

Negation and Focus in Polarity Questions¹

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1. Issues of this talk

- (1) Negation in polarity questions
 - a. *Is there a vegetarian restaurant around here?*
 - b. *Is there no vegetarian restaurant around here?* – why different from (a)?
 - c. *Isn't there a vegetarian restaurant around here?* – why different from (b)?
- (2) Focus in polarity questions
 - a. *Did John order soup?* – Yes. / No. / #No, Mary did. / No, he ordered salad.
 - b. *Did JOHN order soup?* – Yes. / #No. / No, MARY did. / #No, he ordered salad.

2. Negation in polarity questions

Ladd (1981), inner and outer negation in polarity questions.

- (3) Inner, propositional negation:
 - a. *Is there no vegetarian restaurant around here?*
 - b. *Isn't there a vegetarian restaurant around here (either)?*
 - c. *Isn't there any vegetarian restaurant around here?*
- (4) Outer, extra-propositional negation:
Isn't there a vegetarian restaurant around here (too)?
- (5) Differentiation in German: Combination Negation + indefinite article only in inner reading, no combination in outer reading:
 - a. *Gibt es hier k-ein vegetarisches Restaurant?*
 - b. *Gibt es hier nicht ein vegetarisches Restaurant?*

Previous accounts of the distinction between inner and outer negation: van Rooij & Šafařová (2003), Romero & Han (2004), Asher & Reese (2007), Repp (2012).

Romero & Han (2004): Negation interacts with verum operator, interpreted as FOR-SURE, where FOR-SURE(ϕ): The proposition ϕ is assumed for certain.

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- (6) a. *Is there a veg. restaurant around here?* $\{\phi, \neg\phi\}$
 b. *Isn't there a veg. restaurant around here?* $\{\text{FOR-SURE}(\phi), \neg\text{FOR-SURE}(\phi)\}$
 c. *Is there no veg. restaurant around here?* $\{\text{FOR-SURE}(\neg\phi), \neg\text{FOR-SURE}(\neg\phi)\}$

Designed to express bias towards ϕ in (6)(b): Speaker assumes ϕ but wants to be sure.

Problems:

- (7) *They say that there is a vegetarian restaurant around here.*
 a. *Is it for sure / Is it certain that there is one around here?*
 b. *#Isn't there a vegetarian restaurant around here?*
- (8) A: *Isn't there a vegetarian restaurant around here?*
 B: *I think so. / Probably.* – unexpected, similar to *#Probably for sure.*
 B: *Yes.* – does not express greater certainty than answer to (6)(a).

Here: Proposal that outer negation scopes over **speech act** of a requested assertion; Krifka (t.a.).

3. Basic framework for speech acts

Cf. Cohen & Krifka (2011).

- (9) **Common Ground / Commitment State c:**
 Set of commitments accrued in a conversation;
 commitments are propositions, here rendered in a formal language.
- (10) Example, assertive commitment:
 a. $S_1 \vdash \phi$: S_1 has assertive commitments w.r.t. the proposition ϕ
 b. $S_1[S_2] \vdash \phi$: S_1 has assertive commitments to S_2 w.r.t. the proposition ϕ
 We sometimes neglect the addressee variable.
- (11) Assertive commitments towards a proposition ϕ (cf. Alston 2000):
 Provide evidence for ϕ if asked so,
 face social consequences if ϕ turns out to be false.
- (12) Update of c with speech act A_{S_1, S_2} , where S_1 : Speaker, S_2 : Addressee:
 $c + A_{S_1, S_2} = c \cup \text{com}_c(A_{S_1, S_2})$,
 where $\text{com}_c(A_{S_1, S_2})$: The commitments originating from A at c .
- (13) For certain phenomena, commitment states are not sufficient,
 as a speech act might not only change the commitment state,
 but the possible continuation of commitment states;
 Example: denegation of speech acts: *I don't promise to come.*
- (14) C is a **Commitment Space (CS)** iff
 a. C is a set of commitment states;
 b. $\exists c \in C \forall c' \in C [c \neq \emptyset \wedge c \subseteq c']$
 We call the commitment state $\cap C$ the “root” of C , and write $\sqrt{C}$.

