

Or what?

DGfS workshop on Questions in Discourse

Maria Biezma¹ Kyle Rawlins²

¹Carleton University
Linguistics Department

²Johns Hopkins University
Cognitive Science Department

Mar 8, 2012

- 1 Introduction
- 2 Data: the many uses of “or what” questions
- 3 Background: Questions Under Discussion
 - QUDs in general
 - QUDs and polar/alternative questions
- 4 Analysis: “what” as anaphoric
- 5 Conclusions

Goal of talk: give an account of the semantics and pragmatics of “or what” questions.

- (1) Did he send the letter, did he e-mail it, or what?
- (2) Are you coming to dinner or what?
- (3) Is he asleep or what?

Proposal: “or what” questions are regular Alternative Questions where “what” is an anaphoric pronoun.

- Antecedent: salient Question Under Discussion (QUD).

Goal of talk: give an account of the semantics and pragmatics of “or what” questions.

- (1) Did he send the letter, did he e-mail it, or what?
- (2) Are you coming to dinner or what?
- (3) Is he asleep or what?

Proposal: “or what” questions are regular Alternative Questions where “what” is an anaphoric pronoun.

- Antecedent: salient Question Under Discussion (QUD).

The larger agenda: the polar/alternative family of question types

A puzzle: what is the difference between the following ways of asking very similar questions:

- (4) Are you going to the party?_{L*H-H%} POLQ
- (5) (Aren't you going to the party?_{L*H-H%} -POLQ)
- (6) Are you going to the party or not?_{H*L-L%} ALTQvN
- (7) Are you going to the party or to your study session?_{H*L-L%} ALTQ

New data:

- (8) Are you going to the party or what?_{H*L-L%}
- (9) Are you going to the party or are you going to the party?_{H*L-L%}

The larger agenda: the polar/alternative family of question types

A puzzle: what is the difference between the following ways of asking very similar questions:

- (4) Are you going to the party?_{L*H-H%} POLQ
- (5) (Aren't you going to the party?_{L*H-H%} -POLQ)
- (6) Are you going to the party or not?_{H*L-L%} ALTQvN
- (7) Are you going to the party or to your study session?_{H*L-L%} ALTQ

New data:

- (8) Are you going to the party or what?_{H*L-L%}
- (9) Are you going to the party or are you going to the party?_{H*L-L%}

The larger agenda

The discourse function of questions in the polar/alternative family

Make explicit / reveal some alternative(s) in the existing QUD.

(Biezma and Rawlins, 2012)

“Alternative revelation” analysis.

Motivating examples:

(10) Context: A is making B, a guest, some breakfast.

A: Do you want milk in your cereal?

B: Yes, of course, I don't want dry cereal??!?

Puzzle: Where does this discourse go wrong?

The larger agenda

The discourse function of questions in the polar/alternative family

Make explicit / reveal some alternative(s) in the existing QUD.

(Biezma and Rawlins, 2012)

“Alternative revelation” analysis.

Motivating examples:

(10) Context: A is making B, a guest, some breakfast.

A: Do you want milk in your cereal?

B: Yes, of course, I don't want dry cereal??!?

Puzzle: Where does this discourse go wrong?

The confused cereal example

(11) Context: A is making B, a guest, some breakfast.

A: Do you want milk in your cereal?

B: Yes, of course, I don't want dry cereal??!?

- Immediate QUD: What do you want in your cereal?
- Speaker A was assuming two alternatives, milk, and yogurt, but did not realize B would fail to infer the 2nd.
- A more cooperative version:

A: Do you want milk or yogurt in your cereal?_{H*L-L%}

The confused cereal example

(11) Context: A is making B, a guest, some breakfast.

A: Do you want milk in your cereal?

B: Yes, of course, I don't want dry cereal??!?

- **Immediate QUD:** What do you want in your cereal?
- Speaker A was assuming two alternatives, milk, and yogurt, but did not realize B would fail to infer the 2nd.
- A more cooperative version:

A: Do you want milk or yogurt in your cereal?_{H*L-L%}

The confused cereal example

(11) Context: A is making B, a guest, some breakfast.

A: Do you want milk in your cereal?

B: Yes, of course, I don't want dry cereal??!?

- **Immediate QUD:** What do you want in your cereal?
- Speaker A was assuming two alternatives, milk, and yogurt, but did not realize B would fail to infer the 2nd.
- A more cooperative version:

A: Do you want milk or yogurt in your cereal?_{H*L-L%}

A second example

(12) Context: A is a waiter, B and C are customers.

A: Ok, with your coffee, do you want milk or cream?_{H*L-L%}

B: # No thanks.

A/C: (laughter)

Puzzle: Why was this response funny?

- Alternative question lists all the available alternatives.
- B's response goes outside of the parameters of A's question.
- (B politely making fun of A closing off the possibility of black coffee.)
- Could have asked:

(13) Do you want milk, cream, or what?

A second example

(12) Context: A is a waiter, B and C are customers.

A: Ok, with your coffee, do you want milk or cream?_{H*L-L%}

B: # No thanks.

A/C: (laughter)

Puzzle: Why was this response funny?

- Alternative question lists all the available alternatives.
- B's response goes outside of the parameters of A's question.
- (B politely making fun of A closing off the possibility of black coffee.)
- Could have asked:

(13) Do you want milk, cream, or what?

Question-question sequences

The core intuition:

(14) A_1 : What do you want to drink?

A_2 : Do you want some tea?_{L*H-H%}

A'_2 : Do you want coffee or tea?_{H*L-L%}

In question-question sequences, polar/alternative questions do not really ask a new/independent question!

Question-question sequences

The core intuition:

(14) A_1 : What do you want to drink?

A_2 : Do you want some tea?_{L*H-H%}

A'_2 : Do you want coffee or tea?_{H*L-L%}

A''_2 : Do you want coffee, tea, or what?_{H*L-L%}

In question-question sequences, polar/alternative questions do not really ask a new/independent question!

The larger agenda

The discourse function of questions in the polar/alternative family

Make explicit /reveal some alternative(s) in the existing QUD.

(Biezma and Rawlins, 2012)

- 1 Polar questions non-exhaustively make salient a single alternative (the content proposition), out of potentially many in the QUD.
- 2 Alternative questions exhaustively list all alternatives in the immediate QUD.
- 3 Primary function *is not* to raise a new QUD.

The larger agenda

The discourse function of questions in the polar/alternative family

Make explicit /reveal some alternative(s) in the existing QUD.

(Biezma and Rawlins, 2012)

Many potential reasons to choose certain alternative(s) to make reveal: (see also van Rooy and Safarova 2003)

- Speaker thinks revealed alternatives more likely. (A in cereal ex.)
- Speaker thinks B will not infer revealed alternatives. (Improved cereal ex.)
- Speaker has some reason to prefer overt alternatives. (Cf. van Rooy and Safarova)
- ...

N.b. reasoning roughly Gricean but, we assume, highly unconstrained.

How do “or what” questions fit into this picture?

