

### Bias in Commitment Space Semantics: Declarative Questions, Negated Questions, and Question Tags

The purpose of this talk is to model utterances with pragmatic bias: raising declaratives, polar questions with low and high negation, and assertions with question tags. This is done within the conversational model of commitment spaces proposed in Cohen & Krifka 2014.

The conversational model rests on the notion of **commitment states**  $c$ , which are similar to common grounds as sets of propositions, except that it also allows for propositions like ‘Speaker  $S_1$  is committed to the truth of proposition  $\varphi$ ’, rendered as “ $S_1 \vdash \varphi$ ”. In addition, it entertains the notion of **commitment spaces**  $C$ , sets of commitment states that have a non-empty intersection  $\cap C$ , the **root** of the commitment space. The commitments of  $C$  are represented in the root  $\cap C$ , whereas the set  $\{c \in C \mid \cap C \subset c\}$  represents how the commitment state  $\cap C$  can develop. While an **assertion** of a proposition changes the root of an input commitment space by adding the commitment of the speaker, a **question** changes the ways how the root should develop, namely by assertions by the addressee that answer the question.

Consider the **assertion**  $S_1$ : *Ed won the race*, uttered in situation  $u$  to  $S_2$ . If  $\varphi$  is the proposition  $\lambda s[\text{Ed won the race in } s]$ , and  $C$  is the commitment space of  $u$ , then  $u$  is changed to  $u'$  with commitment space  $C' = \{c \in C \mid [\cap C \cup \{S_1 \vdash \varphi\}] \subseteq c\}$ . In  $C'$ , all commitment states contain the proposition  $S_1 \vdash \varphi$ . If  $S_2$  does not protest, this results in  $\varphi$  becoming part of the commitment space in a second move, a conversational implicature:  $C'' = \{c \in C' \mid [\cap C' \cup \{\varphi\}] \subseteq c\}$ . See Fig. 1 where the nodes represent commitment states, and “+  $\alpha$ ” stands for the union of the nodes mother node with  $\{\alpha\}$ .

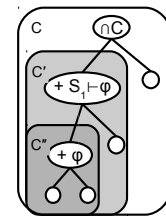


Fig. 1

The standard **polar question** *Did Ed win the race (or not)?*, uttered by  $S_1$  to  $S_2$ , results in a restriction of the possible moves of  $S_2$  to either commit to the proposition  $\varphi$ , or to its negation. See Fig. 2 for illustration. Notice that  $C$  and  $C'$  have the same root. The figures do not record that  $S_1$  is the initiator of this move, to keep things simple.

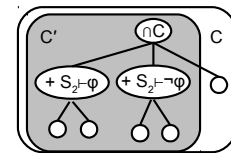


Fig. 2

Assertion and question differ in terms of the possible **responses** by  $S_2$ . Assume that *yes* and *no* pick up a propositional discourse referent introduced by the TP of the antecedent (cf. Krifka 2013). With *yes*,  $S_2$  commits to  $\varphi$ . With *no*,  $S_2$  commits to  $\neg\varphi$ , which is an expected move after the question, cf. Fig. 3, but requires a prior reject operation after assertions, cf. Fig. 4. This is because commitment states should be consistent, which rules out that  $\varphi$  and  $S_1 \vdash \neg\varphi$  are both elements of a commitment state, for any participant  $S$ . The response *no* is confrontational after the assertion  $\varphi$ , as it results in a commitment state that contains  $S_1 \vdash \varphi$  and  $S_2 \vdash \neg\varphi$ , a commitment conflict.

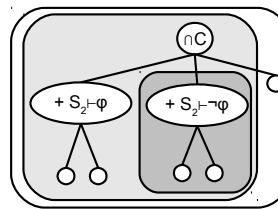


Fig. 3

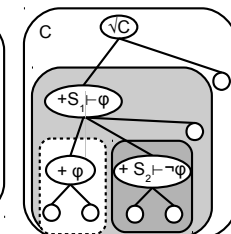


Fig. 4

The current framework allows for the representation of different kinds of **biased** questions. One case are **declarative questions** like *Ed won the race?* (cf. Gunlogson 2002). We represent this by a **monopolar** question, in which  $S_1$  restricts the moves for  $S_2$  to the assertion of just one proposition,  $\varphi$ , cf. Fig. 5. This makes a *yes* answer by  $S_2$  the more straightforward option, as *no* requires a prior reject operation, cf. Fig. 6. Thus, we capture the bias of such questions. But even *no* is not a confrontational move.