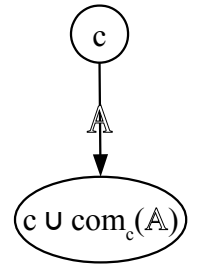


Figure 1:
Update of commitment
state c by speech act A

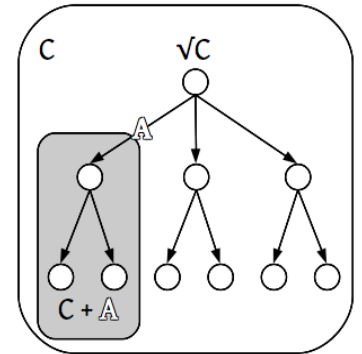
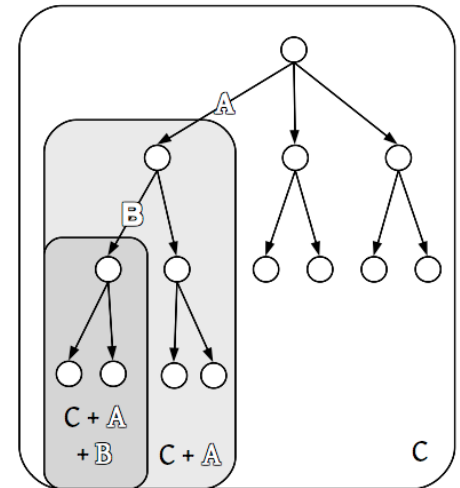
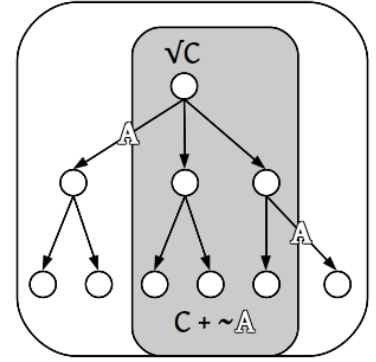


Figure 2: Update of commitment
space C with speech act A ;
 $\sqrt{C}$: root of C

- (15) Update of a commitment space with a speech act A,
defined for commitment states:
 $C + A = \{c \in C \mid \sqrt{C + A} \subseteq c\}$
- (16) Update of a commitment space with the denegation of A:
 $C + \sim A = C - \{c \in C \mid \exists c' \in C [c' + A \subseteq c]\}$,
 i.e. exclude from C all c for which the commitments of A hold.
- (17) Notice: Denegation does not change the root of the input CS,
but prunes the possible future developments;
it is a meta speech act (Cohen & Krifka 2011).
- (18) Update with denegation of A, lifted to commitment spaces:
 $C + \sim A = C - \cap \{C'' \subseteq C \mid \exists C' \subseteq C [C' + A = C'']\}$
- (19) **Commitment Space Developments CSD:**
 Sometimes a conversational move is rejected;
 captured by **stack** of commitment spaces,
 modeled by a sequence.
- (20) Update of a CSD with a speech act:
 $\{..., C\} + A = \{..., C, C+A\}$



4. Assertions and reactions to assertions

4.1 Assertions

- (21) Assertions have two purposes:
- Express commitments for a proposition by the speaker
 - Attempt to make the asserted proposition part of the common ground
- (22) These two purposes can be dissociated;
 in particular, (b) is not essential for assertions,
 against e.g. Bach & Harnish 1982:
Believe it or not, I didn't steal the cookie.
- (23) Adding of a proposition to a commitment state
 (similar, to commitment space):
 $c + \varphi = c \cup \{\varphi\}$
- (24) Interpretation of Assertion:
 $\{..., C\} + \text{ASSERT}_{S_1, S_2}(\varphi)$
 $= \{..., C + S_1[S_2] \vdash \varphi,$ adding assertive commitment
 $C + S_1[S_2] \vdash \varphi\}$ adding proposition itself

(25) A proposal for the syntactic and prosodic realization:

- a. $\vdash$ operator, introduction of $S_1[S_2]\vdash\varphi$ (derived from Rizzi 1997;
cf. also performative hypothesis of Ross 1970, Sadock 1974):

$$[\text{ForceP } \textit{John} [\text{Force}' [\text{Force0 } \vdash\text{-arrived}] [\text{TP } t_{\text{John}} [\text{T}' t_{\text{John}} [\text{T0 } t_{\text{arrive}}\text{-t}_{\text{ed}}] [\text{vP } t_{\text{John}} t_{\text{arrive}}]]]]]]]$$
- b. H^* : introduction of φ (cf. Pierrehumbert & Hirschberg 1980, Truckenbrodt 2012);
 $L\%$: assertion (cf. Bartels 1997)

$$([\text{ForceP } \textit{John} [\text{Force}' [\text{Force0 } \vdash\text{-arrived}] [\text{TP } t_{\text{John}} [\text{T}' [\text{T0 } t_{\text{arrive}}\text{-t}_{\text{ed}}] [\text{vP } t_{\text{John}} t_{\text{arrive}}]]]]]]])$$

$$(\quad \quad \quad (\quad H^* \quad \quad \quad) \quad L\%)$$

With $+\varphi$, S_1 proposes to make φ common ground (cf. “projected set” i in Bruce & Farkas 2011).

