



Coherence-Driven Expectations in Discourse and Dialog

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Abstract

Problem: Different models have been proposed to capture the relationships that underlie a coherent discourse, with some models applied to monologue (Hobbs 1979, Kehler 2002) and some to dialog (Roberts 1996). This work considers whether the coherence relations that have been posited to implicitly structure a monologue can be linked to the questions-under-discussion (QUDs) that have been posited to explicitly structure a dialog.

Proposal: Using story and dialog continuations, we test whether people write story continuations that answer the questions that they are likely to pose for similar contexts in dialog continuations.

Results: We find that biases toward particular questions in dialog continuations are reliably correlated with biases for particular coherence relations in story continuations. The results suggest that parallels can be drawn between two different types of discourse models and between the continuations in a single-speaker passage and the discourse moves in a dialog.

1. Goals

- To draw a parallel between coherence-driven and question-under-discussion (QUD) models of discourse
- To test whether people's expectations about upcoming story continuations match their expectations about upcoming questions.

2. Two Related Models: Coherence & QUD

Coherence Model: adjacent sentences or discourse segments are related by coherence relations (Hobbs 1979, Kehler 2002)

QUD Model: discourses are structured with answers to overt or inferable questions (Roberts 1996, Buring 2003)

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

Coherence: (1) is analyzed as an **Explanation** relation
QUD: implicit **Why?** question intervening between (1a-b)

→ QUD arguably more general: used to analyze question-answer pairs in dialog and implicit questions in monologue

3. Previous Work: Effects of Discourse on Pronouns

The likelihood of upcoming coherence relations has been shown to influence patterns of pronoun interpretation (Rohde, Kehler, & Elman 2007)

- (2) John handed a book to Bob. He _____.

Story continuation results:

Instructions to "answer why?" yield bias to interpret 'He' as 'John'

Instructions to "answer what next?" yield bias to interpret 'He' as 'Bob'

→ Argued for COHERENCE-driven biases using QUESTIONS

4. Story/Dialog Continuation Experiments

Biases toward particular questions in dialog continuations correlate with biases for particular coherence relations in story continuations

- Prediction:** People answer in story continuations the questions that they are likely to pose in dialog continuations
- Methodology:** participants were instructed to imagine a conversation with a friend and write continuations for either:
 - Story continuation: what the friend was likely to say next
 - Dialog continuation: question they would be likely to pose
- Evaluation:** judges annotate responses for coherence & QUD

5. Study 1: Explanation ~ Why

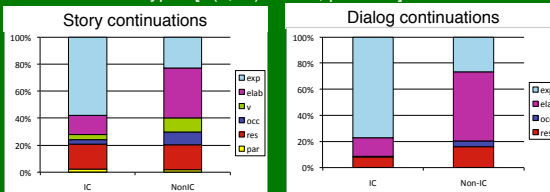
Implicit causality (IC) manipulation: verb class (IC / Non-IC) (Garvey et al. 1974, *inter alia*)

Hypothesis: more Explanation coherence relations and more Why? questions following IC verbs than Non-IC verbs

- (3) Story Continuation
Friend: John scolded_{IC}/saw_{Non-IC} Mary. _____.

- (4) Dialog Continuation
Friend: John scolded_{IC}/saw_{Non-IC} Mary.
You: _____?

As predicted, %Why-type questions (e.g., 'Why?', 'How come?', and 'What for?') were significantly correlated with %Explanations across both verb types [F(1,78)=27.25, p<0.001].



- IC verbs: more Explanations and more Why questions
- Non-IC verbs: fewer Explanations and fewer Why questions

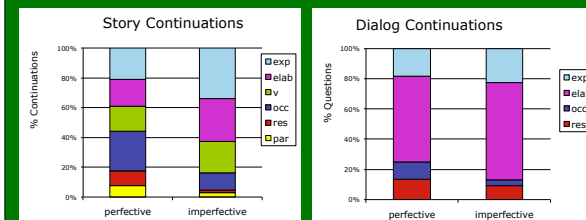
6. Study 2: Explanation ~ Why Occasion ~ What next Elaboration ~ Where, When, How

Verbal aspect manipulation: transfer verbs (perfective / imperfective) (Rohde et al. 2006)

Hypothesis: different coherence/question distributions with perf / imp

- (5) Story Continuation
Friend: John handed_{PERF}/was handing_{IMP} a book to Bob. _____.
- (6) Dialog Continuation
Friend: John handed_{PERF}/was handing_{IMP} a book to Bob.
You: _____?

→ As predicted, % 'Why'/'What next'/'How' type questions were significantly correlated with % Explanations [F(1,94)=43.6, p<0.001], Occasions [F(1,94)=4.352, p<0.04], and Elaborations [F(1,94)=11.31, p<0.002], respectively.



- Perfective: more Occasions and more What-next questions
- Imperfective: more Explanations and Elaborations and more Why and When/Where/How questions

7. Conclusions

We find that people write story continuations that answer the questions that they are likely to pose for similar contexts in dialog continuations.

The results suggest that parallels can be drawn between two different types of discourse models and between continuations in a single-speaker passage and discourse moves in a dialog.

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