Prominence in Polarity Questions and their Answers

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The standard theory of polarity questions

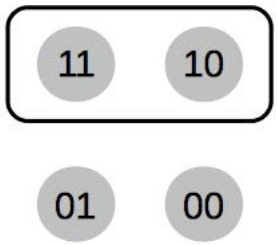
Standard semantic theories of questions assign them a set of propositions (e.g., Groenendijk & Stokhof 1984, von Stechow 1989).

▸ *Ed came.*	λi[came(i)(Ed)],	set of worlds i in which Ed came
▸ *Did Ed come?*	{λi[came(i)(Ed)], λi¬[came(i)(Ed)]}	{set of worlds in which Ed came, set of worlds in which Ed didn't come}
▸ *Who came?*	{λi[came(i)(Ed)], λi[came(i)(Ann)], λi[came(i)(Sue)]}	{set of worlds in which Ed came, set of worlds in which Ann came, set of worlds in which Sue came}

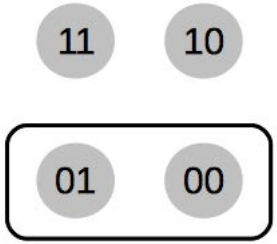
(exhaustive sets in Groenendijk & Stokhof)

Questions in inquisitive semantics (Ciardelli, Groenendijk, Roelofsen 2013):

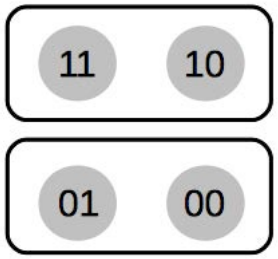
- Assume Ed came in (11), (10), Ann came in (11), (01), no-one came in (00)



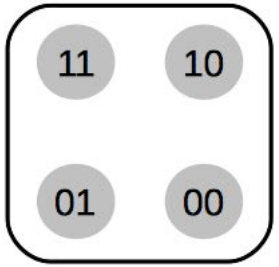
Ed came.



Ed didn't come.



Did Ed come?



Ed came or Ed didn't come.

Problems with the standard view

Biased polarity questions:

- Declarative questions (Gunlogson 2002): *Ed came?*
- Chinese *ma* questions: *Zhangsan lai-le ma?*
  in contrast to A-bu-A-questions: *Zhangsan lai bu lai le?*

Questions with propositional negation

- *Did Ed not come?* – same denotation as *Did Ed come?*

Questions with incredulity contour

- *Did ED win the race??*

Difference to alternative polarity question:

- *Did Ed come, or not?* – same denotation as *Did Ed come?*

Proposed solution in Inquisitive Semantics:

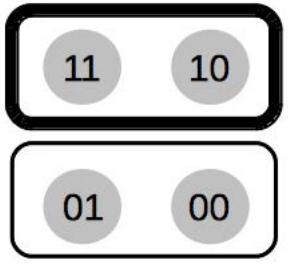
- Highlighting (Prominence)
  (cf. Farkas & Roelofsen 2015).

Problem:

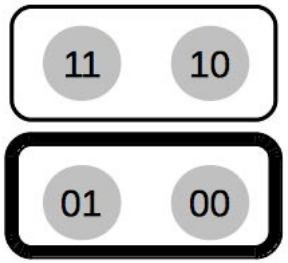
- Highlighting is an extraneous, artificial device.

Question:

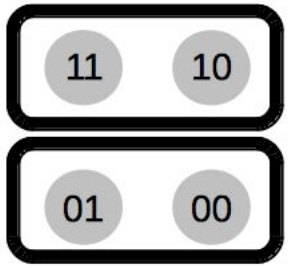
- How can we deal with
  proposition prominence in questions?



Ed came?



Did Ed not come?



Did Ed come,
or did he not come?

A framework for speech acts

A framework for speech acts (Cohen & Krifka 2014)

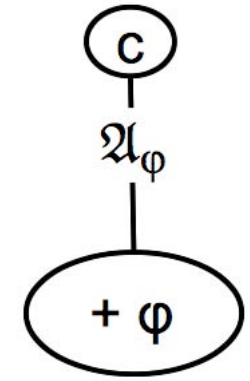
- there: *at least / at most* as speech act modifiers
- here: assertions and questions

