo pidió una cerveza y Juan un whisky.
'At the bar, Pablo ordered a beer and Juan a whisky.'

b. *[Gapping, Embedding Non-factive]*
En el bar, Pablo pidió una cerveza y **sospecho que** Juan un whisky.
'At the bar, Pablo ordered a beer and I suspect that Juan a whisky.'

c. *[Gapping, Embedding Factive]*
En el bar, Pablo pidió una cerveza y **me molesta que** Juan un whisky.
'At the bar, Pablo ordered a beer and I am bothered that Juan a whisky.'

d. *[No Gapping, No Embedding]*
En el bar, Pablo pidió una cerveza y Juan pidió un whisky.
'At the bar, Pablo ordered a beer and Juan ordered a whisky.'

e. *[No Gapping, Embedding Non-factive]*
En el bar, Pablo pidió una cerveza y **sospecho que** Juan pidió un whisky.
'At the bar, Pablo ordered a beer and I suspect that Juan ordered a whisky.'

f. *[No Gapping, Embedding Factive]*
En el bar, Pablo pidió una cerveza y **me molesta que** Juan pidiera un whisky.
'At the bar, Pablo ordered a beer and I am bothered that Juan ordered a whisky.'

Some further minor adjustments were made to the lists of embedding predicates in the second conjunct: we used 8 non-factive verbs (repeated in three different items: *creer* 'believe, *imaginarse* 'imagine', *parecer* 'seem', *sospechar* 'suspect', *suponer* 'suppose', *contar* 'tell', *decir* 'say', *rumorearse* 'be rumored') and 10 factive verbs: 6 true factive (emotion) verbs (each repeated 2 times: *encantar* 'like', *gustar* 'like', *horrorizarse* 'be horrified', *molestarse* 'be bothered', *preocuparse* 'be worried', *sorprenderse* 'be surprised') and 4 semi-factive (knowledge) verbs (each repeated 3 times: *comprobar* 'confirm', *observar* 'observe', *saber* 'know', *ver* 'see').

In addition to the 24 experimental items, there were 24 filler items from an unrelated experiment, different from those used in Experiment 1. The new filler items tested the acceptability of possessive relative clauses introduced by the pronoun *cuyo/a* 'of which',

as in (21a).[10] The condition shown in (21b), where the relative clause was introduced by the pronoun *que* instead of *cuya*, was taken as an ungrammatical control in order to make sure that participants were doing the task carefully, and not just providing random judgments.

(21) a. Llegamos a la base de la pirámide cuya altura impresiona a los turistas durante la visita.
'We arrive at the base of the pyramid the height of which amazes the tourists during their visit.'

b. Llegamos a la base de la pirámide **que** la altura impresiona a los turistas durante la visita.
'We arrive at the base of the pyramid the height which amazes the tourists during their visit.'

3.3.3 Procedure

Experiment 2 was also administered via IbexFarm. Participants were instructed to read the sentences carefully and to judge their acceptability by using a 10-point Likert scale,[11] where 1 means completely unacceptable and 10 means completely acceptable. Participants did not have the option to go back to change a previous judgment. A yes/no comprehension question was shown after each sentence, which was used as a second measure to control that participants were performing the task carefully and thoroughly. Answers to the comprehension questions were monitored to eventually exclude unfit participants from further analyses. Prior to the experiment, participants completed a short language background questionnaire and 4 practice items. Completing the experiment took 15–20 minutes.

3.3.4 Analyses and results

The average percentage of correct answers to comprehension questions was over 75% for all participants and, therefore, none of them was excluded from the analyses.

Acceptability judgments (1–10) were entered into the same kind of mixed-effect linear regression analysis used in Experiment 1. The summary of the model's fixed effects is given in the Appendix.

The linear mixed model revealed this time a significant main effect of Gapping ($p < .05$), as participants rated the Gapping conditions as less acceptable than the No Gapping conditions (mean rates: 8.62 vs. 8.85). Table 2 summarizes the mean acceptability judgments in raw scores and z-scores. These results are shown in Figure 5.

Table 2: Mean acceptability judgements for Experiment 2 (SD in parentheses).

	Gapping		No Gapping	
	raw scores	z-scores	raw scores	z-scores
No Embedding	9.46 (1.21)	0.61 (0.46)	9.16 (1.79)	0.51 (0.56)
Emb. No Factive	8.98 (1.64)	0.38 (0.58)	9.10 (1.49)	0.44 (0.49)
Emb. Factive	7.44 (2.54)	−0.25 (0.91)	8.30 (2.17)	0.12 (0.70)

[10] Filler items appeared in 6 different conditions according to the syntactic function (subject/object) and the type of construction (relative with *cuyo* 'of which' vs. relative with *que* 'which' vs. coordinated).

[11] The choice of a 10-point Likert scale for Experiment 2, instead of a 7-point scale as in Experiment 1, is explained by the fact that Experiment 2 was part of a larger cross-linguistic study in which a 10-point scale was a more appropriate fit for the other languages studied.

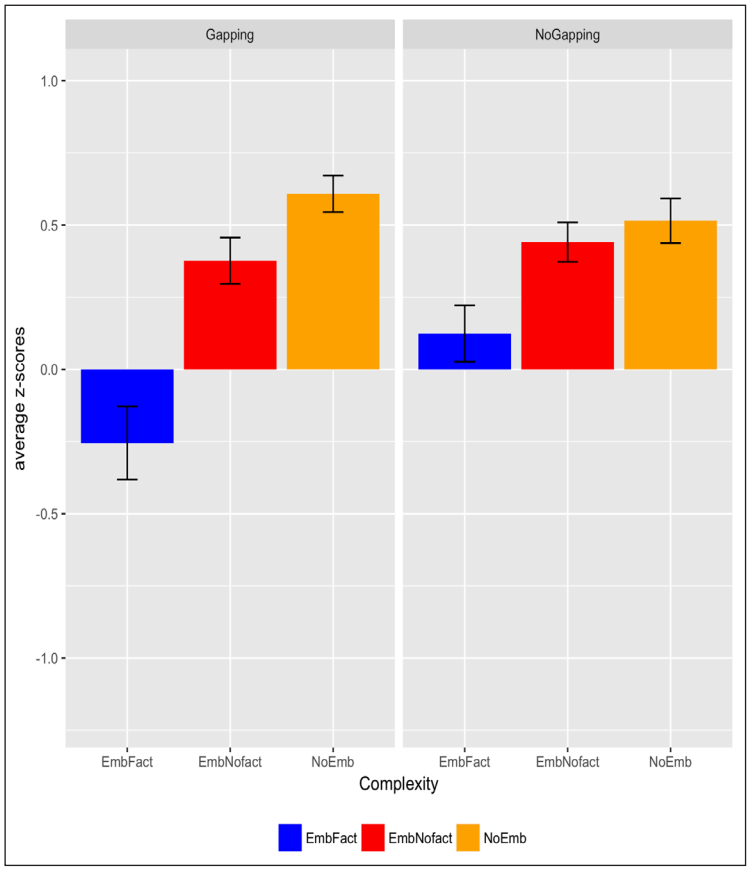

Figure 5: Mean acceptability judgments in z-scores for Experiment 2.

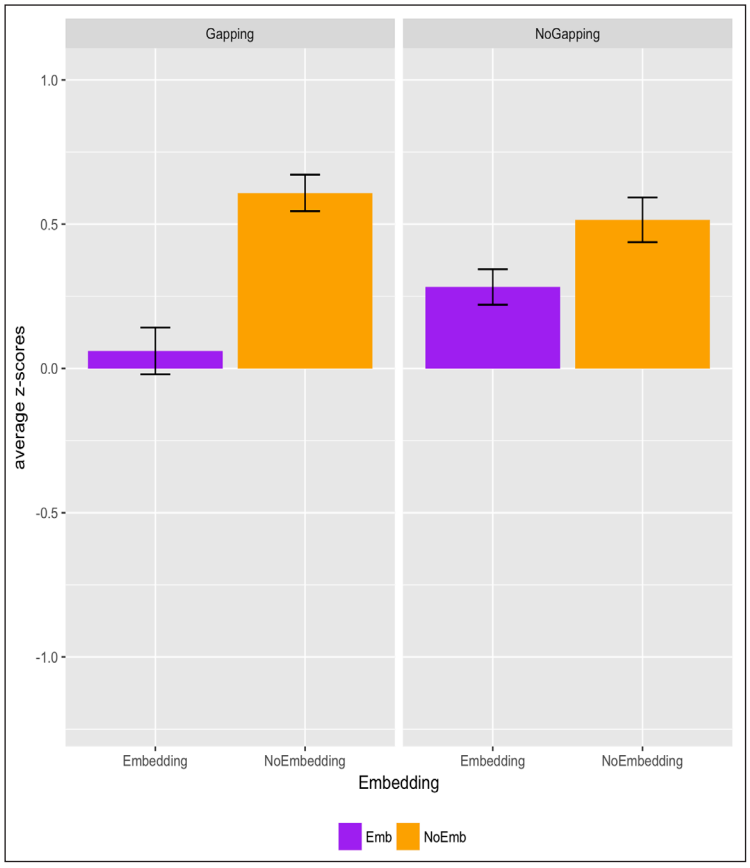

Figure 6: Effect of Embedding.

In addition to the main effect of Gapping, there was a main effect of Embedding ($p < .01$), as embedded configurations were judged less acceptable than non-embedded ones (mean rates: 8.45 vs. 9.31). As Figure 6 shows, this penalty for embedding varies as a function of Gapping, with embedded configurations being less acceptable with gapping than with no gapping (mean rates: Gapping Embedding 8.21 vs. Gapping No Embedding 9.46; No Gapping Embedding 8.70 vs. No Gapping No Embedding 9.16). The interaction between Gapping and Embedding was significant ($p < .05$).

Moreover, there was a significant main effect of Factivity ($p < .001$), as embedded clauses under a factive verb are less acceptable than embedded clauses under a non-factive verb (mean rates: 7.87 vs. 9.04). Crucially, as Figure 7 shows and as opposed to Experiment 1, this effect varies as a function of Gapping, with embedded constructions under factive verbs being judged less acceptable with gapping than with no gapping (mean rates: 7.44 vs. 8.30). The interaction between Gapping and Factivity was significant, too ($p < .001$). The interactions are plotted in Figure 9. We explored further this sensitivity to the semantic type of embedding predicates by distinguishing between (emotion) true factive verbs and (knowledge) semi-factive verbs. As Figure 8 illustrates, embedding predicates under true factive verbs were rated as less acceptable than predicates under semi-factive verbs, especially in gapping constructions (mean rates: True factive Gapping 6.86 vs. No Gapping 8.19; Semi-factive Gapping 8.05 vs. No Gapping 8.41).

