

The wide scope of German topical singular indefinites

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Abstract

Endriss (2009) postulates that indefinites take wide scope when they are marked as sentence topics. The present study aims to test this theory by using a forced-choice sentence continuation task. The results showed significant effects of sentence structure and intonation as independent topic-marking devices that make indefinite wide scope more available or even preferred in scopally ambiguous German sentences. With this study, I therefore provide empirical evidence highlighting the pragmatic influence of information structure on scope interpretation. In order to account for the observed graded scope preferences, I propose a reanalysis of the effect of topicality on scope disambiguation grounded in probabilistic language understanding.

Keywords: information structure, sentence topic, indefinite wide scope

Introduction

For German – a language with canonical S>O order that allows object fronting, there can be various constraints on the availability of object wide scope in doubly-quantified sentences, with information structure being one of them. Endriss (2009) postulates that an indefinite takes wide scope when it is marked as the aboutness topic of the sentence (Endriss, 2009, p. 190, Claim 5.1). Two topic-marking devices in German are left dislocation and intonation (through a rising accent on the indefinite determiner), which can be employed separately or together to mark indefinites as sentence topics. Notably, left dislocation and intonation can mark not only topicality, but also contrastivity. Consequently, when an indefinite is marked by left dislocation and/or intonation, there are two possible readings: either the marked indefinite is interpreted as sentence topic and takes wide scope, or it is interpreted contrastively and takes narrow scope. In the latter case, the German indefinite determiner *ein* ‘a/one’ is understood numerically as ‘one’ and contrasts with alternatives denoting ‘more than one’ such as *zwei* ‘two’, *drei* ‘three’, *einige* ‘several’, etc.

So far, to the best of my knowledge, there has been no study that explicitly tests Endriss' (2009) hypothesis on the wide scope of topical indefinites. This is what the present study aims to do in order to investigate the pragmatic influence of information structure on scope interpretation. I attempt to empirically answer the following two questions: Do singular indefinites take

wide scope when they are marked as sentence topics? If so, do syntactic and prosodic topic-marking devices function independently from each other in causing topical singular indefinites to take wide scope?

Methodology

Experiment design and procedure

The conducted web-based experiment has a 3x2 factorial design with the factors *sentence structure* (3 levels: *SVO*, *OVS*, and *LD* – left dislocation) and *intonation* (topic-marking intonation with a rising accent on the singular indefinite determiner of the object quantifier, 2 levels: *without*, *with*). The quantifier *fast jed-* ‘almost every’ was used for the subject of target sentences and the existential quantifier *ein-* ‘a/one’ for the object.

The experiment employed a forced-choice sentence continuation task. Participants were instructed to first click on the audio recording of a sentence and listen carefully. Then, they should read three given continuation options and choose the one that they think is most suited for continuing the sentence they have just heard. These three continuation options allow for clearly identifying which of the three possible readings was interpreted when participants chose a certain continuation option.

Materials and participants

There were 24 target items and 48 fillers – 32 of which served as control items. An example of a target item in the *SVO+without* condition is: *Fast jeder Kunde hat diese Woche in Matteos Café in Venedig ein Souvenir gekauft.* ‘Almost every customer bought a/one souvenir this week at Matteo’s café in Venice.’ In the other five conditions, the indefinite object quantifier is either fronted or left-dislocated and/or carries a topic-marking rising accent on the singular indefinite determiner. The three continuation options for this target item are: (A) *Seine Idee, kleine Souvenirs im Café zu verkaufen war ein Erfolg.* ‘His idea to sell small souvenirs at the café was a success.’ (indefinite narrow scope option); (B) *Ein paar Kunden, denen die Souvenirs so sehr gefallen haben, haben sogar mehrere gekauft.* ‘A few customers, who liked the souvenirs so much, even bought several of them.’ (indefinite narrow scope, contrastive reading option); (C) *Es war die eine Postkarte von Venedig, die von Matteo selbst entworfen wurde.* ‘It was the one postcard of Venice that was designed by Matteo himself.’ (indefinite wide scope option).

26 participants were recruited via Prolific for 8£/hour. They all stated that they were native speakers of German and gave an accurate answer for at least 29 out of 32 control items. 2 participants were excluded from the final analysis to ensure that each of the 6 presented lists was assigned the same number of people. These two participants were chosen for exclusion because they seemed to have developed an answering strategy and consistently opted for the same continuation option for almost all of the target items (22–23 out of 24).

Predictions and results

In line with past empirical findings, indefinite wide scope was predicted to be dispreferred but still available to some degree in the condition with canonical word order and no intonational marking *SVO + without*. In accordance with Endriss' (2009) theory, the choice of the continuation option depicting the indefinite wide scope reading should significantly increase in the four conditions in which the indefinite object quantifier is marked as the aboutness topic of the target sentence: *SVO+with*, *OVS+with*, *LD+without*, and *LD+with*. The *OVS + without* condition was expected to make indefinite wide scope more available than in the *SVO + without* condition due to it being the surface scope. However, as the OVS construction without intonational marking does not explicitly mark the indefinite object quantifier as sentence topic, this could lead to indefinite wide scope being less available in the *OVS+without* condition than in the four conditions mentioned above, where the indefinite object quantifier is marked as sentence topic through left dislocation and/or intonation.

