Focus in Polarity Questions

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2 Basic framework for speech acts

2.1 Commitment States

- (1) Set of propositions publicly shared by participants in conversation, as accrued so far.
- (2) Corresponds to the notion of common around. but also contains information about commitments of speakers.
- (3) A speech act A adds propositions related to A to a commitment state c. $c + A = c \cup prop(A)$
- (4) See right-hand side for graphical representations; we will mainly use the second one, where $prop(A) = \phi$
- We can evaluate a commitment state c in terms of possible worlds for which all the propositions in c are true: [c]
- The propositions in c must be consistent, (6) otherwise [c] is empty.

otherwise undefined.

(7) This is an important criterion for the update of c with A: $c + A = c \cup prop(A)$, provided that c U prop(A) is consistent,





Basic framework for speech acts: Commitment States

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1 Issues of this talk

General context:

- (1) Semantics of speech acts as acts that change the world by introducing new commitments (cf. Szabolcsi 1982²)
- (2) Explanation of embedding of illocutionary acts under "semantic" operators like negation, quantifiers, conditionals, predicates like wonder (cf. Cohen & Krifka 2011³, Krifka t.a. a⁴)

Relating to guestions:

- (3) Negation in polarity questions, cf. Krifka t.a. b⁵
 - 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)?
- (4) Here: Focus in polarity (yes/no) 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.
- (5) Other topics
 - a. Conjunction / disjunction of guestions; alternative guestions: Did JOHN or MARY order soup? b. Question tags: John ordered soup. didn't he?
 - b. Focus in constituent questions: And who ordered SOUP?

⁵ Krifka, Manfred t.a. b. Negated polarity questions. In: Lee, Chungmin e.a. (eds), Contrastiveness and scalar implicature. Berlin: Springer,

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2.2 Commitment Spaces

- (8) A Commitment Space (CS) encompasses the possible ("legal") continuations of a commitment state.
- C is a Commitment Space iff (9) a. C is a set of (consistent) commitment states: b. $\exists c \in C \ \forall c' \in C \ [c \neq \emptyset \land c \subseteq c']$

The unique commitment state c (= nC) is the **root** of C, indicated as \sqrt{C}

- (10) The commitment states in a CS are ordered by set inclusion; different paths may lead to the same commitment state.
- (11) Update of a commitment space with a speech act A, where A is defined for commitment states: $C + A = \{c \in C \mid \sqrt{C} + A \subseteq c\}$

Example: denegation (cf. Searle 1969⁶, Hare 1970⁷): I don't promise to come (\neq I promise not to come).

- (12) Update of a commitment space with the denegation of A: $C + \sim A = C - \{c \in C \mid \exists c' \in C[c' + A \subseteq c]\}.$ = C - [C + A]
- (13) 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).



⁶ Searle, John. 1969. Speech acts. An essay in the philosophy of language. Cambridge: Cambridge University Press. Basic framework for speech acts: Commitment Spaces

Szabolcsi, Anna. 1982. Model theoretic semantics of performatives. In: Kiefer, Ferenc, (ed), Hungarian linguistics. Amsterdam: John Benjamins. ³ Cohen, Ariel & Manfred Krifka, 2011, Superlative guantifiers as modifiers of meta-speech acts, The Baltic International Yearbook of Cognition. Logic and Communication 6: 1-56. ⁴ Krifka, Manfred t.a. a, Embedding illocutionary acts. In: Roeper, Tom & Margaret Speas (eds.): Recursion: Complexity in Cognition. Springer,

2.3 Commitment Space Developments

- (14) For non-monotonic updates we need a record of the history of how the CS developed. here: restricted to rejection of most recent acts.
- (15) This history is modeled as a stack. a sequence of commitment spaces. a Commitment Space Developments (CSD)
- (16) Update of a CSD with a speech act:
 - $\langle \dots C \rangle + A = \langle \dots C, C + A \rangle$
 - update the last commitment space of the stack: C+A
 - add this commitment space to the stack.



- (5) A proposal for the syntactic and prosodic realization:
 - a. Syntactic realization: TP: tense phrase, denoting a proposition, ForceP: illocutionary force, suggested by Rizzi (1997). cf. performative hypothesis, Ross (1970), Sadock (1974). b. (..., C) + [[_{ForceP} [_{Force^o} ⊢] [_{TP} ...]]]^{S1,S2} $= \langle \dots, C \rangle + S_1 \vdash \llbracket [T_P \dots]]^{S1,S2} + \llbracket [T_P \dots]]^{S1,S2}$
 - b. Boundary tone L%: part of assertive commitment, cf. Bartels (1997)12.
 - c. Nuclear stress H*: indicates that TP proposition is new in c. as L* would mark that proposition is already in c (cf. Pierrehumbert & Hirschberg 1990¹³, Truckenbrodt 2012¹⁴)

Additionally, filling of SpecForceP

with topical or focused expressions. ianored here.



¹⁴ Truckenbrodt, Hubert. 2012. Semantics of intonation. In: Maienborn, Claudia, Klaus von Heusinger & Paul Portner, (eds), Semantics: An international handbook of natural language and meaning. Vol. 3. Berlin: Walter de Gruvter.