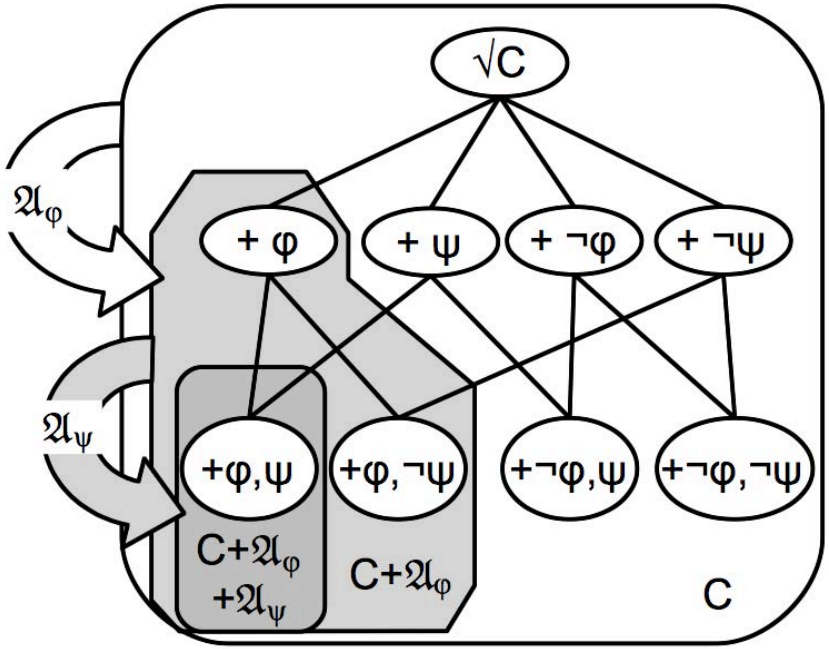
Commitment States c:

- Sets of propositions
  that are shared in communication
- Cf. notion of common ground
- Consistent, in particular:
  If $\varphi \in c$, then $\neg\varphi \notin c$
- Update with speech act $\mathfrak{A}_\varphi$:
  $c + \mathfrak{A}_\varphi = c \cup \varphi$

Commitment Spaces C:

- Sets of commitment states
  that have a **root** $\sqrt{C} = \cap C$
  such that $\sqrt{C} \in C$, $\sqrt{C} \neq \varnothing$
- Update of a commitment space C with $\mathfrak{A}$
  $C + \mathfrak{A} = \{c \in C \mid \sqrt{C} + \mathfrak{A} \subseteq c\}$





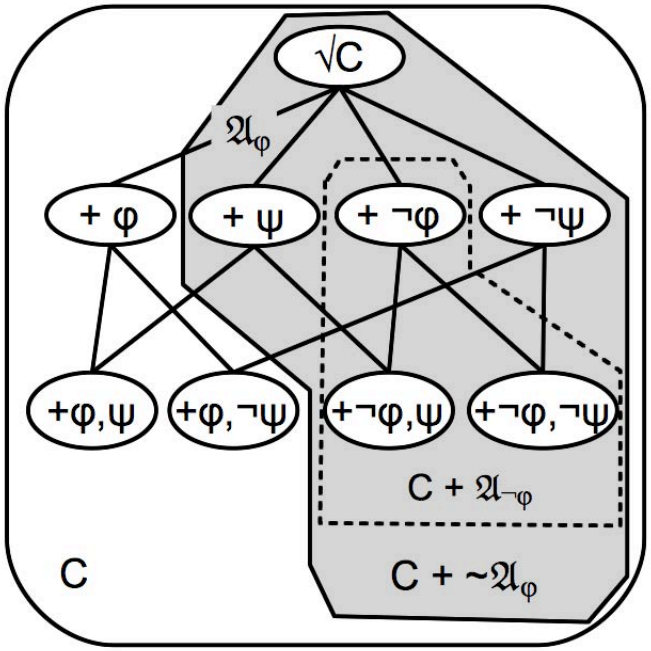
A framework for speech acts

Speech act denegation
(Searle 1969, Hare 1970)

- *I don't promise to come.*
- C + ¬𝔄 = C – [C + 𝔄]
- Different from C + $A_{\neg\varphi}$

Meta speech acts (Cohen & Krifka 2014)

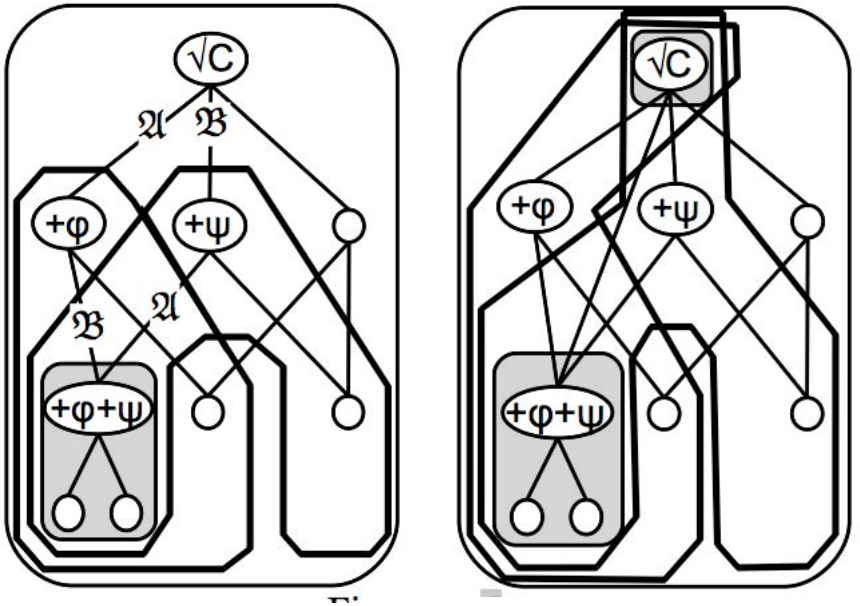
- Does not change the root
- Concerns only the projected developments (common ground management)



