

Asking between the lines: Elicitation of evoked questions in text



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Amsterdam Colloquium 2019



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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]!

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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.

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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

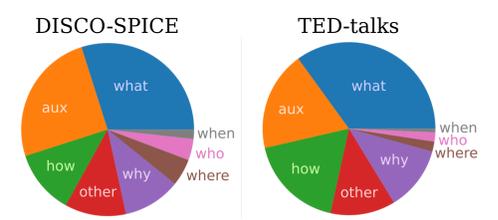
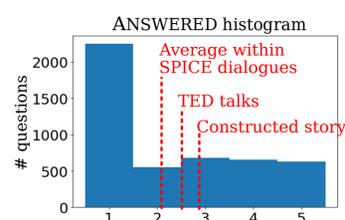
- ▶ 111 participants, >5 per probe point, 863 probes.
- ▶ 4765 questions, 1965 answers, and their highlighted triggers.
- ▶ Example (DISCO-SPICE p1a-094, 🍌):

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:



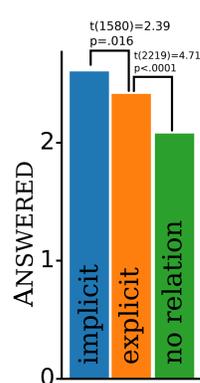
- ▶ ANSWERED: **other** > **what**, **aux**, **why** > **how** (>) **where**, **who** **when**

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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.

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Discussion

- ▶ Highlighted triggers: what could these be used to shed light on?
- ▶ "Which question does it evoke?"
≠ "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

This work was supported in part by a Leverhulme Trust Prize in Languages and Literatures to H. Rohde.

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 715154). This paper reflects the authors' view only, and the EU is not responsible for any use that may be made of the information it contains.