4.2 Reactions to assertions

(26) Answer *okay*, *mhm*, or no reaction:

S_2 accepts the proposed commitment space,
in particular: accepts φ as part of the common ground,
but does not express a public commitment for the proposition φ
 $\{ \dots, \quad C + S_1[S_2]\vdash\varphi, \quad \text{Assertion of } \varphi \text{ by } S_1$
 $\quad \quad \quad C + S_1[S_2]\vdash\varphi + \varphi \} \quad \text{proposal to make } \varphi \text{ common ground}$

(27) Answer *yes*: S_2 asserts the same proposition:

$\{ \dots, \quad C + S_1[S_2]\vdash\varphi, \quad \text{Assertion of } \varphi \text{ by } S_1$
 $\quad \quad \quad C + S_1[S_2]\vdash\varphi + \varphi, \quad \text{proposal to make } \varphi \text{ common ground}$
 $\quad \quad \quad C + S_1[S_2]\vdash\varphi + \varphi + S_2[S_1]\vdash\varphi \} \quad \text{agreeing assertion of } \varphi \text{ by } S_2$

where *yes* picks up a propositional discourse referent

introduced by the TP of the antecedent clause (Krifka i.prep.), here $[\text{TP } \textit{John arrived}]$.

(28) Answer *no*: S_2 negates the same proposition;

for consistency, this requires a previous rejection,
as a common ground c cannot contain both φ and $S_2\vdash\neg\varphi$:

$\{ \dots, \quad C + S_1[S_2]\vdash\varphi, \quad \text{Assertion of } \varphi \text{ by } S_1$
 $\quad \quad \quad C + S_1[S_2]\vdash\varphi + \varphi, \quad \text{proposal to make } \varphi \text{ common ground}$
 $\quad \quad \quad C + S_1[S_2]\vdash\varphi, \quad \text{REJECT}_{S_2}: \text{Return to last step}$
 $\quad \quad \quad C + S_1[S_2]\vdash\varphi + S_2[S_1]\vdash\neg\varphi \} \quad \text{opposing assertion of } \neg\varphi \text{ by } S_1$

The resulting common ground contains conflicting commitments, but is not contradictory.

(29) $\{ \dots, C, C + A_{S_1, S_2} \} + \text{REJECT}_{S_2} = \{ \dots, C, C + A_{S_1, S_2}, C \}$

Cf. Krifka (t.a. b) for a more detailed view involving
propositional discourse referents.

5. Polarity questions

(30) Question radicals vs. questions speech acts:

- a. *Mary knows* $[\text{CP } \textit{whether} [\text{TP } \textit{John arrived}]]$
b. *Did John arrive?*

- (31) Question radicals: A set of propositions (cf. Hamblin 1973)
 $[_{CP} \textit{whether} [_{TP} \textit{John arrived}]]$,
 interpreted as $\{\text{'John arrived'}, \neg\text{'John arrived'}\}, = \{\varphi, \neg\varphi\}$
- (32) Use in embedded questions (weak reading):
Mary knows whether John arrived.
 $\lambda i \forall p \in \Phi [p(i) \rightarrow \text{Mary knows in } i \text{ that } p]$
- (33) Syntax of polar question speech act, illocutionary operator: ?
 complementizer not realized
 $[_{\text{ForceP}} [_{\text{Force}'} ?\text{-did} [_{CP} \textit{whether} [_{TP} \textit{John t}_{\text{did}} \textit{arrive}]]]]]$
- (34) Interpretation as a meta speech act:
 $\langle \dots, C \rangle + S_1$, to S_2 : $[_{\text{ForceP}} ?\text{-did} [_{CP} \textit{whether} [_{TP} \textit{John arrive}]]]$
 $= \langle \dots, C, \{\sqrt{C}\} \cup \{C + S_2[S_1] \vdash p \mid p \in \{\varphi, \neg\varphi\}\} \rangle$
- (35) Congruent answer picks out one of the options:
 a. *Yes*: Picks up discourse referent for TP, $\varphi = \text{'John arrived'}$,
 S_2 asserts this discourse referent, φ .
 b. *No*: Picks up discourse referent for TP, $\varphi = \text{'John arrived'}$,
 S_2 asserts negation of this discourse referent, $\neg\varphi$
- (36) Incongruent answers, e.g. *I don't know*:
 Require first a REJECT operation,
 followed by assertion $S_2[S_1] \vdash \text{'S}_2 \text{ does not know whether } \varphi'$