- Evidence for or against the alternative revelation proposal?
- How can we explain the varied behavior of this question type?

How do “or what” questions fit into this picture?

- Evidence for or against the alternative revelation proposal?
- How can we explain the varied behavior of this question type?

- 1 Introduction
- 2 Data: the many uses of “or what” questions
- 3 Background: Questions Under Discussion
 - QUDs in general
 - QUDs and polar/alternative questions
- 4 Analysis: “what” as anaphoric
- 5 Conclusions

Data: the many uses of “or what” questions

A pre-theoretical characterization

- (15) Factors in the felicity of “ p or what?”:
- The speaker considers that p is a likely alternative. (Or that other, unmentioned alternatives are likely.)
 - The speaker is not completely sure that p is true or is pretty sure that p is true and looks for the addressee’s acknowledgement.
 - The speaker is especially interested in the content proposition, but doesn’t want to know about just that.
 - The issue raised is not typically new to the discourse.

Summary:

- The speaker wants the hearer to choose between p and some other unmentioned alternatives.
- The speaker has some “bias” towards the truth of the content proposition.

A pre-theoretical characterization

- (15) Factors in the felicity of “ p or what?”:
- The speaker considers that p is a likely alternative. (Or that other, unmentioned alternatives are likely.)
 - The speaker is not completely sure that p is true or is pretty sure that p is true and looks for the addressee’s acknowledgement.
 - The speaker is especially interested in the content proposition, but doesn’t want to know about just that.
 - The issue raised is not typically new to the discourse.

Summary:

- 1 The speaker wants the hearer to choose between p and some other unmentioned alternatives.
- 2 The speaker has some “bias” towards the truth of the content proposition.

Case 1: Information-seeking “Or what” questions

- (16) But as the Q&A session after the speech makes clear, the audience members have not been fantasizing about the Jetsons, Blade Runner or The Fifth Element. They have more pragmatic considerations on their minds. “Does it have legal clearance for California roads?” “Is the wing retraction mechanism manual, hydraulic or what?” (COCA)
- (17) And the question is [is] does that mean when you get married your marriage ends up being better, or what? (COCA)
- (18) Embedded: At first, Miina couldn't tell whether the boy was playing a trick on her, or was drunk, or what. (COCA)

Case 1: Information-seeking “Or what” questions

- 1 OWQs can be used as information-seeking questions.
- 2 OWQs can be embedded, as with regular alternative/polar questions.
- 3 OWQs can have > 2 disjuncts.

Case 2: Rhetorical uses of “or what”

(19) Context: John just did something ridiculously stupid

Alice: Is he an idiot or what?

↪ Alice thinks John is stupid.

(20) Is he an idiot or not? ↪ Alice thinks John is stupid.

(21) Is he an idiot?

↪ Alice is biased towards J. being an idiot.

- POLQ requires special intonation, expresses more surprise than “or what” version.

Case 2: Rhetorical uses of “or what”

(19) Context: John just did something ridiculously stupid

Alice: Is he an idiot or what?

↪ Alice thinks John is stupid.

(20) Is he an idiot or not? ↪ Alice thinks John is stupid.

(21) Is he an idiot?

↪ Alice is biased towards J. being an idiot.

- POLQ requires special intonation, expresses more surprise than “or what” version.

Case 2: Rhetorical uses of “or what”

- (22) Claspng Charlie’s shoulder, Alice pointed to the dog. “Is he the most adorable thing you’ve ever seen or what?”
(COCA)
- (23) Jesus, is it nine thousand degrees in here, or what? I feel like my insides are boiling. (COCA)

“Or what” can productively be used rhetorically, unlike other members of the family. (But cf. negative polar questions.)

Case 2b: another rhetorical use.

(24) Context: A PhD student complains about the amount of work he still needs to do to finish a paper.

Advisor: Are you getting a PhD or what?

↪ Advisor wants student to agree that they have to do the work.

Polar and ALTQVNs pattern the same here:

(25) Are(n't) you doing a PhD?

(26) Are you doing a PhD or not?

Cf. Ginzburg (to appear) on (generalized) exam questions (§4.4.4, esp. (45))

Case 2b: another rhetorical use.

(24) Context: A PhD student complains about the amount of work he still needs to do to finish a paper.

Advisor: Are you getting a PhD or what?

↪ Advisor wants student to agree that they have to do the work.

Polar and ALTQVNs pattern the same here:

(25) Are(n't) you doing a PhD?

(26) Are you doing a PhD or not?

Cf. Ginzburg (to appear) on (generalized) exam questions (§4.4.4, esp. (45))

Case 3: Cornering in alternative questions

Cornering is the effect of forcing the addressee:

- a. to disclose information (if s/he was withholding it) or
- b. to make a decision by choosing amongst the alternatives (if s/he is in such position).

(Biezma, 2009; Biezma and Rawlins, 2010)

ALTQVN are prototypical cornering questions, and it seems that OWQs may also serve such purpose.

(27) A is holding a can of beer
in his hand

A: Do you want a beer?

B: (...)

C: Do you want a beer or
not?

(28) A is holding a can of beer
on his hand

A: Do you want a beer?

B: (...)

C: Do you want a beer or
what?

Case 3: Cornering in alternative questions

Cornering is the effect of forcing the addressee:

- a. to disclose information (if s/he was withholding it) or
- b. to make a decision by choosing amongst the alternatives (if s/he is in such position).

(Biezma, 2009; Biezma and Rawlins, 2010)

ALTQVN are prototypical cornering questions, and it seems that OWQs may also serve such purpose.

- (27) A is holding a can of beer
in his hand
A: Do you want a beer?
B: (...)
C: Do you want a beer or
not?

- (28) A is holding a can of beer
on his hand
A: Do you want a beer?
B: (...)
C: Do you want a beer or
what?

Case 3: Cornering in alternative questions

Cornering is the effect of forcing the addressee:

- a. to disclose information (if s/he was withholding it) or
- b. to make a decision by choosing amongst the alternatives (if s/he is in such position).

(Biezma, 2009; Biezma and Rawlins, 2010)

ALTQVN are prototypical cornering questions, and it seems that OWQs may also serve such purpose.

(27) A is holding a can of beer
in his hand

A: Do you want a beer?

B: (...)

C: Do you want a beer or
not?

(28) A is holding a can of beer
on his hand

A: Do you want a beer?

B: (...)

C: Do you want a beer or
what?

Case 3: Cornering in alternative questions

- (29) "...Jada asked me to call and confirm your address so she can send you an invitation to her wedding." Jada was getting married a third time and I hadn't been married once. No way. "You're lying. Jada would never hire you. What are you up to?" "You want an invite or what?" "I'm good." Jada already had my address. (COCA; story)

"Or what" can be productively used in cornering contexts, with a similar meaning to "or not" ALTQs.

Generalizations: distributional properties

- “or what” must be the last disjunct.
- “what” is the only allowed “wh”-item. (Return to this later.)
- OWQs take list closure intonation.
- OWQs freely embed.
- “or what” productively follows any number of disjuncts > 1 .