Assertions and reactions to assertions: The Nature of Assertions

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⁷ Hare, R. M. 1970, Meaning and speech acts, The Philosophical Review 79: 3-24. Basic framework for speech acts: Commitment Space Developments

3 Assertions and reactions to assertions

3.1 The Nature of Assertions

- (1) Assertions have a double purpose:
 - a. S₁ expresses commitments for a proposition⁸
 - b. S1 attempts to make the asserted proposition part of the CG
- (2) These two purposes can be dissociated; pace Bach & Harnish 1982⁹: Believe it or not. I didn't steal the cookie.
- Assertive commitments:10 (3)

$S_1[S_2] \vdash 0$

 S_1 has assertive commitments to S_2 w.r.t. proposition ϕ ; (we often leave out S_2).

(4) Interpretation of assertion as a sequence of two updates

$\langle \dots C \rangle + S_1 \vdash \phi + \phi$

 $=\langle \dots, C + S_1 \vdash \varphi, \rangle$ $C + S_1 \vdash \omega + \omega$ adding assertive commitment w.r.t. the proposition ϕ adding the proposition φ itself

Alternative:

S₂ assumes proposition solely due to commitment of S₁,

based on the standing of S₁ in the community of speakers:

But if a lie would not endanger the esteem in which the utterer was held, nor otherwise be apt to entail such real effects as he would avoid, the interpreter would have no reason to believe the assertion. – Peirce 1908¹¹



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3.2 Reaction to assertions

- (6) The part $\langle ..., C \rangle + S_1 \vdash \varphi$ is accepted without any reaction, and difficult to reject: A: You stole mv cookie.
 - B: Don't say that! / Take that back! You will regret it.
- (7) The part $\langle \dots C + S_1 \vdash \phi \rangle + \phi$ is often explicitly accepted, and easy to reject: A: You stole my cookie. B: Uh-huh. / Yes. / No.
- (8) Mechanism of response particles (cf. Krifka 2013¹⁵, also Farkas & Roelofsen 2012¹⁶):
 - TP of antecedent clause introduces a propositional discourse referent.
 - Response particles are anaphoric on such propositional discourse referents and assert them as speech acts.
- (9) The move $\pm \phi$ corresponds to the "projected set" in Farkas & Bruce (2011)¹⁷. the move + $S_1 \vdash \phi$ roughly corresponds to the commitments of S_1 Notice: It is recorded for good which speaker committed to which proposition.

¹² Bartels, Christine, 1997, Towards a compositional interpretation of English question and statement intonation, Ph.D. Dissertation, University of Massachusetts at Amherst

³ Pierrehumbert, Janet & Julia Hirschberg. 1990. The meaning of intonational contours in the interpretation of discourse. In: Cohen, Philip R. & Jerry L. Morgan, (eds), Intentions in communication. Cambridge, Mass.: MIT Press, 271-311.

^a For a commitment approach to assertion cf. MacFarlane. John. 2011. What is assertion? In: Brown, Jessica & Herman Cappelen, (eds), Assertion. New philosophical essays. Oxford: Oxford University Press.

Bach, Kent & Robert M. Hamish. 1979. Linguistic communication and Speech Acts. Cambridge, Mass.: MIT Press.
 The turnstile stands for Frege's judgement stroke, cf. Begriffsschrift (1879).

¹¹ Ch. S. Peirce [ca. 1908] Judgement and assertion. In Collected Works (1936), 5.547.

 ¹⁵ Krifka, Manfred. 2013. Response particles as propositional anaphors. Semantics and Linguistic Theory (SALT). 23. 1-18.
 ¹⁶ Farkas, Donka F. & Floris Roelofsen. 2012. Polar initiatives and polar particle responses in an inquisitive discourse model. Manuscript
 ¹⁷ Farkas, Donka F. & Kim B. Bruce. 2010. On reacting to assertions and polar questions. *Journal of Semantics* 27: 81-118.

3.3 Acceptance and Rejection

- (10) Answer okay, uh-huh, or no reaction: S_2 accepts the proposed commitment space. $\langle \dots, C + S_1 \vdash \phi, C + S_1 \vdash \phi + \phi \rangle + ACCEPT_{S2}$ $=\langle \dots C + S_1 \vdash \phi, C + S_1 \vdash \phi + \phi \rangle$ (11) Answer ves: S₂ asserts the same proposition: $\langle \dots C + S_1 \vdash \phi, C + S_1 \vdash \phi + \phi \rangle + S_2 \vdash \phi$ $=\langle \dots, C + S_1 \vdash \varphi, C + S_1 \vdash \varphi + \varphi, C + S_1 \vdash \varphi + \varphi + S_2 \vdash \varphi \rangle$ ves picks up a propositional discourse referent introduced by the TP of the antecedent clause (12) Answer no: S₂ negates the same proposition: for consistency, this requires a previous rejection by a **REJECT** operation. as a common ground c cannot contain both φ and $S_2 \vdash \neg \varphi$: $\langle \dots C + S_1 \vdash \varphi, C + S_1 \vdash \varphi + \varphi \rangle + REJECT_{S2} + S_2 \vdash \neg \varphi$ $= \langle ..., C + S_1 \vdash \omega, C + S_1 \vdash \omega + \omega, C + S_1 \vdash \omega, C + S_1 \vdash \omega + S_2 \vdash \neg \omega \rangle$ (13) Notice that no does not itself reject, but enforces a prior rejection. no rejection e.g. in confirming responses to assertion that is negated: S₁: Ed didn't steal a cookie. S₂: No. he didn't.
- (14) **REJECT** can be expressed by particles.
 - cf. Romanian ba, Hungarian de in Farkas & Roelofsen (to appear)¹⁸