A framework for speech acts

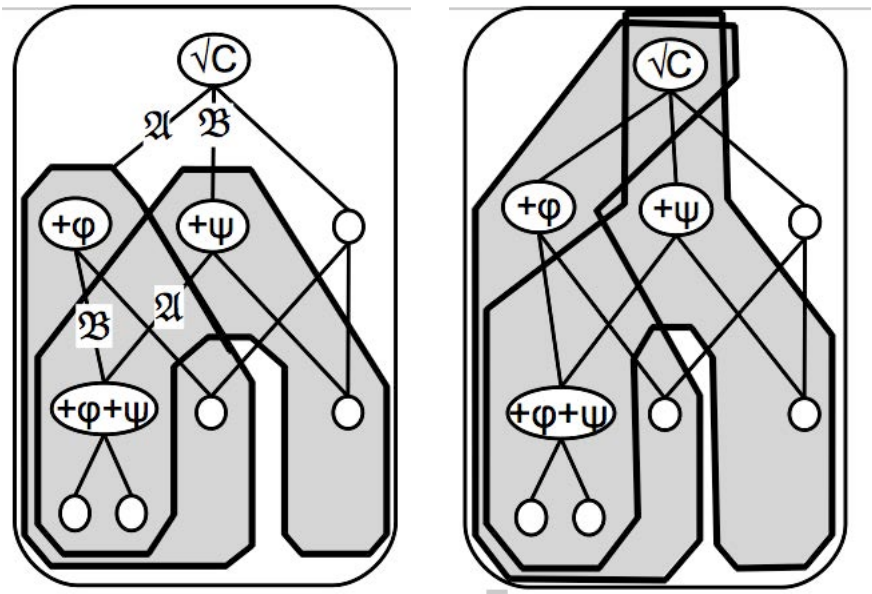
Speech act conjunction
(Krifka 2001, Cohen & Krifka 2014)

- C + [𝔄 & 𝔅] = [C + 𝔄] ∩ [C + 𝔅]
  ≈ C + 𝔄 + 𝔅, ≈ C + 𝔅 + 𝔄
- Proper Commitment Space
  for basic speech acts
  and for meta speech acts



Speech act disjunction:
(Cohen & Krifka 2014):

- C + [𝔄 V 𝔅] = [C + 𝔄] ∪ [C + 𝔅]
- Proper Commitment Space
  only for meta speech acts.



Assertions

Assertions as making addressee believe (Bach and Harnish 1979).

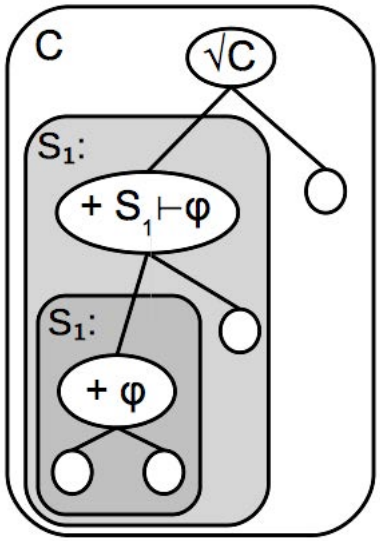
- Problem: *Believe it or not, I won the race.*

Assertion as commitment to one's belief (Lauer 2013)

- Problem: *I won the race*. ≠ *I believe I won the race.*

Assertion as commitment to a proposition,
if proposition turns out false: social sanctions (Brandom 1983).

- S_1 publicly committed to φ: $S_1 \vdash \varphi$,
  this is added to commitment state
- By public commitment, φ becomes part
  of commitment state
- This latter move is a conversational implicature.
- Formally (where $+_{S_1}$ signals move by S_1):
  $C +_{S_1} S_1 \vdash \varphi +_{S_1} \varphi$
- Syntactic realization by Act Phrase and Commitment Phrase
  $[_{ActP} [[_{Act^o} .] [_{ComP} [[_{Com^o} \vdash] [_{TP}$ *I won the race*$]]]]$
- ComP specifiers:
  $[_{ActP} [$ *I* $[_{Act^o} .] [_{ComP}$ *honestly* $[[_{Com^o} \vdash] [_{TP} t_I$ *won the race*$]]]]$



Reactions to Assertion

Acknowledgement:

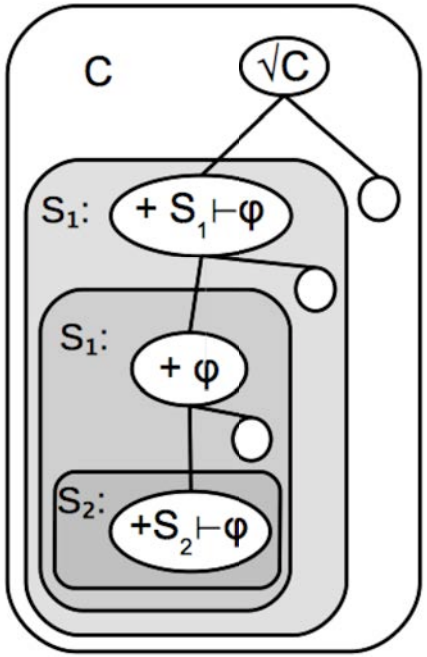
- S_1: *I won the race.*
  S_2: *Aha. / Okay. / Mmh.*
- S_2 does not become responsible for φ.

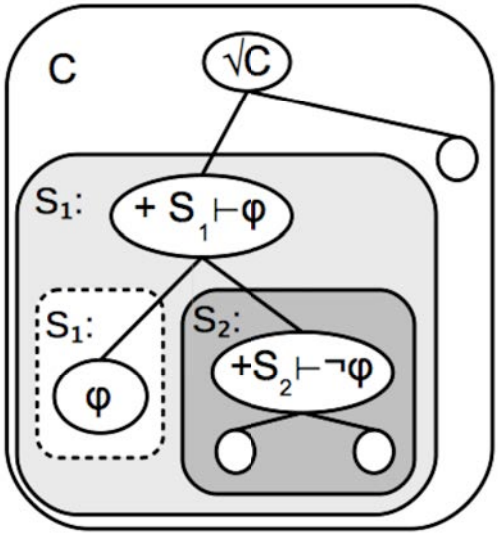
Agreement:

- S_1: *I won the race.*
  S_2: *Yes* (*you did*).
- S_2 becomes responsible for φ.
- Krifka 2013:
  TP introduces proposition φ as antecedent,
  yes picks φ up and asserts it.

Disagreement:

- S_1: *I won the race.*
  S_2: *No* (*you didn't*).
- *no* picks φ up and asserts its negation, ¬φ
- To keep consistency, last move by S_1
  (the conversational implicature φ)
  has to be rejected first.

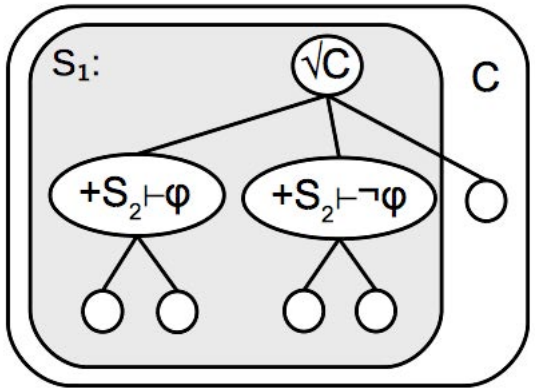




Questions: Bipolar questions

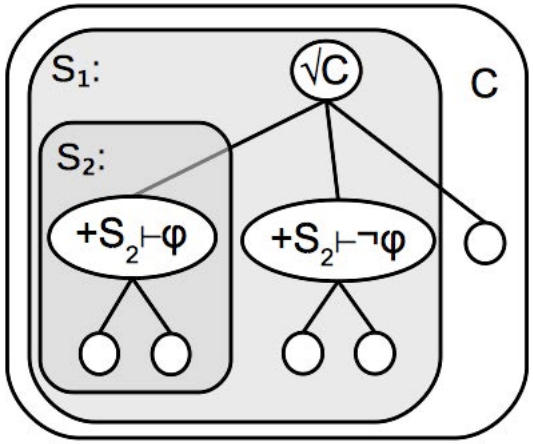
Questions as meta speech acts that elicit assertions by the addressee:

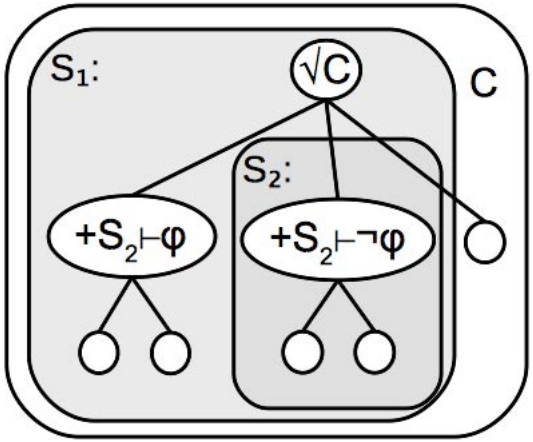
- C + S_1, to S_2: *Did I win the race?*
- Classical analysis as **bipolar** question by (meta) speech act disjunction:
  $\{\surd C\} \cup [C +_{S_1} S_2 \vdash \varphi] \cup [C +_{S_1} S_2 \vdash \varphi]$



Answer to bipolar question:

- Answer *yes*:
  Refer to TP proposition φ,
  S_2 asserts φ
- Answer *no*:
  Refer to TP proposition φ,
  S_1 asserts ¬φ
- No rejection required.