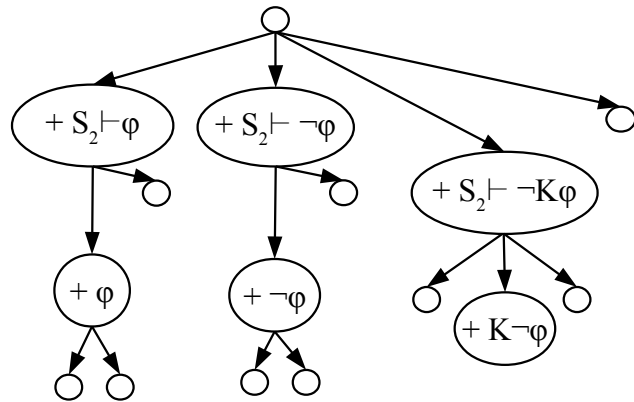


Figure 7: Answer REJECT + *I don't know*.

Evidence for this modeling of questions:

- (37) Interrogative flip with reportatives, evidentials (Speas & Tenny 2003, Faller 2006).
What has John reportedly done?
 Expected answer: *She (reportedly) called the boss an idiot.*

- (38) Interpretation of discourse particles (Zimmermann 2004, German *wohl*):
 a. *Es wird wohl regnen.* b. *Wird es wohl regnen?*
 ‘Presumably, it will rain.’ ‘Will it rain, presumably?’
- (39) Egophoricity (cf. Creissels 2008, conjunct/disjunct systems):
 (44) (Northern Ahkvahk, NE Caucasian, Creissels 2008)
 a. *de-de kaʒa qwar-ada* b. *me-de čūda kaʒa qwar-ada*
 1s-ERG paper write-EGO 2s-ERG when paper write-EGO
 ‘I wrote a letter’ ‘When did you write a letter?’
 c. *me-de kaʒa qwar-ari* d. *de-de čūda kaʒa qwar-ari*
 2s-ERG paper write-N.EGO 1s-ERG paper write-N.EGO
 ‘You wrote a letter.’ ‘When did I write a letter?’

6. Requests and negation in questions

6.1 Requests to form monopolar questions

- (40) Declarative questions with bias, cf. Gunlogson (2002):
There is a vegetarian restaurant around here?
- (41) Assume meta speech act operator *REQU*, applied to speech acts *A*:
 $C + \text{REQU}_{S_1, S_2}(A) = C + A_{S_2, S_1}$
 i.e. S_1 requests from S_2 to perform the speech act *A*.
- (42) In declarative questions, *REQU* is expressed solely by prosody:
 H% boundary tone: Authority shift to addressee,
 L* nuclear tone: No commitment to proposition.
- (43) $C + \text{REQU}_{S_1, S_2}([_{\text{ForceP}} \vdash [_{\text{TP}} \text{John arrived}]])$
 $= \{\sqrt{C}\} \cup C + S_2[S_1] \vdash \varphi$;
 notice that this is a question that proposes only one continuation
 (**monopolar** question vs. **bipolar** question).
- (44) Assume that *REQU* can, like *?*, also be head of a *ForceP*
 triggering head movement of auxiliary *do*.
 $[_{\text{ForceP}} [\text{REQU-did} [_{\text{ForceP}} \text{John} [\vdash [_{\text{TP}} t_{\text{John}} t_{\text{did}} \text{arrive}]]]]];$
 notice: there is no question radical, but an embedded assertion.
- (45) Prosodic ignature of this reading: nuclear tone L*, boundary tone H%,
 in contrast to regular bipolar questions, which allow for H* L%
- (46) **Congruent** answer *yes* picks out the only proposed continuation:
Yes: Picks up discourse referent for $[_{\text{TP}} \text{John arrived}]$, φ = ‘John arrived’,
 S_2 asserts this discourse referent; this is the expected answer (bias).
- (47) Answer *no* is an **incongruent** answer,
 requires first a **REJECT** operation,
 hence more complex than *yes* – captures the bias of this type of question.

