

13. Scalar implicatures and scrambling

Supervisors: Clemens Steiner-Mayr, Thomas Weskott

PhD Student: Maik Thalmann

I. The form-meaning mismatches

- The use of weak scalar terms in upward-monotonic contexts optionally leads to a scalar implicature, (1), which lacks an overt trigger and thus constitutes a 0:1 form-meaning mismatch.

(1) John ate some of the Sauerkraut.

↪ John did not eat all of the Sauerkraut.

- German allows for an optional operation called scrambling, which reorders constituents in the *Mittelfeld*, i.e., the space between the auxiliary and the infinitive in (3) relative to the base order in (2):

(2) *Gerade hat der Johann das Sauerkraut gegessen.*

just has the_{NOM} Johann the_{ACC} Sauerkraut eaten

(3) *Gerade hat das Sauerkraut der Johann gegessen.*

just has the_{ACC} Sauerkraut the_{NOM} Johann eaten

- Because there is no truth-conditional difference between these permutations, scrambling is an instance of a many:1 form-meaning mismatch.

II. Motivation

- Scalar implicatures are influenced by a wide range of factors, chiefly among them matters of information structure like focus and discourse-structuring questions. The exact role that they play, however, remains a controversial issue (Zondervan 2010).
- Breheny et al. (2006) suggest that word order, through an interaction with information structure, affects scalar implicature rates in Greek.
- The function of scrambling is debated even in isolation, ranging from semantic properties like scope, to prosody and information structure, to true optionality (see e.g., Struckmeier 2016 and Haider 2020).
- It is unclear whether the proposed connection between word order and scalar implicatures for Greek generalizes to other languages or whether scrambling can be exploited in similar ways.

III. Research questions

- Are scalar implicatures primarily determined by prosody and information structure or is there a previously undiscovered influence of syntactic positions and word order?
- If syntax does determine, or at least influence, the likelihood of deriving an enrichment, are the reasons to be found in the structural algorithm assumed for alternative generation, operator placement (cf. Chierchia et al. 2012), or other areas?

IV. Hypotheses and method

Hypothesis: Word order can be exploited systematically to both lower and raise scalar implicature rates.

- In more detail:
 - i. Word order permutations affect admissible focus placement and restrict implicitly assumed discourse-structuring questions.
 - ii. In addition, word order can be leveraged to restrict the set of alternative propositions necessary for the computation of the enrichment, or operator insertion.
- Procedure and methods
 - i. Identify and replicate the most important results relating to the proposed function of word order permutations, both at the (left) edge of the clause and clause-medially, such as the default information-structural expectations because of linear order.
 - ii. Reevaluate the results for Greek with new experiments in German to isolate whether word order contributes more than information structure.
 - iii. Development of methods and experiments to examine the various contributions and effects of word order on scalar implicature, using
 - small-scale offline judgments,
 - self-paced reading, and
 - visual-world eye-tracking.

V. Connections to other research projects

- Type of form-meaning mismatch: **1, 2, 3** (1:0 form-meaning mismatch)
- Empirical domain: **2** (information structure), **3, 6, 9, 12** (information structure)
- Content: **3, 6, 9**
- Methods: **1, 3, 6, 7, 9** (experiments)

VI. Possible follow-up studies

1. Comparisons with languages like Greek or Japanese
2. Inclusion of scalar triggers other than quantifiers like *some* (scalar diversity, see Doran et al. 2009)
3. Investigation of processing signatures to investigate potential superadditive cognitive load
4. Extension towards language acquisition