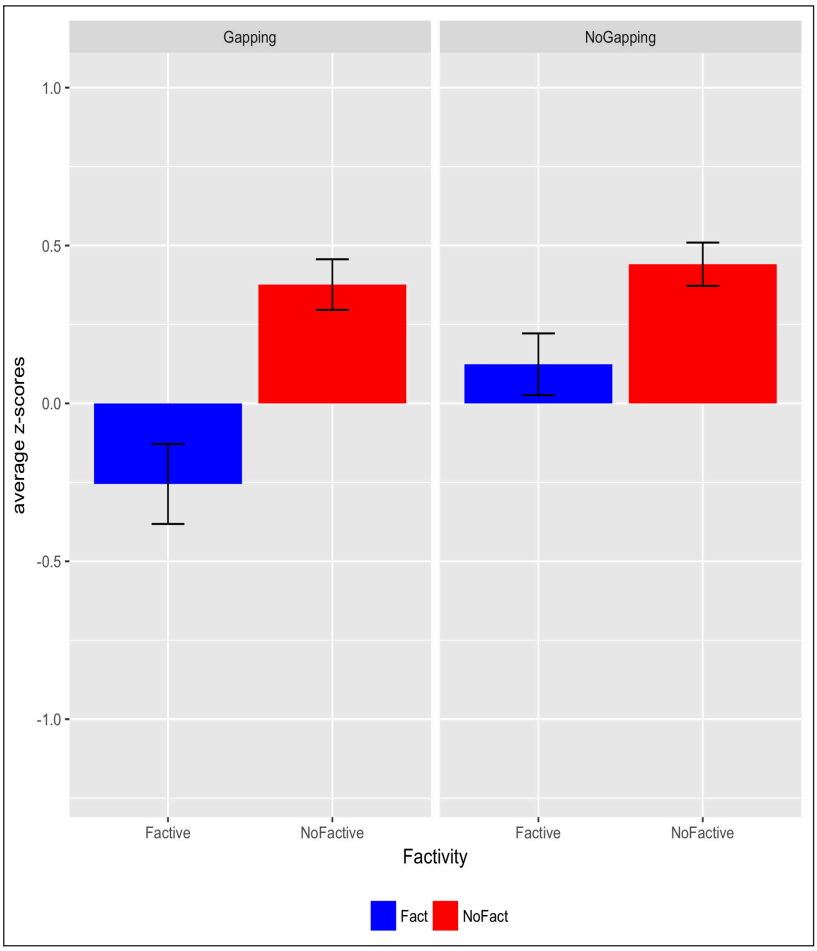

Figure 7: Effect of Factivity.

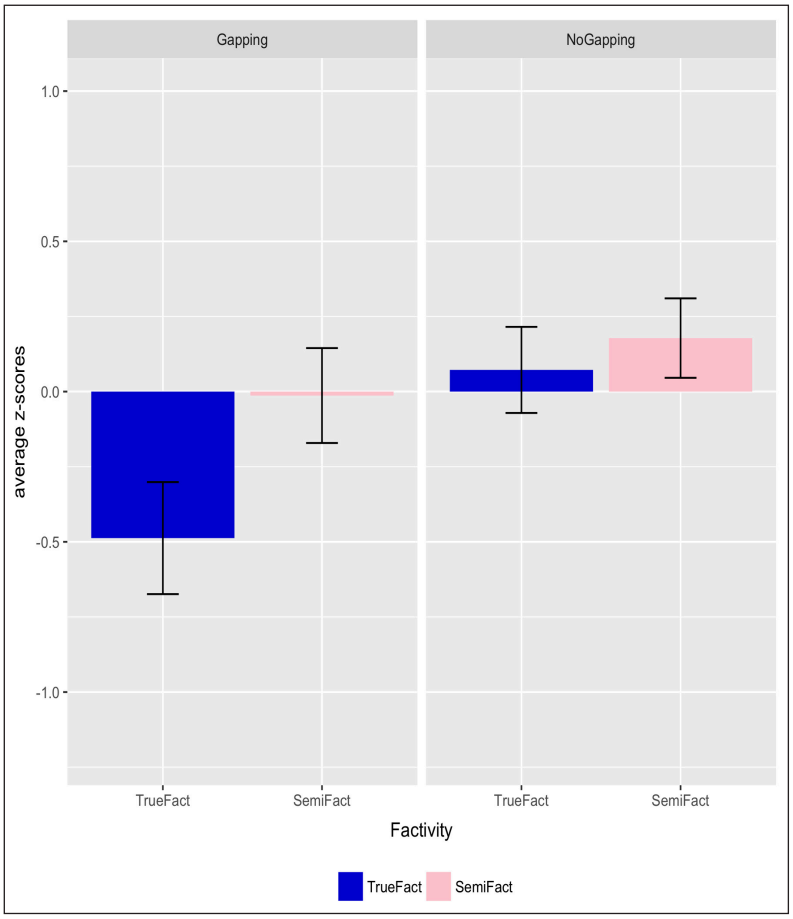

Figure 8: Zoom into different kinds of factive verbs.

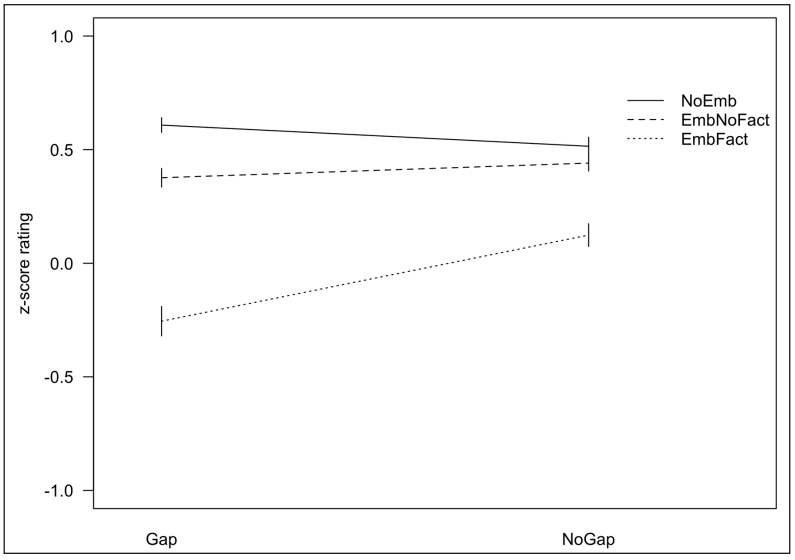

Figure 9: Interactions Experiment 2.

3.3.5 Discussion

Judging by the results of Experiment 2, it seems reasonable to assume that the potential confound in our Experiment 1 (i.e. mood selection) did have an effect on the results. The mood selection created a floor effect in our Experiment 1, as the indicative choice

(the marked form compared to the more natural subjunctive) cancelled the effect of our experimental factors. In particular, this choice seems to have been responsible for the lack of interaction between Gapping and Embedding, and between Gapping and Factivity in Experiment 1. These interactions, however, were statistically significant in Experiment 2, where this confound was addressed.

Coming back to our two research questions, we hypothesized that embedded gapping should be acceptable in Spanish (at least with some verbs). This hypothesis was borne out by the results of Experiment 2, since we observed that embedded gapping is as acceptable as embedded non-gapping, especially under non-factive verbs. Although there is an interaction between Gapping and Embedding, embedded gapping (with both factives and non-factives combined) is more acceptable than the ungrammatical controls (this difference turned out significant, $p < .001$).[12] With regard to our second research question, we hypothesized that embedded gapping acceptability varies depending on the semantic class of the embedding predicate and it decreases in particular with factive verbs. Our experimental findings show that there is a clear gradience in the participants' acceptability judgments. Factivity plays indeed a major role: embedded clauses under a factive verb are less acceptable than under a non-factive verb. In addition to this, our results show that there is an interaction between Gapping and Factivity within factive verbs, in that embedded clauses under a factive verb are more acceptable in non-gapping contexts compared to gapping contexts. Moreover, factive predicates do not have the same effect on participants' judgments, as embedded clauses under a true factive (emotion) verb are less acceptable than embedded clauses under a semi-factive (knowledge) verb.

These results have important implications with regard to previous literature. First, they are in line with the dichotomy proposed by Hooper (1975) between semi-factive (e.g. *find out, know, see*, etc.) and true factive verbs (e.g. *regret, forget, amuse*, etc.): semi-factive verbs are much more similar to non-factive than to true factive verbs. Second, they provide an explanation to the inconsistency in the use of the diacritic marks in previous studies on Spanish embedded fragments, as shown in (9b) and (10b) above. Given the fact that in our experiments there is a clear contrast between embedded gapping under a factive (emotion) verb and ungrammatical control items, we consider that these cases are better defined in terms of semantic and discursive infelicity rather than a syntactic constraint violation.

From the results of Experiments 1 and 2 combined, we conclude that the No Embedding Constraint on gapping, postulated by Hankamer (1979), Neijt (1979), Johnson (2009; 2014) a.o., and considered to be a strong syntactic constraint specific to gapping constructions must be reconsidered. Moreover, a more general semantic constraint seems to be at work: non-factive verbs embed more easily than factive ones (Karttunen 1971; Kiparsky & Kiparsky 1971); and, within factive predicates, semi-factive verbs embed better than true factive ones. Embedded gapping and embedded coordinated clauses in general are thus sensitive to the semantic class of the embedding predicate. An approach based on acceptability, rather than one based on categorical grammaticality, seems to be a better fit to capture these effects.

4 Consequences for the syntactic analysis of gapping

4.1 Between a Small Conjunct Gapping and a Large Conjunct Gapping

In the literature on ellipsis, there are two main syntactic accounts of gapping: (i) Small Conjunct Gapping (SCG), involving a subclausal (low) coordination, and (ii) Large Conjunct Gapping (LCG), appealing to a clausal (high) coordination.

[12] The difference between the [Gapping, Embedded Factive] condition and the ungrammatical controls is also highly significant ($p < .001$).

Under the SCG approach, two kinds of analyses have been explored: (ia) the first, without ellipsis, appealing to some leftward movement that combines across-the-board (ATB) movement of the shared head verb out of each conjunct and asymmetric extraction of non-shared constituents preceding the head verb out of the first conjunct (Johnson 2004; 2009), as illustrated in (22a); (ib) the second, involving ellipsis (deletion) of an approximately *v*P-sized constituent (Coppock 2001; Lin 2002; López & Winkler 2003 a.o.), as illustrated in (22b).

(22) a. John$_1$ drinks$_2$ [$_{VP}$ t$_1$ t$_2$ scotch] and [$_{VP}$ Bill t$_2$ bourbon].
b. John$_1$ [$_{VP}$ t$_1$ drinks scotch] and [$_{VP}$ Bill ~~drinks~~ bourbon].

