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**Jacopo Romoli – University of Ulster**

**A problem for the structural characterization of alternatives**

j.romoli@ulster.ac.uk  
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Fox and Katzir (2011) propose a principled characterization of alternatives for scalar implicatures based on structure. They define the notion of formal alternatives in (1), based on the notion of ‘being at most as complex as’ in (2), and that of ‘substitution source’ in (3).

(1) **Formal alternatives**: given a sentence \( \phi \) and a context \( C \),

\[ A(\phi, C) = \{ \psi : \psi \text{ is derived from } \phi \text{ by replacing focused constituents } x_1, \ldots, x_n \text{ with } y_1, \ldots, y_n \text{ where } y_1 \leq_c x_1, \ldots, y_n \leq_c x_n \} \]

(2) **Complexity**: \( \phi \leq_c \psi \) if \( \phi \) can be derived from \( \psi \) by successive substitutions of subconstituents of \( \psi \) with elements of the substitution source for \( \psi \) in \( C \)

(3) **The substitution source**: the substitution source for \( X \) in a context \( C \) is the union of the following sets:

- a. the Lexicon
- b. the subconstituents of \( X \)
- c. the set of salient constituents in \( C \).

If we integrate this theory of alternatives with any theory of scalar implicatures which allows the exclusion of logically independent alternatives (e.g., Fox 2007 and Spector 2007), a problem arises with sentences like (4), in which a strong scalar term like *all* is embedded in the scope of a downward entailing operator like negation.

(4) The committee didn’t pass all of my students.

(4) gives rise to the inference in (6) and this is commonly derived as a scalar implicature by negating the alternative in (5).

(5) The committee didn’t pass some (/any) of my students.

(6) The committee passed some of my students.

Consider a representation for (4) where the focused constituent is at least as big as *didn’t pass all of my students*. According to the structural definition of alternatives, the alternatives that we obtain for (4) in that case are those in (7), where crucially the two without negation are subconstituents of the corresponding ones with negation.

(7) \{The committee didn’t pass all of my students, The committee didn’t pass some of my students, The committee passed all of my students, The committee passed some of my students\}

The presence of the additional alternative identical to the scalar implicature in (6) renders the alternative in (5) non excludable (cf. Fox 2007), therefore no scalar implicature is predicted from (4).
Notice that while alternatives can be reduced contextually, it is not clear how a notion of relevance could distinguish between an alternative and its negation (cf. Chierchia et al. to appear). Notice, further, that (1) makes reference to focus constituents, therefore more precisely no scalar implicature is predicted to arise from a sentence like (4) if both negation and the scalar term are within the focus constituent. This prediction does not appear right, however. Consider (8-b), in which the focus constituent is presumably the entire sentence given the question in (8-a) (e.g., Rooth 1992). In this case the alternatives are going to either include both (5) and (6) or neither of them, either way the scalar implicature in (6) is not predicted in this case. Nonetheless intuitively it appears as strong as in other cases.

(8) a. You look disappointed. What’s up?
   b. [The committee didn’t pass all of my students].

References