How tense and cardinality influence the interpretation of 'einige'.
An experimental study.

We conducted a study investigating the effect of tense (past vs. future) on the computation of scalar implicatures. In an interactive experiment, we tested the interpretation of the German quantifier 'einige' (engl. 'some') and we presented the results at the second edition of the conference 'Experiments in Linguistic Meaning'(ELM) in Philadelphia in May 2022.

Typically, existential quantifiers like 'some' trigger a scalar implicature (SI) to the effect that such utterances are understood as negating their stronger alternative 'all', thereby strengthening the overall interpretation. This inference, which can be seen in (1), can be derived pragmatically by assuming the cooperative principle (see for example Grice 1989) and the maxim of quantity, or semantically by using a silent exhaustification operator (see for example Fox 2007)

(1) a. Some students danced.
    b. SI: Not all students danced.

Our experiment used a design adapted from Fricke et al. 2022 including a financial incentive for participants to consider whether another speaker would share their judgment. In particular, participants had to judge whether bets containing the target sentence using 'einige' were won or lost, given a certain context. To do this, participants took on one of two roles: Either, they had a budget from which they had to pay out won bets or they had to redeem bets they judged as won. (see figure 1 for an example bet with English translations.)

In our experiment, we tested the hypothesis that scalar implicatures are less frequently drawn in future tense than in past tense, an effect which has been attested before by Chierchia et al. (1998) in an experiment with Italian and English speaking children. The authors argued that a prediction about a future event is a context where SIs are suspended.

In addition, we studied to what extent sets with various cardinalities are prototypical representatives of 'einige N'. We hypothesized that larger cardinalities are more prototypical representatives of the quantifier 'einige' than smaller cardinalities (relative to the cardinality of the total set).

We analyzed the experimental data with probabilistic Bayesian models that were based on the assumption that a participant aims to maximize her utility for each decision in the experiment, considering every possible outcome and their subjective probability for each outcome. Thereby, probabilities of outcomes were assumed to depend on the consequences of the theoretical considerations displayed above, i.e. whether SIs were drawn and whether the context represented a cardinality prototypical enough to count as an instance of 'einige'.

In line with the hypotheses, we found that less scalar implicatures are drawn in future tense than in past tense, which replicates the results of previous research on English 'some', and that with an increase in set size, acceptance of statements involving 'einige' also increases. (see figure 2 for a graphical presentation of the results)
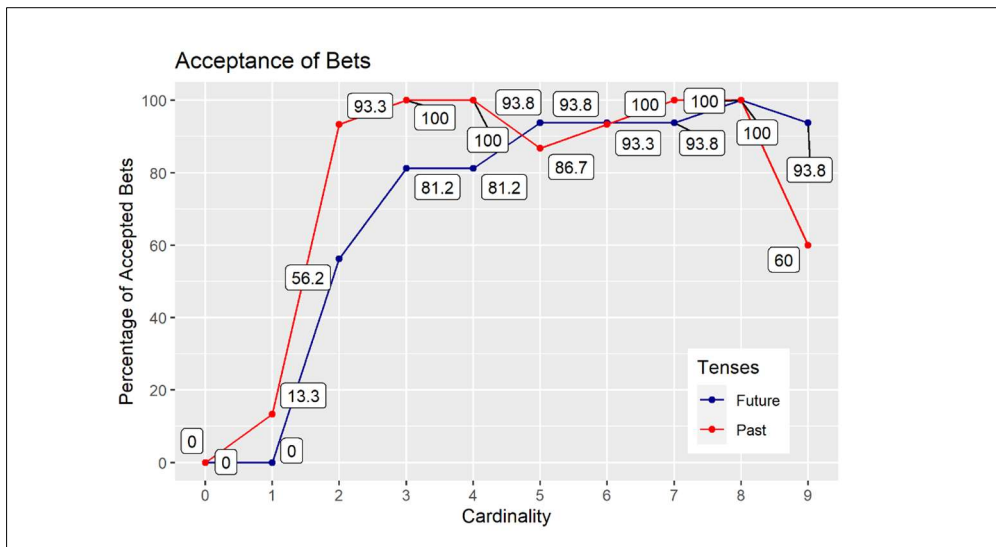
Figure 1: percentage of accepted bet by tense and cardinality

Figure 2: Sample item, cardinality 7, future tense

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