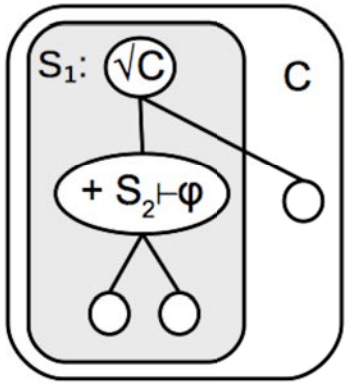




Questions: Monopolar questions

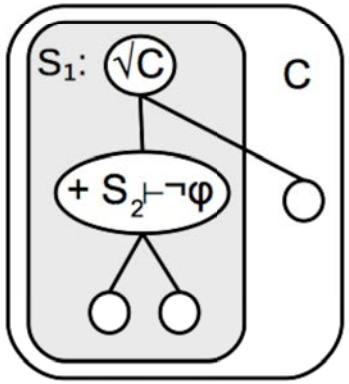
The present framework naturally allows for modeling questions that elicit just one assertion by the addressee.

- C + S_1, to S_1: *I won the race?*
- $\{\surd C\} \cup C +_{S_1} S_2 \vdash \varphi$



Asking for the negated proposition, regular question:

- C + S_1, to S_1: *I didn't win the race?*
  C + S_1, to S_1: *Did I not win the race?*
- $\{\surd C\} \cup C +_{S_1} S_2 \vdash \neg\varphi$



Proposal for declarative questions:

- Assertive syntax, but question prosody,
  S_1 elicits an assertion by S_2

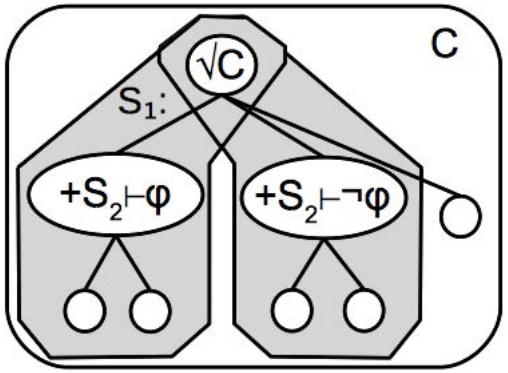
Proposal for regular questions:

- Question act phrase, Commitment Phrase:
- $[_{ActP}\ [[_{Act^o}$?-*Did* $]\ [_{ComP}$ *I* $[[_{Com^o} \vdash]$ (*not*) $[_{TP}\ t_I\ t_{did}$ *win the race*$]]]$

Formation of bipolar questions from monopolar ones

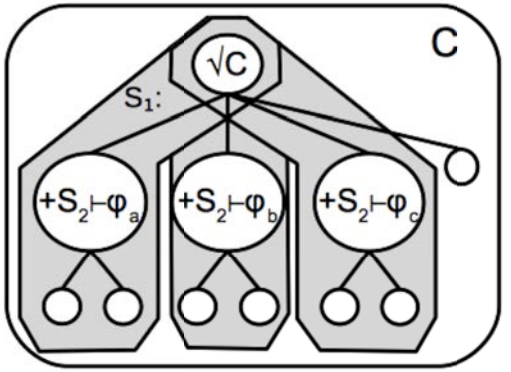
Bipolar question as disjunction of two monopolar questions

- Cf. Chinese shi-bu-shi questions
- In English: Verum operator associated with *DO*:
  I DID win the race.
  Of the two propositions φ, ¬φ, the proposition φ is true.
- Verum operator has Falsum operator as alternative, question implies disjunction over alternative set.
- $C +_{S_1} S_1$, to S_2:
  $[_{ActP} [[_{Acr^o} ?\ did_{VERUM,\ FALSUM}] [_{ComP}\ I\ \ [[_{Com^oÞ} \vdash\ ] [_{TP}\ t_I\ t_{did}\ win\ the\ race]]]]$
- $[\{\surd C\} \cup C +_{S_1} [S_2 \vdash \varphi]] \cup [\{\surd C\} \cup C +_{S_1} [S_2 \vdash \neg\varphi]]$



