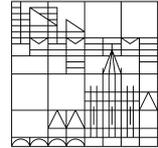


# The prosody of rhetorical questions in consideration of context

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## Background & Motivation:

### 1. Can rhetorical questions (RQs) appear out of the blue?

- RQs as context-bound phenomenon: they are usually not raised out of the blue (Ilie 1999; Koshik 2003; Meibauer 1986)
- "context may be the most salient determiner of frequency and function of RQs" Frank (1990: 737)
- semantic and pragmatic interpretation of language "depend heavily on context and 'knowledge of the world'" Merrit (1976: 315)
- Grésillon (1980): characteristics that turn an interrogative into an RQ can partly be found in the interrogative itself and partly in its context



### 2. Can RQs be realized in an unemotional fashion (e.g., *Who wants to be an idiot?*)?

- RQs are used to express **wonder** or **reproach** (Athanasiadou, 1991), to **criticize** or **challenge** the addressee (Koshik, 2003), to express **emphasis on some particular point** (Athanasiadou, 1991; Meibauer, 1986), as **persuasive device** (Frank, 1990; Petty, Cacioppo, & Heesacker, 1981)

## Research Questions:

Can contexts that trigger different emotions or attitudes be responsible for varying prosodic realizations of RQs?  
Is the difference in the prosodic realization between RQs and ISQs a difference of emotion or attitude?

## Production Experiment: *Materials & Methods*

- 12 participants produced 22 RQs and 22 syntactically identical ISQs (11 *wh*-, 11 polar each) dependent on the context in which they appeared (Braun et al. submitted)

ISQ	RQ context (strong) polar questions	RQ context (weak)
You have a spare bottle of cod-liver oil. You want to know <b>whether</b> one of your friends likes it <b>or not</b> , so you can get rid of it. <i>Mag denn jemand Lebertran? Does PRT anyone like cod-liver oil?</i>	You have a cold and your friend recommends cod-liver oil to you. However, everybody knows that <b>this tastes horrible</b> . <i>Mag denn jemand Lebertran? "Does PRT anyone like cod-liver oil?"</i>	Your friend offers her guests tea, including camomile. However, it is clear that no one drinks this unless they are ill. <i>Will denn jemand Kamille? "Does PRT anyone want camomile?"</i>
wh-questions		
You have a spare bottle of cod-liver oil. You want to know <b>which</b> of your friends likes, so you can get rid of it. <i>Mag denn jemand Lebertran? Does PRT anyone like cod-liver oil?</i>	You have a cold and your friend recommends cod-liver oil to you. However, everybody knows that <b>this tastes horrible</b> . <i>Wer mag denn Lebertran? "Who likes PRT cod-liver oil?"</i>	Your friend offers her guests tea, including camomile. However, it is clear that no one drinks this unless they are ill. <i>Wer will denn Kamille? "Who wants PRT camomile?"</i>

## Rating Experiment: *Materials & Methods*

- participants were presented with contexts used in production study (Braun et al. submitted)
- participants decided whether the contexts triggered a **strong** speaker attitude (i.e., more direct, impolite, emotionally loaded, e.g., *'all your friends are disgusted by this rubbishy stuff'*) or a **weak** speaker attitude (e.g., *'none of the guests will eat it'*)

### Participants:

- 26 native speakers of German ( $\bar{\theta} = 22.9$ ,  $SD = 2.1$ ; 15 female)

### Procedure

- for each context at least 21 out of 26 participants (i.e., 81%) agreed about whether the context was triggered a **weak** or **strong** attitude
- binary coding was included as factor in statistical analysis
- statistical analysis of same dependent variables as in Braun et al. (submitted)

## Hypothesis:

The prosodic realization of RQs differs depending on the context (strong vs. weak attitude) in which they are realized and weak attitude RQs still differ from ISQs.

