**Exclusive disjunction: implicature or...**

**Introduction**. An utterance of the form “A or B” may imply that, according to the speaker, it is not the case that both A and B are true. This exclusive reading is often explained as a kind of scalar implicature along the following lines: the speaker could have been more informative by using the alternative “A and B”. Why didn’t she? Presumably because she does not believe the alternative is true. Assuming, moreover, that the speaker knows whether the alternative is true or false (the competence assumption) it follows that she believes the alternative is false.

There is, however, an important problem with this explanation. For other kinds of scalar implicature, such as the one associated with “some”, the competence assumption tends to be quite plausible. But it is anything but plausible in the case of “or”. After all, someone who utters “A or B” also implies that she is ignorant about the truth of “A” and “B”. These ignorance inferences make it prima facie unlikely that she is competent about “A and B”.

**Proposal**. We propose an alternative explanation for exclusive readings. Our proposal proceeds from the observation that, in some cases, world knowledge forces an exclusive reading. If someone says “He is here or there” it is a priori impossible that the statement with “and” is true, thus obviating the need to derive a scalar implicature. We propose to generalise this observation: the robustness of exclusive readings is an increasing function of the likelihood that the alternative with “and” is true.

In three experiments, we compared the predictions of the implicature-based account with those of this probabilistic alternative.

**Experiment 1**. In this experiment we tested the effects of three factors on the robustness of exclusive readings associated with utterances of the form “A or B”: (i) the competence of the speaker about the truth of “A and B”; (ii) the relevance of the truth of “A and B” for the hearer; and (iii) the prior probability that “A and B” is true. The implicature-based approach predicts an effect of competence; the probabilistic alternative an effect of prior probability.

The materials consisted of 16 vignettes involving two characters S and H. Each vignette ended with S uttering a sentence of the form “A or B”. Each vignette was associated with seven questions: three control questions and four target questions aimed at measuring competence (“S knows whether A and B”), relevance (“It is important for H to know whether A and B”), prior probability (“If A, it is likely that B as well” and “If B, it is likely that A as well”), and exclusive readings (“From what S said we may conclude that not A and B both”).

200 participants each read 8 of these vignettes. Each vignette was followed by two questions: one control question and one target question. Participants were instructed to indicate how likely the statement was and could respond by setting a slider on a continuous scale ranging from “Certainly false” to “Certainly true”.

Regression model comparison based on Bayes factors showed that there were two optimal models for predicting the robustness of exclusive readings: one containing only prior probability, and one containing prior probability and competence. Estimates of the posterior distributions over model parameter coefficients indicated that both of these factors had significant effects. Critically, however, the effect of competence went in the opposite direction to what the implicature-based approach predicts: the perceived robustness of the exclusive reading decreased with the perceived competence of the speaker.

One might attempt to salvage the implicature-based account by arguing that the exclusive reading comes about by exhaustifying the individual disjuncts rather than the disjunction as a whole. That is, “A or B” might be interpreted as “Only A or only B” which excludes the possibility that both A and B are true. This account predicts that the robustness of exclusive readings is an increasing function of the robustness of the exhaustive inference associated with an utterance of the individual disjuncts. We tested this prediction in Experiment 2.

**Experiment 2**. The design and procedure of Experiment 2 was similar to that of Experiment 1. The same 16 vignettes were used changing only the final utterance from a disjunction (“A or B”) to one of the disjuncts (“A” and “B”). Each vignette was associated with four questions: three control questions and one target question testing exhaustiveness (“From what S said we may conclude that B is not true as well” and “From what S said we may conclude that A is not true as well”). 130 participants each read 6 vignettes that were followed by one control question and one target question.

Regression model comparison indicated that, even after exhaustiveness was added as a predictor of the results obtained in Experiment 1, the optimal models remained the same as before, thus arguing against the alternative implicature-based account.

One might still counter that, perhaps, our manipulations did not measure what we expected them to measure. To address this concern we replicated Experiment 1 using vignettes with “some” instead of “or”.

**Experiment 3**. The design and procedure of Experiment 3 was analogous to that of Experiment 1 except that we created 16 vignettes that ended with an utterance containing “some” instead of “or”.

Regression model comparison indicated that the optimal model contained prior probability and competence. In the results of this experiment, the role of competence went in the direction predicted by the implicature-based approach. So unlike exhaustive readings, the robustness of upper-bounding inferences associated with “some” increases with the speaker’s competence.

**Conclusion**.The results of these three experiments provide strong evidence against the view that exclusive readings are due to scalar implicature and, instead, support the view that they are the result of reasoning about the prior probability of the situation expressed by the alternative with “and”. More generally, we have shown which factors influence the robustness of exclusive readings and the upper-bounded inferences associated with “some”. Perhaps surprisingly, the latter is affected by prior probabilities but not relevance. These findings thus constrain the general architecture of theories of pragmatics.