∴ Except for ordering restriction, and the content of the final disjunct (“what”), OWQs are structurally ordinary alternative questions.

Generalizations: distributional properties

- “or what” must be the last disjunct.
- “what” is the only allowed “wh”-item. (Return to this later.)
- OWQs take list closure intonation.
- OWQs freely embed.
- “or what” productively follows any number of disjuncts > 1 .

∴ Except for ordering restriction, and the content of the final disjunct (“what”), OWQs are structurally ordinary alternative questions.

Generalizations: semantics & pragmatics

(30) Generalizations

- a. OWQs have uses parallel to other alternative questions:
 - i. Information-seeking questioning with ≥ 2 alternatives.
 - ii. Cornering the addressee. (“or not” Qs in particular.)
- b. OWQs also resemble polar questions:
 - i. Leave the full set of options open.
 - ii. Speaker has some bias towards content proposition(s).
 - iii. Can be productively used as first move in a discourse. (Unlike “or not” Qs.)
- c. But, have rhetorical uses lacking in other types.

Central question

Why and how do alternative, polar, and “or what” questions cut up the space of questioning?

Agenda for background section

- Background on the QUD.
- Sketch of our analysis of polar/alternative questions.

Alternative vs. polar questions and the QUD

Reminder – the core intuition:

(31) A_1 : What do you want to drink?

A_2 : Do you want some tea?_{L*H-H%}

A'_2 : Do you want coffee or tea?_{H*L-L%}

A''_2 : Do you want coffee, tea, or what?_{H*L-L%}

In question-question sequences, polar/alternative questions do not really ask a new/independent question!

Background: Questions Under Discussion

Questions Under Discussion (QUDs)

Discourse is structured around answering/addressing questions that are currently under discussion. These questions may be implicit.

(Roberts 1996; Ginzburg 1998; Büring 2003; Beaver and Clark 2008; Farkas and Bruce 2010; Rawlins 2010a; Ginzburg to appear; a.o.)

QUDs and context

QUDs and context

Questioning happens against the background of a Stalnakerian common ground/context set type representation. (Or some more articulated information state representation.)

Context set: set of worlds that discourse participants are mutually/publicly agreed that they could be in.

See previous cites, as well as Roberts 1996; Groenendijk 1999; Büring 2003; Guerzoni 2003; Rawlins 2008; Groenendijk and Roelofsen 2009 a.o.

Hamblin's view on questions

Hamblin semantics

Questions are (semantically) sets of alternative propositions, corresponding to answers.

(Hamblin 1958, 1973; Karttunen 1977)

Of course see also Groenendijk and Stokhof 1984, 1997;
Groenendijk and Roelofsen 2009 etc.

- Analysis in principle implementable in Pruitt and Roelofsen 2010 with highlighting dimension.

Hamblin's view on questions

Hamblin semantics

Questions are (semantically) sets of alternative propositions, corresponding to answers.

(Hamblin 1958, 1973; Karttunen 1977)

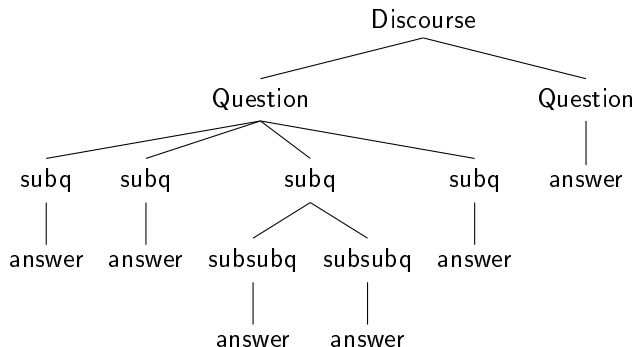
Of course see also Groenendijk and Stokhof 1984, 1997;
Groenendijk and Roelofsen 2009 etc.

- Analysis in principle implementable in Pruitt and Roelofsen 2010 with highlighting dimension.

Hierarchical QUDs

QUD structure is hierarchical:

(32)



(diagram from Büring 2003, ex. 6)

(Caveat: there are many things this representation abstracts away from!)

At any stage of discourse, there is an immediate (/current) QUD.

(Background) Constraints on moves and QUDs

Some (informal) constraints on hierarchical discourse structures, widely assumed in some form. (Roberts, 1996)

(33) **Relevance of assertions**

An assertion must be address (be relevant) to the immediate QUD.

(34) **Relevance of questions**

A question must be aligned/congruent with the immediate QUD. (Or start a new line of questioning.)

(35) **Non-triviality**

The immediate QUD must have at least two conversationally viable alternatives. (Cf. Beaver and Clark's Current Question Rule.)

(Background) Constraints on moves and QUDs

An implementation of non-triviality (Biezma and Rawlins, 2012).
Where cs_{c_M} is the Stalnakerian context set in context c_M :

(36) **Anti-singleton constraint**

If M is a move immediately dominated by some node, then
 $|\{p \mid p \neq \emptyset \wedge \exists p' \in \text{IQUD}(M) : p = p' \cap cs_{c_M}\}| \geq 2$.

(see Beck and Kim 2006; Beaver and Clark 2008)

(37) **Exhaustivity constraint**

$\forall w \in cs_{c_M} : \exists p \in \text{IQUD}(M) : p(w) = 1$

(Cf. “Hamblin’s picture”, Hamblin 1958; Groenendijk and Stokhof 1997; Isaacs and Rawlins 2008 etc. etc.)

“Every world in the context set makes some proposition in the QUD true.”

(Background) Constraints on moves and QUDs

An implementation of non-triviality (Biezma and Rawlins, 2012).
Where cs_{c_M} is the Stalnakerian context set in context c_M :

(36) **Anti-singleton constraint**

If M is a move immediately dominated by some node, then
 $|\{p \mid p \neq \emptyset \wedge \exists p' \in \text{IQUD}(M) : p = p' \cap cs_{c_M}\}| \geq 2$.

(see Beck and Kim 2006; Beaver and Clark 2008)

(37) **Exhaustivity constraint**

$\forall w \in cs_{c_M} : \exists p \in \text{IQUD}(M) : p(w) = 1$

(Cf. “Hamblin’s picture”, Hamblin 1958; Groenendijk and Stokhof 1997; Isaacs and Rawlins 2008 etc. etc.)

“Every world in the context set makes some proposition in the QUD true.”

One last constraint

(38) **Viability(/Quality)**

Every alternative a speaker chooses to reveal is viable in the context set.

The question operator and QUDs

Biezma and Rawlins (2012) account of the semantics and pragmatics of non-wh-questions:

(39) **Polar/alternative question operator [Q]**

$$\llbracket \llbracket [Q] \alpha \rrbracket \rrbracket^{c_M} = \llbracket \alpha \rrbracket^{c_M} \quad (\text{a set of Hamblin alternatives})$$

defined only if $\llbracket \alpha \rrbracket^{c_M} \subseteq \text{IQUD}(M)$, or if $\text{IQUD}(M) = \emptyset$.

