Experimental evidence against local implicatures

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It is claimed by Landman (2000), Levinson (2000), Chierchia (2004), and others, that scalar implicatures are, in effect, defeasible portions of lexical content. On this "localist" view, (1) is preferentially interpreted as "Jill thinks that Jack likes some *but not all* of Mozart's symphonies":

(1) Jill thinks that Jack likes some of Mozart's symphonies.

Thus, the "not all" implicature associated with *some* is cashed out within the scope of the attitude verb. On the orthodox Gricean approach, this is generally impossible, and therefore, it is said, the localist account makes better predictions. We argue, on experimental evidence, that this is false.

The key tenets of localism, as we understand it, are that scalar implicatures have local interpretative effects and go through *ceteris paribus*. The latter is to say that, normally speaking, *some* will give rise to a "some but not all" interpretation. This much the aforementioned authors agree upon. Levinson claims, furthermore, that scalar implicatures are fast and automatic, and has been taken to task for this, e.g., by Bott and Noveck (2004) and Breheny et al. (2006), but the variety of localism we are concerned with doesn't take Levinson's claim on board, and is therefore weaker.

We conducted three experimental studies (the first two in French, the last one in Dutch) designed to test localism. In Experiment 1, participants were asked to fill out a questionnaire with arguments of the following form:

(2) a. Jack read some of the Harry Potter books $\rightsquigarrow$ He didn't read them all. [control condition]
b. All the students read some of the Harry Potter books $\rightsquigarrow$ None of them read them all. [ALL condition]
c. Jack has to read some of the Harry Potter books $\rightsquigarrow$ He isn't allowed to read them all. [MUST condition]
d. Jill thinks that Jack read some of the Harry Potter books $\rightsquigarrow$ She thinks he didn't read them all. [THINK condition]

Participants had to indicate (by checking a box) whether or not they would endorse these inferences. Note that, on the localist view, all these inferences should go through by default, whereas the Gricean theory only accounts for (2a) (though see below). In our experiment, the rates at which these inferences were endorsed were: control condition: 93%, ALL condition: 27%, MUST condition: 3%, THINK condition: 50%. Overall, the rate at which

scalar inferences were endorsed dropped from 93% in the control condition to 27% in the embedding conditions.

Experiment 2 homed in on attitude contexts, and compared arguments like (2d) with:

(3) Jill wants Jack to read some of the Harry Potter books $\rightsquigarrow$ She wants him not to read them all. [WANT condition]

In this experiment, localist inferences were endorsed 65% of the time in the THINK condition, against 32% for the WANT condition; the rate of positive responses in the control condition was 94%.

These results argue against localism, but note that, in at least some of the embedding conditions, scalar inferences were endorsed at non-negligible rates, which raises the question whether a suitably weakened version of localism might be defensible. We believe that the answer is no. First, it has been shown that seemingly localist inferences associated with belief sentences like (2d), which evoked the highest rates of positive responses in both experiments, can be explained in a strictly Gricean framework (Russell 2006, Spector 2006). Secondly, we argue that the overall level of positive response rates in our first two studies is somewhat inflated by the experimental paradigm. To show this, we conducted Experiment 3, where the critical sentence was:

(4) Some of the B's are in the box on the left.

This sentence was presented in two different conditions: an inference task of the kind used in the first two experiments, and a verification task, in which participants had to decide whether (4) is true in the following situation:

In the inference task, 62% of the participants concluded from (4) that not all of the B's are in the box on the left. By contrast, in the verification task (4) was rejected only 34% of the time. Taking into account this result in the interpretation of the first two experiments, we argue that the slightly elevated response rates for *want* (32%) and *all* (27%) are due, at least in part, to the experimental paradigm.

References: Bott, L. and I. A. Noveck 2004: Some utterances are underinformative: the onset and time course of scalar inferences. | Breheny, R., N. Katsos, and J. Williams 2006: Are generalised scalar implicatures generated by default? | Chierchia, G. 2004: Scalar implicatures, polarity phenomena and the syntax/pragmatics interface. | Landman, F. 2000: *Events and plurality.* | Levinson, S. C. 2000: *Presumptive meanings.* | Russell, B. 2006: Against grammatical computation of scalar implicatures. | Spector, B. 2006: *Aspects de la pragmatique des opérateurs logiques.*

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