The Semantic Function of Rising *Wh*-Questions

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Contents

1. Introduction

- *Wh*-questions are normally falling in intonation.
- But why are they sometimes pronounced with a rise?

(1) a. What's your name? ↓
    b. What's your name? ↑

1.1 Corpus study

- Data taken from CALLHOME Corpus of American English (Canavan et al. (1997)) and Fischer English (Cieri et al. (2004)) [Telephone speech].
- Intonation analyzed and labeled according to ToBI guidelines (Beckman and Ayers-Elam (1997)).
- 18% of 200 wh-question tokens were rising (H-H%) (reported in Hedberg et al. (2010)).
- We also looked beyond the corpus at constructed and everyday naturally occurring data.

1.2 Previous Approaches

I. Forward-oriented approach

1. Pierrehumbert and Hirschberg (1990)

- ▶ **H-** "indicates that the current phrase is to be taken as forming part of a larger composite interpretive unit with the following phrase."

- ▶ **H%** "indicates that the speaker wishes the hearer to interpret an utterance with particular attention to subsequent utterances."

- → It is not clear why **rising wh-questions** and (yes-no questions) should have this property, while **falling wh-questions** do not: *all questions look forward to their answer.*

1.2 Previous Approaches

II. Hearer-oriented approach
2. Bartels (1997)

- ► **H-H%** indicates that *Ego* (the speaker) is conceding choice to *Alter* (the hearer).
- ► **L-L%** indicates that Ego is controlling choice.
- ► Falling wh-questions are "impositive" and "indicate the questioner's intent to assume control over the discourse."
- ► Rising wh-questions "are *concessive* in ostensibly leaving the control of the discourse with the addressee."

1.2 Previous Approaches

II. Hearer-oriented approach

3. Bartels (1999)

- **L-L%** indicates speaker assertion.
- **H-H%** indicates lack of speaker assertion.
- Wh-questions "assert an alternative set" (p. 188).
- Falling wh-questions signal that the alternative-set is restricted to the hearer's "commitment slate" (p. 188).
- Rising wh-questions are not assertive, therefore they do not restrict the hearer's "context set". (pp. 204-5).
- **Rising wh-questions invite the hearer to restrict the speaker's context set.** (p. 205)

1.2 Previous Approaches

II. Hearer-oriented approach
4. Gunlogson (2003)
5. Steedman (2007)

- **L-L%** indicates speaker commitment.
- **H-H%** indicates hearer commitment.

→ How do these distinctions explain the intuitive contrast between rising and falling *wh*-questions?

1.2 Previous Approaches

III. Uncertainty/contingency approaches
6. Safarova (2007)
7. Gunlogson (2008)

- ▶ The **final rise** is a modal expression indicating epistemic uncertainty, i.e. $[\![\alpha\uparrow]\!] = [\![\Diamond\alpha]\!]$ (Safarova (2007)).

- → How are rising wh-questions more uncertain than falling wh-questions?

- ▶ The **final rise** marks an utterance as *contingent* on some contextual condition (Gunlogson (2008)).

- → Gunlogson (2008) is primarily concerned with declaratives interpreted as questions. Can this distinction be extended to *wh*-questions?

1.2 Previous Approaches

- The previous approaches fall coarsely into any combination of the following distinctions.

1. Backward *vs*. forward looking
2. Assertion *vs*. non-assertion
3. Speaker *vs*. hearer commitment
4. Certainty *vs*. contingency

1.3 Research Questions

- ▶ Are the previously noted distinctions sufficient to explain the difference between falling and rising *wh*-questions?

- ▶ If not, then might we make an addition to the distinctions already drawn, or can we think of an altogether different approach from which the noted distinctions can follow?

- ▶ Does the final rise affect the meaning and/or use of *wh*-questions differently than it affects sentences of other types, or is there a general meaning inherent to the final rise that all sentence types share?

2. Examples

- Our rising *wh*-questions from the corpus fell into two broad categories:

1. Echo/clarification questions, i.e. requests for repetition of old information.

2. Supplementary/reminder questions, i.e. requests for background information relevant to the current topic.

2.1 Echo/clarification questions

▶ As a request for clarification

(2) A: V S C H O E M A…at…E O S…**Dot** H I T C
   B: **What's** after the **dot**?
   L+H∗   L∗H-H%

(3) A: **Which** did you say you **preferred**?
   H∗   L∗H-H%

2.2 Supplementary/reminder questions

(4) [A has been worrying where she will stay when she visits B's city.]

    a. A: I mean I'm just coming anyway but I have no idea like where I'll stay-

    b. B: When are you planning on **coming**?

