

Can zero be positive and negative?

Ellipsis of propositional anaphora in the context of modalized negative antecedents

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We investigate pronominal and elliptic anaphoric reference to propositions that are introduced by negative assertions. Negative assertions are assumed to introduce p and $\neg p$ as propositional discourse referents [1][3], which in German, the language under investigation, can both be picked up by the pronoun *das* ‘that’ [1][4][5]. Whether p or $\neg p$ is picked up depends inter alia on characteristics of the clause containing the anaphor: In (1), the particles *auch* ‘too’ vs. *aber* ‘but’ force reference to $\neg p$ and p , respectively, because they indicate a PARALLEL vs. CONTRAST discourse relation [1]. When the anaphor *das* appears in the initial position of a main clause, it is generally possible to elide it, which is known as *topic drop*, although topicality is not a defining feature [6][8][10]. Syntactically, topic drop most likely is phonological deletion [8]. In our paper, we ask if reference to p vs. $\neg p$ affects the availability of topic drop (or the “zero anaphor”), focussing on antecedent clauses which contain a modal verb alongside the negation.

Characteristics of the antecedent clause have so far not been investigated as potential factors for the anaphoric uptake of p vs. $\neg p$. Example (2) contains our intuitive judgments on negative antecedents with two types of modal verbs. To enforce reference to p , the clauses are in a CONTRAST relation (expressed by *but*). With a root (= dynamic/deontic) modal, anaphoric reference to p hampers coherence (2a), while with epistemic modals this is not the case (2b). This difference may be explained as follows. Root modals express an ability of the subject [3] while epistemic modals express the speaker’s assessment of the probability of the truth of the proposition in their scope. Thus, with epistemic modals the speaker perspective regarding the truth of p is inherently prominent. A response can easily take issue with this perspective, enabling the interpretation of *das* as p . With root modals, the speaker perspective is less prominent, making it less coherent to interpret *das* as p .

These observations raise the question whether topic drop is predicted to pattern differently from pronominal anaphors. [8] argues that the felicity of topic drop depends on the ease of recoverability of an antecedent and the amount of cognitive effort to retrieve it. With respect to negative sentences introducing two propositional antecedents, this may be translated into an issue of the prominence of p vs. $\neg p$. It is controversial whether p or $\neg p$ is generally more prominent after the utterance of a negative sentence [1][3], clear evidence is pending. However, regarding the difference between root and epistemic modals, we may hypothesize that the suggested difference in perspective reflects the prominence of p vs. $\neg p$ and thus influences the felicity of topic drop in the same way as *das*.

To investigate these issues, we conducted two acceptability judgement experiments (goodness of contextual fit of a response in a mini dialogue; 24 lexicalizations per exp., 30 fillers; Latin Square; 72 participants per exp.). The factors in both experiments were ANAPHOR (*das*/Ø), MODAL (root/epistemic, root modals balanced between deontic and dynamic) and DISCOURSE RELATION (PARALLEL/CONTRAST). The last factor was manipulated via the presence of *auch* vs. *aber* in the response and ensured the relevant interpretation ($\neg p$ vs. p , see above). Exps. 1 and 2 differed in the aspect of the antecedent (non-perfective vs. perfective), which intuitively seemed to influence speaker perspective (for reasons of space we will not go into detail). A sample item of Exp. 1 is given in (3). Participants judged the contextual fit of the response on a 7-point scale and afterwards answered a verification statement (attention check).

The statistical analysis (clmms; package *ordinal*) revealed similar effects of the experimental factors for both experiments, see Fig. 1 for the results for Exp 1. There are two significant main effects (MODAL, ANAPHOR) and a significant three-way interaction. The root modals show higher ratings in the PARALLEL relation than in the CONTRAST relation, indicating that the interpretation $\neg p$ was easier to obtain than p . This finding is congruent with our expectations (2a). Furthermore, root modals show reduced acceptability for topic drop. For the epistemic modals, there is a significant DISCOURSE effect only for topic drop, where ratings in the PARALLEL relation are lower than in the CONTRAST relation. These findings suggest that the lack of a prominent speaker perspective regarding the issue whether p penalizes ellipsis of the propositional anaphor that picks up $p/\neg p$. With a prominent speaker perspective, $\neg p$ is prominent enough to be easily picked up by a pronoun, but not as easily by the zero anaphor. Arguably, p is the ‘default’

proposition that is under debate when an epistemic modal is used and therefore is highly prominent so that it is available for anaphoric uptake by a pronoun as well as ellipsis.