(40) If M is a node immediately dominated by M' that is headed by the [Q] feature, then $\text{IQUD}(M) = \text{IQUD}(M')$

Paraphrase: “Non-constituent questions present propositional alternatives present in the immediate QUD, and do not raise an independent question.”

⇒ What is special about each type?

The question operator and QUDs

Biezma and Rawlins (2012) account of the semantics and pragmatics of non-wh-questions:

(39) **Polar/alternative question operator [Q]**

$$\llbracket \llbracket [Q] \alpha \rrbracket \rrbracket^{c_M} = \llbracket \alpha \rrbracket^{c_M} \quad (\text{a set of Hamblin alternatives})$$

defined only if $\llbracket \alpha \rrbracket^{c_M} \subseteq \text{IQUD}(M)$, or if $\text{IQUD}(M) = \emptyset$.

(40) If M is a node immediately dominated by M' that is headed by the [Q] feature, then $\text{IQUD}(M) = \text{IQUD}(M')$

Paraphrase: “Non-constituent questions present propositional alternatives present in the immediate QUD, and do not raise an independent question.”

⇒ What is special about each type?

Intonational differences and list closure

POLQs and ALQs differ intonationally (Bartels 1999; Pruitt 2008 a.o.)

(41) Do you want coffee_{L*H-} or tea_{L*H-H%}? [Polar Question]

(42) Do you want coffee_{L*H-} or tea_{H*L-L%}? [Alternative Question]

Grammaticalizing the falling tone: closure operator

(based on Zimmermann 2000)

(43) **Closure operator**

$$\llbracket \llbracket [Q] \alpha \rrbracket_{H*L-L\%} \rrbracket^c = \llbracket \llbracket [Q] \alpha \rrbracket \rrbracket^c$$

defined only if IQUD(c) = $\llbracket \llbracket [Q] \alpha \rrbracket \rrbracket^c$

(Biezma, 2009; Biezma and Rawlins, 2012)

Intonational differences and list closure

POLQs and ALQs differ intonationally (Bartels 1999; Pruitt 2008 a.o.)

(41) Do you want coffee_{L*H-} or tea_{L*H-H%}? [Polar Question]

(42) Do you want coffee_{L*H-} or tea_{H*L-L%}? [Alternative Question]

Grammaticalizing the falling tone: closure operator

(based on Zimmermann 2000)

(43) **Closure operator**

$$\llbracket \llbracket [Q] \alpha \rrbracket_{H*L-L\%} \rrbracket^c = \llbracket \llbracket [Q] \alpha \rrbracket \rrbracket^c$$

defined only if IQUD(c) = $\llbracket \llbracket [Q] \alpha \rrbracket \rrbracket^c$

(Biezma, 2009; Biezma and Rawlins, 2012)

Alternative questions

Further ingredient: disjunction in alternative questions is Hamblin disjunction. (von Stechow, 1991; Rawlins, 2008; Pruitt and Roelofsen, 2010)

- Build a set of alternative propositions from disjuncts.

Hamblin disjunction

Disjunction involves taking the union of sets of propositions.

(von Stechow 1991; Alonso-Ovalle 2005; Simons 2005, see also Groenendijk and Roelofsen 2009; Roelofsen 2012 a.o.)

Alternative questions

Summary:

- 1 Alternative questions list all and only the alternatives in the current QUD, without changing it.
- 2 The current QUD must have at least two viable alternatives.
- 3 The current QUD must exhaust the context set.

∴ Alternative questions are a means to fully specify a set of options available to the answerer.

Alternative questions

[[**Do you want milk or cream in your coffee?**_{H*L-L%}]]^{c_M} =
{ λw . you want milk in w , λw . you want cream in w }

Requirements on c_M :

- 1 These are the two alternatives making up the IQUD.
- 2 Each alternative is viable in the context set.
- 3 Every world in the context set makes one of the alternatives true.

Antecedents for this analysis of ALTQs: Karttunen and Peters 1976; Higginbotham 1991; von Stechow 1991; Beck and Kim 2006; Rawlins 2008; Biezma 2009. See also Groenendijk and Roelofsen 2009; Roelofsen and van Gool 2009; Aloni et al. to appear; Pruitt and Roelofsen 2010.

Polar questions

The classical view: polar questions present a positive and negative alternative. (Hamblin, 1973; Groenendijk and Stokhof, 1984)

(44) **Standard account of polar questions**

Where $\llbracket \alpha \rrbracket = \{A\}$:

$$\llbracket \llbracket \text{Qpol} \rrbracket \alpha \rrbracket = \{\lambda w . A(w), \lambda w . \neg A(w)\}$$

(Hamblin 1973 p. 50)

Hard to reconcile with the question-question sequence data!

Polar questions

Our proposal

Polar questions denote a singleton set containing the content proposition, and carry [Q].

↪ reveal one alternative in an existing QUD.

- Singleton semantics: Roberts 1996. See also Pruitt and Roelofsen 2010 in their highlighting dimension.
- Similar ideas: Gunlogson 2001; Farkas and Bruce 2010; Rawlins 2008.
- History: classical accounts have been misled by “yes” and “no”, which themselves are not answers at all and have a much more complex behavior than expected.

Polar questions

Our proposal

Polar questions denote a singleton set containing the content proposition, and carry [Q].

↪ reveal one alternative in an existing QUD.

- Singleton semantics: Roberts 1996. See also Pruitt and Roelofsen 2010 in their highlighting dimension.
- Similar ideas: Gunlogson 2001; Farkas and Bruce 2010; Rawlins 2008.
- History: classical accounts have been misled by “yes” and “no”, which themselves are not answers at all and have a much more complex behavior than expected.

Polar questions questions

$$\llbracket \text{Do you want milk in your coffee?} \rrbracket_{L^*H-H\%}^{c_M} = \{ \lambda w . \text{you want milk in } w \}$$

Requirements on c_M :

- 1 This alternative is a member of the IQUD.
- 2 The alternative is viable in the context set.
- 3 The QUD has at least one other alternative.

Differences between POLQs and ALTQs I

1. ALTQs have a closure operator at LF (indicated by falling intonation)
 - ① ALTQs present an exhaustive list.
 - ② Answers to ALTQs consist only of the propositions provided by the disjuncts.

(45) A chef trying to finalize an efficient plan for tonight's cooking-tasks:

Chef: Are you going to make pasta or fish?

Souchef: I'm making pasta/ I'm making fish/
#I'm making both/ #I'm making neither

Differences between POLQs and ALTQs II

2. POLQs do not have falling intonation and hence do not have a closure operator at LF

- 1 POLQs present a single non-exhaustive alternative.
- 2 Responses to POLQs involve accepting/rejecting the content proposition.

(46) A chef trying to finalize an efficient plan for tonight's cooking-tasks:

Chef: Are you going to make the pasta?