¹⁸ Farkas, Donka F, & Floris Roelofsen, 2012, Polar initiatives and polar particle responses in an inquisitive discourse model. Manuscript Assertions and reactions to assertions: Acceptance and Rejection

4 Polarity Questions

4.1 Interpretation of polarity question as flipped assertions

- (1) Question radicals vs. guestions speech acts: a. Mary knows [CP whether [TP John arrived]] b. Did John arrive?
- (2) Question radicals: A set of propositions (cf. Hamblin 1973): [CP whether [TP John arrived]], interpreted as {'John arrived', \neg 'John arrived'}, = { φ , $\neg \varphi$ }
- (3) Use in embedded questions (simplified): Marv knows whether John arrived.
- $\lambda i \forall p \in \Phi[p(i) \rightarrow Mary knows in i that p]$
- (4) Syntax of polar question speech act, illocutionary operator; ? complementizer not realized [ForceP [Force' ?-did [CP whether [TP John tdid arrive]]]]
- (5) Interpretation as a meta speech act: $(..., C) + S_1$, to S_2 : [ForceP ?-did [CP whether [TP John arrive $= \langle ..., C, \{\sqrt{C}\} \cup \{C + S_2 \vdash p + p \mid p \in \{\phi, \neg \phi\} \rangle$
- (6) As a meta speech act, questions are related to common ground management: S₁ signals the direction that the development of the common ground should take.
- (7) We should also mark that this speech act, which imposes actions on S_2 , is by initiative of S₁ (neglected here).

4.2 Answers to polarity questions

- (8) Congruent answers
 - specify one of the options: a. Yes:
 - Picks up discourse referent for TP. φ = 'John arrived'.
 - S₂ asserts the proposition
 - of this discourse referent. o.
 - b. No:
 - Picks up discourse referent for TP.
 - φ = 'John arrived'.

S₂ asserts the negation of the proposition of this discourse referent. ¬o Observe:

Different from reaction no to assertion. as prior rejection is not required.

Incongruent answers, e.g. I don't know: Requires first a (double) REJECT operation. followed by assertion $S_2[S_1] \vdash S_2$ does not know wether φ' ; **REJECT** is necessary due to pragmatic inconsistency

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of $S_1 \vdash \phi$, $S_1 \vdash \neg K\phi$ and $S_1 \vdash \neg \phi$, $S_1 \vdash \neg K \neg \phi$, cf Moore's paradox.

#John has arrived, but I don't know that he has arrived.

Polarity Questions: Answers to polarity questions



- (9) Interrogative flip with reportatives, evidentials (Speas & Tenny 2003¹⁹, Faller 2006²⁰). What has John reportedly done? Expected answer: She (reportedly) called the boss an idiot.
- (10) Interpretation of discourse particles (Zimmermann 2004²¹, German wohl):

a. Es wird wohl regnen. b. Wird es wohl regnen? 'Presumably, it will rain.' 'Will it rain. presumably?'

- (11) Egophoricity (cf. Creissels 2008²², San Roque e.a. 2012²³: here: Past marking in Northern Ahkvahk, NE Caucasian)
 - a. de-de kasa gwar-ada b. me-de čuda kasa gwar-ada 2s-ERG when paper write-PAST.EGO 1s-ERG paper write-PAST.EGO 'When did you write a letter?' 'I wrote a letter' с. me-de кака gwar-ari d. de-de čuda kasa gwar-ari
 - 2s-ERG paper write-PAST.N.EGO 'You wrote a letter.'
- ¹⁹ Speas, Margaret & Carol Tenny, 2003. Configurational properties of point of view roles. In: di Sciullo, Anna Maria, (ed), Asymmetries in grammar John Benjamins.

1s-ERG when paper write-PAST.N.EGO

'When did I write a letter?'



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 $S \vdash 0$

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²⁰ Faller, Martina & Rachel Hastings, 2008, Cuzco Quechua guantifiers, In: Matthewson, Lisa, (ed), Quantification, A cross-linguistic perspective. Bingley: Emerald, 277-318,

 ²¹ Zimmermann, Malte. 2004. Zum Wohl: Diskurspartikeln als Satztypmodifikatoren. Linguistische Berichte 199: 253-286.
 ²² Creissels, Denis. 2008. Remarks on so-called "conjunct/disjunct" systems. Conference on Syntax of the World's Language Berlin.
 ²³ San Roque, Lila, Simeon Floyd & Elisabeth Norcliffe. 2012. Interrogating evidentiality & egophoricity. The nature of evidentiality, Leiden.

4.4 Monopolar questions

(12) Declarative questions with bias, cf. Gunlogson (2002)²⁴: There is a vegetarian restaurant around here? Prosodic signature of this reading: L*H%.

in contrast to regular bipolar questions, which allow for H* L%. cf. Bartels 1999. Kügler 2003 for discussion.

