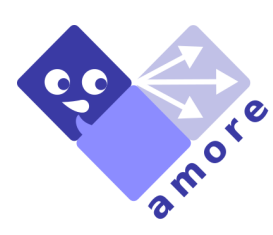


Asking between the lines: Elicitation of evoked questions in text



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Contributions

- A method for eliciting *evoked questions* and their answers.
- ▶ Rich new source of pragmatic data!
- ▶ Scalable method for (partial) QUD-annotation (cf. [1])!
- ▶ *Exclusive* preview of research application [2]!

2

Method

- ▶ Ibx experiment (customized); hosted on IbxFarm;
- ▶ Participants recruited through MTurk (\$8.50);
- ▶ Task: 6 excerpts of up to 18 sentences; revealed incrementally with probe every 2 sentences:

1. Read first sentence(s), enter a question

Today was the worst day of my life.

- ▶ Please enter a question the text evokes for you at this point. (The text so far must *not* yet contain an answer to the question!)

- ▶ In the text, **highlight** the main word or short phrase that evokes this question.

2. Next sentences revealed; check if answered

Today was the **worst day of my life**. First of all, my alarm didn't go off, so I arrived late at work again. The boss decided to fire me this time.

You entered the following question:

What happened?

- ▶ Was that question answered in the new piece of text?

Not answered at all. 1 2 3 4 5 Completely answered.

- ▶ Enter the (complete/partial) answer in your own words:

- ▶ In the new piece of text, **highlight** the main word or short phrase suggesting this answer.

3. Enter a new question

Today was the **worst day of my life**. First of all, my alarm didn't go off, so I arrived late at work again. **The boss decided to fire me this time**.

- ▶ Please enter another question the text evokes for you at this point. (The text so far must *not* yet contain an answer to the question!)

- ▶ In the text, **highlight** the main word or short phrase that evokes this question.

4. Etc.

3

Source texts

- ▶ 6 TED-talks (6975 words) from TED-MDB [3].
- ▶ 2 dialogues (3807 words) from DISCO-SPICE [4].
- ▶ 1 short story (56 words) we constructed as a sanity check.

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Resulting data

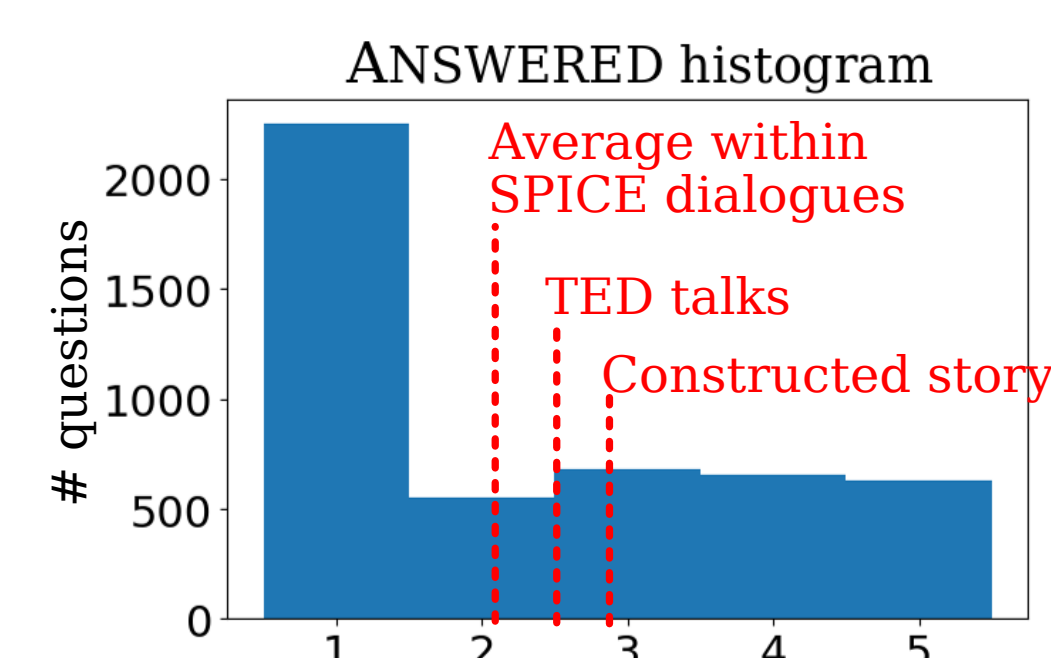
- ▶ 111 participants, >5 per probe point, 863 probes.
- ▶ 4765 questions, 1965 answers, and their highlighted triggers.
- ▶ Example (DISCO-SPICE p1a-094, 🍌):

He was uh **he was a bit upset** on uh uhm first day the Friday

Why was he upset on his first day? / Why was he upset? / He was upset about what? / Why was he upset? / What happened to him? / What happened to upset him? / Is he better now? / Why was he upset? / Why was he upset? / Why is he upset? / Why was he upset?

