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 φ', 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 ∩C, the **root** of the commitment space. The commitments of C are represented in the root ∩C, whereas the set $\{c \in C \mid \cap C \subset c\}$ represents how the commitment state ∩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 φ is the proposition λs[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 φ 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 "+ α" stands for the union of the nodes mother node with {a}.

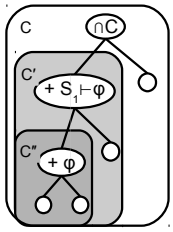

Fig. 1

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 φ, 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.

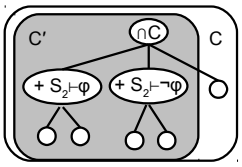

Fig. 2

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 φ. With *no*, S_2 commits to ¬φ, 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 φ and $S \vdash \neg\varphi$ are both elements of a commitment state, for any participant S. The response *no* is confrontational after the assertion φ, as it results in a commitment state that contains $S_1 \vdash \varphi$ and $S_2 \vdash \neg\varphi$, a commitment conflict.

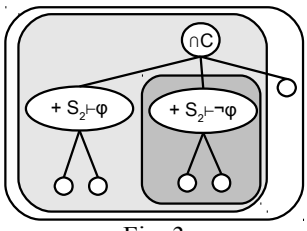

Fig. 3

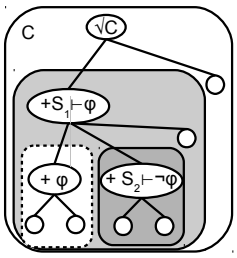

Fig. 4

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, φ, 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.

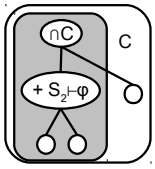

Fig. 5

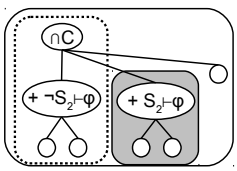

Fig. 6

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 {φ} to {φ, ¬φ}, leading to an alternative question.

Assertions with **maching 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 φ in case S_2 commits to φ. Fig. 7, represents this conjunctive move by the dark area.

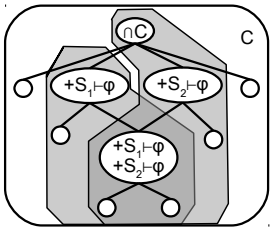

Fig. 7

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 Büring & Gunlogson 2000 that such questions occur in case S_1 does not have clear evidence against φ but there are reasons to doubt φ, often due to behavior of S_2. The high negation question checks whether S_2 indeed would not commit to φ. The question makes it easy for S_2 to negate φ by *no*, resulting in $S_2 \vdash \neg\varphi$, but requires a non-confrontational reject operation if S_2 asserts φ by *yes*, resulting in $S_2 \vdash \varphi$.

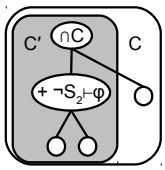

Fig. 8

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 φ, and the response *no* will lead to one in which S_2 is committed to ¬φ, which rules out making φ part of the common ground.

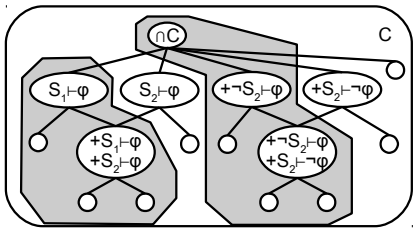

Fig. 9

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.

Büring, 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*.