(13) Assume meta speech act operator REQU: $C + REQU_{S1,S2}(A) = \{\sqrt{C}\} \cup C + A_{S2,S1}$

i.e. S₁ requests from S₂ to perform the speech act A.

In declarative questions, REQU is expressed solely by prosody: H% boundary tone: Authority shift to addressee. L* nuclear tone: No commitment to proposition.

- (14) C + REQU_{S1.S2}([ForceP \vdash [TP John arrived]]) = { \sqrt{C} } \cup C + S₂ \vdash ϕ ; notice that this is a question that proposes only one continuation (monopolar question vs. bipolar question; cf. Bolinger 1989, guestions for confirmation vs. information)
- (15) Congruent answer ves picks out the only proposed continuation.

Answer no is an incongruent answer, requires a REJECT operation, hence more complex than ves - question bias!.

(16) Notice: No obvious way to express monopolar questions in frameworks like Hamblin. Groenendiik/Stokhof. Inquisitive semantics.

²⁴ Gunlogson, Christine. 2002. Declarative questions. SALT XII. Ithaca, NY: Cornell University, 124-134. Bolinger, Dwight. 1989. Intonation and its uses. London: Arnold.

Bartels, Christine. 1999. The intonation of English questions and intonation. A compositional approach. Garland. Kügler, Frank. 2003. Do we know the answer? Variation in yes-no question intonation. Ling. in Potsdam 21.

Polarity Questions: Monopolar guestions

4.5 Negation in polarity questions

- (17) Polarity guestion based on a negated proposition with special rhetorical effect, e.g. disbelief: Is there no vegetarian restaurant around here?, Under bipolar analysis we cannot explain this effect. as $\{\phi, \neg \phi\} = \{\neg \phi, \neg \neg \phi\}$
- Here: Analysis as monopolar question $S_2 \vdash \neg \phi$, expressing the bias.
- (18) We have to assume that REQUEST can be expressed in syntax: [ForceP [REQU-did [ForceP John [\vdash [TP tlohn tdid arrive]]]]]; notice: there is no question radical, but an embedded assertion.
- (19) This opens an option to treat syntactically high negation (cf. Ladd 1981²⁵) as denegation (Krifka to app.²⁶): Didn't John arrive? (on high negation reading). [ForceP [REQU-did [NeaP n't [ForceP John [⊢ [TP tJohn tdid arrive]]]]]

(20) C + REQU_{S1,S2} (~ ($\vdash \phi$))

- $= \{\sqrt{C}\} \cup [C + \sim S_2 \vdash \phi]$
- $= \{ \sqrt{C} \} \cup [C \{c \in C \mid \exists c' \in C[c' + S_2 \vdash \varphi \subseteq c] \}],$
- i.e. S_1 requests that S_2 rules out the assertion that ϕ by S_2 . (21) This is a rhetorical move:
 - $-S_1$ checks whether S_2 is willing to exclude the assertion of φ
 - This happens in particular if S_1 assumes that φ might in fact be true

²⁵ Ladd, D. Robert, 1981, A first look at the semantics and pragmatics of negative questions and tag questions. Proceedings of the Chicago Linguistic Society. 17. Chicago: 164-171. ²⁶ Krifka, Manfred. to appear. Negated polarity questions as denegations of assertions. In Lee, Chungmin e.a. (eds.), *Contrastiveness and scalar*

implicatures. Springer. 14 / 32



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5 Constituent Questions

5.1 Asking constituent questions

- (1) Constituent question radical: Set of propositions.
 - a. Propositions may overlap (Hamblin 1973)²⁷:
 - [CP who [twho arrived]]
 - = {'x arrived' | $x \in PERSON$ }. = Φ
 - e.g. {'John arrived', 'Mary arrived', 'Sue arrived'}
 - b. Set is a partition, propositions do not overlap (Groenendiik & Stokhof 1984)²⁸
 - e.g. {'Only John arrived, 'Only Mary arrived', ...'}
- (2) Constituent question radical in embedded questions: Bill knows who arrived. proposition: $\lambda i [\forall p \in \Phi[p(i) \rightarrow Bill knows in i that p]]$
- (3) Constituent question speech act: [ForceP who [?-did [CP twho [twho tdid arrive]]]] $\langle \dots, \mathbf{C} \rangle$ + S₁, to S₂: Who did arrive?
 - $= \langle \dots, C, \{\sqrt{C}\} \cup \{C + S_2 \vdash p \mid p \in \Phi\} \rangle$
 - proposed continuations restricted to assertions by the addressee (S_2) of propositions in the question radical.
- (4) Under Groenendijk & Stokhof approach: Continuations do not overlap; under Hamblin approach: Continuations may overlap; non-overlap enforced by pragmatics?

²⁷ Hamblin, C.L. 1973. Questions in Montague English. Foundations of Language 10: 41-53.

²⁸ Groenendijk, Jeroen & Martin Stokhof. 1984. Studies on the semantics of questions and the pragmatics of answers. Doctoral Dissertation. University of Amsterdam.