Disjunction of monopolar questions
also for forming constituent questions

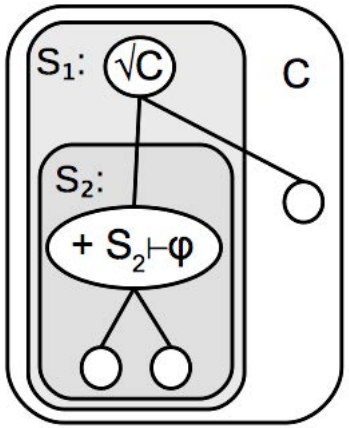
- $C +_{S_1} S_1$, to S_2:
  $[_{ActP}\ who\ [[_{Acr^o} ?\ did] [_{ComP}\ Ed\ \ [[_{Com^oÞ} \vdash\ ] [_{TP}\ t_{Ws}\ t_{did}\ meet]]]]$
- With *Ed met Ann / Beth / Carla* (a, b, c) as possible answers:
  $\bigvee_{x \in \{a,b,c\}} \{\surd C\} \cup C +_{S_1} S_2 \vdash$ 'Ed met x'



Answers to monopolar questions

Monopolar questions are biased to an answer:

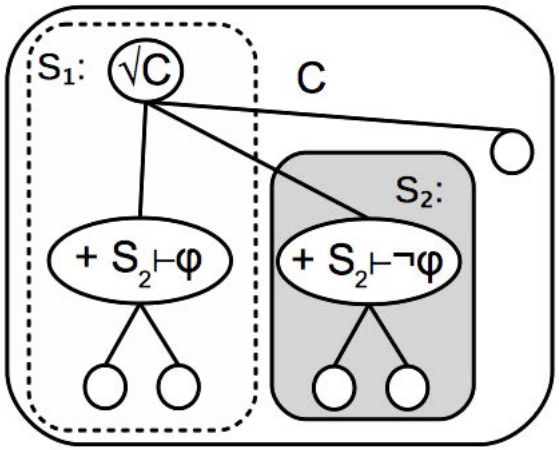
- *I won the race?*
- *Did I not win the race?*
- *Did I win the race?*



The preferred answer is straightforward:

- S_1 to S_2: *I won the race?*
  S_2: *Yes, you did.*

The non-preferred answer requires a rejection of the suggested move.



- S_1 to S_2: *I won the race?*
  S_2: *No, you didn't.*
- Not a potential conflict as after assertion, just a rejection of common ground management.

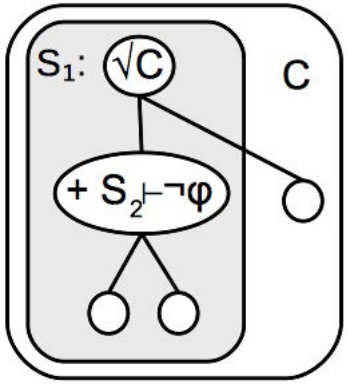
Difference between regular bipolar question and explicit monopolar disjunctive question:

- *DID I win the race?*
  Only one TP φ introduced, answer *yes/no* straightforward.
- *Did I win the race, or didn't I*?
  Two TPs introduced, φ and ¬φ, answers *yes/no* ambiguous.

High negation in questions

Propositional negation, see above:

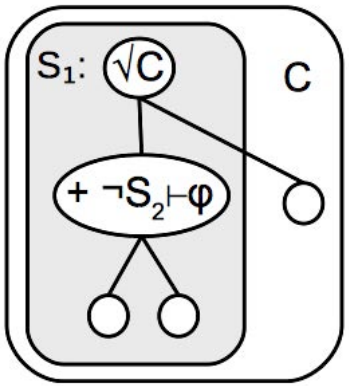
- *Did I not win the race?*
- $[_{AcrP}\ [[_{Act^o}\ ?\ \textit{Did}]\ [_{ComP}\ \textit{I}\ [[_{Com^o}\ \vdash]\ [_{TP}\ \textit{not}\ [_{TP}\ t_I\ t_{did}\ \textit{win the race}]]]]]$
- $\{\surd C\} \cup C +_{S_1} S_2 \vdash \neg\varphi$



High negation in questions
(Ladd 1982, Büring & Gunlogson 2000,
Han & Romero 2004, Romero 2006, Repp 2012, ...)

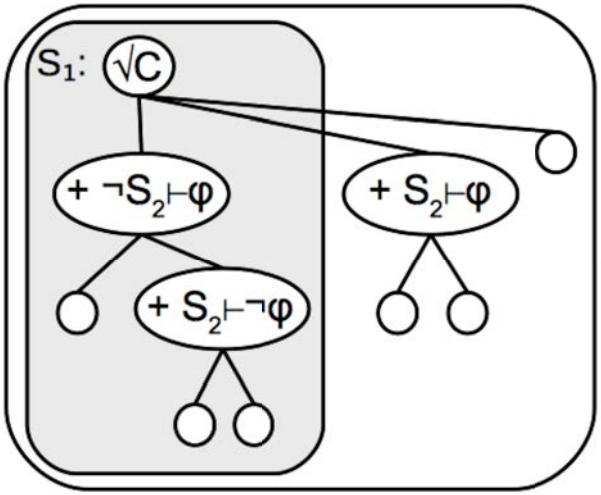
- *Didn't I win the race?*
- Negation of Commitment Phrase.