Under the LCG approach, the various analyses which have been proposed fall under two main directions: (iia) the first, involving ellipsis (deletion) of a phrasal projection of the verb, such as TP or CP (Ross 1967; 1970; Jackendoff 1971; Sag 1976; Hankamer 1979; Jayaseelan 1990; Hartmann 2000 a.o.), as illustrated in (23a); (iib) the second, proposing a construction-based analysis that appeals to a dedicated meaning-form rule, i.e. a construction, mapping a headless structure to a clausal meaning, as illustrated in (23b): Categorial Grammar (Dowty 1988; Steedman 1990; 2000; Kubota & Levine 2015; 2016), Construction Grammar (Goldberg & Perek 2018), LFG (Patejuk & Przepiórkowski 2017), HPSG (Abeillé et al. 2014; Bîlbîie 2017; Park to appear; Park et al. 2019).

(23) a. [$_S$ John drinks scotch] and [$_S$ Bill ~~drinks~~ bourbon].
b. [$_S$ John drinks scotch] and [$_S$ Bill bourbon].

The contrast in (24) below, with ungrammatical embedded gapping in English (24b), is considered as strong evidence for an SCG analysis, i.e. a low (subclausal) coordination. In SCG approaches, it is assumed that a TP from a matrix clause may not dominate a *v*P from an embedded one; thus, this account automatically rules out embedded gapping.

(24) a. Alfonso stole the emeralds, and Mugsy the pearls.
b. Hankamer (1979)
*Alfonso stole the emeralds, and **I think that** Mugsy the pearls.
c. Alfonso stole the emeralds, and **I think that** Mugsy stole the pearls.

However, as shown by the two experiments presented in Section 3, the ban on embedded gapping is not as strict (and universal) as traditionally assumed. The possibility to embed gapping (as revealed by the Spanish data) is unexpected under a low analysis of gapping. The SCG account is thus not equipped to handle embedding facts.

If one wants to take into account cross-linguistic variation with respect to embedded gapping (e.g. acceptability in Spanish vs. grammatical ban in English), one possibility would be to consider a "hybrid" analysis of gapping (Erschler 2016; Fernández-Sánchez 2017), by taking into account both SCG (22) and LCG (23) structures: an SCG analysis for non-embedded gapping, and an LCG analysis for embedded gapping. It is worth mentioning that the same "hybrid" ("two-source hypothesis") approach has recently been proposed by Potter et al. (2017), based on scope ambiguities in gapping, a semantic aspect which has long presented a challenge to theories of the syntax-semantics interface. According to Potter et al. (2017), scope ambiguities in gapping systematically rely on a structural ambiguity: scope-taking elements (e.g. modal auxiliaries, sentential negation, modal and frequency adverbs) that occupy a position above the *v*P domain coordinate structure scope

over this *v*P domain, yielding a wide scope above the coordination, whereas scopal elements occurring within a CP domain coordinate structure have a distributive scope under the coordination. The two interpretations which are available for the example (25) in English, displaying the modal auxiliary *can* and the sentential negation *not*, are derived by Potter et al. (2017) from two different syntactic configurations: in (25a), the wide scope is linked to an SCG analysis, whereas in (25b), the distributive scope comes with an LCG analysis.

(25) James can't order caviar and Mary chili.

a. James_1 can't [t_1 order caviar] and [Mary_2 chili_3 ~~t_2 order t_3~~].
Wide scope: $\neg\Diamond(P \wedge Q)$
Interpretation: 'It's not possible for James to order caviar and Mary to order chili.'

b. [James can't order caviar] and [Mary_1 chili_2 ~~t_1 can't order t_2~~].
Distributive scope: $\neg\Diamond P \wedge \neg\Diamond Q$
Interpretation: 'James can't order caviar and Mary can't order chili.'

Therefore, gapping is considered to be, in general, syntactically ambiguous between two structures: *v*P-domain sized coordinate structure (which handle the wide scope of semantic operators) and CP-domain (clause-sized) coordinate structures (which account for the distributive scope of semantic operators). From this perspective, homogeneous-SCG and homogeneous-LCG analyses face difficulties in accounting for this scope ambiguity in gapping: the SCG approach cannot handle the distributive scope, while the LCG approach cannot deal with the wide scope. Our embedding facts (in particular, the (un)availability of embedded gapping across languages) seems at first glance to favor this kind of "hybrid" syntactic approach. This is the position adopted by Erschler (2016) and Fernández-Sánchez (2017), according to whom cross-linguistic differences (e.g. between English and Spanish in our case) with respect to embedded gapping would reflect a syntactic ambiguity in the size of coordinated categories. An SCG approach would account for non-embedded gapping and wide scope of semantic operators, while an LCG approach would account for embedded gapping and distributive scope of semantic operators.

Coming back to our Spanish experimental data, as we have already mentioned, the SCG analysis cannot be the source of gapping in Spanish, as the embedding of a gapped structure under a clause-embedding predicate and complementizer is incompatible with such an analysis. The only option available for these embedding cases remains the LCG. A semantic correlation (in line with Potter et al. 2017)[13] would be the unavailability of wide-scope reading in these contexts, which seems to be the case. If in the non-embedded gapping in (26), both distributive-scope (26a) and wide-scope (26b) readings are available, in the embedded gapping in (27a), only a distributive-scope reading is available (27b).[14]

[13] Crucially, this approach is based on the fact that, when a CP coordinate structure is unavailable, just a wide scope reading is possible and vice versa, when a *v*P-domain structure is unavailable, just a distributive reading is possible.

[14] Note that, in contexts with a negated modal, embedding of the gapped clause under the conjunction *y* 'et' is very awkward in Spanish (i). The negation in the first clause is correlated with the coordinator *ni* 'nor' in the embedded gapped clause.

(i) #Juan no puede vivir en París **y** **creo** **que** María en Montreal.
Juan NEG can.3SG live in Paris and think that María in Montreal
'Juan can't live in Paris and I think that María can't live in Montreal.'

(26) Juan no puede vivir en París y María en Montreal.
Juan NEG can.3SG live in Paris y María in Montreal
'Juan can't live in Paris and María in Montreal.'

a. *Paraphrase for distributive-scope reading*: It is impossible for Juan to live in Paris and it is impossible for María to live in Montreal.

b. *Paraphrase for wide-scope reading*: What is impossible is for Juan to live in Paris and for María to live in Montreal (e.g. if they are a married couple, they cannot live apart from each other).

(27) a. Juan no puede vivir en París **ni creo que** María (pueda
Juan NEG can.3SG live in Paris nor think.1SG that María (can.3SG.SBJV
vivir) en Montreal.[15]
live) in Montreal
'Juan can't live in Paris and I think that María can't live in Montreal.'

b. *Paraphrase for distributive-scope reading*: It is impossible for Juan to live in Paris and I think that it is impossible for María to live in Montreal.

This would suggest that at least embedded gapping invokes an LCG in Spanish, but does not necessarily rule out the possibility to have a second source of gapping (i.e. SCG) outside embedding contexts (in Spanish or English). However, there is no empirical motivation for an SCG analysis even outside embedded gapping configurations. Despite its semantic motivation (i.e. wide scope reading), the SCG account still faces many difficulties. Below, we give some empirical evidence against SCG both in Spanish and English.

In SCG approaches, verb movement is accompanied by an asymmetric extraction of the non-shared constituents (generally, the subject) preceding the head verb out of the first conjunct only. As Abeillé et al. (2014) and Bîlbîie (2017) show, this assumption makes wrong predictions with respect to the distribution of initial conjunctions in Romance languages. The SCG approach wrongly predicts that initial conjunctions, such as *o* 'either' in Spanish, which mark the left edge of the first conjunct in Romance (Bîlbîie 2008), should occur after the alleged moved material (28b), and not before (28a).

(28) a. **O** Daniel toca el violín, **o** María el piano.
either Daniel plays the violin or Maria the piano
'Either Daniel plays the violin, or Maria the piano.'

b. *Daniel toca **o** el violín, **o** María el piano.
Daniel plays either the violin or Maria the piano

Moreover, Kubota & Levine (2016) signal an empirical problem related to the distribution of the adverb *merely* in English, which is a strictly *v*P adjunct (compare (29a) and (29b)). In gapping contexts, it should precede the putative *v*P in the gapped clause in the case of SCG (30a), contrary to facts (30b). This behavior is quite unexpected under a *v*P-coordination approach and, thus, constitutes evidence of a clausal size for the gapped conjunct.

(29) a. Robin {merely said / said merely} that our footnotes were too long.
b. *Merely, Robin said that our footnotes were too long.

[15] The subjunctive is triggered in the embedded gapped clause because the higher verb *creo* 'I think', which otherwise selects the indicative, is negated in this case ("polarity subjunctive", cf. Quer 2009).

(30) Kubota & Levine (2016: 125)
Robin commented only that our margins were too small, and
a. *merely Leslie that our footnotes were too long.
b. Leslie merely that our footnotes were too long.

Another difficulty for the SCG approach is its incapacity to account for cases that involve elements that are moved to or base-generated in the left periphery of CP, such as topicalized elements or fronted *wh*-words (Repp 2009; Kubota & Levine 2016). As the gapped clause in SCG is stipulated to contain only an untensed low *v*P projection, there are no landing sites for these fronted elements,[16] traditionally analyzed as being above TP projection. This is illustrated in (31) for English and in (32) for Spanish.

(31) a. Sag (1976: 265)
At our house we play poker, and at Betsy's house, bridge.
b. Kubota & Levine (2016: 124)
To Robin Chris gave the book, and to Leslie, the magazine.
c. Kubota & Levine (2016: 124)
Which abstract should we send to NELS and which manuscript to LI?
d. Repp (2009: 34)
Why did John go by train and why Mary by car?

(32) a. En nuestra casa jugamos al póker y en la de Betsy al bridge.
'At our house we play poker, and at Betsy's house, bridge.'
b. A Robin Chris le dio un libro y a Leslie una revista.
'To Robin Chris gave the book, and to Leslie, the magazine.'
c. ¿Qué resumen deberíamos enviar a NELS y qué manuscrito a LI?
'Which abstract should we send to NELS and which manuscript to LI?'
d. ¿Por qué fue Juan en tren y por qué María en coche?
'Why did Juan go by train and why María by car?'

The "hybrid" analysis of gapping (*à la* Potter et al. 2017) predicts a correlation between the coordination size and the interpretation of scope-taking elements. In this approach, some syntactic contexts condition wide scope only, such as contexts where there is a constituent at the left periphery of the left conjunct which is shared by both conjuncts (in other words, it does not have any correlate in the gapped conjunct). Potter et al. (2017) argue that, in such a context as in (33a), an LCG analysis is unavailable, gapping applying to a structure where the remnant topicalization is unavailable (since the CP-Top position, receiving topicalized elements, is already occupied by the left peripheral PP); consequently, only a wide-scope reading is available. However, as Park et al. (2019) show, there are similar contexts where this prediction is not borne out. A context such as (33b), where there is a *wh*-extracted element at the left periphery and a negation preceding the putative *v*P coordination, easily gives rise to a distributive-scope reading.