[...] The **oul side-effects of the medication**

- ▶ More general:



DISCO-SPICE



TED-talks



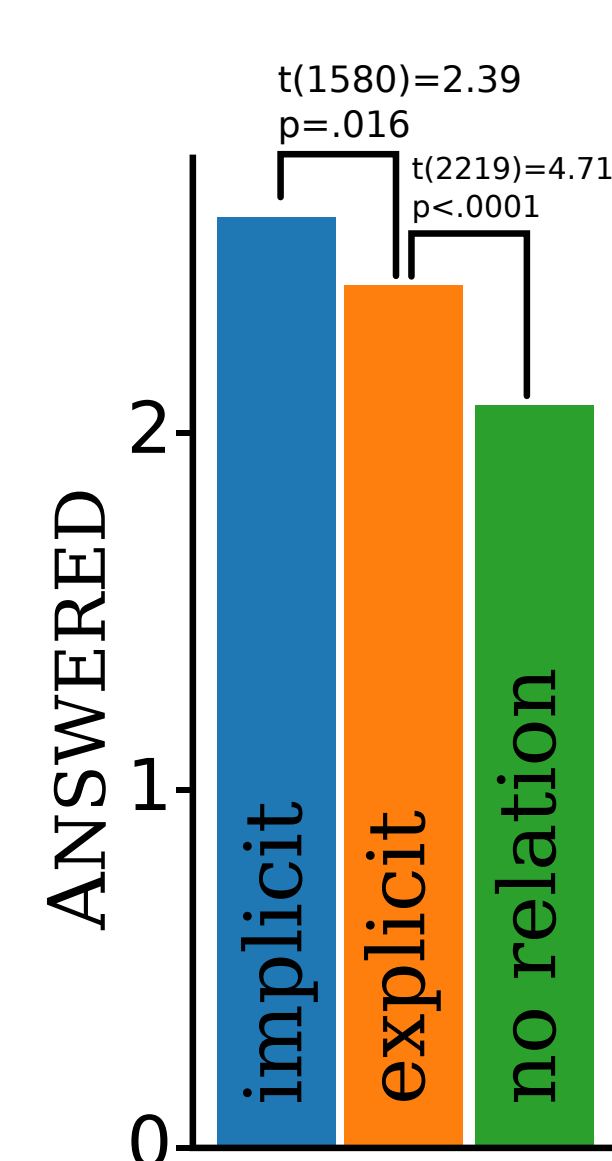
- ▶ ANSWERED: **other** > **what**, **aux**, **why** > **how** (>) **where**, **who** **when**

5

Research application [2]

M. Westera, L. Mayol & H. Rohde (under review)

Hypothesis: discourse structure is more explicitly marked, in places where it is less predictable.



- ▶ Evoked questions' ANSWERED \approx QUD predictability.
- ▶ TED-MDB [3] has discourse relation annotations, PDTB-style, i.e., as **implicit/explicit** connectives.
- ▶ Evidence in favor of hypothesis.

Compared to previous work:

- ▶ [5] relied on coarse generalizations, e.g., "causal relations are more predictable";
- ▶ Evoked questions let us quantify predictability in a data-driven way, for all relations, in context.

6

Discussion

- ▶ Highlighted triggers: what could these be used to shed light on?
- ▶ "Which question does it evoke?"
 \neq "What do you think will be the next QUD?"
- ▶ Inter-annot. agreement: crowdsourced meta-annotations [2].

References

- [1] A. Riester (2019). Constructing QUD trees. In *Questions in Discourse, Volume 2*.
- [2] M. Westera, L. Mayol & H. Rohde (under review). TED-Q: TED-Talks and the Questions they Evoke.
- [3] D. Zeyrek, A. Mendes, et al. (2018). TED-MDB: a parallel corpus annotated in the PDTB style. *LREC*.
- [4] I. Rehbein, M. Scholman & V. Demberg (2016). Annotating Discourse Relations in Spoken Language: [...]. *LREC*.
- [5] F.T. Asr & V. Demberg (2012). Implicitness of discourse relations. *COLING*.

Acknowledgments

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