

## The State of Our Inquiry - Representing Context for Negation

(joint work with Ye Tian, Université Paris Diderot)

In previous work (Tian, Breheny & Ferguson 2010; Tian & Breheny, 2015; Tian, Ferguson & Breheny 2016), we have argued that many effects of negation found in the lab are attributable to the way negation interacts with language processing in terms of incremental context update. In particular, our hypothesis is that, in addition to comprehenders incrementally updating hypotheses about the semantic content of the utterance in line with linguistic input, they simultaneously update hypotheses about the likely source of intended relevance for the utterance. In our previous work, we have adopted the widely used practice of describing the source of relevance in terms of Question Under Discussion (Roberts, 1996; 2012). Our studies demonstrate that, when processing a negative sentence, 'John has not ironed his shirt', participants both represent the content of the sentence (an unironed shirt) and something that corresponds to the source of relevance. Our studies show that, in the typical case, the contextual representation for a simple negative assertion is of the positive state of affairs (the ironed shirt) but when context changes it can be of a negative state of affairs. This happens, for example, when the negative sentence is clefted ('It is John who hasn't ironed his shirt'). The question I address in this presentation concerns the link between the results from our lab and the idea that the source of relevance for an utterance is describable in terms of a question. The null hypothesis about the semantics of questions would be that they are associated with the set of answers (cf Hamblin 1971). Thus, *Whether John has ironed his shirt* should, at some level, be associated with both the negative and positive states of affairs that underpin possible answers. Our hypothesis is that the basis for a question is a state of inquiry, a desire for evidence that resolves the question. Based on independent work on confirmation biases in cognition, we assume that the default state of inquiry for *whether  $\varphi$*  seeks evidence to confirm  $\varphi$  over evidence that would disconfirm  $\varphi$ . Thus, when we infer a state of inquiry for a question, we tend to represent states of affairs consistent with this confirmation bias. I will present a series of visual-world and corpus studies that investigate representations that are active when participants process questions such as in (1):

1. a. Has John ironed his shirt?  
b. Hasn't John ironed his shirt?  
c. Has John not ironed his shirt?

Results suggest that, when processing all three kinds of question, representations of both the positive and negative states of affairs are active, consistent with a Hamblin-type view of questions themselves. Just prior to the completion of the linguistic input in each case, we see a pattern of biases in gaze data that supports the idea that for the positive question (1a) and the 'High-Neg' question (1b) a positive state of affairs is represented (for discussion of 'High-Neg' questions, see Romero & Han, 2004). By contrast, the results of the third condition show a tendency to switch to a representation the negative state of affairs.

### References:

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