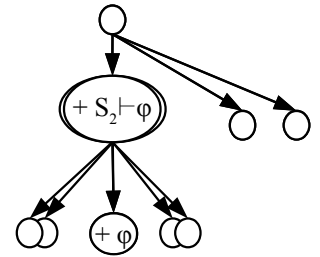


Figure 9:
Monopolar question, $? \{ \varphi \}$

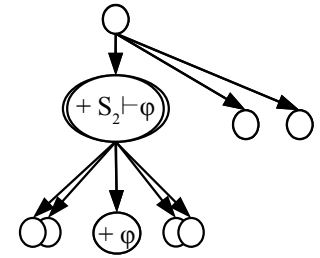


Figure 10:
Answer *yes*

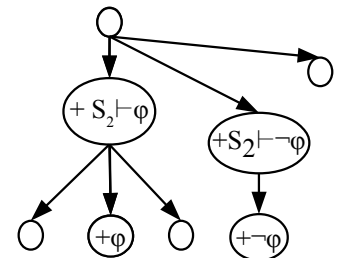


Figure 11:
Answer REJECT + *no*

- (48) Question based on negated proposition: *Did John not arrive?*
 $[\text{ForceP} [\text{REQU-did} [\text{ForceP John} [\vdash [\text{TP } t_{\text{John}} t_{\text{did}} \text{ not arrive}]]]]]$,
 results in $\{\sqrt{C}\} \cup C + S_2[S_1] \vdash \neg\varphi$;
 now *no* is a congruent answer, hence question is biased towards $\neg\varphi$
yes, he did! is an incongruent answer requiring prior REJECT
- (49) English root questions are ambiguous w.r.t. bipolar and monopolar reading, but...
 – Chinese has distinct forms, *shi-bu-shi* questions and *ma*-questions;
 – Questions based on negated propositions pragmatically restricted to monopolar questions,
 as negation would not make a difference with bipolar questions.

6.2 High negation in questions

- (50) *Didn't John arrive?* (on high negation reading).
 Here we assume denegation, cf. (13) above.
 $[\text{ForceP} [\text{REQU-did} [\text{NegP } n't [\text{ForceP John} [\vdash [\text{TP } t_{\text{John}} t_{\text{did}} \text{ arrive}]]]]]]]$
- (51) $C + \text{REQU}_{S_1, S_2} (\sim (\vdash \varphi))$
 $= \{\sqrt{C}\} \cup [C + \sim S_2[S_1] \vdash \varphi]$
 $= \{\sqrt{C}\} \cup [C - \{c \in C \mid \exists c' \in C [c' + S_2[S_1] \vdash \varphi \subseteq c]\}]$,
 i.e. S_1 requests that S_2 rules out asserts that φ by S_2 .

Explanation of bias (cases: Buring & Gunlogson 2002):

- (52) Positive bias: High negation inappropriate.
 S_2 : *There are all kinds of restaurants here, you can choose.*
 S_1 : *#Isn't there a vegetarian restaurant here?*
 No reason for S_1 to check whether S_2 would exclude
 assertion of φ , as it seems that S_2 endorses φ .
- (53) Neutral bias: High negation possible.
 S_1 : *Remember, we have been to Mooswood's, and we liked it.*
Isn't there a vegetarian restaurant around here (too)?
 S_1 checks whether an option of interest has to be excluded;
 preferable over *Is there a vegetarian restaurant around here (too)?*,
 as this bipolar question treats both options as being of equal interest and relevance.
- (54) Negative bias: High negation possible, especially with prosodic incredulity contour:
 S_2 : *We can't go out here, because John doesn't eat meat.*
 S_1 : *Isn't there a vegetarian restaurant around here?!*
 Here S_1 double-checks whether φ indeed has to be excluded;
 preferable over *Is there a vegetarian restaurant around here?*,
 as this treats both options as equal, but φ less likely to be true in the context given.
- (55) Under negative bias we also can have requests based on negated propositions:
 S_1 : *Is there no vegetarian restaurant around here?*
 Request for asserting that there is no veg. restaurant makes it easier for addressee to assert
 the probable answer.

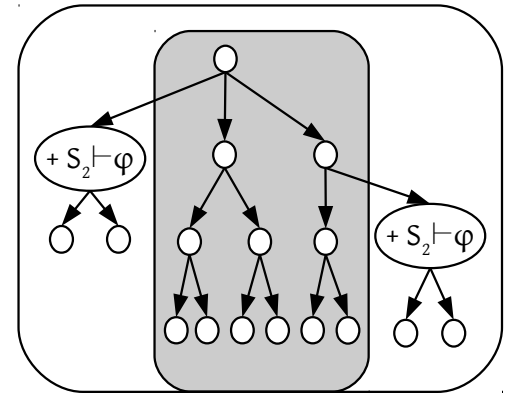


Figure 12:
Request for denegation of assertion.

