A new argument for embedded scalar implicatures

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Introduction. An important, recent debate concerns the existence of embedded scalar implicatures. Various methods have been used to access them: introspective judgments, as in Chierchia (2004); experimental methods, as in Chemla & Spector (2009); theoretical diagnostics, as in Chierchia, Fox and Spector (2008). This paper contributes a new diagnostics for implicatures and uses it to argue for embedded scalar implicatures.

Diagnostics. In Magri (2009), I argue for the empirical generalization (1).

(1) If a matrix sentence *Strong* is logically stronger than but contextually equivalent to a scalar alternative *Weak*, then *Weak* sounds odd and *Strong* sounds fine.

One of the examples I use to support (1) is repeated in (2), based on a (p.c.) by Emmanuel Chemla to Schlenker (2006). Although (2a) is contextually equivalent to (2b), the logically stronger alternative (2a) is fine while the logically weaker alternative (2b) sounds odd.

(2) Context: It is know that professor Smith always assigns the same grade to all students in his Semantics class, but the grade can vary from year to year.

a. This year, professor Smith assigned an A to <u>all</u> of his students. $\surd$*Strong*

b. #This year, professor Smith assigned an A to <u>some</u> of his students. #*Weak*

I develop an account for (1) that can be informally summarized as in (3).

(3) a. Since *Strong* is a logically stronger alternative of *Weak*, then *Weak* can trigger the scalar implicature that $\neg$*Strong*;

b. since relevance is closed w.r.t. contextual equivalence, since *Weak* and *Strong* are contextually equivalent and since *Weak* is relevant because uttered, then *Strong* is relevant too;

c. since the alternative *Strong* is relevant, the implicature $\neg$*Strong* is mandatory;

d. since *Weak* and *Strong* are contextually equivalent, then the mandatory implicature $\neg$*Strong* contextually contradicts *Weak*, whereby the oddness of *Weak*.

According to (3), oddness can be used to detect scalar implicatures. In this talk, I use this diagnostics to provide a new argument for embedded scalar implicatures.

Facts. In this talk, I will look at oddness in Downward Entailing Contexts (e.g. the restrictor of ‘every’). I will consider various DECs and show that the relevant cases split: in some cases, oddness in DECs flips as one might expect, as in (4); in other cases it doesn’t flip, as in (5).

(4) Context: Every year, the dean has to decide: if the college has made enough profit that year, he gives a pay raise to every professor who has assigned an A to at least some of his students; if there is not enough money, then no one gets a pay raise.

a. This year, every professor who assigned an A to <u>some</u> of his students got a pay raise from the Dean. $\surd$every(*Weak*)

b. #This year, every professor who assigned an A to <u>all</u> of his students got a pay raise from the Dean. #every(*Strong*)

(5) Context: In this department, every professor assigns the same grade to all of his students.

a. #This year, every professor of this department who assigned an A to some of his students got a prize from the dean. #every(*Weak*)

b. This year, every professor of this department who assigned an A to all of his students got a prize from the dean. $\surd$every(*Strong*)

I suggest that the relevant difference between the two cases is whether the contextual equivalence of the two matrix sentences is established at the embedded level, as in (5); or only at the matrix level, as in (4). I thus suggest the generalization (6).

(6) Let *Strong* be a logically stronger alternative of *Weak* and $\mathbf{O}_{\text{DE}}$ be a DE operator:

a. if the matrix sentences $\mathbf{O}_{\text{DE}}(\textit{Strong})$ and $\mathbf{O}_{\text{DE}}(\textit{Weak})$ are contextually equivalent without the embedded constituents *Strong* and *Weak* being contextually equivalent — as in the case of (4) —, then:

i. $\mathbf{O}_{\text{DE}}(\textit{Weak})$ sounds fine, ii. $\mathbf{O}_{\text{DE}}(\textit{Strong})$ sounds odd;

b. if the matrix sentences $\mathbf{O}_{\text{DE}}(\textit{Strong})$ and $\mathbf{O}_{\text{DE}}(\textit{Weak})$ are contextually equivalent as a consequence of the embedded constituents *Strong* and *Weak* being contextually equivalent — as in the case of (5) —, then:

i. $\mathbf{O}_{\text{DE}}(\textit{Weak})$ sounds odd, ii. $\mathbf{O}_{\text{DE}}(\textit{Strong})$ sounds fine.

Account. Account (3) applied to the matrix level predicts oddness to flip in DECs as in (6a). But (6b) is mysterious. Following e.g. Fox (2007), let's assume that scalar implicatures are brought about by a covert 'only', called the *exhaustivity operator* (EXH). I argue that both (6a) and (6b) follow along the lines of (3) if we posit both a matrix and an embedded exhaustivity operator, as illustrated in (7) for the case of the restrictor of 'every'. Thus, oddness in DECs provides evidence for embedded implicatures.

(7) $[\ \text{EXH}\ [\ \text{every}_x\ [\ \text{EXH} \left\{ \begin{array}{c} \textit{Strong}(x) \\ \textit{Weak}(x) \end{array} \right\}]\ ]\ ]$

Here is an informal sketch of the account I propose. Account for (6a): since the embedded constituents *Strong* and *Weak* aren't contextually equivalent, step (3b) does not apply at the embedded level; thus, the embedded implicature is not mandatory and we can forget of the embedded EXH; generalization (6a) straightforwardly follows by applying the reasoning (3) at the level of the matrix EXH, ignoring the embedded one. Account for (6b.i): since the embedded constituents *Strong* and *Weak* are contextually equivalent, then the embedded implicature is mandatory, along the lines of (3b)-(3c); thus the prejacent of the matrix exhaustivity operator is $[\ \text{every}_x\ [\ \textit{Weak}(x) \wedge \neg \textit{Strong}(x)\ ]\ ]$; but this constituent suffers from presupposition failure (the restrictor $\textit{Weak} \wedge \neg\textit{Strong}$ of 'every' is empty in every world compatible with common knowledge); this explains the oddness of the sentence. Account for (6b.ii): the embedded operator triggers no implicature, since *Strong* is logically stronger than *Weak*; furthermore, also the matrix exhaustivity operator triggers no implicature; in fact, the only matrix alternative is $[\ \text{every}_x\ [\ \text{EXH}\ [\ \textit{Weak}(x)\ ]\ ]$, obtained by replacing *Strong* with *Weak*; this alternative is equivalent to $[\ \text{every}_x\ [\ \textit{Weak}(x) \wedge \neg\textit{Strong}(x)\ ]\ ]$, which again suffers from presupposition failure; thus, this alternative is not contextually equivalent to the matrix prejacent and steps (3b)-(3c) are therefore mute at the matrix level.