## Phonological Results of post-hoc analysis:

- L\*+H (L-%):** most often realized nuclear contour in *wh*-RQs      **L+H\* (L-%):** second most often realized nuclear contour in *wh*-RQs:
- strong attitude contexts > weak attitude contexts > **ISQ contexts**
  - weak attitude contexts > strong attitude contexts > **ISQ contexts**

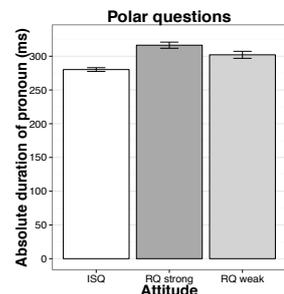
## Phonetic results of post-hoc analysis:

**duration** (identical constituents: *wh*-word, particle *denn*, pronoun *jemand*):

- absolute duration of *denn*:
  - wh*: strong attitude contexts (171ms) > weak attitude contexts (162ms) > **ISQ contexts (156ms)**
  - polar: strong attitude contexts (180ms) > weak attitude contexts (169ms) > **ISQ contexts (149ms)**
- absolute duration of *jemand*:
  - polar: strong attitude contexts (314ms) > weak attitude contexts (306ms) > **ISQ contexts (280ms)**

**voice quality** (breathy voice quality in v1: *wh*-word, verb):

- manual coding** (*b*, *m*, *g*):
  - wh*: strong attitude contexts (13.7%) > weak attitude contexts (5.2%) > **ISQ contexts (1.2%)**
  - polar: strong attitude contexts (12.5%) > weak attitude contexts (5.6%) > **ISQ contexts (2.6%)**
- automatic analysis (HNR)\*:**
  - wh*: **ISQ context contexts** > weak attitude contexts > strong attitude contexts
  - polar: **ISQ context contexts** > weak attitude contexts > strong attitude contexts      (\* smaller HNR-values indicate more breathiness)



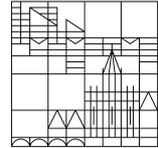
## Discussion:

- context ≠ context: prosodic realization of RQs is influenced by the context in which the RQ is realized
- rhetoricity seems to be gradable → further investigation of RQs in different kinds of context (grades of emotions/attitudes) is necessary
- Is the prosodic realization of RQs stable across different kinds of contexts (e.g., political speeches, vs. social context)?
- Can RQs be realized in an unemotional and factual fashion?

Frank, J. 1990. You call that a rhetorical question?: Forms and functions of rhetorical questions in conversation. *Journal of Pragmatics*, 14(5), 723-738.; Ilie, C. 1999. Question-response argumentation in talk shows. *Journal of Pragmatics*, 31(8), 975-999.; Grésillon, A. 1980. Zum linguistischen Status rhetorischer Fragen. *Zeitschrift für Germanistische Linguistik* 8(3), 273-289.; Koshik, I. 2003. Wh-questions used as challenges. *Discourse Studies*, 5(1), 51-77. Meibauer, J. 1986. *Rhetorische Fragen*. Tübingen, Niemeyer.; Merritt, M. 1976. On Questions following Questions in Service Encounters. *Language and Society*, 5(3), pp. 315-357.; Braun, B., N. Dehé, J. Neitsch, D. Wochner & K. Zahner. (submitted). The prosody of rhetorical and information-seeking questions in German. *Language and Speech*.; Wichmann, A. 2000. The attitudinal effects of prosody, and how they relate to emotion. Paper presented at the *ISCA Tutorial and Research Workshop (ITRW) on Speech and Emotion*.



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ISQ	RQ context (strong)	RQ context (weak)
<b>polar questions</b>		
<p>You have a spare bottle of cod-liver oil. You want to know <b>whether</b> one of your friends likes it <b>or not</b>, so you can get rid of it.</p> <p><b>Mag denn jemand Lebertran?</b> "Does PRT anyone like cod-liver oil?"</p>	<p>You have a cold and your friend re-commends cod-liver oil to you. However, everybody knows that <b>this tastes horrible</b>.</p> <p><b>Mag denn jemand Lebertran?</b> "Does PRT anyone like cod-liver oil?"</p>	<p>Your friend offers her guests tea, including camomile. However, it is clear that no one drinks this unless they are ill.</p> <p><b>Will denn jemand Kamille?</b> "Does PRT anyone want camomile?"</p>
<b>wh-questions</b>		
<p>You have a spare bottle of cod-liver oil. You want to know <b>which</b> of your friends likes, so you can get rid of it.</p> <p><b>Mag denn jemand Lebertran?</b> "Does PRT anyone like cod-liver oil?"</p>	<p>You have a cold and your friend re-commends cod-liver oil to you. However, everybody knows that <b>this tastes horrible</b>.</p> <p><b>Wer mag denn Lebertran?</b> "Who likes PRT cod-liver oil?"</p>	<p>Your friend offers her guests tea, including camomile. However, it is clear that no one drinks this unless they are ill.</p> <p><b>Wer will denn Kamille?</b> "Who wants PRT camomile?"</p>