Souchef: Yes, I'm making the pasta/ No, I'm making the fish

Differences between POLQs and ALTQs III

Pragmatics:

- 1 ALTQs require that the most salient QUD align with the mentioned alternatives.
 - 2 POLQs only provide a single alternative that must be present in the QUD.
- Question-question sequences follow directly.
 - QUD may be inferred, not overt.
 - Classical use of polar questions: special case where (possibly inferred) QUD supports two opposite alternatives.
 - Many other differences follow... Biezma and Rawlins 2012

Differences between POLQs and ALTQs IV

Not in this talk: Despite having no effect on the QUD, POLQs and ALTQs lead to different response strategies.

- POLQ: response clauses marked with polarity/answer particles like “yes”, “no”, “ja”, “nein”, “doch”, etc. (Farkas and Bruce 2010; Kramer and Rawlins 2009 a.o.)
- After Farkas & Bruce: follows from the difference in semantic representation.

Cornering in “or not” questions

- ALTQVN are the prototypical questions giving rise to the cornering effect

(47) Offers: John just arrived at the party hosted by Liz

Liz: Do you want a beer?

Liz': #Do you want a beer or not?

(Adapted from Bolinger 1978)

- Intuition: odd because Liz' question tries to force John to choose immediately, and leaves her no room for other options relative to “what do you want to drink?”.

Bundling of alternatives

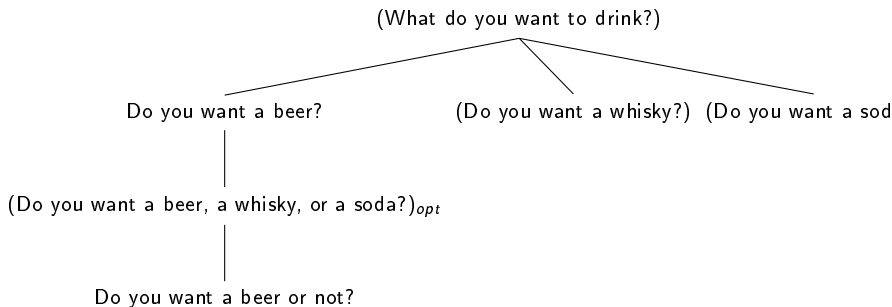
A further piece: questions can ‘bundle’ alternatives that are separate in the immediate QUD, into a single alternative

- “or not” questions – negative alternative often bundles many options together.
- (Assumption: “not” disjunct involves TP ellipsis)

Other cases of bundling:

- (48) What do you want to eat? Do you want something vegetarian or meat?
- (49) What do you want to eat? Do you not want meat?

Cornering in “or not” questions



- ALTQVNs are composed by opposite alternatives.
(cf. classical account of polar Qs.)
- ALTQVNs do not have sisters.
- ALTQVNs can only be the last question in a sequence of questions.

Analysis of “or what” questions

OWQs: Proposal

- 1 OWQs are ALTQs.
- 2 OWQs have a discourse pronoun, “what” that is anaphoric to a previous (salient) QUD.
- 3 Pragmatically they can behave like ALTQs or like POLQs...
 - Whether they behave like ALTQs or POLQs depends on the status of the alternatives introduced by the pronoun WHAT

More technically (in Büring's notation):

(50) Where i is the index of a move M_U :

$$[[\mathbf{what}_i]]^c = [[\mathbf{U}]]^{cM_U}$$

(Note: in certain cases on our system this won't give you the whole QUD.)

OWQs: Proposal

- 1 OWQs are ALTQs.
- 2 OWQs have a discourse pronoun, “what” that is anaphoric to a previous (salient) QUD.
- 3 Pragmatically they can behave like ALTQs or like POLQs...
 - Whether they behave like ALTQs or POLQs depends on the status of the alternatives introduced by the pronoun WHAT

More technically (in Büring's notation):

(50) Where i is the index of a move M_U :

$$\llbracket \mathbf{what}_i \rrbracket^c = \llbracket \mathbf{U} \rrbracket^{c_{M_U}}$$

(Note: in certain cases on our system this won't give you the whole QUD.)

OWQs: Proposal

(51) d-tree: i (Big Question: What do you want to drink?)

|
¹Do you want coffee or what;_{*i*}?

- Because it is an ALTQ, must be aligned with implicit IQUD.
- Because “what” is anteceded by move i , picks up extra implicit alternatives from same IQUD.
- Hamblin disjunction (\cup) – composition of pronoun with overt disjuncts.
- \therefore ‘re-’asks IQUD, while making a single alternative explicit.
 - Like our analysis of POLQ, but still semantically provides an exhaustive alternative set.

OWQs: Proposal

(51) d-tree: i (Big Question: What do you want to drink?)

|
¹Do you want coffee or what; _{i} ?

- Because it is an ALTQ, must be aligned with implicit IQUD.
- Because “what” is anteceded by move i , picks up extra implicit alternatives from same IQUD.
- Hamblin disjunction (\cup) – composition of pronoun with overt disjuncts.
- \therefore ‘re-’asks IQUD, while making a single alternative explicit.
 - Like our analysis of POLQ, but still semantically provides an exhaustive alternative set.

The alternatives provided by “what”

Three cases of alternative sets introduced by pronoun:

- Speaker does not know the full set of alternatives.
- Speaker does know the full set of alternatives, but chooses to list only some of them.
- (Speaker knows the full set of alternatives, and uses an OWQ to list all of them. Return to this later.)

The alternatives provided by “what”

1. The alternatives bundled by “what” are unknown to the speaker

① Pure ignorance (epistemic): information-seeking OWQs

(52) A: I had a horrible day today. I couldn't remember my password to enter the system and work.

B: That's horrible, did you call computer services or what?

② Speaker's evidence are only consistent with the spelled-out alternative, but other possibilities not entirely ruled out: rhetorical OWQs type 2.

(53) Jim just enters the kitchen and sees John hanging a rope from the ceiling while standing on a chair.

Jim: Are you out of your mind or what?

The alternatives provided by “what” II

2. The alternatives provided by “what” are known OWQs act like ALTQs, but with a bias, triggered by the speaker decision to spell out some alternatives over others.

① Subcase: **Several different alternatives**

(54) Freshman: It was so frustrating! My advisor wouldn't help me decide which classes out of the 8 I was trying to choose from!

Friend: So, did you take semantics, theatre, or what?

② Subcase: **The only other alternative (in salient QUD) is $\neg p$:** cornering-like uses

(55) A: I'm leaving right now, are you coming or what?

Interlude: why “What”?

Why “what”?

- (May be somewhat grammaticalized...)
- Rawlins 2010b,a: “what” in “what if” questions – anaphoric to QUD.
- “What” is the wh-pronoun generally used when reference is abstract entity. (Baker 1968; Artstein 2002; Rawlins 2008)
- E.g. echo question:

(56) John said what? /#who?

Interlude: why “What”?

Similar pronoun choice in Spanish, Italian. Italian:

- (57) Sei malato, o cosa?
is sick/crazy, or thing?
'Is he crazy, or what?'

