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 \( \bigcap C \), the root of the commitment space. The commitments of \( C \) are represented in the root \( \bigcap C \), whereas the set \( \{ c \in C \mid \bigcap C \subseteq c \} \) represents how the commitment state \( \bigcap C \) 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 \( S_1: \text{Ed won the race} \), 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 \( C' = \{ c \in C \mid \bigcap C \cup \{ S_1 \vdash \varphi \} \subseteq c \} \). 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: \( C'' = \{ c \in C' \mid \bigcap C' \cup \{ \varphi \} \subseteq c \} \). See Fig. 1 where the nodes represent commitment states, and \( \bigcup \alpha \) stands for the union of the nodes mother node with \( \{ \alpha \} \).

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.

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 \( \lnot \varphi \), 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 \( S_1 \vdash \lnot \varphi \) 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 \( S_2 \vdash \lnot \varphi \), a commitment conflict.

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.
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 matching question tags such as S₁ (to S₂): 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 S₁ suggests a yes answer, and that S₁ guarantees his or her own commitment to φ in case S₂ commits to φ. Fig. 7, represents this conjunctive move by the dark area.

Questions with high negation (cf. Ladd 1982) such as S₁: Didn’t Ed win the race? will be modeled as requests to check if the addressee S₂ does not commit to the proposition, hence as ¬S₂\modelsφ, cf. Fig. 8. This differs from Krifka (t.a), who analyzes them as denegations (complements) of the question S₂\modelsφ. The current representation captures the insight of Büring & Gunlogson 2000 that such questions occur in case S₁ does not have clear evidence against φ but there are reasons to doubt φ, often due to behavior of S₂. The high negation question checks whether S₁ indeed would not commit to φ. The question makes it easy for S₂ to negate φ by no, resulting in S₂\models¬φ, but requires a non-confrontational reject operation if S₂ asserts φ by yes, resulting in S₂\modelsφ.

The current modeling of high negation question also suggests a representation of reverse question tags such as S₁: 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.

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 plausibly compositional interpretation of meanings from the syntactic building blocks like negation, assertion and question formation, and prosody.