  $[_{AcrP}\ [[_{Act^o}\ ?\ \textit{Did}]\ [_{ComP}\ \textit{n't}\ [_{ComP}\ \textit{I}\ [[_{Com^o}\ \vdash]\ [_{TP}\ t_I\ t_{did}\ \textit{win the race}]]]]]$
- $\{\surd C\} \cup C +_{S_1} \neg S_2 \vdash \varphi$
  S_1 checks whether S_2 refrains
  from getting committed to φ
- This is a more general request
  than narrow-scope negation.



In addition, lower reading, prop. negation:

- $[_{ActP}\ [[?\ \textit{Did}]\ [_{ComP}\ [[\vdash]\ [_{NegP}\ [[\textit{n't}]\ [_{TP}\ \textit{I}\ t_{did}\ \textit{win the race}]]]]]$



Use of high negation question

Adopted from Büring & Gunlogson 2000:

- a. S_1 looks at the yellow pages of a small town, finds a restaurant “V-Day”
  b. S_1 has no information but considers eating in a vegetarian restaurant.
  c. S_1 looks at the yellow pages of a small town, only finds restaurants like “Meateaters delight”, “The Big T-Bone”, etc.
- i. S_1: a, b, c: *Is there a vegetarian restaurant around here?*
  ii. S_1: #a, b, #c: *Is there no vegetarian restaurant around here?*
  iii. S_1: #a, b, c: *Isn’t there a vegetarian restaurant around here?*
- Contextual evidence:

	i. no negation	ii. low neg.	iii. high neg.
a. There is a veg. rest.	o.k. (monopol.)	#	#
b. Neutral	o.k. (bipolar)	#	o.k. (not sure wh. S_2 knows)
c. There is no veg. r.	(#)	o.k.	o.k. (double checking)

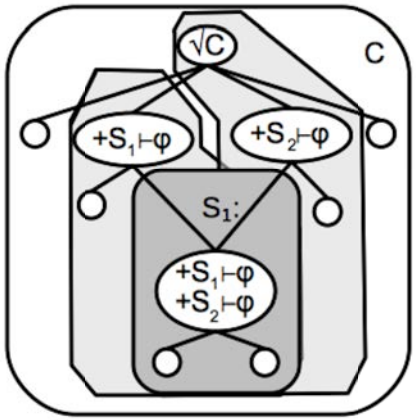
- Additional factor: prosody (incredulity contour)

Question tags

Two kinds of question tags (Cattell 1973):

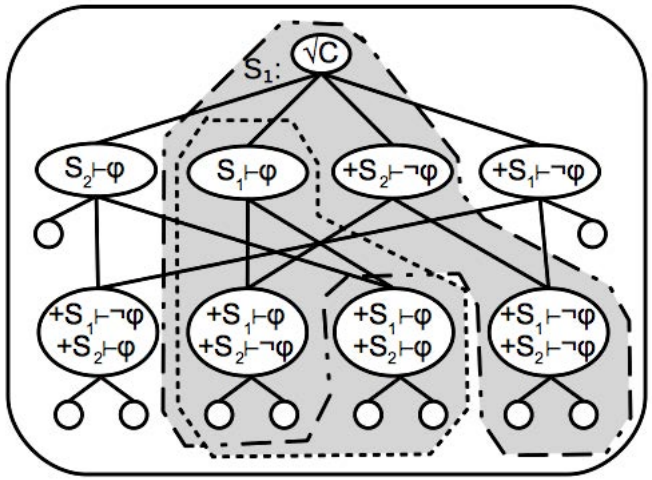
Matching tag questions

- The host clause is not put forward as the point of view of the speaker, but as one that is possibly that of the listener.
- *You are tired, are you?*
- Analysis by speech act **conjunction** of an assertion and a question.
- $[C +_{S_1} S_1 \vdash \varphi] \cap [\{\sqrt{C}\} \cup C +_{S_1} S_2 \vdash \varphi]$
- Effect: S_1 guarantees commitment to φ if S_2 commits to it.



Reverse tag questions:

- Speaker offers his own opinion, asks for agreement.
- *I have won the race, haven't I?*
  I haven't won the race, have I?
- Analysis by speech act **disjunction** of an assertion and a (low negation) question.
- $[C +_{S_1} S_1 \vdash \varphi] \cup [\{\sqrt{C}\} \cup C +_{S_1} S_2 \vdash \neg\varphi]$
- Effect: S_1 invites S_2 to commit to φ,
  Excludes that S_2 is committed to φ, but S_1 is not.



Response patterns with *yes* and *no:* Prominence of propositional discourse referents

Krifka 2013: *yes* and *no* as assertive anaphors.

- *yes* picks up propositional discourse referent introduced by TP and asserts it.
- *no* picks up propositional discourse referent and asserts its negation.