Italian, “cosa” is the pronoun used for echoing. (N.b. some complications suppressed.)

- (58) Gianni pensa cosa? / *che?
Gianni believe thing?
'Gianni believes what?'

Interlude: why “What”?

Similar pronoun choice in Spanish, Italian. Spanish:

- (59) Estás loco, o qué?
are.2.sg crazy, or what?
'Are you crazy, or what?'

Spanish, “qué” is the pronoun used for echoing.

- (60) (él) dijo qué?
he said what?
'He said what?'

Cornering

Cornering in different ways

(61) John: I'm leaving, are you coming or what?

(62) John: I'm leaving, are you coming or not?

Similar but different:

- ① OWQs are not necessarily used in cornering-like scenarios.
- ② OWQs and ALTQVNs do not behave the same – how much room to manuever does the speaker have?
 - a. No other question can follow ALTQVN, but other questions can follow OWQs

(63) John: I'm leaving, are you coming or not?

Jill: (...)

John: #Are you going to visit your aunt?

(64) John: I'm leaving, are you coming or what?

Jill: (...)

John: Are you going to visit your aunt?

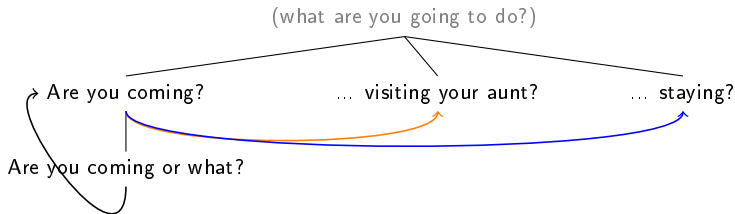
With ALTQVNs, open issue must be closed before proceeding to another sub-alternative of big question

Cornering in different ways (continued)

Different discourse structures

- 1 ALTQVNs are the last possible discourse move in a subtree.
 - They don't have sisters.
 - They establish p and $\neg p$ locally as the only two alternatives.
- 2 OWQs do not forcibly close off other alternatives – not last possible discourse move.
 - I.e. inference that there are only two alternatives in cornering context is defeasible for OWQs, but semantic for ALTQVNs.

(65)



Rhetorical alternative questions

Rhetorical uses of “or what”

Focus in this talk on the first type of rhetorical question:

- (66) Is John an idiot or what? \rightsquigarrow S thinks J. is an idiot.
 \rightsquigarrow S does not expect an answer.

The puzzle: how to unify this rhetorical use with information-seeking uses?

Proposal: Rhetorical readings follow from anaphoric account.

Redundant AltQs

Redundant AltQs have semantically identical disjuncts:

(67) Is John an idiot or is John an idiot?

- Rhetorical reading – striking similarity to rhetorical “or what” Qs.
- Proposal – they have effectively the same analysis.
- Detour: what is the analysis of redundant Alt Qs?

Redundant alternative questions cont'd

More general instances of redundant :

(68) Is he crazy or is he out of his mind?

(69) Is he crazy, is he out of his mind or what?

(70) Is he crazy, is he practicing to be part of a circus or what?

Rhetorical questions in general

What are rhetorical questions?

- Starting point: Caponigro and Sprouse 2007: “a question is interpreted as a rhetorical question when its answer is known to the Speaker and the Addressee”
- Cf. Guerzoni 2003: a question is biased(/rhetorical) when its presuppositions exclude one or more answers relative to the context.
- (See also Han 2000; Reese 2007 for other recent accounts.)

Rhetorical questions in general

What are rhetorical questions?

- Starting point: Caponigro and Sprouse 2007: “a question is interpreted as a rhetorical question when its answer is known to the Speaker and the Addressee”
- Cf. Guerzoni 2003: a question is biased(/rhetorical) when its presuppositions exclude one or more answers relative to the context.
- (See also Han 2000; Reese 2007 for other recent accounts.)

The pragmatic account of rhetorical questions

- (71) **Rhetorical questions** (Caponigro and Sprouse 2007 ex. 26)
A RQ is an interrogative clause whose answer is known to the Speaker and the Addressee, and they both also know that the other knows the answer as well. An answer is not required, but possible. Either the Speaker or the Addressee can answer.

Redundant Alt Qs

What do redundant ALTQs look like in an independently motivated analysis of ALTQs?

- Will use Biezma and Rawlins 2012, though result is similar in any adequate analysis of ALTQs.

Ingredients (reminder):

- 1 ALTQs involve Hamblin-style disjunction (Rawlins, 2008).
- 2 $[Q \alpha]_{H^*L-L\%}$ intonation contributes “list closure” (Zimmermann, 2000; Biezma, 2009).
- 3 QUD must exhaust local context set (Groenendijk, 1999; Isaacs and Rawlins, 2008).

Redundant ALTQs

Details:

$$(72) \quad \llbracket \text{Is J. and idiot or is he an idiot?} \rrbracket_{H^*L-L\%}^{w,c} = \\ \{ \lambda w' . \text{J. is an idiot in } w', \lambda w' . \text{J. is an idiot in } w' \} \\ = \{ \lambda w' . \text{J. is an idiot in } w' \}$$

Singleton alternative set!

- Contribution of $H^*L-L\%$:
defined only if $\text{QUD}_c = \{ \lambda w' . \text{J. is an idiot in } w' \}$

$$(73) \quad \text{Exhaustivity constraint on the QUD: } \forall w \in cs_c : \\ \exists p \in \text{QUD}_c : p(w) = 1$$

Redundant ALTQs

Details:

$$(72) \quad \llbracket \text{Is J. and idiot or is he an idiot?} \llbracket_{H^*L-L\%} \rrbracket^{w,c} = \\ \{ \lambda w'. \text{J. is an idiot in } w', \lambda w'. \text{J. is an idiot in } w' \} \\ = \{ \lambda w'. \text{J. is an idiot in } w' \}$$

Singleton alternative set!

- Contribution of $\llbracket_{H^*L-L\%}$:
defined only if $\text{QUD}_c = \{ \lambda w'. \text{J. is an idiot in } w' \}$

$$(73) \quad \text{Exhaustivity constraint on the QUD: } \forall w \in cs_c : \\ \exists p \in \text{QUD}_c : p(w) = 1$$

Redundant ALTQs

Details:

$$(72) \quad \llbracket \text{Is J. and idiot or is he an idiot?} \llbracket_{H^*L-L\%} \rrbracket^{w,c} = \\ \{ \lambda w'. \text{J. is an idiot in } w', \lambda w'. \text{J. is an idiot in } w' \} \\ = \{ \lambda w'. \text{J. is an idiot in } w' \}$$

Singleton alternative set!

- Contribution of $\llbracket_{H^*L-L\%}$:
defined only if $\text{QUD}_c = \{ \lambda w'. \text{J. is an idiot in } w' \}$

$$(73) \quad \text{Exhaustivity constraint on the QUD: } \forall w \in cs_c : \\ \exists p \in \text{QUD}_c : p(w) = 1$$

Anti-singleton constraint?