- (1) Lisa: Ich habe jetzt fünfmal da angerufen. Maria kann nicht zu Hause sein.
'I have called five times. Maria can't be home.'
- Alex: a. Das behauptet Peter auch. b. Das behauptet Peter aber.
that claims Peter too that claims Peter but
'That_p's what Peter claims, too.' 'But that_p's what Peter claims.'
- (2) *Intuitive judgments*
- a. **ROOT MODAL: DYNAMIC READING**
Lisa: Mary cannot be in the pool (she totally hates swimming).
Alex: #But that_p's what Peter claims.
- b. **EPISTEMIC MODAL**
Lisa: Mary cannot be in the pool (she has dancing class on Tuesdays).
Alex: But that_p's what Peter claims.
- (3) *Experiment 1 (non-perfective): Sample item in all eight conditions*
- Lisa: Paul hat einen Kreuzbandriss. Er kann den Marathon nicht laufen.
'Paul has a cruciate ligament rupture. He can't run the Marathon.' (**ROOT**)
Ich habe jetzt fünfmal da angerufen. Maria kann nicht zu Hause sein.
'I have called five times. Maria can't be home.' (**EPISTEMIC**)
- Alex: **Das** behauptet Peter auch / aber. **PARALLEL / CONTRAST**
Ø Behauptet Peter too / but
that claims Peter too / but
'That_p's what Peter claims, too.' / 'But that_p's what Peter claims.'

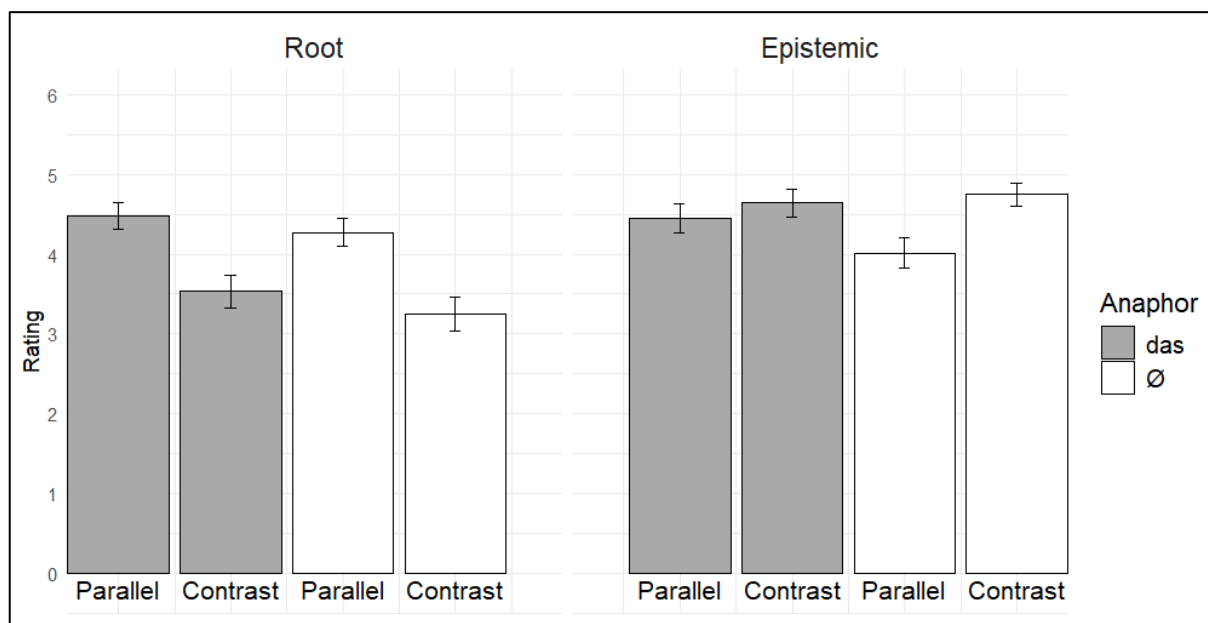


Figure 1. Mean ratings for acceptability of Alex's response by condition and 95% confidence intervals

[1] Claus/Frühauf/Krifka 2019. Interpreting polarity-ambiguous propositional anaphors with negative antecedents. *SuB* 23. [2] Consten/Knees 2008. Complex anaphors in discourse. In: *Constraints in Discourse*, Benjamins. [3] Erb 2001. *Finite Auxiliaries in German*. PhD. [4] Krifka 2013. Response particles as propositional anaphors. *SALT* 23. [5] Meijer 2016. Referring to proposition 'inside' a negated one. *ConSOLE XXIV*. [6] Meijer/Repp 2018. Modal subordination of propositional anaphora. *SuB* 21. [7] Schäfer 2021. Topic drop in German: Empirical support for an information-theoretic account to a long-known omission phenomenon. *Zf-Sprachwiss.* 40 (2). [8] Schäfer 2023. The Licensing and Usage of Topic Drop in German. PhD. [9] Snider 2017. *Anaphoric Reference to Propositions*. PhD. [10] Trutkowski 2016. *Topic Drop and Null Subjects in German*. De Gruyter.