The descriptive results of the experiment (see Figure 1) confirmed the predictions outlined above. In the condition with canonical SVO word order and no topic-marking intonation, indefinite wide scope was dispreferred but still available 20% of the time. In the *OVS+without* condition, indefinite wide scope became more than twice as available (44%). In the other four conditions in which the indefinite object quantifier is marked as the aboutness topic of the target sentence (*SVO+with*, *OVS+with*, *LD+without*, and *LD+with*), indefinite wide scope became as available as or even preferred over indefinite narrow scope, ranging from 50% to 73%.

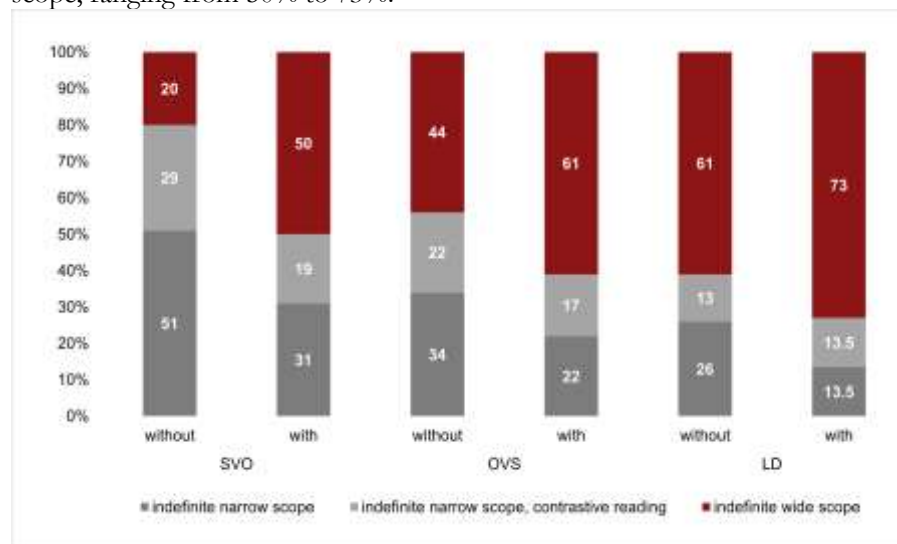


Figure 1. Proportions of continuation choices indicating scope interpretation of the target sentence.

Participants' responses to the target items were coded binarily as 0 (both indefinite narrow scope continuation options) and 1 (indefinite wide scope continuation option) and then analyzed with a generalized linear mixed model fit by maximum likelihood. The factor *sentence structure* was analyzed using backward difference contrast coding, comparing the *OVS* to the *SVO* condition, and the *LD* to the *OVS* condition. The factor *intonation* was analyzed using effect coding (0.5 vs. -0.5). By-participant and by-item variability were included as random effects. The analysis showed significant main effects of both factors *sentence structure* (*OVS* vs. *SVO*: $p < 0.001$, *LD* vs. *OVS*: $p < 0.001$) and *intonation* ($p < 0.001$) on scope interpretation. There were no significant interaction effects observed (*OVS/SVO* & *with/without*: $p = 0.10671$, *LD/OVS* & *with/without*: $p = 0.60630$).

Discussion and conclusion

The experimental results showed that sentence structure and intonation are independent topic-marking devices that accumulate in making indefinite wide scope more available or even preferred over indefinite narrow scope. Crucially, the participants' scope preferences were not categorical but clearly graded: the more left-fronted the indefinite object quantifier was, the more indefinite wide scope was preferred. Additionally, this preference became stronger when the indefinite determiner *ein* 'a/one' of the object quantifier carried a topic-marking rising accent. Overall, the experimental results provide empirical support for Endriss' (2009) theory on the wide scope of topical indefinites, highlighting the pragmatic influence of information structure on scope interpretation.

In order to account for the empirical variability in participants' scope interpretation while still maintaining topicality as a categorical, binary notion (as in much of the literature on information structure), I propose that the effect of topicality on scope disambiguation be reanalyzed in a way that acknowledges the uncertainty language users face when decoding the information-structural constellation of sentences. As a consequence of this uncertainty, they reason about the likelihood of a certain element being the intended sentence topic using context and available topic-marking cues. Hence, the gradedness in scope preferences could be attributed to the *varying probabilities* of participants *perceiving* the indefinite object quantifiers as sentence topics across different topic-marking conditions. With further investigation using computational cognitive modeling, this proposed reanalysis grounded in probabilistic language understanding can be a promising way to theoretically account for the empirically observed graded scope preferences in this study.

References

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