(33) a. $[\text{With only ten dollars between them}]_{\text{PP}}$, James could get a sandwich, and Mary a bowl of soup.
b. [Who] did you say that Bill wouldn't introduce to Sue and John to Mary?

[16] In order to save a *v*P coordination analysis, López & Winkler (2003) assume an ad-hoc *v*P-internal landing site for these fronted elements. However, as Kubota & Levine (2016) show, this kind of topicalization is impossible in non-gapping contexts.

Furthermore, Park (to appear) discusses the example in (34a) from López & Winkler (2003), where the negation has wide scope over both coordinate structures (cf. the topicalized NPI *at any time*); nevertheless, a *v*P-coordination structure is implausible on the general assumption that English topicalization targets the left edge of CP. So, if one has to admit an LCG approach, we observe that the putative full counterpart (with syntactic reconstruction of the verb in the gapped clause) is ungrammatical (34b). Therefore, if one has an LCG structure, the gapped clause has a fragmentary structure, without verbal reconstruction.

(34) a. López & Winkler (2003: 241)
During dinner he didn't address his colleagues from Stuttgart or at any time his boss, for that matter.
b. Park (to appear)
*During dinner he didn't address his colleagues from Stuttgart or at any time he didn't address his boss.

Another empirical problem for the SCG approach (signaled by Johnson 2009 himself) concerns cases such as (35) in English and (36) in Spanish with negation having scope over the first conjunct only (narrow scope of negation, cf. Repp 2009). The SCG approach which appeals to an ATB verb movement (Johnson 2004; 2009) does not stipulate that the negation could move from the first conjunct exclusively, the second conjunct being interpreted as positive.

(35) a. Repp (2009: 2)
Pete wasn't called by Vanessa but John by Jessie.
b. = [It is not the case that Pete was called by Vanessa] but [it is the case that John was called by Jessie].

(36) Juan no sostiene a Daniel, sino Daniel a Juan.
Juan NEG support.3SG DOM Daniel, but Daniel DOM Juan
'Juan doesn't support Daniel, but Daniel Juan.'

An additional theory-internal problem for the SCG approaches which appeal to a move-and-elide operation (Coppock 2001; Lin 2002; López & Winkler 2003, etc.) is related to cases of gapping with multiple remnants. As Kubota & Levine (2016) show, in an example such as (37), three complements of the verb *bet* must move out of the VP in order to survive ellipsis. However, a common assumption on the Heavy NP Shift movement is that shift movement cannot apply iteratively in a single VP; thus, there are no rightward adjunction sites for all of these remnants.

(37) Kubota & Levine (2016: 119)
I bet [ten dollars] [with Robin] [that the game will go into overtime], and you, [thirty euros] [with Terry] [that the final score would be a tie], and we both won.

All the evidence presented here suggests that an SCG analysis creates more problems than it solves, irrespective of the cross-linguistic variation (between Spanish and English) with respect to embedded gapping. As illustrated above, such an analysis is problematic not only for embedded gapping contexts, but also for non-embedded gapping cases. The "hybrid" analysis of gapping is thus not on the right track.

Therefore, an LCG analysis of gapping seems to be a better fit to account for all these facts. The widespread LCG analysis (as well as SCG) assumes movement of the remnants

to the left periphery, prior to ellipsis (PF-deletion): Farudi 2013[17]; Boone 2014; Weir 2014, etc. However, as discussed at length by Culicover & Jackendoff (2005), Abeillé et al. (2014) and Bîlbîie (2017), extraction of remnants in the left periphery is not empirically supported: in particular, contrary to what has been claimed since Ross (1967), remnants do not obey island constraints in English (Culicover & Jackendoff 2005; Kubota & Levine 2016) or Romance languages (Abeillé et al. 2014; Bîlbîie 2017). When the gap contains more material than the head, remnants can occur in what would be an island for extraction. We illustrate these syntactic island violations with "propositional" islands (that contain an embedded clausal domain). In English, remnants can appear in sentential adjuncts (38a–b) or relative clauses (38c–d).[18] The same propositional island violations apply to gapping in Spanish: sentential adjuncts (39a), relative clauses (39b–c), and also sentential subjects (39d–e). In addition, remnants extraction to the left periphery has to be multiple in the case of gapping (which requires at least two remnants in the gapped clause); yet, this specific multiple extraction cannot apply to the ungapped counterparts (Culicover 2009; Park to appear). We thus observe that there is no parallelism between the distribution of gapping remnants and extraction dependencies.[19] Consequently, LCG analysis appealing to a move-and-elide approach, where the remnants escape ellipsis via (multiple) leftward movement is not empirically supported.

(38) a. Culicover & Jackendoff (2005: 273)
Robin knows a lot of reasons why dogs are good pets, and Leslie cats.

b. Culicover & Jackendoff (2005: 273)
Robin believes that everyone pays attention to you when you speak French, and Leslie, German.

c. Bîlbîie (2013; Brown Corpus, brwn-21990)
In the past, it has been the husband who has been dominant and the wife passive.

d. Chaves (2005)
Bo decided who is working tomorrow, and Mia, the next day.

(39) a. Si venís en tren, tardáis 4 horas y en coche solamente 2.
if come.2PL.IND by train take.2PL.IND 4 hours and by car only 2
'If you come by train, it takes 4 hours, and by car, only 2.'

[17] In Farudi's analysis, there is not only remnant movement, but also movement of the gapped TP itself (this specific verb movement is similar in some way to the ATB verb movement in SCG accounts). The gapped TP moves to a specifier position of the ellipsis-licensing coordinate head and then the moved TP is deleted. This "high" movement would explain, according to her, locality conditions on gapping (including islands constraints, which she assumes to be effective in Farsi gapping). While her account is assumed to explain Farsi data, it does not derive the ungrammaticality of embedded gapping in English.

[18] An interesting data point is illustrated by the attested example in (i) below, where one has wide scope of the negated modal, and the correlate *correct* occurring in a relative clause island. The syntactic reconstruction in the gapped clause is challenged, since the antecedent and the gap don't make use of the same verb *be*: the antecedent in the source clause corresponds to the main verb *be*, while the gap in the gapped clause would correspond to the embedded occurrence of *be*. The intended interpretation is 'It is not possible that he is the one who's correct and (that) everyone else is wrong'.

(i) Bîlbîie (2017: 181; Hanya Yanagihara, *A Little Life*, 2015: 321–322)
[*The first sentence is the character's internal monologue, the second sentence is the narrator's voice*].
That's not how I remember it at all. And yet he cannot be the one who's correct, and everyone else – millennia of people – wrong.

[19] Moreover, several studies on extraction dependencies call into question the syntactic nature of island constraints, showing the role of some psycholinguistic (e.g. processing) or discursive (e.g. coherence, information structure) factors in explaining the islands sensitivity (Kluender 1998; Kehler 2002; Ambridge & Goldberg 2008; Hofmeister & Sag 2010, etc.).

b. Hay gente que prefiere la solitud y otros lo contrario.
exist people who enjoy the solitude and others the opposite
'There are some people who enjoy solitude and others the opposite.'

c. Tenemos dos profesoras, Rosa y Matilde. También está Carolina que nos da inglés y Felipe música.
'We have two teachers, Rosa and Matilde. There is also Carolina who teaches us English and Felipe music.'

d. Que no te guste el latín, puedo entenderlo hasta un cierto
that NEG you like the Latin can.1SG understand.it until a certain
punto, pero el italiano, en absoluto.
point but the Italian not at all
'That you don't like Latin I can understand to a certain extent, but Italian, not at all.'

e. Ir al teatro es la pasión de María y al cine la de Juan.
go to theater is the passion of María and to cinema that of Juan
'Going to the theater is María's passion and to the cinema, Juan's.'

Furthermore, a major argument which is usually mentioned in favor of a syntactic reconstruction mechanism in gapping constructions is supported by the so-called connectivity effects, i.e. a structural parallelism between the source and the gapped clause, with respect to morpho-syntactic properties of remnants (e.g. Hartmann 2000). A challenging example for this kind of approach is the attested occurrence in (40), where the syntactically marked remnant *a él* has as correlate a preverbal clitic in Spanish. Any LCG approach based on syntactic reconstruction faces difficulties with respect to syntactic mismatches.

(40) CONV 033A
Pero el chico **la** ama y dicen que ella **a él**.
but the boy her love.3SG and say.3PL that she DOM he
'But the boy loves her and they say she him.'

Lastly, any LCG account appealing to a syntactic reconstruction mechanism is challenged by cases where gapped clauses do not have the same distribution as their complete counterparts: a gapped clause may be introduced by functors such as constituent negation adverbs (e.g. *and not* in (41a)) or lexicalized comparative connectives (e.g. *as well as* in (41b)), which do not allow verb reconstruction (Culicover & Jackendoff 2005; Abeillé et al. 2014; Bîlbîie 2017). Similarly, in Spanish, if the gapped conjunct contains a constituent negation (42a) or if it is introduced by the corrective conjunction *sino* 'but' (42b), verb reconstruction is impossible.[20]

(41) Culicover & Jackendoff (2005)
a. Robin speaks French **and not** Leslie (*speaks) German.
b. Robin speaks French **as well as** Leslie (*speaks) German.

(42) a. DANIEL va a dormir a casa de María **y** **no** ella (*va a
Daniel will PREP sleep at house of María and not she will PREP
dormir) a la de él.[20]
sleep at that of him
'Daniel will sleep at María's and not her at him's.'

[20] Small capitals indicate here the prosodic focus.

b. Juan no sostiene a Daniel, **sino** Daniel (*sostiene) a Juan.
Juan NEG support.3SG DOM Daniel, but Daniel support.3SG DOM Juan
'Juan doesn't support Daniel, but Daniel Juan.'

Such empirical data stand as a serious challenge for any structural variant of LCG (namely, move-and-elide approaches, based on syntactic reconstruction).

On the other hand, we can still have a uniform treatment for both non-embedded and embedded gapping, if we adopt a fragment-based analysis (with semantic reconstruction of ellipsis), as proposed by Abeillé et al. (2014) and Bîlbîie (2017) for gapping in Romance, and by Ginzburg & Sag (2000) for fragments in general. They propose a construction-based analysis which does not derive the unusual meaning/form mapping in the gapped clause from hidden syntactic structure, i.e. a "what you see is what you get" syntactic structure, as schematized in (23b) above.

The main syntactic constraint in this kind of approach formalizes Hankamer (1971)'s "Major Constituent Condition", namely each remnant in the gapped clause must be paired with some "major" correlate in the source, and hence must match a possible subcategorization of the verbal predicate in the source.[21] This syntactic constraint accounts for the contrast in (43): the ungrammaticality of (43b) is explained by the fact that the PP *in good spirits* cannot be subcategorized by the verb *become* (seel also the contrast in (43c)). Otherwise, remnants can have a different category (and even a different word order) from that of their correlates in the source clause, as illustrated in (43a), where the second contrastive pair contains the AP *crazy* and the NP *an incredible bore*.