Constituent Questions: Asking constituent questions

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5.2 Answering constituent questions

(5) Fully congruent answer to a guestion: [ForceP + [IP John arrived]] Takes up one of the proposed continuations.

 $\langle \dots, C, C' \rangle + S_2 \vdash \phi_2 + \phi_2$

where C' = { \sqrt{C} } \cup {C + S₂ \vdash p | p \in Φ }, $\omega_2 = (John arrived)$ $= \langle ..., C, C', C' + S_2 \vdash \phi_2, C' + S_2 \vdash \phi_2 + \phi_2 \rangle$

= C"

Reaction I don't know (6) Requires prior (double) rejection, then assertion: $S_2 \vdash S_2$ does not know': C" + REJECT₈₂ + REJECT₈₂ +

> + $S_2 \vdash \neg S_2$ knows who arrived' + ¬'S₂ knows who arrived')

- (7) Reaction Not John. Option a: wh ranges over quantifiers like not John: then: congruent answer. Option b: partial answer:
 - If C' + A is not defined, then $\langle \dots C, C' \rangle + A = \langle \dots C, C+A, C+A \cap C' \rangle$ iustified: reduction of options of C







5.3 Focus in assertions

- (8) Focus to mark congruence of answer to guestion: S₁: Who did arrive? S₂: JOHN_F arrived.
- (9) Focus indicates propositional alternatives (Rooth 1992)²⁹ modeled by a pair of a proposition and its alternatives: ('John arrived', {'x arrived' | $x \in THING$ }). = ('John arrived', Ψ)
- (10) Computation of alternative assertions: Focus projects to the illocutionary level. $\langle S_2 \vdash$ 'John arrived', $\{S_2 \vdash$ 'x arrived' | x \in THING} \rangle, $= \langle A, A \rangle$, a pair of an illocutionary act and a set of illocutionary acts.

(11) Question/answer congruence (following Rooth): Every legal move after $Q^* = Who did arrive?$ is an alternative of the assertion JOHN_F arrived.

- (12) In general: $C + \langle A, A \rangle = C + A$, provided that $\forall A'IC + A'$ is defined $\rightarrow A' \in AI$
- (13) This requirement can also be **accommodated**. to deal with implicit questions:

a. $\langle \dots C \rangle + \langle A, A \rangle$: not defined: b. $\langle \dots, C \rangle + Q^* + \langle A, A \rangle$,

where Q*: a suitable question act. $= \langle \dots, C, C+Q^*, C+Q^*+A \rangle$

²⁹ Rooth, Mats, 1992, A theory of focus interpretation, Natural Language Semantics 1: 75-116.

Constituent Questions: Focus in assertions

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- (4) Focus indicates a commitment space C in which the alternative **monopolar** questions are asked:
- (5) [ForceP [REQU-did [ForceP John [[+ [TPtJohn tdid arrive]]]] interpreted as: (Q, Q). where the elements of Q are monopolar questions: $\langle S_2 \vdash$ 'John arrived', $\{S_2 \vdash$ 'x arrived' | x \in THING \}
- (6) We assume the same focus sensitivity as in assertions: $\langle \dots C \rangle + \langle Q, Q \rangle = \langle \dots C \rangle + Q.$ provided that $\forall Q'[C + Q' \text{ is defined} \rightarrow Q' \in Q]$
- (7) This requirement is satisfied if Who did arrive? (= Q*) was asked immediately before: Who did arrive? (Did) JOHN (arrive)?
- (8) Again, Q* may be accommodated:
- a. $\langle ..., C \rangle + \langle Q, Q \rangle$: not defined; b. $\langle ..., C \rangle + Q^* + \langle Q, Q \rangle$, where Q*: suitable question,
 - $= \langle \dots, C, C+Q^*, C+Q^*+Q \rangle$
- Generalization over assertions (12) and guestions (6): If α is an illocutionary act with a set of alternatives α . $\langle \dots, C \rangle + \langle \alpha, \alpha \rangle = \langle \dots, C \rangle + \alpha,$ provided that

 $\forall \alpha'$, where α' of the type of acts in α (assertions, questions) [C + α' is defined $\rightarrow \alpha' \in \alpha$]

Focus in polarity questions: Analysis of focus in polarity questions

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6 Focus in polarity questions

6.1 General observations

(1) Example: Did JOHN_F arrive? Congruent answers: Yes. / No, BILL_F arrived.

Dedicated focus marker for polarity questions in Slavic languages: *li*, in Turkish *ml* Dukova-Zheleva (2010)³⁰ for Bulgarian:

a. Risuva li Ivan vseki den? draws LI Ivan every day 'Does Ivan draw/DRAW every day?' Kamali & Büring (2011)³¹ for Turkish: c. Ali dün ıskambil mi oynadı?

Ali vesterdav cards MI plaved?

'Did Ali play CARDS vesterday?'

b. Ivan li risuva vseki den? Ivan LI draws every day 'Does IVAN draw every day?'

d. Ali dün mü ıskambil oynadı? Ali vesterdav MI cards plav? 'Did Ali play cards YESTERDAY?'

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- (3) Observations with regard to focus in polarity questions:
 - a. This kind of focus in polarity questions requires the monopolar reading: it is biased towards the proposition 'John arrived'.
 - b. As a consequence, it should be possible also in declarative questions, and it is: JOHN_F arrived? – No. Marv.
 - c. Equivalent to specified constituent question (cf. Bäuerle 1979)³²: Who arrived? John?

