

AN EXPERIMENTAL PERSPECTIVE ON FACTIVITY AND COMPLEMENTIZER OMISSION IN ENGLISH GAPPING

Starting with the much discussed syntactic constraint on embedding gapping (and fragments in general) in English, we show on experimental basis that factivity and complementizer omission play a role in the acceptability of these embedded elliptical contexts. Our experimental results on embedded gapping lead us to empirically test a semantic factor, namely the factivity, which, to the best of our knowledge, was never been investigated in relation to the complementizer omission in general in English.

It is usually assumed (Hankamer 1979, Neijt 1979, Johnson 2009, 2014, 2018) that gapping differs from other kinds of ellipsis in banning embedding (cf. Hankamer's 'Downward Bounding' constraint, illustrated in (1)). However, recent literature notes many counter-examples to this syntactic generalization: Farudi (2013) for Persian, Garcia-Marchena (2015, 2018)'s corpus studies on Spanish, Bîlbîie *et al.* (2018)'s experimental studies on Spanish, Romanian, and Persian. In particular, Bîlbîie *et al.* (2018) show, based on several acceptability judgment tasks, that, despite the cross-linguistic variation, a general semantic constraint is at work: non factive verbs embed more easily than factive ones, semi-factive (knowledge) verbs embed more easily than true (emotion) factive ones (Kiparsky & Kiparsky 1970, Karttunen 1971), independently of ellipsis.

(1) *Alfonso stole the emeralds, and I think [that Mugsy the pearls]. (Hankamer 1979)

Despite the ungrammaticality of (1), Weir (2014) notes that English would allow embedded gapping (and embedded fragments in general) in some very restricted cases: in the absence of the complementizer *that* and under certain types of predicates (2). In order to test these suggestions, we ran two experiments (acceptability judgment tasks) in English.

(2) John ate oysters...

a. and I { ?think | ?believe | ??hope | suspect | ?was told | imagine} Mary swordfish.

b. and I { ??found out | *remember | *deny | ?*know} Mary swordfish.

c. and I { *am proud | *am angry | *am surprised} Mary swordfish. (Weir 2014)

Experiment 1 replicates previous studies made by Bîlbîie *et al.* (2018) for other languages and tests in particular the role of verb semantics in embedded gapping with a complementizer. We had 24 experimental items and 12 control items (followed by a yes/no comprehension question), using a 2x3 design (gapping, embedding-nonfactive, embedding-factive), as illustrated in (3). We used a 1-7 rating scale. As for participants, we had 51 valid subjects (on AMT).

(3) a. [+gapping, +embed, +factive]

At the bar, Paul ordered a beer and **it bothers me that** John (ordered) a whisky.

b. [+gapping, +embed, -factive]

At the bar, Paul ordered a beer and **it seems that** John (ordered) a whisky.

c. [+gapping, -embed]

At the bar, Paul ordered a beer and John (ordered) a whisky.

In English, there is an interaction between gapping and embedding (mean z-score for embedded gapping -0.8). Though in the presence of the complementizer embedded gapping is indeed dispreferred even with non-factive verbs, it is still affected by the semantic class of the embedding predicate: embedded clauses under a factive verb (blue bars in the graph below) are less acceptable than under a non factive verb (red bars in the graph below), independently of ellipsis. Interestingly, our study also confirms the preference for non-gapping over gapping structures (see the yellow bars in the first graph below), reported by Carlson (2001).

Experiment 2 tests the syntactic constraint, namely the presence/absence of the complementizer. We use a 2x2 design (\pm gapping, \pm that), with 20 experimental items (4), with non factive verbs, and 24 distractors from an unrelated experiment (all items being followed by a yes/no comprehension question); the rating scale was 1-7 and we had 49 valid subjects as participants (on AMT).

(4) a. [\pm gapping, + *that*]

At the corner shop, Peter stole cigarettes and **I think that** Larry (stole) chocolates.

b. [\pm gapping, -*that*]

At the corner shop, Peter stole cigarettes and **I think** Larry (stole) chocolates.

Our results (see graph 2) show a significant effect of complementizer, a significant effect of gapping and a significant interaction between the two. Embedded gapping is also affected by the presence/absence of the complementizer: the absence of complementizer renders embedded gapping more acceptable. The ameliorating effect related to the absence of the complementizer is not surprising, being noticed in the literature for other phenomena too (e.g. the correlation between 'bridge' verbs, extraction and complementizer omission, cf. Erteschik-Shir 1973).

On the basis of our experimental results, a further hypothesis would be that the presence/absence of the complementizer in embedded clauses in general is sensitive to factivity: in particular, complementizer omission would be more difficult with true factive (emotion) verbs than with the semi-factive and non factive ones. Whereas the complementizer omission has been extensively studied from different perspectives and by taking into account various linguistic and non-linguistic factors (see Jaeger 2006, 2010 for an overview), factivity has never been tested, to the best of our knowledge, although it has sometimes been mentioned (de Cuba 2018). We have a third experiment in progress, where we took into account both non factive and factive verbs, using a 2x2 design (\pm factive, \pm that), with 24 experimental items (5).

(5) a. [-factive, \pm that]

At the corner shop, Peter stole cigarettes and **I think (that)** Larry stole chocolates.

b. [+factive, \pm that]

At the corner shop, Peter stole cigarettes and **I regret (that)** Larry stole chocolates.

If our results confirm the expected correlation between complementizer omission and factivity, this means that the semantic constraint related to factivity is much more general than usually assumed.

From a theoretical perspective, contrary to Weir (2018), we do not derive the contrast between non-factive and factive verbs from their different syntactic structures (cf. challenges raised by the experimental results presented here), but rather from their semantic and discursive properties. In particular, the penalty on factive verbs may come from their non-assertive nature (Hooper 1974) and/or from the QUD-incongruence (Ginzburg 2012).