- (56) And under positive bias, cf. (52), we can have requests based on positive propositions:
 S_1 : *Is there a vegetarian restaurant around here?*

7. Constituent questions and focus in answers

7.1 Constituent questions

- (57) Constituent question radical (Hamblin 1973):

A set of propositions

as a result of the interpretation of the wh expression:

$[_{CP} \text{ who } [_{t_{who}} \text{ arrived}]]$

$= \{ \text{'x arrived'} \mid x \in \text{PERSON} \}, = \Phi$

e.g. $\{ \text{'John arrived'}, \text{'Mary arrived'}, \text{'Sue arrived'} \}$

- (58) Constituent question radical in embedded questions:

Bill knows who arrived.

proposition: $\lambda i [\forall p \in \Phi [p(i) \rightarrow \text{Bill knows in } i \text{ that } p]]$

- (59) Constituent questions:

$[_{\text{ForceP}} \text{ who } [_{?-\text{did}} [_{CP} t_{\text{who}} [_{t_{\text{who}} t_{\text{did}}} \text{ arrive}]]]]]$

$\{ \dots, C \} + S_1$, to S_2 : *Who did arrive?*

$= \{ \dots, C, \{ \sqrt{C} \} \cup \{ C + S_2[S_1] \vdash p \mid p \in \Phi \} \}$,

proposed continuations restricted to assertions

by the addressee (S_2) of questions in the question radical

- (60) Fully congruent answer to a question:

Takes up one of the proposed continuations.

$\{ \dots, C,$

$\{ \sqrt{C} \} \cup \{ C + S_2[S_1] \vdash p \mid p \in \Phi \} \}$

$+ S_2[S_1] \vdash \text{'John arrived'}$

$= \{ \dots, C,$

$\{ \sqrt{C} \} \cup \{ C + S_2[S_1] \vdash p \mid p \in \Phi \},$

$C + S_2[S_1] \vdash \text{'John arrived'}$,

$= \{ \dots, C, C' \}$

- (61) Reaction *I don't know*:

Requires prior rejection,

then assertion: $S_2[S_1] \vdash \text{'S}_2 \text{ does not know'}$

- (62) Partially congruent answers, e.g. *Not John*.

Modeling by rejection of current CS

and performing an assertion that rules out certain proposed continuations.

Alternatively, allow that constituent questions allow for more continuations,

e.g. wh words may vary over quantifier meanings

like *not John*, *several people*, *nearly everyone* etc.

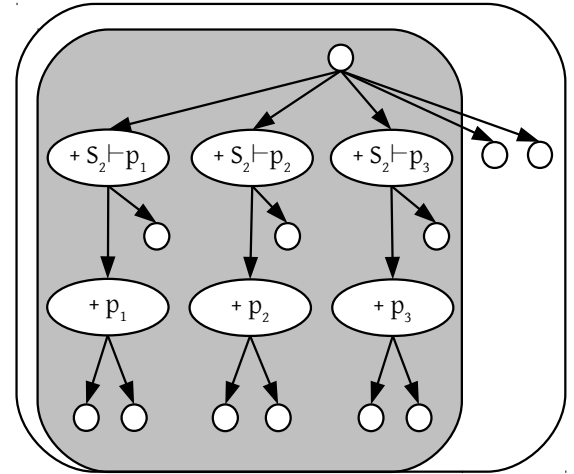


Figure 13:
Asking a constituent question

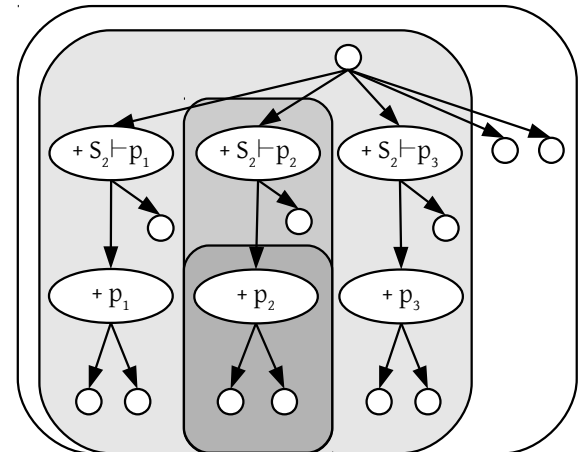


Figure 14:
Answering a constituent question.

7.2 Focus in assertions

- (63) Focus to mark congruence of answer to question:

S_1 : *Who did arrive?*

S_2 : *JOHN_F arrived.*

- (64) Focus indicates propositional alternatives (Rooth 1992):

Pair of proposition and alternatives $\langle \phi, \Phi \rangle$:

$\langle \text{'John arrived'}, \{ \text{'x arrived'} \mid x \in \text{THING} \} \rangle$,

$= \langle \text{'John arrived'}, \Phi' \rangle$,

notice that $\Phi \subseteq \Phi'$,

congruent to question radical *who arrived*, cf. (57)

- (65) Focus indicating assertional alternatives:

Focus projects to the illocutionary level.