                                     L*H-H%

▶ Tell me when you're planning on coming and I will tell you where you can stay.

▶ *Exchange of information*: A knows *when* she is coming; B knows for all (contextually restricted) times when A comes, *where* A can stay.

2.3 Constructed examples

- Let us try some minimal pairs and see how they differ.

(5)
    a. A: Where did you visit?
    b. B: I visited Tokyo.
    c. A: **Where** did you visit↑?
    d. A': **Where** did you visit↓?

- As an echo question: (5-c) re-invokes the question in (5-a).

- (5-d) does not re-invoke (5-a), but is more likely a new question, e.g. 'where in Tokyo did you visit?'

2.3 Constructed examples

(6) a. B: I visited Tokyo.

b. A: You visited **where**↑?

c. # A: You visited **where**↓?

▶ *Wh- in situ* echo questions require a final rise.

2.3 Constructed examples

(7) [A and B have never met before. But they chat regularly on the telephone and have planned to finally meet each other. A forgets when they are meeting and asks]

    a. A: Tell me, **when** are we meeting again↑?
      → Tell me again when we are meeting.

    b. A: # Tell me, **when** are we meeting again↓?
      ↛ Tell me again when we are meeting.

▶ In this context, a rising *wh*-question works, but a falling one does not.

2.3 Constructed examples

(8) [A and B are at a meeting together.]

A: Hm, I was certain that we wouldn't need to, but it looks like we may have to have another meeting soon …but I don't know if you have time.

   a. If you are free, when would you be able to **come** again↓?

   b. # If you are free, when would you be able to **come** again↑?

▶ In this context, a falling *wh*-question works, but a rising one does not.

2.4 Interim summary

- Rising and falling *wh*-questions do form minimal pairs in at least some environments.

- But how are they different?

- Intuitively, rising *wh*-questions seem to invoke information that is somehow *backgrounded* in the discourse, such as information that is discourse-old, but inaccessible to the speaker.

- In this sense, the rise on the *wh*-question seems to suggest that some prior (if implicit) question is being re-invoked, whose answer is relevant to the current stage of the discourse.

- But there are counter-examples to this generalization.

(9) [Professor P meets John, a former York philosophy student, for the very first time.]

John: I did my BA at York.
Prof: Oh really? Who did you **work** with?↑

▶ Given the lack of shared discourse history between the Professor and John, what earlier question is the Professor re-invoking?

1. Backward *vs*. forward looking

2. Assertion *vs*. non-assertion

3. Speaker *vs*. hearer commitment ☞ but how?

4. Certainty *vs*. contingency

A Semantic Proposal

- ▶ The final rise is pragmatically very rich. But is there a semantic source for this behaviour?

(10) A: Did you hear? We have a new department secretary.

    a. Yes, I heard. What's her **name**? ↓

    b. Yes, I heard. What's her **name**? ↑

    c. No, I didn't hear. What's her **name**? ↓

    d.   # No, I didn't hear. What's her **name**? ↑

- ▶ The final rise is infelicitous in environments when the 'interrogator' is completely uninformed.
- ▶ The final rise indicates that the interrogator has partial information.

3.1 Rising *wh*-Qs as a subset of falling *wh*-Qs

▸ Let's take the denotation of a question to be the set of its answers (Hamblin (1973)).

▸ Since the interrogator is *partially* informed, the set of alternatives she has in mind is a subset of all possible (contextually restricted) alternatives.

▸ We can think of the final rise on a *wh*-question as a function that returns a subset of the denotation of the question with a falling intonation.

(11) $[\![\uparrow]\!] = \lambda Q_{<<st>t>} . R_{<<st>t>} . R \subseteq Q$

e.g. $[\![$ what's her **name**$\uparrow$ $]\!]^{\mathcal{M},g} \subseteq [\![$ what's her **name**$\downarrow$ $]\!]^{\mathcal{M},g}$

(12) A: Did you hear? We have a new department secretary.
B: Yeah, I heard. What's her **name**↑?
A: Gina.
B: No, that's not it. It starts with an S.

