No Hard Feelings, Karttunen: When Hard Presuppositions Project

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Introduction and Main Issues

- Generally, **hard presupposition triggers like *too*** pattern very differently than **soft presupposition triggers like *win*** (Abusch 2002) in that the former rarely give rise to non-projection patterns: (1a) and (1c)
- We consider the hypothesis that ***semi-factive*** predicates behave like soft triggers and ***emotive factive*** predicates like hard triggers (Abbott 2006, Abrusán 2016): (1b) and (1d)
- We do find non-projection with hard triggers in mistaken belief contexts: (2)
- Some research questions the validity of a distinction between semi-factives and robust factives (Egré 2008). Karttunen (2016) claims that most factives, other than those that take clausal subjects (*be odd*), are not real presupposition triggers
- We tested this experimentally with the stimuli in (6) to (8)
- If the distinction between semi-factives and emotive factives is not real, we should find no distinction in their projection rate
- Instead, our results support a distinction between the two classes of factive predicates and are compatible with it being parallel to the soft-hard one
- We argue that mistaken belief contexts are special and can affect all presupposition triggers uniformly, contra Karttunen (2016): (3) and (4)

(1) a. I don't know whether the duck participated in a race, but if she **won**, she is probably drunk now.
b. I don't know whether the duck participated in a race, but if the panda **discovers** that she did, he will be furious.
c. # I don't know whether anybody else was ill, but if the duck was ill **too**, she needed rest.
d. # I don't know whether the panda is ill, but if the duck **regrets** that he is, she will bring him cookies.

Contextual configurations where non-projection occurs with emotive factives lead Karttunen (2016) among others to argue that only predicates like *be odd* or *count* really presuppose the truth of their complement, to the exclusion of all other factives (example from Egré 2008: 14; cf. Klein 1975: B12):

(2) John wrongly believes that Mary got married, and he **regrets** that she is no longer single.
⇝ John believes that Mary is no longer single.

This is a quite stable fact that arises when a presupposition trigger interacts with an attitude predicate:

(3) a. # Taro mistakenly believes that Eleni likes linguistics and it's awkward that she does.
b. Taro mistakenly believes that Eleni likes linguistics and he believes it's awkward that she does.

Even *odd* allows for non-projection when an **attitude holder** is introduced with *to him*:

(4) a. # Taro mistakenly believes that Eleni likes linguistics, and it's **odd** that she does.
b. Taro mistakenly believes that Eleni likes linguistics, and it's **odd to him** that she does.

Emotive factives are special in this respect because they are both presupposition triggers and attitude predicates.

The Experiment

We carried out an Acceptability Judgment Task (Likert scale from 1 to 7). It can be accessed (in Italian) here: `https://farm.pcibex.net/r/WWrlkZ/` (Zehr & Schwarz 2022)

(5) 3 × 2 Design (24 items, 28 participants; 27.7, 2.9; 10 female)
- Predicate: Real factive vs. semi-factive vs. non-factive (between items)
- Context: $\neg p$ vs. $\neg B(p)$ (within items)

Here is a sample of the materials:

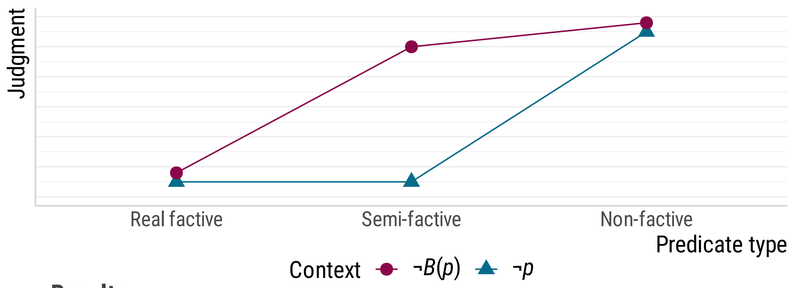
(6) **Real factive** (*be happy*, *be sad*)
a. The duck didn't lose the kite, but if the panda is **happy** that she did, his teacher will scold him.
b. I don't know if the duck lost the kite, but if the panda is **happy** that she did, his teacher will scold him.