$\langle S_2[S_1] \vdash \text{'John arrived'},$

$\{ S_2[S_1] \vdash \text{'x arrived'} \mid x \in \text{THING} \} \rangle$,

$= \langle A, \underline{A} \rangle$

- (66) Update of commitment space development with focused assertion: $\langle \dots, C \rangle + \langle A, \underline{A} \rangle$:

– presupposes that $\forall A' [[\sqrt{C} + A' \text{ is a move in } C \rightarrow \exists A'' \in \underline{A} [A' = A'']]]$

– if presupposition is satisfied: $\langle \dots, C \rangle + \langle A, \underline{A} \rangle = \langle \dots, C \rangle + A$

- (67) This presupposition is satisfied for the assertion of *JOHN_F arrived*

if the question *Who did arrive?* was asked first:

The input commitment space must be such that each continuation from the root

is of the form of an assertion 'x arrived', asserted by S_2 to S_1 .

- (68) The alternatives indicate the proposed continuations,
given the current state in conversation (cf. e.g. von Stechow 1992, Rooth 1992);
if not present, this can trigger accommodation of the input commitment space.

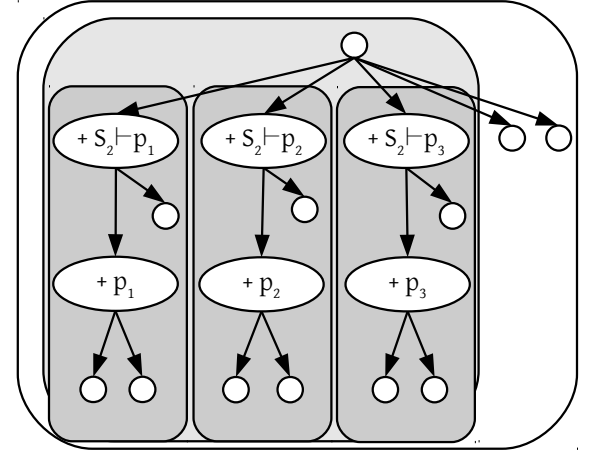


Figure 15:
Alternatives of Assertion *JOHN_F arrived*.

8. Focus in polarity questions

- (69) Example: *Did JOHN_F arrive?*

Congruent answers: *Yes. / No, BILL_F arrived.*

- (70) Dedicated focus marker for polarity questions in Slavic languages: *li*,
e.g. Dukova-Zheleva (2010) for Bulgarian:

a. *Risuva li Ivan vseki den?*

draws LI Ivan every day

'Does Ivan draw/DRAW every day?'

b. *Ivan li risuva vseki den?*

Ivan LI draws every day

'Does IVAN draw every day?'

- (71) Observations with regard to focus in polarity questions:

a. This kind of focus in polarity questions requires the monopolar reading:
it is a biased towards the proposition 'John arrived'.

b. Possible also in declarative questions: *JOHN_F arrived?* – *No, Mary.*

c. Equivalent to specified constituent question: *Who arrived? John?*

(72) Proposed analysis:

A monopolar question with focus indicates a commitment space C in which the alternative monopolar questions are asked; this corresponds to the general rule (66).

(73) S_1 , to S_2 : $[_{\text{ForceP}} [\text{REQU-} \textit{did} [_{\text{ForceP}} \textit{John}_F [_\text{TP} \textit{t}_{\text{John}} \textit{t}_{\text{did}} \textit{arrive}]]]]]$
 $\{S_2[S_1] \vdash \text{'John arrived'}, \{S_2[S_1] \vdash \text{'x arrived'} \mid x \in \text{THING}\}\}$

(74) Update of commitment space development with focused polarity question just as with focused assertions, cf. (66).

(75) $\{ \dots, C \} + (73)$

– presupposed: $\forall A' [[\sqrt{C} + A' \text{ is a move in } C \rightarrow \exists x \in \text{THING} [A' = S_2[S_1] \vdash \text{'x arrived'}]]]$

– if satisfied: $= \{ \dots, C, C + S_2[S_1] \vdash \text{'John arrived'} \}$

Recall that this is a move by S_1 ,

i.e. S_1 presupposes that the proposed moves are assertions by S_2 of propositions 'x arrived' and S_1 asks the monopolar question *Did John arrive?*

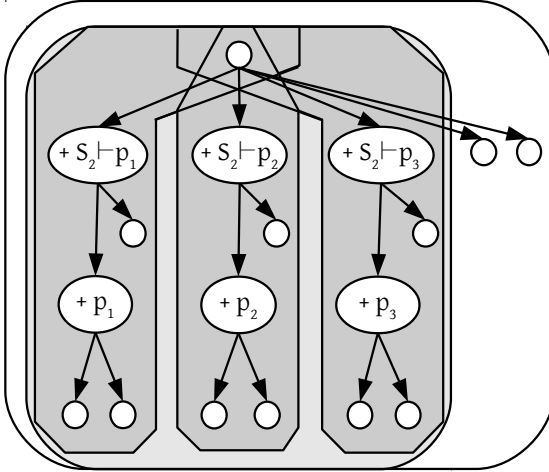


Figure 17:
 Alternatives of question *Did JOHN arrive?*,
 with p_1 = 'Mary arrived', p_2 = 'John arrived',
 p_3 = 'Bill arrived'