(43) Sag et al. (1985: 160)
a. Pat has become [crazy]$_{AP}$, and Chris [an incredible bore]$_{NP}$.
b. *Pat has become [crazy]$_{AP}$, and Chris [in good spirits]$_{PP}$.
c. Pat has become {crazy / an incredible bore / *in good spirits}.

The syntactic structure of a gapped clause is a fragment containing a cluster of (at least two) remnants. If there is no head verb in the gapped clause, the category of the fragment is thus appropriate for combination with functors selecting some non-finite constituent. Remnants are constrained to unify their HEAD features with the HEAD features of some contextual correlates, using the context SALIENT-UTTERANCE introduced by Ginzburg & Sag (2000).

At the semantic level, each remnant must be in a contrastive relation with a correlate in the source (in each contrastive pair, remnant and correlate belong to the same set of alternatives and at the same time they display a semantic opposition, neither of them subsuming the other, cf. a.o. Sag 1976; Hartmann 2000; Repp 2009). The semantic reconstruction is operated by building the content of the fragment from the meaning of the source clause, the remnants and their correlates. An exhaustive proposal (accounting for scope ambiguities in gapping) is given in Park et al. (2019) and Park (to appear), in terms of a semantic underspecification-based analysis (by using Lexical Resource Semantics) linked to a single, uniform syntactic structure. Unlike Potter et al. (2017) who assume that scope ambiguity (wide vs. distributive scope) has a syntactic source and reflects an ambiguity in the size of coordinated categories, Park et al. (2019) and Park (to appear) convincingly show that one can derive both wide and distributive interpretations from exclusively large conjunct structures (i.e. a homogeneous LCG approach), if one adopts a framework with a flexible syntax-semantics mapping. The latter approach attributes

[21] This syntactic constraint applying to gapping is the same syntactic constraint applying to ordinary constituent coordinations (cf. Wasow's generalization).

to gapping (and to coordination, in general) an underspecified meaning, and the scope ambiguity arises as the result of different ways of specifying it: the conjuncts denote either tensed propositions (and in this case, only the distributive-scope reading arises) or eventuality descriptions (and in this case, only the wide-scope reading is available).

Lastly, at the discourse level, some symmetric discourse relation must hold between conjuncts (Levin & Prince 1986; Kehler 2002). Therefore, gapping seems to be perfectly compatible with resemblance relations (where events are interpreted as independent from one another, e.g. parallelism and contrast), but infelicitous with asymmetric discourse relations, such as cause-effect relations. Furthermore, as proposed by Steedman (1990), Reich (2007), etc., gapping can be reduced to the question/answer relation: the discursive pattern in a gapping construction would be a pair-list answer to an implicit (multiple) *wh*-question. Moreover, both source and gapped conjuncts involve the same Question Under Discussion (QUD).

The overall gapping construction is a particular type of asymmetric coordination with the main clausal conjunct being non-elliptical and verbal, and the gapped clause fragmentary and non-verbal (Abeillé et al. 2014; Bîlbîie 2017).

Furthermore, unlike the SCG approach, our fragment-based analysis correctly predicts the distribution of double conjunctions, such as *o…o…* 'either…or…' in Spanish, which necessarily occur at the left edge of the conjunct (cf. (28a) above).

Coming back to our specific topic, namely the availability of embedded gapping, as we mentioned above, we do not exclude cross-linguistic differences (e.g. Spanish vs. English), but we strongly assume that the No Embedding Constraint is not universal. Our construction-based approach could easily handle this potential cross-linguistic variation by using the syntactic feature IC (Independent Clause): therefore, for a language such as English, which disallows embedded gapping, syntactic properties of gapping will include the feature [IC +], indicating that the gapped clause must be an independent clause; on the other hand, for a language such as Spanish, which allows embedded gapping, the formal analysis will not include such a syntactic constraint, the gapped clause behaving either as an independent clause or as a complement of an embedding predicate.

Nevertheless, much work remains to be done in order to refine these cross-linguistic differences. Though the classical literature on gapping in English assumes a grammatical ban with respect to embedded gapping, experimental evidence shows a more nuanced picture, confirming Weir (2014)'s intuitions. Bîlbîie et al. (2019) show, based on acceptability judgment tasks, that embedded gapping in English is affected by (i) the semantic class of the embedding predicate (though embedded gapping is indeed dispreferred even with non-factive verbs, there is a general sensitivity to factivity: namely, embedded clauses under a factive verb are less acceptable than under a non-factive verb), and by (ii) the presence/absence of the complementizer (the absence of complementizer renders embedded gapping more acceptable). These results seem to show that, from a cross-linguistic perspective, a more robust and stronger syntactic constraint would be related to the presence (in Spanish) and absence (in English) of the complementizer in embedded fragments rather than postulating a very rigid syntactic No Embedding Constraint. An exhaustive cross-linguistic analysis of embedded gapping and fragments in general is beyond the scope of this paper.

4.2 Explanations for the semantic (non-factive vs. factive) asymmetry

We now come back to the contrast we observed in acceptability judgments between non-factive and factive verbs in embedded gapping. Previous accounts on embedded fragments (Weir 2014; Fernández-Sánchez 2017) derive the contrast between the non-factive

and factive verbs from their different syntactic structures, following ideas which are widespread in the generative literature, namely that non-factive verbs would display a more complex syntactic structure than factive ones (Haegeman 2006; de Cuba 2007; de Cuba & Ürögdi 2010; Haegeman & Ürögdi 2010, etc.).[22] Complements of non-factive verbs are therefore supposed to be syntactically bigger than complements of factive ones: there are two complementizers (a "higher" and a "lower") in the clausal complement of non-factive predicates, as illustrated in (44a), but only one (a "lower") in the clausal complement of factive ones, as observed in (44b).[23]

(44) a. I think [$_{CP}$ Ø [$_{CP}$ [$_{C}$ that] [$_{TP}$ Alfonso stole the emeralds]]].
b. I {found out / regret} [$_{CP}$ that [$_{TP}$ Alfonso stole the emeralds]].

All previous accounts base their data on syntactic explanations. Besides its popularity, the size-of-complement approach faces several challenges raised by our experimental results. First, it does not make a distinction within the class of factive predicates (between true factive and semi-factive ones); there are only two syntactic structures for non-factives and factives respectively. In order to account for the continuum we observed along three different semantic classes (namely, non-factive, semi-factive and true factive), we would need an additional third syntactic structure for complements embedded under a semi-factive predicate. The syntactic approach is thus not well equipped to account for in between the factive and non-factive complementation types. Second, the size-of-complement approach does not account for the cross-linguistic variation within the same semantic class; we have seen that embedded gapping under non-factive verbs presents a cross-linguistic difference: in English, embedded gapping is dispreferred even with non-factive verbs, whereas in Spanish embedded gapping under a non-factive verb is quite acceptable. If a syntactic approach is involved, the structures proposed to deal with non-factive predicates should differ from one language to another, in order to account for this asymmetry within non-factives. Third, a more general problem of the syntactic approach modelling semantic distinctions is the fact that it predicts a categorical contrast (grammatical vs. ungrammatical) in participants' judgments, whereas a non-syntactic approach allows more flexibility/gradience in acceptability judgments, as reflected by our experimental data. Lastly, if one has to assume a syntactic approach, our experimental results seem to go against the classical view (cf. Haegeman 2006) that factives are less complex than non-factives and would rather conform to the opposite view (cf. Kiparsky & Kiparsky 1971), according to which non-factives are less complex than factives.

In this paper, we have shown that there is no universal syntactic No Embedding Constraint (at least in some languages, such as Spanish). Unlike Fernández-Sánchez (2017), who adopts Haegeman (2006)'s analysis, there is no need to postulate two different syntactic analyses for the two semantic classes. We can have a uniform syntactic analysis for both non-factives and factives, as the account we summarized above in Section 4.1, which does not postulate an isomorphism between syntax and semantics. The effects we observe in syntax across semantic classes could come from other linguistic levels. Therefore, the differences we observed with respect to embedding in general and with respect to embedded gapping in particular could not come from their syntax, but rather from the semantic and

[22] Note that the widespread syntactic account of the factive/non-factive asymmetry was for a long time the opposite view, proposed by Kiparsky & Kiparsky (1971), who consider that factive constructions are associated with a more complex syntactic structure than non-factive constructions.
[23] According to Haegeman (2006), non-factives select for ForceP complement clauses, whereas factives select for FinitenessP.

discursive properties they have by themselves or in interaction with coordination and ellipsis.

The general preference for non-embedded items is quite expected, since complex sentences generally get lower acceptability ratings than simpler ones. The difficulty with coordinating a simple clause and a complex clause may result from a more general parallelism constraint on coordination (Frazier et al. 1984; Frazier et al. 2000). According to Frazier et al. (2000) and Carlson (2001), processing of coordinated clauses is facilitated by syntactic parallelism between the conjuncts, in particular by the parallelism of the internal structure of the conjuncts: the second conjunct in a coordination is processed faster when that clause is structurally parallel to the first clause than when it is not. More generally, these studies show that there is a facilitation bias associated with less complex structures.

Despite cross-linguistic variation with respect to embedded gapping (languages which allow vs. languages which strongly disprefer embedded gapping), a notable data point concerns a general decreasing acceptability across three semantic classes of predicates, which is observed not only for Spanish, but also for other languages (Romanian, French, English, cf. Bîlbîie et al. 2019). Both in gapping and non-gapping structures, embedding under a non-factive verb is more acceptable than under a semi-factive verb and embedding under a semi-factive verb is more acceptable than under a true factive verb. In order to account for this general tendency, we have to consider some discursive explanations.

The penalty on factive verbs may have two sources. Firstly, it may come from the non-assertive nature of factive predicates (Hooper & Thompson 1973; Hooper 1975). By definition, the complements of factive verbs are presupposed and are therefore backgrounded. On the other hand, the complements of non-factive verbs contain the foregrounded information, they are asserted (i.e. they are not presupposed nor backgrounded). The discourse function of the embedded clause would thus play a role in our embedding phenomena.[24] The generalization is that embedded assertions (under non-factive verbs) are more acceptable than embedded presupposed clauses (under factive verbs). According to Hooper & Thompson (1973), this is because it is inappropriate to emphasize elements of a sentence whose proposition is already known, whose truth is presupposed. On the other hand, this is due to the abstractness of non-factive verbs: in the literature (Deane 1992; Van Valin 1995; Goldberg 2006; Ambridge & Goldberg 2008), non-factive verbs such as *think* are semantically light or neutral, making little contribution to the pragmatics of the assertion (i.e. they have a parenthetical status).[25]

However, this is not a satisfactory explanation for the behavior of semi-factive verbs, which are presupposition triggers, as any other factive predicates. We propose here a revised explanation, by adopting the distinction between assertive and non-assertive context change-potential (CCP), proposed by Farkas (2003) to explain the mood alternation in Romance embedded clauses. Non-factives, as well as semi-factives, are strong intensional predicates (in terms of Farkas 2003), which are analyzed as assertives: their complements have assertive CCP. Common to main assertions and the complements of these two kinds of predicates is that they are assertively added to an epistemic context. Unlike non-factives and semi-factives, true factive (emotion) predicates are non-assertives: their complements have evaluative CCP. A formal characterization of the three semantic classes of predicates (non-factives, semi-factives and true factives) is given in Table 3.