(13) A: Did you hear? We have a new department secretary.
B: Yeah, I heard. What's her **name**↓?
A: Gina.
B: # No, that's not it. It starts with an S.

(14)   a. B: Yeah, I heard. What's her **name** again↑?
        b. B: # Yeah, I heard. What's her **name** again↓?

▶ *wh*-Q↑ indicates that the interrogator has a smaller set of alternatives in mind.

(15) A: I visited Tokyo.
      B: **Where** did you visit↑?
      A: London.
      B: That's not what you said!

  ▶ B: I wasn't sure that I heard you correctly the first time,
     but I know I didn't hear London.

(16) A: I'm coming, but I have no idea where I'll stay.
      B: When are you planning on **coming**↑?

  ▶ B: If you're coming during the set of times I have in
     mind, I could find you a place to stay.

3.2 Final rise and conversational implicature

- If the final rise really does restrict the set of alternatives to a smaller set, then the reading of rising *wh*-questions as echo-questions or reminder questions, etc. could be thought of as a conversational implicature.

- The interrogator has used a rise, therefore she has a smaller set of alternatives in mind ... perhaps she knew the answer but has forgotten it, is uncertain about it, etc.

(17) A: I did my BA in philosophy at York.
B: Who did you **work** with↑?

▶ Conversational implicature: B knows the philosophy faculty at York.

4. Final rise as a Conventional Implicature

- The final rise (H%) is best characterized as a Conventional Implicature (Potts (2005)).
- CIs do not affect the at-issue content of a sentence.
- A true answer to a rising and falling *wh*-question is the same, i.e. same at-issue content.
- CIs always take wide-scope.

(18) Honestly, where are you going↑?
→ I don't remember where you are going: tell me honestly, where you are going.
↛ Honestly, I don't remember where you are going: where are you going?

4. Final rise as a Conventional Implicature

- Speaker-oriented.

(19) [John, Nancy and Morgan have plans to visit the gallery.]
John to Morgan: When are we going↑?
Morgan: I don't know. I will ask Nancy.

[Sometime later Morgan asks Nancy]
Morgan: John wants to know–when are we going ↓?
Morgan: # John wants to know–when are we going ↑?

- Morgan cannot use a rise to express what John had intended by it on his behalf.

5. Further issues

- Since declaratives, which are ordinarily falling in intonation, are sometime produced with a final rise, can we account for their use by appealing to the subset hypothesis?

5.1 Generalizing to assertions

- From Pierrehumbert and Hirschberg (1990)

(20) [Mark Liberman approaches the receptionist and says]
My name is Mark **Liberman**.
H∗   H∗   H-H%

- Under the subset hypothesis, the final rise indicates that the set of alternatives being evoked is smaller than the set of alternatives would have been had the speaker used a falling intonation.

- The rise conveys that set of alternatives to 'Mark Liberman' is a restricted set.

- A relevant restricted set would be the appointment roster.

- Conversational implicature: Mark Liberman is here for an appointment.

5.2 Extending to contrastive topics

- ▶ The fall-rise tune from Büring (2003).

(21) A: What did the pop stars wear?
B: [The **female** pop-stars]$_{IP}{}^{CT}$ [wore **caftans**]$_{IP}$.
　　　H∗L-H%　　　　　　　　　H∗L-L%

- ▶ The fall-rise tune (H∗L-H%) indicates that the current sentence answers a subquestion of the QUD.

- ▶ How might we develop our semantic analysis of the high boundary tone to account for such examples?

5.3 Theme-only sentences

- From Steedman (2007), Ward and Hirschberg (1985)

(22) A: Did you feed the animals?
B: I fed the **dogs**.
         L*+H L-H%

- The QUD is a yes-no question about the entire set of animals.

- The answer is restricted to just a subset of the topic-alternative set.

- How might our analysis be extended to cover these cases?

5. Conclusion

▶ We have argued that the final rise on *wh*-questions is a function that takes the answer set of the question and returns a subset of it.

▶ We suggest that the current analysis can explain the use of rising *wh*-questions as echo or reminder questions.

▶ We also argued that the final rise contributes CI content, in the sense that it expresses a speaker-oriented comment on the at-issue content of the question.

▶ Lastly, we considered whether this approach can be extended to the use of the final rise to sentences of other types.

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