Example with non-negated antecedent:

- S_1: $[_{ActP}[[_{Act^o}\ .][_{ComP}[[_{Com^o}\vdash]\ [_{TP}$ *I won the race*$]]]]$ $\uparrow\varphi$ — S_2: *Yes.* ($S_2\vdash\varphi$) — S_2: *No.* ($S_2\vdash\neg\varphi$)

Example with negated antecedent:

- S_1: $[_{ActP}[[_{Act^o}\ .][_{ComP}\ I\ [[_{Com^o}\vdash$ *did*$]\ [_{TP}$ *not* $[_{TP}\ t_I\ t_{did}$ *win the race*$]]]]$ $\uparrow\varphi'$ $\uparrow\varphi$ — S_2: *Yes.* ($S_2\vdash\varphi$, $S_2\vdash\varphi'$) — S_2: *No.* ($S_2\vdash\neg\varphi$, $S_2\vdash\neg\varphi'$)

- If non-negated φ is more prominent (salient): *no* is used to agree ($S_2\vdash\neg\varphi$)
  If negated φ is more prominent: *yes* is used to agree ($S_2\vdash\varphi'$)
- Saliency might depend on context:

  S_2: *Which of the mountains of this list did Reinhold not climb?*
  I think he did not climb Mount Cotopaxí.
  S_2: *Yes. / No.* (both agreeing, *yes* preferred?)

Response patterns with *yes* and *no:* Questions

Example with questions, propositional negation:

- S_1: $[_{ActP}[[_{Act^o}$. *did*$][_{ComP}$ *I* $[[_{Com^o}\vdash]$ $[_{TP}$ *not* $[_{TP}$ t_I t_{did} *win the race*$]]]]$ S_2: *Yes.* S_2: *No.*
  $\uparrow\varphi'$ $\uparrow\varphi$ $S_2\vdash\varphi$ $S_2\vdash\neg\varphi$
  $S_2\vdash\varphi'$ $S_2\vdash\neg\varphi'$

No ambiguity of *yes/no* answers with lexical negation:

- E.g. *loose* = *not win*
  S_1: $[_{ActP}[[_{Act^o}$.$][_{ComP}[[_{Com^o}\vdash]$ $[_{TP}$ *I lost the race*$]]]]$ S_2: *Yes.* S_2: *No.*
  $\uparrow\varphi$ $S_2\vdash\varphi$ $S_2\vdash\neg\varphi$
- S_1: *Chocolate is healthy. / not healthy. / unhealthy.*
  S_2: *Yes. / No.*

No ambiguity of *yes/no* answers with high negation:

- S_1: $[_{AcrP}[[_{Act^o}$? *did*$]$ $[_{ComP}$ *not* $[_{ComP}$ *I* $[[_{Com^o}\vdash]$ $[_{TP}$ t_I t_{did} *win the race*$]]]]]$ S_2: *Yes.* S_2: *No.*
  $\uparrow\varphi$ $S_2\vdash\varphi$ $S_2\vdash\neg\varphi$
- We assume that only TPs introduce propositional discourse referents, Commitment Phrases do not.
- ActPs introduce event discourse referents:
  S_1: *Ed has cheated on the exam.*
  S_2: *That's not nice!* i. The event of cheating.
  ii. The event of S_1's telling.

Bias in embedded questions

Bolinger (1978), “Yes-no questions are not alternative questions”

- *John asked Sue if she would marry him.*
- *John asked Sue whether she would marry him.*

Interrogatives and declaratives under *doubt / zweifeln* (Fischer 2005)

- *Peter zweifelt, dass er das Rennen gewinnen wird.*
- *Peter zweifelt, ob er das Rennen gewinnen wird*.
- **Peter zweifelt, wer gewinnen wird.*
- *I doubt whether he will come.*
- *I doubt if he will come.*
- *I (don’t) doubt that he will come.*

Proposal:

- Embedded polarity questions have a monopolar reading as well.
- Assume that they are represented by a singleton set of a proposition, {φ}
- By exhaustivisation of this set: bipolar interpretation, {φ, ¬φ}
  (cf. Biezma & Rawlins 2012).

Wrapping up:

- Polarity questions often come with a bias,
  which can be interpreted as one answer being more prominent than the other.
- This cannot be dealt with by the usual analysis of such questions
  as involving a set of two equal propositions.
- This has been recognized, and dealt with by devices such as highlighting.
- Here, a theory has been proposed that does not need such devices;
  it assumes monopolar questions that ask for the assertion of one proposition.
- I have argued that standard English questions are basically monopolar,
  bipolarity results by the Verum operator introducing alternatives.
- I have discussed the bias of high negation questions.
- I have treated the bias resulting from question tags.
- I have discussed the use of *yes* and *no* as answer particles
  involving the introduction of propositional discourse referents
  by the antecedent clause,
  where prominence plays a role for negated antecedents.