[24] The same explanation applies to other putative syntactic phenomena, such as island constraints (e.g. Ambridge & Goldberg 2008).

[25] This relates to the "bridge" verb phenomena, a widely discussed topic.

Table 3: Different semantic classes of predicates.

	Assertive	Presupposition Trigger
Non-factive	+	–
Semi-factive	+	+
True factive	–	+

In the case at stake, the difference in acceptability could be explained by a mismatch in terms of the Assert feature. An embedded conjunct under a non-factive or a semi-factive verb will be [Assert +]; therefore, it will involve an assertive component, exactly as the non-embedded first conjunct. On the other hand, an embedded conjunct under a true factive verb will be [Assert –]; thus, it will involve an evaluative component, unlike the first conjunct, which is [Assert +]. The generalization – based on the notion of assertion – will be: the more asserted the complement is, the easier it is embedded.

Farkas (2003: 18) notes that "there are various other areas where [the distinction between assertive and non-assertive CCP] might prove useful". Our experimental data show that this distinction is indeed useful not only in explaining the mood alternation in embedded clauses, but also in explaining the gradience in acceptability judgments with respect to coordination and ellipsis phenomena. If we combine Farkas (2003)'s and previous insights in the literature, we can easily account for the decreased acceptability across these three semantic classes of predicates embedding the second conjunct in coordination contexts.

Secondly, the penalty on factive verbs may come from a discourse incongruence, namely a mismatch between the conjuncts with respect to the Question Under Discussion (QUD) each of them answers. Discourse proceeds by raising and answering implicit questions (Ginzburg & Sag 2000; Roberts 2002; Ginzburg 2012 a.o.). For our purposes, we adopt the distinction between the main point of an utterance and its backgrounded material (Simons 2007). The main point of an utterance refers to propositional content that is intended to answer the QUD, whereas backgrounded material refers to propositional content that is not directly relevant to the QUD. There is a striking difference between non-factive and factive predicates with respect to this dichotomy (cf. Anand & Hacquard 2014). Non-factive predicates can have a parenthetical status (Hooper 1975); consequently, the main point of the utterance is the content of the embedded complement, while the main clause containing the embedding predicate is backgrounded. By contrast, factive predicates (and in particular emotive predicates) systematically forefront the evaluative component (e.g. the emotive component); in these latter cases, the main point of the utterance would be the main clause containing the embedding predicate. Interestingly, Anand & Hacquard (2014) observe that occasionally semi-factives (such as *know*) can behave like non-factives, i.e. the content of its embedded complement becomes main point.

As for the distinction within factive predicates (between true factives – emotive verbs, and semi-factives – cognitive verbs), it is assumed that emotive factives are semantically more complex than cognitive factives (Anand & Hacquard 2014, and references therein). While this latter subtype of factives presupposes their propositional complement *p*, the former subtype of factives presupposes both *p* and the attitude holder's belief in *p*. According to the classical analysis of emotive factives, these true factive predicates entail the truth of their complement, an emotional attitude of the subject towards the truth of their complement, and the subject's belief that it is true. Thus, emotive predicates presuppose that the subject necessarily has prior knowledge of the situation described in the embedded complement, with respect to which she experiences an emotive reaction. The

main point is thus about the content of a private state, while the veracity of the embedded complement is backgrounded. This semantic and pragmatic complexity, coupled with the lack of assertion, would explain why the emotive factives are rated lower than the other semantic classes of predicates. The different discursive behavior of emotive verbs compared to semi-factive or non-factive verbs may be observed in (45) below, adapted from the example (18) above. Negating the content of the embedded complement in the second conjunct is possible for a semi-factive verb such as *saber* 'know' (45b) or a non-factive verb like *sospechar* 'suspect' (45c), but not for a true factive verb such as *molestarse* 'be bothered' (45a). This contrast can be explained if we assume that the embedded complement under an evaluative (true factive) predicate cannot be the main point of the utterance.

(45) a. A: En el bar, Pablo pidió una cerveza y **me molesta que** Juan pidiera un whisky.
B: #No, Juan no pidió un whisky.
'A: At the bar, Pablo ordered a beer and I am bothered that Juan ordered a whisky.
B: No, Juan didn't order a whisky.'

b. A: En el bar, Pablo pidió una cerveza y **sé que** Juan pidió un whisky.
B: No, Juan no pidió un whisky.
'A: At the bar, Pablo ordered a beer and I know that Juan ordered a whisky.
B: No, Juan didn't order a whisky.'

c. A: En el bar, Pablo pidió una cerveza y **sospecho que** Juan pidió un whisky.
B: No, Juan no pidió un whisky.
'A: At the bar, Pablo ordered a beer and I suspect that Juan ordered a whisky.
B: No, Juan didn't order a whisky.'

As mentioned above, decreasing acceptability across three semantic classes of predicates is generally observed in our experiments. However, the effect worsens in embedded gapping with factive predicates, in particular emotive factives. In order to account for this worsened effect only in gapping cases, we have to look at the specific semantic and discursive constraints applying in gapping constructions. From the perspective of discourse structure, gapping is traditionally seen as related to the question/answer relation (Kuno 1976; Steedman 1990; 2000; Reich 2007; Repp 2009, etc.): a gapping construction thus is reduced to some congruent sentential (pair-lists) answers to an implicit (multiple) *wh*-question, which constitutes the QUD. As Steedman (1990: 248) observes, "even the most basic gapped sentence, like *Fred ate bread, and Harry, bananas*, is only really felicitous in contexts which support (or can accommodate) the presupposition that the topic under discussion is *Who ate what?*." Therefore, in a gapping construction, the most salient QUD is reconstructed on the basis of the information structure of the source clause, and this very question has to be answered by the gapped clause too. Repp (2009) argues that the conjunction *and* imposes a strict discursive and semantic parallelism in gapping, which she defines in terms of balanced contrast: "In gapping, both conjuncts must make the same kind of contribution to a common discourse topic." Repp (2009: 83).

Based on all these assumptions, we can say that in a regular gapping construction, as well as in embedded gapping with non-factive verbs, both conjuncts address a same QUD. However, in the case of embedded gapping under factive predicates, the conjuncts address different QUDs. In the Spanish example given in (18) above and repeated below in (46a), the second conjunct embedded under the factive predicate *molestarse* 'be bothered' answers a different QUD, namely no longer 'what drink did Juan order in the bar',

but 'what effect did it have on the speaker', while this is not the case with non-factive verbs such as *sospechar* 'suspect' in (46b), where the second conjunct still answers the same QUD as the first conjunct, the embedding predicate having in this case a parenthetical content.

(46) a. En el bar, Pablo pidió una cerveza y **me molesta que** Juan pidiera un whisky.
'At the bar, Pablo ordered a beer and I am bothered that Juan ordered a whisky.'

b. En el bar, Pablo pidió una cerveza y **sospecho que** Juan un whisky.
'At the bar, Pablo ordered a beer and I suspect that Juan a whisky.'

The remnants of the gapped clause are positioned in discourse-prominent slots (they are contrastive foci, cf. Kuno 1976; Hartmann 2000; Johnson 2014 a.o.). The decreased acceptability with embedding under a factive verb could be explained by the presence of conflicting constraints: it is pragmatically anomalous to treat the gapped clause as simultaneously backgrounded and discourse-prominent. Therefore, a discursive account could be a good predictor of the acceptability of embedded gapping. We recall here the cross-linguistic generalization made by Ambridge & Goldberg (2008: 375) to account for the variation with respect to island constraints: "languages appear to select different cut-off points in how backgrounded a constituent may be while containing a gap […]. Languages differ as to the location of the cut-off point […]." This generalization seems to apply to embedding gapping too. While we expect to find cross-linguistic variation with respect to acceptability across the three semantic classes presented above, we do not expect to find any language in which embedded gapping under a true factive verb is more acceptable than embedded gapping under a non-factive verb.

In Section 4.1, we argued that parallelism constraints in gapping prove stronger at the discourse and semantic level than at the syntactic level: gapping is felicitous only with symmetric discourse relations, and it involves (at least) two contrastive pairs. Though it was long believed that there is a syntactic constraint disallowing embedding in gapping constructions, we can now attribute these dispreferences to semantic and discourse factors. The advantage of postulating a non-syntactic explanation for these dispreferences is the fact that it predicts the acceptability of several embedded gapping cases, which would be otherwise ruled out by a purely syntactic account.

If one takes a closer look at the attested corpus data on Spanish embedded gapping (see the examples given in (11) above and repeated below in (47) from García-Marchena 2015, 2018), one observes that in these embedded gapping cases, either the two contrastive pairs which are involved are alternating participants (with switching roles), or there is a contrast on polarity, and not just on contrastive elements. The reinforced contrast in these complex cases shows the importance of the semantic contrast requirement on gapping. If this contrast requirement is met, we predict that embedding in general could be possible, and indeed it is, as shown by the English attested data (drawn by a Google search) in (48), from Park (2016). Though gapping is traditionally considered to be restricted to coordination, we observe in (48) that gapping can involve subordination (the gapped clause can be embedded under complementizers such as *before* in (48a) or *because* in (48b)) provided that the above semantic and discourse requirements are met.[26]

[26] There are also some prosodic requirements in these specific cases: remnants and correlates must be prosodically marked by a pitch accent, and the missing material is marked by a pause in spoken language (as the comma indicates).

(47) a. CONV 033A
Pero el chico la ama y **dicen** **que** ella a él.
but the boy her love.3SG and say.3PL that she DOM he
'But the boy loves her and they say she him.'

b. CONV 012A
Ella se lo va a comer todo pero **me** **parece** **que** yo solo un poco.
she REFL it go.3SG to eat all but me seem.3SG that I only a little
'She is going to eat everything but I think I only a bit.'

(48) a. Park (2016: 300)
No doubt THEY will find US, **before** WE, THEM.

b. *Statesville Daily Record from Statesville, North Carolina*
As for me all a little pup has to do is give me one of those sad, entreating looks and I am his prisoner, his pal, his confidant, and slave… Maybe WE love THEM, **because** THEY, US.

Therefore, specific constraints on gapping, corroborated with the general constraints on coordination and discourse, could explain why the acceptability of embedded gapping with factive verbs (in particular, emotive verbs) is highly decreased compared to non-gapping contexts.

In conclusion, the decrease in acceptability judgments in our experimental work should be attributed, on the one hand, to some general constraints on discourse and coordination, and, on the other hand, to specific semantic and discourse conditions on gapping constructions. Acceptability is the most decreased in embedded gapping with true factive verbs, because of the cascade effect made by the superposition of all of these constraints.