6.3 Answers to polarity questions with focus

- (10) Did JOHN arrive?
- Corresponds to: Who did arrive? (Did) John (arrive)? (11) Answer Yes:
- S₂ asserts [_{TP} John arrived] (12) $\langle \dots, C, C+Q^*, C+Q^*+Q \rangle + A$: a legal move,
- $= \langle \dots, C, C+Q^*, C+Q^*+Q, C+Q^*+Q+A \rangle$
- (13) Answer No: S₂ asserts the negation of [TP John arrived], abbrev: A₇

 $\langle \dots, C, C+Q^*, C+Q^*+Q \rangle + A_{\neg}$: not a legal move, due to incompatibility of propositions of Q and A-

- (14) REJECT operation leads to: $\langle ..., C, C+Q^*, C+Q^*+Q \rangle + REJECT = \langle ..., C, C+Q^* \rangle$ where Q*: Who did arrive?
- (15) A_{-} is not a legal move at this position either; following rule (7), Option (b): $= \langle \dots, C, C+Q^* \rangle + A_{\neg} = \langle \dots, C+A_{\neg}, C+A_{\neg} \cap C+Q^* \rangle$
- (16) In the resulting state, it is
- established that John did not arrive (A₋),
- the remaining legal moves are answers

Focus in polarity questions: Answers to polarity questions with focus

to the question Who did arrive?





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 ³⁰ Dukova-Zheleva, Galina. 2010. Questions and focus in Bulgarian. Doctoral dissertation. University of Ottawa.
 ³¹ Kamali, Beste & Danile Büring. Ms., 2011. Topics in questions. http://homepage.univie.ac.at/glow34.linguistics/kamali.pdf
 ³² Bäuerle, Rainer. 1979. Questions and answers. In: Bäuerle, Rainer, U. Egli & Arnim von Stechow, (eds), Semantics from different points of view. Berlin: Springer, 61-74.

7 Speech Act Conjunction and Disjunction

- 7.1 Conjunction of Speech Acts
- (1) $C + [A \& A'] = [C + A] \cap [C + A']$
- (2) This amounts to dynamic conjunction. except for anaphoric binding: C + [A & A'] = [C + A] + A'
- (3) Interpretationally equivalent to boolean conjunction. for assertions: $\llbracket [C + \varphi] \cap [C + \psi] \rrbracket = \llbracket [C + [\varphi \land \psi]] \rrbracket$



7.2 Disjunction of speech acts

- (1) Disjunction of speech acts: $C + [A \lor A'] = [C + A] \cup [C + A']$
- (2) For assertions, disjunction is infelicitous, as it results in a non-rooted commitment space: $C + [[S_1 \vdash \phi + \phi] \lor [[S_1 \vdash \psi + \psi]]]$ $= [C + S_1 \vdash \omega + \omega] \cup [C + S_1 \vdash \omega + \omega]$
- (3) Hence disjunction is interpreted at the level of propositions, S1: John arrived or Mary arrived. $C + S_1 \vdash ['John arrived' \lor 'Mary arrived']$
- (4) However, disjunction combines two syntactic assertions, e.g. two verb second clauses in German.
- Possible explanation by minimal adjustment to a CS: (5) C ++ A = the minimally adjusted rooted CS that contains C + A
- (6) In the case at hand:
 - minimal adjustment leads to assertion of disjunction. as this introduces no additional commitments besides the ones expressed already.

Speech Act Conjunction and Disjunction: Disjunction of speech acts







Speech Act Conjunction and Disjunction: Conjunction of Speech Acts

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Interpretation of conjoined guestions (cf. Krifka 2001³³ for quantification into questions): What did John and Marv bring? What did John bring? And, what did Mary bring? What did every guest bring?

- Assume that chocolate and flowers are the options, (5)jc stands for: 'John brought chocoloate'
- (6) C + [What did John bring?] ∩ [What did Mary bring?]
- (7) Interpretation of the intersection of the two wh-questions:





(8) This applies also to conjunction of polarity questions: Did John bring chocolate, and did Marv bring chocoloate?

³³ Krifka, Manfred. 2001. Quantifying into question acts. Natural Language Semantics 9: 1-40. Speech Act Conjunction and Disjunction: Conjunction of Speech Acts

- (7) In contrast to assertions, disjunction of questions is felicitous: They do not change the root.
- Disjunction of monopolar questions: (8) $C + S_1$, to S_2 : Did John arrive, or did Mary arrive? $= [\{\sqrt{C}\} \cup [C + S_2 \vdash \phi]] \cup$ $[{\sqrt{C}} \cup [C + S_2 \vdash \psi]]$
- (9) Answers ves. no are insufficient. as it is not clear which proposition is picked out.