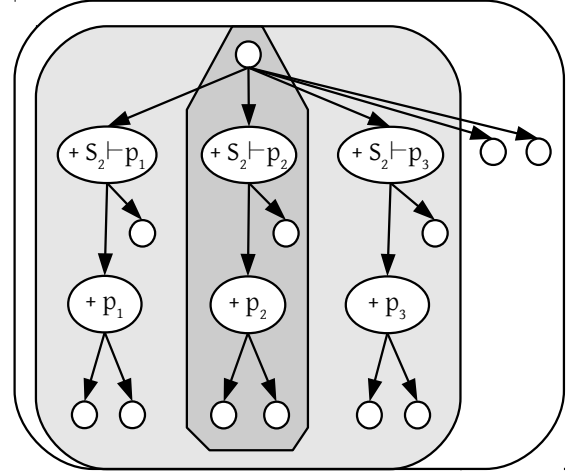


Figure 16:
 Meaning of question *Did JOHN arrive?*

(76) That is: *Did JOHN arrive?* presupposes the effects of a question *Who did arrive?*
 This captures the naturalness of the sequence: *Who did arrive? John?*

(77) Answer *Yes*: S_2 in fact makes the assertion *John arrived*,
 by asserting the propositional discourse referent introduced by $[_{\text{TP}} \textit{John arrived}]$ – Figure 18

(78) Answer *No*: S_2 makes an assertion that negates this discourse referent;
 this requires a prior REJECT operation, returning to the original alternatives – Figure 19
 i.e. the only legal moves there are assertions of propositions of the type 'x arrived' by S_2 .

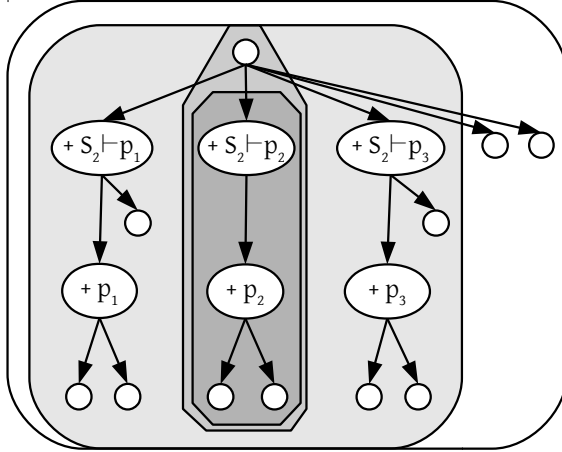


Figure 18:
Answering *Yes*.

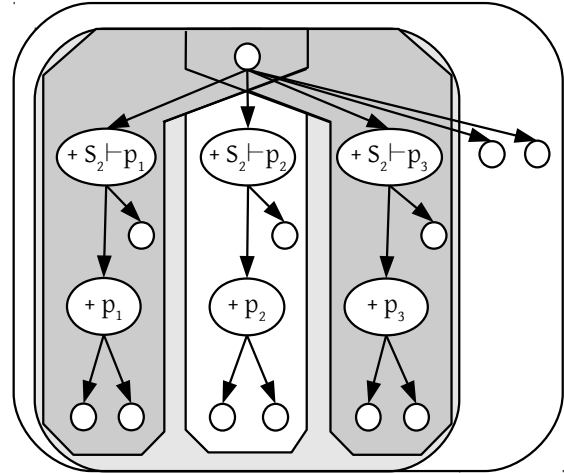


Figure 19:
Answering *No*, after REJECT.
Observe remaining questions.

- (79) Not represented in Figure 19: Assertion $S_2 \vdash \neg p_2$
Assume that presupposed questions are carried over.
- (80) It is essential for this analysis of focus in polarity questions
that the questions are monopolar;
this captures the asymmetry between answers *yes* (simple) and *no* (requires REJECT).
- (81) This is distinct from focus in constituent questions:
When will JOHN arrive?
Alternative constituent questions:
When will Mary arrive? When will John arrive? When will Bill arrive?
Answering one question returns to the remaining questions in any case.
This requires an implementation of discourse trees with the help of stacks
in the fashion of Roberts (1996), Büring (2004)

9. References

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