In light of the observations made in this section, we can conclude that there is no need to postulate complex (and different) syntactic mechanisms in order to derive the effects we observe with embedded gapping and/or with the semantic distinction between non-factive and factive predicates. A uniform syntactic analysis can account for both regular (non-embedded) and embedded gapping. As for the semantic asymmetry between non-factive and factive predicates, this could be explained in non-syntactic terms, by appealing to (more general) semantic and discursive constraints.

5 Conclusion

The No Embedding Constraint has been claimed to single out gapping from other ellipsis types (e.g. pseudogapping, VPE). In this paper, we provided empirical evidence from two acceptability judgments tasks in Spanish that the No Embedding Constraint is not a strict syntactic constraint for gapping, nor a diagnostic for gapping constructions. Therefore, gapping is not so different from other ellipsis types with respect to embedding; specifically, gapping has the same behavior as fragments in general.

Our experimental findings show that a more general semantic constraint seems to be at work: non-factive verbs embed more easily than factive ones, and semi-factive verbs embed more easily than true factive ones. Embedded gapping and embedded coordinated clauses in general are thus sensitive to the semantic class of the embedding predicate.

These results cannot be handled within Small Conjunct Gapping approaches, involving a subclausal (low) coordination. Instead, they ask for a Large Conjunct Gapping account

in terms of a clausal (high) coordination. We recalled some evidence against the widespread LCG analysis in terms of PF-deletion (with remnants movement), in order to adopt a constructional fragment-based analysis of gapping, which easily handles both regular (non-embedded) and embedded gapping.

As for the semantic asymmetry between non-factive and factive verbs, this can be accounted for by a non-syntactic explanation, which takes into consideration semantic and discursive factors.

A last general remark concerns the data collection methods in linguistics, in particular with respect to ellipsis phenomena. In the literature on ellipsis, the large majority of examples are constructed data, based on introspective judgments, leading very often to significant variation in acceptability judgments across speakers. Furthermore, theoretical studies do not always take all the data into account (in the case at stake, the No Embedding Constraint did not take Spanish into account, nor examples without complementizers in English, and previous discussion on embedded fragments in Spanish have not properly considered semi-factives). The research we presented here shows that, in order to better understand the constraints applying to ellipsis phenomena, it is worth conducting experimental studies, along with the theoretical ones. In addition to this, the approach based on acceptability allowed us to capture nuances regarding these constructions and address certain limitations of the traditional grammaticality-based categorical perspectives on elliptical constructions.

Abbreviations

DOM = differential object marking, FUT = future, IND = indicative, IPFV = imperfective, NEG = negation, OBJ = object, PL = plural, PREP = preposition, SBJV = subjunctive, SG = singular

Additional File

The additional file for this article can be found as follows:

- **Appendix.** Description of statistical analyses. DOI: https://doi.org/10.5334/gjgl.782.s1

Acknowledgements

We are extremely grateful to the three anonymous reviewers for all the hard and thorough work they put into the reviewing process of our manuscript. We have made numerous amendments to the manuscript as a direct result of their very detailed and insightful comments. We wish to thank also the editors of the present volume (and in particular Anne Abeillé for her availability, immediate feedback, and vast knowledge on this topic), Óscar García-Marchena for his help with Experiment 1, Aixiu An, Brian Dillon, Pegah Faghiri, Barbara Hemforth, Elodie Winckel for their help with the experimental design and data analysis, Jean-Pierre Koenig for his help with Amazon's Mechanical Turk, and the audiences of the following workshops and conferences: *Experimental and corpus-based approaches to ellipsis* (Lexington, 2017 LSA Institute), *Going Romance 31* (Bucharest), *DGfS 2018 – AG 12 Relating Elliptical Utterances to Information in Context* (Stuttgart). All errors or misunderstandings are our own.

Funding Information

This research was supported by the LabEx Empirical Foundations of Linguistics (EFL) project, strand 2 *Experimental grammar from a cross-linguistic perspective*, operation SA2 *Experimental syntax* (Laboratoire de Linguistique Formelle – UMR 7110 CNRS et Université Paris-Diderot).

Competing Interests

The authors have no competing interests to declare.

References

Abeillé, Anne, Gabriela Bîlbîie & François Mouret. 2014. A Romance perspective on gapping constructions. In Hans Boas & Francisco Gonzálvez-García (eds.), *Romance perspectives on Construction Grammar* (Constructional Approaches to Language), 227–267. Amsterdam/Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/cal.15.07abe

Ambridge, Ben & Adele E. Goldberg. 2008. The island status of clausal complements: Evidence in favor of an information structure explanation. *Cognitive Linguistics* 19(3). 357–389. DOI: https://doi.org/10.1515/COGL.2008.014

Anand, Pranav & Valentine Hacquard. 2014. Factivity, belief and discourse. In Luka Crnič & Uli Sauerland (eds.), *The art and craft of semantics: A festschrift for Irene Heim* 1. 69–90. Cambridge, MA: MITWPL.

Barr, Dale J., Roger Levy, Christoph Scheepers & Harry J. Tily. 2013. Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language* 68(3). 255–278. DOI: https://doi.org/10.1016/j.jml.2012.11.001

Bates, Douglas, Martin Maechler, Ben Bolker & Steve Walker. 2015. Fitting linear mixed-effects models using lme4. *Journal of Statistical Software* 67(1). 1–48. DOI: https://doi.org/10.18637/jss.v067.i01

Bîlbîie, Gabriela. 2008. A syntactic account of Romanian correlative coordination from a Romance perspective. In Stefan Müller (ed.), *Proceedings of the 15th International Conference on Head-Driven Phrase Structure Grammar*, 25–45. Stanford, CA: CSLI Publications.

Bîlbîie, Gabriela. 2013. Une perspective quantitative sur le gapping dans le Penn Treebank. Ms. Université Paris Diderot.

Bîlbîie, Gabriela. 2017. *Grammaire des constructions elliptiques: Une étude comparative des phrases sans verbe en roumain et en français* (Empirically Oriented Theoretical Morphology and Syntax Series). Berlin: Language Science Press.

Bîlbîie, Gabriela, Israel de la Fuente & Anne Abeillé. 2019. Embedded gapping? A cross-linguistic perspective. *Poster presented at CUNY 2019 32nd Annual CUNY Conference on Human Sentence Processing*. University of Colorado Boulder. March 30th, 2019.

Bîlbîie, Gabriela & Oscar García-Marchena. 2016. Subordination et fragments en espagnol et en roumain. *Presentation at the workshop Ellipse: quand, pourquoi, comment*. Université Clermond-Ferrand. December 3rd, 2016.

Boone, Enrico. 2014. *The syntax and licensing of Gapping and Fragments*. Utrecht: LOT.

Borrego, Jesús, José Jesús Gómez Asencio & Emilio Prieto. 1987. *El subjuntivo: valores y usos*. Madrid: Sociedad General Española de Librería.

Bosque, Ignacio. 1990. *Indicativo y subjuntivo*. Madrid: Taurus Universitaria.

Carlson, Katy. 2001. The effects of parallelism and prosody in the processing of gapping structures. *Language and Speech* 44(1). 1–26. DOI: https://doi.org/10.1177/00238309010440010101

Chaves, Rui. 2005. A linearization-based approach to gapping. In Gerhard Jäger, Paola Monachesi, Gerald Penn & Shuly Wintner (eds.), *FG-MOL 2005: The 10th Conference on Formal Grammar and The 9th Meeting on Mathematics of Language*, 207–220. Stanford, CA: CSLI Publications.

Coppock, Elizabeth. 2001. Gapping: In defense of deletion. In *Proceedings from the Annual Meeting of the Chicago Linguistic Society 37*, 133–148. Chicago, IL: Chicago Linguistic Society.

Culicover, Peter. 2009. *Natural language syntax*. Oxford: Oxford University Press.

Culicover, Peter & Ray Jackendoff. 2005. *Simpler syntax*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199271092.001.0001

de Cuba, Carlos. 2007. *On (non)factivity, clausal complementation and the CP-field.* Stony Brook, NY: State University of New York at Stony Brook dissertation.

de Cuba, Carlos & Barbara Ürögdi. 2010. Clearing up the 'facts' on complementation. *University of Pennsylvania Working Papers in Linguistics* 16(1). 41–50.

de Cuba, Carlos & Jonathan E. MacDonald. 2013. On the referential status of embedded polarity answers in Spanish. In Jennifer Cabrelli Amaro, Gillian Lord, Ana de Prada Pérez & Jessi Elana Aaron (eds.), *Selected proceedings of the 16th Hispanic Linguistics Symposium*, 312–323. Somerville, MA: Cascadilla Press.

Deane, Paul D. 1992. *Grammar in mind and brain: Explorations in cognitive syntax*. Berlin/New York: Mouton de Gruyter. DOI: https://doi.org/10.1515/9783110886535

Dowty, David. 1988. Type raising, functional composition, and non-constituent conjunction. In Richard Oehrle, Emmon Bach & Deirdre Wheeler (eds.), *Categorial Grammars and natural language structures*, 153–198. Dordrecht: Kluwer. DOI: https://doi.org/10.1007/978-94-015-6878-4_7

Drummond, Alex. 2013. Ibex Farm. Available: http://spellout.net/ibexfarm/. Accessed 2018, August 2.

Emonds, Joe. 1969. *Root and structure-preserving transformations.* Cambridge, MA: MIT dissertation.

Erschler, David. 2016. On embedded gapping. *Paper presented at IATL32: The 32nd annual meeting of the Israel Association for Theoretical Linguistics*, Jerusalem.

Farkas, Donka. 2003. Assertion, belief and mood choice. *Paper presented at ESSLLI, Conditional and Unconditional Modality Workshop*, Vienna.

Farudi, Annahita. 2013. *Gapping in Farsi: A cross-linguistic investigation.* Amherst, MA: University of Massachusetts Amherst dissertation.

Fernández-Sánchez, Javier. 2017. Embedded gapping isn't gapping. Ms. UAB/CLT.

Frazier, Lyn, Alan Munn & Charles Clifton. 2000. Processing coordinate structures. *Journal of Psycholinguistic Research* 29(4). 343–370. DOI: https://doi.org/10.1023/A:1005156427600

Frazier, Lyn, Lori Taft, Tom Roeper, Charles Clifton & Kate Ehrlich. 1984. Parallel structure: A source of facilitation in sentence comprehension. *Memory & Cognition* 12. 421–430. DOI: https://doi.org/10.3758/BF03198303

García-Marchena, Oscar. 2015. *Phrases averbales et fragments de l'espagnol oral. Etude de corpus*. Paris: Université Paris Diderot dissertation.

García-Marchena, Oscar. 2018. Polar verbless clauses and Gapping subordination in Spanish. In Eric Fuβ, Marek Konopka, Beata Trawiński & Ulrich H. Waβner (eds.), *Grammar and corpora* 2016, 169–182. Heidelberg: Heidelberg University Publishing.

