Coherence-Driven Expectations in Discourse and Dialog

The question of what types of relationships structure coherent discourses has been a matter of longstanding debate. Hobbs (1979), Kehler (2002), and others have argued for a model in which adjacent sentences or discourse segments are related by COHERENCE RELATIONS; under this analysis (1) is analyzed as an EXPLANATION relation, in which the state expressed in (1b) describes the *reason* for the event expressed in (1a).

(1) a. Floyd took a train to North Carolina.
b. He wanted to get away from some of his colleagues.

Rohde et al. (2007) argued that biases in pronoun interpretation can only be predicted with a model that captures hearers' contextually-driven probabilistic expectations about what coherence relation will ensue.

A competing account is the QUESTION-UNDER-DISCUSSION (QUD) model (Roberts, 1996), in which discourses are structured with respect to implicit questions: Roughly speaking, an utterance is coherent insofar as it provides an answer to an inferrable question that is relevant to the proceding discourse. A QUD analysis of example (1) would posit an implicit question *Why?* as intervening between (1a-b). Roberts (see also Büring 2003) demonstrates that various intonational properties of utterances follow predicted patterns of question-answer congruence under this model.

The QUD analysis is arguably more general than the coherence relation view in that it encompasses explicit question-answer pairs in dialog in addition to implicit questions in monologue. In light of this, two experiments were run that asked whether biases toward particular questions in a dialog continuation condition are correlated with analogous biases towards particular coherence relations in a story continuation condition (à la Rohde et al). In the first experiment, the verb in the context sentence was varied between implicit causality (IC) and non-IC types to see whether each type would generate the same percentage of Explanation relations in the story condition as 'Why?' type questions (e.g., 'Why?', 'How come?', and 'What for?') in the dialog condition. Participants were instructed to imagine a conversation with a friend and write natural continuations that either represented what the friend was likely to say next (story condition, ex. 2) or the question that they would be likely to pose to their friend (dialog continuation, ex. 3). Judges annotated the story and dialog continuations for coherence relations and QUD type respectively. Whereas significantly more Explanations were elicited in the IC condition than the non-IC condition, the percentage of Explanation relations was significantly correlated with the percentage of 'Why?' type questions for both verb types, as predicted.

(2) Friend: John scolded$_{\text{IC}}$/saw$_{\text{nonIC}}$ Mary. _____

(3) a. Friend: John $_{\text{IC}}$/saw$_{\text{nonIC}}$ Mary.
b. You: _____?

To verify that the effect in Experiment 1 generalizes beyond Explanation and 'Why?', a second experiment used transfer-of-possession verbs in the context sentence varied by aspect, a factor shown by Rohde et al. (2006) to yield different distributions of coherence relations. The results confirmed that, for both verb types, the percentage of the questions falling into the 'Why?', 'What next?', and 'Where/when/how?' categories in the dialog condition was significantly correlated with the percentage of Explanations, Occasions, and Elaborations in the story condition, respectively.

These results suggest that hearers' contextually-driven probabilistic expectations about what coherence relation will ensue extend to the explicit questions evoked in dialogs, as captured by the QUD analysis.