Why would anti-singleton constraint not become invoked here?

- Idea: speaker signals rhetoricality via form of question?
- I.e. anti-singleton constraint is not a hard constraint, but rather a heuristic employed when hearer thinks speaker has intended an information-seeking constraint.
- Defeasible via inference – plausibly rhetorical.

Redundant ALTQs: result

Summary

Redundant ALTQs ask a (trivial / non-inquisitive) question and require that the input context entails the content proposition.

Presupposed d-tree:

(74) d-tree: i (Big Question: What is J. like)

j (Is J. an idiot?)

1 Is. J. an idiot or is he an idiot?

Redundant ALTQs: result

Summary

Redundant ALTQs ask a (trivial / non-inquisitive) question and require that the input context entails the content proposition.

Presupposed d-tree:

(74) d-tree: i (Big Question: What is J. like)

|
 j (Is J. an idiot?)

|
 1 Is. J. an idiot or is he an idiot?

Back to “or what”

How to apply this analysis to “or what” rhetorical Qs?

Back to “or what”

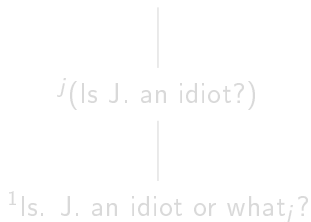
Assumption: the implicit nodes in the previous d-tree can be generated.

Prediction

Anaphoric “what” can be anteceded by intermediate node!

(75) Is J. an idiot or what?

(76) d-tree for (75): i (Big Question: What is J. like?)



Back to “or what”

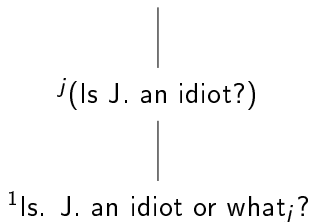
Assumption: the implicit nodes in the previous d-tree can be generated.

Prediction

Anaphoric “what” can be anteceded by intermediate node!

(75) Is J. an idiot or what?

(76) d-tree for (75): i (Big Question: What is J. like?)



Rhetorical “or what”

(77) i (Big Question: What is J. like?)

|
 j (Is J. an idiot?)

|
 1 Is. J. an idiot or what $_j$?

(78) $\llbracket ^1$ Is. J. an idiot or what $_j$? $_{H^*L-L\%}$ $\rrbracket =$
 $\{\lambda w . J. \text{ is an idiot in } w\}$

defined only if:

- 1 $\{\lambda w . J. \text{ is an idiot in } w\}$ is the entire QUD.
- 2 Every world in the context set makes $\lambda w . J. \text{ is an idiot in } w$ true.

Rhetorical “or what”

(77) i (Big Question: What is J. like?)

|
 j (Is J. an idiot?)

|
 1 Is. J. an idiot or what $_j$?

(78) $\llbracket ^1$ Is. J. an idiot or what $_j$? $_{H^*L-L\%}$ $\rrbracket =$
 $\{\lambda w . J. \text{ is an idiot in } w\}$

defined only if:

- 1 $\{\lambda w . J. \text{ is an idiot in } w\}$ is the entire QUD.
- 2 Every world in the context set makes $\lambda w . J. \text{ is an idiot in } w$ true.

Rhetorical “or what”

(77) i (Big Question: What is J. like?)

j (Is J. an idiot?)

1 Is. J. an idiot or what $_j$?

(78) $\llbracket ^1$ Is. J. an idiot or what $_j$? $_{H^*L-L\%}$ $\rrbracket =$
 $\{\lambda w . J. \text{ is an idiot in } w\}$

defined only if:

- 1 $\{\lambda w . J. \text{ is an idiot in } w\}$ is the entire QUD.
- 2 Every world in the context set makes $\lambda w . J. \text{ is an idiot in } w$ true.

Summary table

	POLQ	ALTQ	ALTQVN	OWQ
Strictly QUD-aligned?	y	y	y	y
Exhaustive list as part of semantics?	n	y	y	y
Fully specified list?	n	y	y ¹	n
Excludes infimum-type answers to QUD?	n	y ²	y	n
Necessarily binary?	n	n	y	n

- Note: red box is most radical part of account, but crucial for distinguishing POLQs and OWQs!

Conclusions

Interpreting “or what” questions

“Or what” questions are another means of revealing alternatives in a salient QUD.

- Like POLQs in that they reveal alternatives incompletely (except rhetorical case).
- Like ALQs in that they are semantically an exhaustive alternative set. (And, have the structure of an ALQ.)
Response strategies for alternative, not polar type.

Thought question: how can we satisfy the demands of an adequate formal pragmatics for revelation questions, with their interpretation in embedded contexts? (Especially POLQs.)

Modeling questions in discourse

Some larger-picture conclusions:

- ① The classical approach to POLQ/ALTQ/etc questions does not easily generalize outside of strict question-answer contexts.
- ② QUD-based approaches allow explanation of “or what” questions’ varied behavior, and question-question sequences more generally.
- ③ Generative approaches to discourse allow us to build a predictive theory.
- ④ Much of discourse structure is covert and inferred only.

Acknowledgements

For discussion of various stages of this work, we(distributive+collective) are grateful to:

- Luis Alonso-Ovalle, Pete Alrenga, Scott AnderBois, Jan Anderssen, Ana Arregui, Chris Barker, Rajesh Bhatt, Daniel Buring, Greg Carlson, Sandy Chung, Cleo Condoravdi, Donka Farkas, Lyn Frazier, Hans-Martin Gärtner, Christine Gunlogson, James Isaacs, Ruth Kramer, Angelika Kratzer, Bill Ladusaw, Jim McCloskey, Paula Menéndez-Benito, Chris Potts, Kathryn Pruitt, Geoff Pullum, Floris Roelofsen, Rich Thomason, Michael Wagner, and Gigi Ying.
- Audiences at Ohio State University, SALT XIX, UCSC, SALT XX, JHU, Michigan, MIT, and University of Rochester. We also benefitted from discussion in Floris Roelofsen's spring 2010 semantics seminar taught at UMass Amherst.

IQUD, full definition

See Büring 2003 for background definitions we are assuming.

(79) Where M is a move:

- (i) $\text{IQUD}(M) = \text{IQUD}(M')$ (if there is an immediately dominating move M' that is not a constituent question)
- (ii) $\text{IQUD}(M) = \llbracket \mathbf{M}' \rrbracket^{c_{M'}}$ (if M' is a constituent question)
- (iii) $\text{IQUD}(M) = \emptyset$ (if there is no immediately dominating move)

Felicity requirement for (i): $\text{IQUD}(M')$ must be congruent with $\llbracket \mathbf{M}' \rrbracket^c$.