Ginzburg, Jonathan. 2012. *The interactive stance: Meaning for conversation.* Oxford: Oxford University Press.

Ginzburg, Jonathan & Ivan A. Sag. 2000. *Interrogative investigations: The form, meaning and use of English interrogatives*, vol. 123. Stanford, CA: CSLI Publications.

Goldberg, Adele E. 2006. *Constructions at work. The nature of generalizations in language.* Oxford: Oxford University Press.

Goldberg, Adele E. & Florent Perek. 2018. Ellipsis in Construction Grammar. In Jeroen van Craenenbroeck & Tanja Temmerman (eds.), *The Oxford handbook of ellipsis*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/oxfordhb/9780198712398.013.8

Green, Georgia. 1976. Main clause phenomena in subordinate clauses. *Language* 52. 382–397. DOI: https://doi.org/10.2307/412566

Haegeman, Liliane. 2006. Conditionals, factives and the left periphery. *Lingua* 116. 1651–1659. DOI: https://doi.org/10.1016/j.lingua.2005.03.014
Haegeman, Liliane & Barbara Ürögdi. 2010. Referential CPs: An operator movement account. *Theoretical Linguistics* 36(2). 111–152. DOI: https://doi.org/10.1515/thli.2010.008
Hankamer, Jorge. 1971. *Constraints on deletion in syntax.* New Haven, CT: Yale University dissertation.
Hankamer, Jorge. 1979. *Deletion in coordinate structures*. New York: Garland Publishing.
Hartmann, Katharina. 2000. *Right Node Raising and Gapping. Interface conditions on prosodic deletion.* Amsterdam/Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/z.106
Heycock, Caroline. 2006. Embedded root phenomena. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax* II. 174–209. Oxford: Blackwell. DOI: https://doi.org/10.1002/9780470996591.ch23
Hofmeister, Philip & Ivan A. Sag. 2010. Cognitive constraints and island effects. *Language* 86(2). 366–415. DOI: https://doi.org/10.1353/lan.0.0223
Hooper, Joan. 1975. *On assertive predicates*. In John P. Kimball (ed.), *Syntax and Semantics* 4. 91–124. New York: Academic Press.
Hooper, Joan & Sandra Thompson. 1973. On the applicability of root transformations. *Linguistic Inquiry* 4. 465–497.
Jackendoff, Ray. 1971. Gapping and related rules. *Linguistic Inquiry* 2(1). 21–35.
Jayaseelan, K. A. 1990. Incomplete VP deletion and gapping. *Linguistic Analysis* 20. 64–81.
Johnson, Kyle. 2004. In search of the English middle field. Ms. University of Massachusetts, Amherst.
Johnson, Kyle. 2009. Gapping is not (VP)-Ellipsis. *Linguistic Inquiry* 40. 289–328. DOI: https://doi.org/10.1162/ling.2009.40.2.289
Johnson, Kyle. 2014. Gapping. Ms. University of Massachusetts, Amherst.
Karttunen, Lauri. 1971. Some observations of factivity. *Papers in Linguistics* 4. 55–69. DOI: https://doi.org/10.1080/08351817109370248
Karttunen, Lauri. 1973. Presuppositions of compound sentences. *Linguistic Inquiry* 4(2). 169–193.
Kehler, Andrew. 2002. *Coherence, reference and the theory of grammar*. Stanford, CA: CSLI Publications.
Kiparsky, Paul & Carol Kiparsky. 1971. Fact. In Danny D. Steinberg & Leon A. Jakobovits (eds.), *Semantics. An interdisciplinary reader in philosophy, linguistics and psychology*, 345–369. Cambridge: Cambridge University Press.
Kluender, Robert. 1998. On the distinction between strong and weak islands: A processing perspective. In Peter Culicover & Louise McNally (eds.), *Syntax and Semantics 29: The limits of Syntax*, 241–279. New York: Academic Press.
Kubota, Yusuke & Robert Levine. 2015. Against ellipsis: Arguments for the direct licensing of 'noncanonical' coordinations. *Linguistics and Philosophy* 38(6). 521–576. DOI: https://doi.org/10.1007/s10988-015-9179-7
Kubota, Yusuke & Robert Levine. 2016. Gapping as hypothetical reasoning. *Natural Language and Linguistic Theory* 34. 107–156. DOI: https://doi.org/10.1007/s11049-015-9298-4
Kuno, Susumu. 1976. Gapping: A functional analysis. *Linguistic Inquiry* 7(2). 300–318.
Levin, Nancy & Ellen Prince. 1986. Gapping and causal implicature. *Papers in Linguistics* 19. 351–364. DOI: https://doi.org/10.1080/08351818609389263

Lin, Vivian. 2002. *Coordination and sharing at the interfaces*. Cambridge, MA: MIT dissertation.

Lope Blanch, Juan. 1958. Algunos usos de indicativo por subjuntivo en oraciones subordinadas. *Nueva Revista de Filologia Hispánica* 12. 383–385. DOI: https://doi.org/10.24201/nrfh.v12i3/4.3061

López, Luis & Susanne Winkler. 2003. Variation at the syntax-semantics interface: Evidence from gapping. In Kerstin Schwabe & Susanne Winkler (eds.), *The interface: Deriving and interpreting omitted structures*, 227–248. Amsterdam/Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/la.61.11lop

Marcos-Marín, Francisco. 1992. Corpus de referencia de la lengua española contemporánea: Corpus oral peninsular. Technical report. Universidad Autónoma de Madrid.

Morgan, Jerry. 1973. Sentence fragments and the notion *sentence*. In Braj Kachru, Robert Lees, Yakov Malkiel, Angelina Pietrangeli & Sol Saporta (eds.), *Issues in linguistics*, 719–751. Urbana, IL: University of Illinois Press.

Neijt, Anneke. 1979. *Gapping: a contribution to sentence grammar*. Dordrecht: Foris.

Park, Sang-Hee. 2016. Towards a QUD-based analysis of Gapping constructions. *Proceedings of the 30th Pacific Asia Conference on Language, Information and Computation (PACLIC 30)*, 297–305.

Park, Sang-Hee. To appear. Underspecification and scope: The case of gapping. *Proceedings of the 44th Annual Meeting of Berkeley Linguistics Society*.

Park, Sang-Hee, Jean-Pierre Koenig & Rui Chaves. 2019. A semantic underspecification-based analysis of scope ambiguities in gapping. *Proceedings of Sinn und Bedeutung 23*, vol. 2, 237–251. Universitat Autònoma de Barcelona, Bellaterra.

Patejuk, Agnieszka & Adam Przepiórkowski. 2017. Filling the gap. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG'17 Conference*, 327–347. Stanford, CA: CSLI Publications.

Porto Dapena, José Alvaro. 1991. *Del indicativo al subjuntivo. Valores y usos de los modos del verbo*. Madrid: Arco Libros.

Potter, David, Michael Frazier & Masaya Yoshida. 2017. A two-source hypothesis for Gapping. *Natural Language and Linguistic Theory* 35. 1123–1160. DOI: https://doi.org/10.1007/s11049-017-9359-y

Prince, Ellen. 1986. On the syntactic marking of presupposed open propositions. In *Proceedings from the Annual Meeting of the Chicago Linguistic Society* 22. 208–222. Chicago Linguistic Society.

Quer, Josep. 2009. Twists of mood: The distribution and interpretation of the indicative and the subjunctive. *Lingua* 119. 1779–1787. DOI: https://doi.org/10.1016/j.lingua.2008.12.003

R Development Core Team. 2008. *R: A language and environment for statistical computing* (R Foundation for Statistical Computing). Vienna.

Real Academia Española. 2010. *Nueva gramática de la lengua española. Manual*. Madrid: Espasa.

Reich, Ingo. 2007. Toward a uniform analysis of short answers and gapping. In Kerstin Schwabe & Susanne Winkler (eds.), *On information structure, meaning and form*, 467–484. Amsterdam/Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/la.100.25rei

Repp, Sophie. 2009. *Negation in Gapping*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199543601.001.0001

Roberts, Craige. 2002. Information structure in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* 5. 1–69. DOI: https://doi.org/10.3765/sp.5.6

Ross, John Robert. 1967. *Constraints on variables in syntax*. Cambridge, MA: MIT dissertation.
Ross, John Robert. 1970. Gapping and the order of constituents. In Manfred Bierwisch & Karl Erich Heidolph (eds.), *Progress in linguistics*, 249–259. La Haye: Mouton.
Sag, Ivan A. 1976. *Deletion and logical form*. Cambridge, MA: MIT dissertation.
Sag, Ivan A., Gerald Gazdar, Thomas Wasow & Steven Weisler. 1985. Coordination and how to distinguish categories. *Natural Language and Linguistic Theory* 3. 117–171. DOI: https://doi.org/10.1007/BF00133839
Simons, Mandy. 2007. Observations on embedding verbs, evidentiality and presupposition. *Lingua* 117. 1037–1056. DOI: https://doi.org/10.1016/j.lingua.2006.05.006
Stainton, Robert J. 2006. *Words and thoughts: subsentences, ellipsis, and the philosophy of language*. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/acprof:oso/9780199250387.003.0005
Steedman, Mark. 1990. Gapping as constituent coordination. *Linguistics and Philosophy* 13(2). 207–263. DOI: https://doi.org/10.1007/BF00630734
Steedman, Mark. 2000. *The syntactic process*. Cambridge, MA: MIT Press.
Temmerman, Tanja. 2013. The syntax of Dutch embedded fragment answers: On the PF-theory of islands and the WH/sluicing correlation. *Natural Language and Linguistic Theory* 31(1). 235–285. DOI: https://doi.org/10.1007/s11049-012-9180-6
Van Valin, Robert D. 1995. Toward a functionalist account of so-called extraction constraints. In A. Machtelt Bolkestein, Simon C. Dick, Casper de Groot & J. Lachlan Mackenzie (eds.), *Complex structures. A functionalist perspective* (Functional Grammar Series 17), 29–60. Berlin/New york: Mouton de Gruyter.
Vicente, Luis. 2013. In search of a missing clause. *Presentation at DGfS 35*. http://www.luisvicente.net/papers/vicente---in-search-of-a-missing-clause.pdf.
Weir, Andrew. 2014. *Fragments and clausal ellipsis*. Amherst, MA: University of Massachusetts Amherst dissertation.

How to cite this article: Bîlbîie, Gabriela and Israel de la Fuente. 2019. Can gapping be embedded? Experimental evidence from Spanish. *Glossa: a journal of general linguistics* 4(1): 110.1–39. DOI: https://doi.org/10.5334/gjgl.782

Submitted: 16 August 2018 **Accepted:** 08 May 2019 **Published:** 20 September 2019

]u[*Glossa: a journal of general linguistics* is a peer-reviewed open access journal published by Ubiquity Press.

OPEN ACCESS