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Opposition Inferences and Scalar Implicatures

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Abstract: Opposition inferences (OIs) refer to inferences involving generalized quantifiers (GQs) and the three classical opposition relations (ORs): contradictory, contrary and subcontrary. Here is an example of OI (given that "teenager" and "elderly" are contrary concepts):

(1) Every member is a teenager. ⇒ Not every member is an elderly.

If we interchange the positions of "member" and "teenager / elderly" or replace "every" by "some" above, the inference will become invalid. Thus, the validity of an OI hinges on the particular combination of OR, GQ and argument position in that inference.

Van Benthem (2008) was the first one to propose (but without carrying out) the study on OIs. This paper is an implementation of van Benthem (2008)'s proposal. I will propose and prove theorems which will enable us to determine what combinations of OR, GQ and argument position will lead to valid inferences.

OIs are closely related to scalar implicatures (SIs). According to Hirschberg (1985), SIs may arise from a scale with ordered members of an entity. Consider the following (where +> denotes "implicates" and $[\ ]_F$ denotes the focus of the Question Under Discussion (QUD); according to Zondervan (2006) SIs arise only when the scalar terms appear in the QUD foci):

(2) John feels [warm]$_F$. +> John does not feel [hot]$_F$.

The above SI arises from the scale <warm, hot> whose members are arranged in ascending order of informativeness. In addition, SIs may also arise from unordered members (which Hirschberg (1985) called “alternate values”) of an entity, such as the following:

(3) John speaks [Cantonese]$_F$. +> John does not speak [Shanghaiese]$_F$.

where {Cantonese, Shanghaiese, …} constitutes a set of alternate values of the entity “Chinese dialects”.

SIs arising from alternate values like (3) are directly related to OIs because alternate values of an entity satisfy the contrary relation. In fact, (3) can be reinterpreted as a combination of an exhaustive implicature (as discussed in van Rooij and Schulz (2004)):

(4) John speaks [Cantonese]$_F$. +> John speaks [Cantonese]$_F$ only.

and an OI involving contrary concepts. Moreover, SIs arising from ordered scales like (2) can also be reinterpreted as inferences involving contrary concepts because any two members of an ordered scale can be recast as a set of contrary concepts. For example, the scale <warm, hot> can be recast as {warm-but-not-hot, hot}.

Using the aforesaid approach, we can also study SIs embedded under GQs, a subject area under heated debate in recent years. I will show that the two main approaches towards embedded SIs, namely the globalist (represented by Sauerland (2004)) and the localist (represented by Chierchia (2004)) approaches, can be reinterpreted as combinations of exhaustive implicatures and OIs at different levels.

Keywords: opposition inferences, scalar implicatures, exhaustive implicatures, embedded scalar implicatures

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