Embedded polar questions

- Classical analysis is a better fit for treatment of embedded questions!
- Challenge is not technical, but motivational (see next slide).
- Three types of evidence:
 - Embedded questions under dubitatives (Karttunen/Huddleston).
 - Unconditional(/conditional) adjuncts with question marking (Gawron, Rawlins).
 - Embedded polar-ish “if”-clauses (Eckardt).
- Alternative approach: multidimensionally keep both denotations around (Rawlins, 2008; Pruitt and Roelofsen, 2010).

Embedded polar questions

(80) **Anti-singleton constraint schema** For any

Q-embedding verb V :

$\llbracket [V \text{ }_{[q]} \alpha] \rrbracket$ is defined only if $|\llbracket [q] \alpha \rrbracket| > 1$

(81) **Anti-singleton coercion**

If $|\llbracket \alpha \rrbracket| = 1$, where α is of type $\langle st \rangle$ and denotes $\{A\}$, then α can be coerced (as a last resort) into the denotation $\{\lambda w . A(w), \lambda w . \neg A(w)\}$

Bibliography I

- Aloni, Maria, Paul Égré, and Tikitou de Jager. to appear. Knowing whether A or B. *Synthese* .
- Alonso-Ovalle, Luis. 2005. Distributing the disjuncts over the modal space. In *Proceedings of the North East Linguistics Society 35*, ed. Leah Bateman and Cherlon Ussery. University of Massachusetts, Amherst: GLSA.
- Artstein, Ron. 2002. A focus semantics for echo questions. In *Workshop on Information Structure in Context*, ed. Agnes Bende-Farkas and Arndt Riester, 98–107.
- Baker, Carl Lee. 1968. Indirect questions in English. Ph.D. dissertation, University of Illinois.
- Bartels, Christine. 1999. *The intonation of English statements and questions*. Garland Publishing.
- Beaver, David, and Brady Clark. 2008. *Sense and sensitivity: How focus determines meaning*. Wiley-Blackwell.

Bibliography II

- Beck, Sigrid, and Shin-Sook Kim. 2006. Intervention effects in alternative questions. *Journal of Comparative Germanic Linguistics* 9:165–208.
- Biezma, Maria. 2009. Alternative vs. polar questions: the cornering effect. In *Proceedings of SALT 19*.
- Biezma, Maria, and Kyle Rawlins. 2010. Responding to polar and alternative questions. Manuscript, UMass Amherst and Johns Hopkins University.
- Biezma, Maria, and Kyle Rawlins. 2012. Responding to alternative and polar questions. In submission, *Linguistics and Philosophy*.
- Bolinger, Dwight. 1978. Yes-no questions are not alternative questions. In *Questions*, ed. Henry Hiz, 87–105. D. Reidel Publishing Company.
- Büring, Daniel. 2003. On D-trees, beans, and B-accent. *Linguistics and Philosophy* 26:511–545.
- Caponigro, Ivano, and Jon Sprouse. 2007. Rhetorical questions as questions. In *Proceedings of Sinn und Bedeutung 11*, ed. Estela Puig-Waldmueller, 121–133.

Bibliography III

- Farkas, Donka, and Kim Bruce. 2010. On reacting to assertions and polar questions. *Journal of Semantics* 27:81–118.
- Ginzburg, Jonathan. 1998. Clarifying utterances. In *Proceedings of the 2nd workshop on the formal semantics and pragmatics of dialogue*. Twente.
- Ginzburg, Jonathan. to appear. *The interactive stance: meaning for conversation*. CSLI.
- Groenendijk, Jeroen. 1999. The logic of interrogation. In *Proceedings of SALT IX*, ed. T. Matthews and D. L. Strolovitch. Ithaca, NY: CLC Publications.
- Groenendijk, Jeroen, and Floris Roelofsen. 2009. Inquisitive semantics and pragmatics. Paper presented at Stanford workshop on Language, Communication, and Rational Agency.
- Groenendijk, Jeroen, and Martin Stokhof. 1984. Studies in the semantics of questions and the pragmatics of answers. PhD dissertation, University of Amsterdam.

Bibliography IV

- Groenendijk, Jeroen, and Martin Stokhof. 1997. Questions. In *Handbook of logic and language*, ed. J. van Benthem and A. ter Meulen, 1055–1124. Elsevier/MIT Press.
- Guerzoni, Elena. 2003. Why *Even* ask? Ph.D. dissertation, Massachusetts Institute of Technology.
- Gunlogson, Christine. 2001. True to form: Rising and falling declaratives as questions in english. Ph.D. dissertation, UC Santa Cruz.
- Hamblin, C. L. 1958. Questions. *Australasian Journal of Philosophy* 36:159–168.
- Hamblin, C. L. 1973. Questions in montague english. *Foundations of Language* 10:41–53.
- Han, Chung-hye. 2000. *The structure and interpretation of imperatives*. Garland Publishing.
- Higginbotham, James. 1991. Either/or. In *Proceedings of NELS 21*, 143–155.
- Isaacs, James, and Kyle Rawlins. 2008. Conditional questions. *Journal of Semantics* 25:269–319.

Bibliography V

- Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1:3–44.
- Karttunen, Lauri, and Stanley Peters. 1976. What indirect questions conventionally implicate. In *CLS 12*.
- Kramer, Ruth, and Kyle Rawlins. 2009. Polarity particles: an ellipsis account. In *Proceedings of NELS 39*.
- Pruitt, Kathryn. 2008. Mapping prosody to interpretation in alternative questions. Paper presented at CUNY conference on human sentence processing.
- Pruitt, Kathryn, and Floris Roelofsen. 2010. Disjunctive questions: prosody, syntax and semantics. manuscript, UMass Amherst. May 3, 2010.
- Rawlins, Kyle. 2008. (Un)conditionals: an investigation in the syntax and semantics of conditional structures. Ph.D. dissertation, UC Santa Cruz.
- Rawlins, Kyle. 2010a. Conversational backoff. In *Proceedings of SALT XX*. Cornell University Press.
- Rawlins, Kyle. 2010b. What if? Talk at WCCFL 28.

Bibliography VI

- Reese, Brian. 2007. Bias in questions. Ph.D. dissertation, UT Austin.
- Roberts, Craige. 1996. Information structure in discourse: Towards an integrated formal theory of pragmatics. In *OSUWPL volume 49: Papers in semantics*. The Ohio State University Department of Linguistics.
- Roelofsen, Floris. 2012. Algebraic inquisitive semantics. Manuscript, University of Amsterdam.
- Roelofsen, Floris, and Sam van Gool. 2009. Disjunctive questions, intonation, and highlighting. In *Amsterdam Colloquium 10*.
- van Rooy, Robert, and Marie Safarova. 2003. On polar questions. In *Proceedings of SALT XIII*. CLC Publications.
- Simons, Mandy. 2005. Dividing things up: The semantics of *or* and the modal/*or* interaction. *Natural Language Semantics* 13:271–316.
- von Stechow, Arnim. 1991. Focusing and backgrounding operators. In *Discourse particles*, ed. W. Abraham. John Benjamins.
- Zimmermann, Thomas Ede. 2000. Free choice disjunction and epistemic possibility. *Natural Language Semantics* 8:255–290.