(7) **Semi-factive** (*understand*, *realize*)
a. The frog didn't hide the crayons, but if the duck **realizes** that he did, she will play with someone else.
b. I don't know if the frog hid the crayons, but if the duck **realizes** that he did, she will play with someone else.

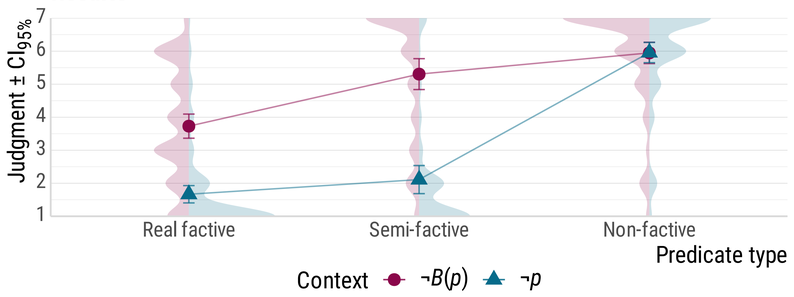
(8) **Non-factive** (*think*, *believe*)
a. The duck didn't get the top grade, but if the frog **thinks** that she did, he will be jealous.
b. I don't know if the duck got the top grade, but if the frog **thinks** that she did, he will be jealous.

(not acceptable) 1 2 3 4 5 6 7 (completely acceptable)

Hypothesis



Results



Mixed Model We fit the following ‹ linear mixed model › in R (4.2.2; R Core Team 2022) using the `mixed` function from *afex* (Singmann et al. 2016), which is based on the *lme4* architecture (Bates et al. 2015)—a more maximal variant did not converge:

Y ~ PREDICATE * CONTEXT + (1 + CONTEXT | ITEM) + (1 + PREDICATE + CONTEXT | ID)

For the *post-hoc* analysis, we used the `‹ joint_tests ›` function from *emmeans* (Lenth 2019) to compare the estimated marginal means to the exclusion of non-factive predicates.

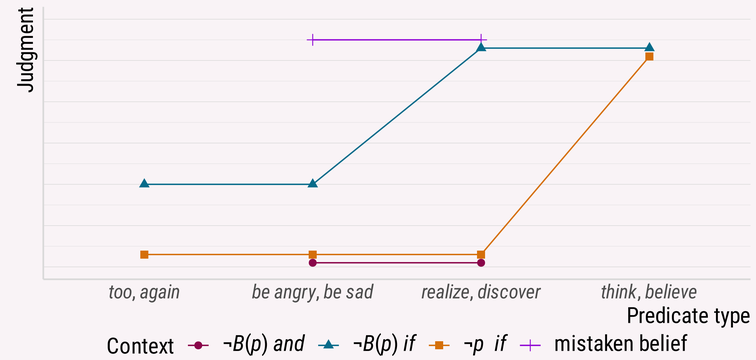
‹ Model term ›	*df*	χ^2	*p*
PREDICATE	2	51.4	<.001
CONTEXT	1	36.1	<.001
PREDICATE × CONTEXT	2	34.8	<.001

‹ Model term ›	df_{mod}	df_{err}	*F*	*p*
PREDICATE	1	36.6	13.5	.007
CONTEXT	1	46.8	99.9	<.001
PREDICATE × CONTEXT	1	49.7	3.7	.051

Conclusions and a Follow-Up

- Our pilot does not seem consistent with the claims by Karttunen (2016)
- We plan on re-running the experiment with certain modifications:
  - add hard triggers that are not factive predicates (*too*, *again*)
  - include mistaken belief contexts
  - add non-conditional variant of the explicit ignorance items

Updated Hypothesis



A Theoretical Puzzle

The presupposition in mistaken belief contexts is interpreted relative to the belief state of the subject instead of the Context Set. Two preconditions appear to be necessary:

- the syntactic realization of an attitude holder
- the mention of a false belief that individual has

How should semantics be made sensitive to this?

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