(10) In contrast:



Did John arrive, and did Bill arrive? $= [\{\sqrt{C}\} \cup [C + S_2 \vdash \phi]] \cap$ $[\{\sqrt{C}\} \cup [C + S_2 \vdash \psi]]$

Answers ves. no are sufficient. if they can pick up $\phi \wedge \psi$ as sum discourse referent, as this is the only proposed option: $C + S_2 \vdash \phi + S_2 \vdash \psi$

is equivalent to $C + S_2 \vdash [\phi \land \psi]$



(11) Disjunction of wh-questions and bipolar questions is defined as well, but has a rather weak meaning: It is sufficient that S_2 answers just one of the questions, hence they are pragmatically odd.

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Speech Act Conjunction and Disjunction: Disjunction of speech acts





7.3 Disjunction of focused questions

- (12) Focus in monopolar questions indicates alternatives: Did JOHN_F (L*H) arrive. or did MARY_E (L*H) arrive?
- (13) Rising accent indicates that these are not the only alternatives; in particular Boolean combinations like Did John and Mary arrive? are alternatives as well.
- (14) Disjunction of the two focused questions leads to a focused question with the conjoined alternatives.
- (15) Appropriate in a context after a leading question Q* in which it is not excluded that John and Mary arrived, or that neither John nor Mary arrived.
- (16) Answer ves is insufficient. as it is not clear which proposition is picked out; answer no is sufficient. as the whole question is rejected.







Speech Act Conjunction and Disjunction: Disjunction of focused questions



- Did John_F (L*H) arrive, or did Mary_F (H*L) arrive?
- (18) Falling accent suggests: No other alternatives. in particular: Did John or Marv arrive? is not an alternative.
- (19) Disjunction leads to a question with no remaining alterantives, similar to wh-question: Who of John and Marv did arrive?
- (20) Appropriate in a context after a leading question Q* in which it is excluded that both John and Mary came.
- (21) Presupposition that exactly one proposition is true can be explained.







7.4 Tag guestions

- (22) S₁, to S₂: John arrived, didn't he?
- (23) Analysis as a disjunction of two speech acts:
 - Assertion: John arrived?
 - Monopolar question: Did John not arrive?
- (24) Notice that this results in a rooted CS C + [S₁ to S₂: John arrived \lor S₁ to S₂: John did not arrive?] $= [C + S_1 \vdash \phi + \phi]$ $\cup [\{\sqrt{C}\} \cup C + S_2 \vdash \neg \phi + \neg \phi]$
- (25) Answer ves picks up proposition φ reaction to assertion part. answer no picks up proposition o and asserts its negation, response particles do not pick up ¬0 as this results in a more complex representation

(cf. pragmatic optimization of response particles in Krifka 2013).

(26) Difference to simple assertion John arrived. Answer no does not necessitate a prior REJECT operation, a simple acknowledment *uh-huh* is not a sufficient reaction.





Speech Act Conjunction and Disjunction: Tag guestions

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8 Questions under Discussion

8.1 Backburner questions

- (1) Focus in constituent questions: What did ED_{F} eat?
- (2) Such question speech acts evoke alternative question speech acts that are explicitly not asked: because they are put on hold ("backburner questions"): I am interested in what Ed and Bill ate. Let's start with Ed. What did ED_F eat?
- (3) Focus indicates alternative questions, but in contrast to alternative speech acts considered so far. the alternatives stay alive for the future development of conversation.
- (4) Typical for contrastive topics cf. literature to Questions under Discussion.³⁴
- Proposal for questions with alternatives: (5) S₁: What did ED_E eat?
 - a. Question radical. Hamblin representation:
 - $[CP what [TP Ed ate t_{what}]] = \{ Ed ate x' | x \in THING \}, = \Phi, a set of propositions \}$
 - b. Question speech act, as a function on CS: $\lambda C[\{\sqrt{C}\} \cup \{C + S_2 \vdash (Ed ate x) \mid x \in THING\}], = Q, a question act$
 - c. Alternatives introduced by focus on Ed. assuming that alternatives to Ed are persons: $\{\lambda C[\{\sqrt{C}\} \cup \{C + S_2 \vdash y \text{ ate } x' \mid x \in THING\}\} \mid y \in PERSON\}, = Q$

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Notice: Q is a set of question acts, the backburner questions.

³⁴ van Kuppevelt, Jan. 1995. Discourse structure, topicality, and questioning. *Journal of Linguistics* 31: 109-147. Roberts, Craige. 1996. Information structure in discourse: Towards an integrated formal theory of pragmatics. In: Yoon, J. H. & Andreas Kathol, (eds), *OSU Working Papers in Linguistics* 49: *Papers in Semantics*. Columbus: The Ohio State University, 91-136. Büring, Daniel. 2003. On D-trees, beans, and B-accents. *Linguistics and Philosophy* 26: 511-545.