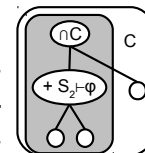


Fig. 5

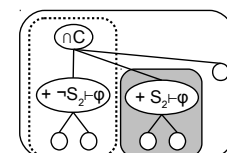


Fig. 6

There is evidence that regular questions like *Did Ed win the race?* also have a monopolar reading, like in Fig. 5. For example, only under the monopolar reading this question will differ from the **question with low negation**, *Did Ed not win the race?*. I will argue that the bipolar reading in Fig. 3 is generated by pragmatic exhaustification of the underlying question radical, changing  $\{\varphi\}$  to  $\{\varphi, \neg\varphi\}$ , leading to an alternative question.

Assertions with **matching question tags** such as  $S_1$  (to  $S_2$ ): *Ed won the race, did he?* can be represented as a **conjunction** between an assertion and a question, where conjunction is generally represented by intersection. This captures the impression (cf. Cattell 1973) that the proposition is put forward as one of the listener. Observe that  $S_1$  suggests a *yes* answer, and that  $S_1$  guarantees his or her own commitment to  $\varphi$  in case  $S_2$  commits to  $\varphi$ . Fig. 7, represents this conjunctive move by the dark area.

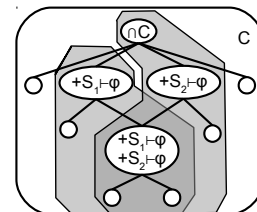


Fig. 7

Questions with **high negation** (cf. Ladd 1982) such as  $S_1$ : *Didn't Ed win the race?* will be modeled as requests to check if the addressee  $S_2$  does not commit to the proposition, hence as  $\neg S_2 \vdash \varphi$ , cf. Fig. 8. This differs from Krifka (t.a.), who analyzes them as denegations (complements) of the question  $S_2 \vdash \varphi$ . The current representation captures the insight of Buring & Gunlogson 2000 that such questions occur in case  $S_1$  does not have clear evidence against  $\varphi$  but there are reasons to doubt  $\varphi$ , often due to behavior of  $S_2$ . The high negation question checks whether  $S_2$  indeed would not commit to  $\varphi$ . The question makes it easy for  $S_2$  to negate  $\varphi$  by *no*, resulting in  $S_2 \vdash \neg\varphi$ , but requires a non-confrontational reject operation if  $S_2$  asserts  $\varphi$  by *yes*, resulting in  $S_2 \vdash \varphi$ .

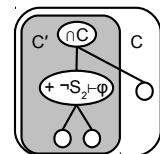


Fig. 8

The current modeling of high negation question also suggests a representation of **reverse question tags** such as  $S_1$ : *Ed won the race, didn't he?* by which the speaker proposes his or her own opinion and asks for confirmation by the addressee. We represent this as **disjunction** of an assertion and a high negation question, where disjunction is commitment space union.

Fig. 9 illustrates. The response *yes* by  $S_2$  leads to a commitment state in which both  $S_1$  and  $S_2$  are committed to  $\varphi$ , and the response *no* will lead to one in which  $S_2$  is committed to  $\neg\varphi$ , which rules out making  $\varphi$  part of the common ground.

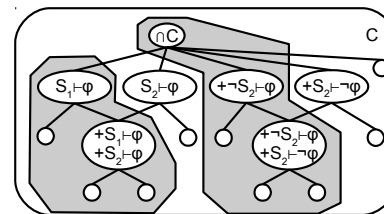


Fig. 9

The current proposal is similar in spirit to Malamud & Stevenson 2014, presented in the framework of Farkas & Bruce 2010, Roelofsen & Farkas (t.a.). I argue that there are properties of the current framework that are advantageous: No highlighting of propositions is necessary thanks to monopolar questions, keeping of a permanent record of commitments of interlocutors, no separate record for projected commitments is required, and there is a plausible compositional interpretation of meanings from the syntactic building blocks like negation, assertion and question formation, and prosody.

Buring, D & C Gunlogson. 2000. Aren't positive and negative polar questions the same? *LSA Annual meeting*. – Cattell, R 1973. Negative transportation and tag questions. *Language* 49. – Cohen, A & M Krifka 2014. Superlative quantifiers and meta-speech acts. *Linguistics & Philosophy* 37. – Gunlogson, C 2002. Declarative questions. *SALT* 12. – Krifka, M. 2013. Response particles as propositional anaphors. *SALT* 23. 1-18. – Krifka, M. t.a.. Negated polarity questions. In Lee, Ch e.a. (eds), *Contrastiveness and scalar implicature*. Springer. – Ladd, D R. 1981. A first look at the semantics and pragmatics of negative questions and tag questions. *CLS* 17. – Farkas, D F. & K B. Bruce. 2010. On reacting to assertions and polar questions. *Journal of Semantics* 27. – Malamud, S & T Stephenson. 2014. Three ways to avoid commitments: Declarative force modifiers in the conversational scoreboard. *Journal of Semantics*. – Roelofsen, F & D Farkas. t.a. Polarity particle responses as a window onto the interpretation of questions and assertions. *Language*.