8.2 Answering Questions with Backburner Questions

- (7) Answering a question with alternatives (where Q-Q = Q \ Q, provided that Q∈Q, else undefined): ⟨..., ⟨C+Q, Q⟩⟩ + A = ⟨..., ⟨C+Q, Q⟩, ⟨C+Q+A, Q-Q⟩⟩, removal of Q from backburner questions.
- (8) Answering remaining questions:
 - $\langle ..., \langle C, \underline{Q} \rangle \rangle$ + A: attempt to find a $Q^* \in Q$, then interpret as $\langle ..., \langle C + Q^*, \underline{Q} \rangle \rangle$ + A
- (9) Generalization for backburner questions from different sources: – take ⟨..., C⟩ as abbreviation of ⟨..., ⟨C, Ø⟩⟩: no remaining backburner questions – have ⟨..., ⟨C, Q'⟩⟩ + ⟨Q, Q⟩⟩ = ⟨..., ⟨C, Q'⟩, ⟨C+Q, Q' ∪ Q⟩⟩: new backburner questions added

8.4 Backburner polarity questions

- (17) Polarity questions can be marked for focus alternatives as well, to create backburner questions: I'm interested in whether Bill and Ed ate a cookie. Let's start with one of them. Did ED eat a cookie?
- (18) This is different from focus in polarity questions discussed above:

 I notice that a cookie is missing. Bill and Ed were in the room. Did ED eat the cookie?

 The answer patterns are different:

 I notice that a cookie is missing. Bill and Ed were in the room. Did ED eat the cookie?
- (19) S₁: (17). S₂: Yes, he did. still incomplete, as information about Bill is missing. S₁: (18). S₂: Yes, he did. – a complete answer.
- (20) S₁: (17). S₂: No, but BILL_{CT} DID_F. S₁: (18). S₂: No, BILL_F did.
- (21) The marking patterns are different in Turkish (Kamali & Büring 2011), with final *ml*: *ALI iskambıl oynar mı?*
 - Ali cards plays MI

'Did ALI play cards?', 'Was ALI one of the people that played cards?' Non-exhaustive interpretation, *Ali* is a contrastive topic, not a focus.

- (22) Analysis as **bipolar** question, where focus marks contrastive topic and introduces backburner questions, similar to focus in constituent questions.
- (23) We have to distinguish between:
 - Contrastive topics in questions in general (constituent and polarity)
 - Focus in polarity questions, a genuine phenomenon.

Questions under Discussion: Answering Questions with Backburner Questions

8.3 Contrastive Topics and Answers.

(10) Contrastive topic answers to questions:

- (11) S₁: What did ED_F eat? Question indicating a backburner question S₂: ED_{CT} ate a $COOKIE_F$ Contrastive topic indicates backburner question.
- (12) S₂: [$_{ForceP} \vdash [_{TP} Ed ate a cookie]]$.
- $\lambda C[C + S_2 \vdash C] Ed ate a cookie'], = A, only commitment part is indicated, for simplicity$ $(13) S₂: [FORCEP \vdash [TP Ed ate a COOKIE_F]]:$
- $\langle A, \{\lambda C[C + S_2 \vdash (Ed ate x'] | x \in THING\} \rangle$, focus indicating alternative answers
- (14) Reminder, interpretation of assertion with focus as responding to *wh*-question: $C+Q + \langle A, \underline{A} \rangle = C+Q+A$, provided that $\forall A'[C+Q+A']$ is defined $\rightarrow A' \in \underline{A}$]
- (15) Effect of contrastive topic intonation:
 - $S_2: [ForceP \vdash [TP ED_{CT} ate a COOK/E_F]]: \\ \langle \langle A, \{\lambda C[C + S_{2} \vdash 'Ed ate x'] \mid x \in THING \} \rangle, \{\lambda C[C + S_{2} \vdash 'y ate x'] \mid x \in THING, y \in PERSON \} \rangle$
 - $=\langle\langle A, A \rangle, A \rangle$
- (16) Answer with contrastive topics with respect to a CS with backburner questions: $\langle ..., \langle C+Q, \underline{Q} \rangle \rangle + \langle \langle A, \underline{A} \rangle, \underline{A} \rangle = \langle ..., \langle C+Q \rangle, \langle C+Q+\langle A, \underline{A} \rangle, \underline{Q}-Q \rangle \rangle,$
 - provided that $\forall A' \forall Q' \in \underline{Q}[C+Q'+A' \text{ is defined } \rightarrow A' \in \underline{A}]$
 - Answer with focus alternatives $\langle A, \underline{A} \rangle$
 - Make sure that the CT-alternatives in <u>A</u> answer correspond to question alternatives in <u>Q</u>.
 (Each legal answer to a question alternative must be a CT-alternative of the answer given.)

Questions under Discussion: Backburner polarity questions

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9 Conclusion

I have argued for:

- a. distinction between question sentence radicals and question speech acts
- b. speech acts as changes of commitment states
- c. speech acts as changes of commitment spaces, reflecting possible continuations
- c. question speech acts are flipped assertions: they request assertions, and hence restrict the space of legal continuations.
- d. there are two kinds of polarity questions, bipolar questions that propose two continuations, and monopolar questions that propose one.
- Declarative questions and questions with negated propositions are monopolar, proposition-external negation in polarity questions are requests to denegate assertions.
- f. Constituent questions restrict the legal continuations to assertions of the propositions in their question radical.
- g. Focus in assertions presupposes such legal continuations.
- h. Focus in monopolar questions presuppose that alternative monopolar questions have been asked;
- if answered negatively, the addressee is requested to perform one of these assertions.
- i. Focus in constituent questions and bipolar questions indicate question alternatives.
- j. Contrastive topic marker in answers presupposes congruent question alternatives.
- k. Speech acts like assertions and questions can be conjoined and disjoined.
- I. Tag questions are disjunctions of assertions and questions.

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