On Polar Questions

There are different ways of asking whether or not a proposition is true. In the present work, we propose a formal description of the general pragmatic decision process of choosing between a positive, negative or (both elided and non-elided) bipolar question, given the speaker's beliefs and conversation goals. We show on several types of examples that these questions are not interchangeable in context, and propose to account for the differences pragmatically. Taking into account data that prove to be problematic for existing proposals (e.g. Romero & Han, Büring & Gunlogson), we offer a simple formal pragmatic (decision-theoretic) classification of three types of use. The description covers a number of phenomena hitherto not systematically dealt with. We also address Ladd's typology of negative polar questions, the counterpart of which exists for positive polar question as well. We show that the typology can be explained naturally by the formal description we offer.

The standard semantic theories of questions (Hamblin, Groenendijk & Stokhof) predict that the semantics of positive polar questions (PQs) (*Is Luke right?*), negative PQs (*Is Luke not right?*), and bipolar questions are the same. These types of questions are not always interchangeable, however. For example, in tag questions, the polarity of the tag is usually opposite to that of the assertion and positive and negative PQs are thus not mutually substitutable. Also, the use of a particular PQ kind reflects the goals of the speaker and a rendering with the opposing polarity does not necessarily lead to the achievement of the discourse goal (e.g., in the context of a medical examination or in an ecological test *Do you turn off appliances when they are not in use? Do you not dump waste? Do you not run the water while brushing your teeth?*) Similarly, PQs and bi-PQs are not always alternatives of each other. For example, the request *Will you marry me?* is not the same as asking *Will you marry me or not?*, similarly the rhetorical question *Are you crazy?* compared to *Are you crazy or not?* The contexts in which their use differs can be grouped under (i) pleas and requests, (ii) conversation starters, (iii) invitations, (iv) requests for information, (v) drawing inferences and acknowledgements, (vi) rhetorical questions, and (vii) biased questions.

We point out some empirical problems of Büring & Gunlogson's analysis i.t.o. their Evidence Condition, and offer a simple decision-theoretical description, using the notion of *utility value*. Utility value is the difference between the expected utility of finding out that q is the case (conditionalizing with q) and the expected utility prior to getting that information, i.e., $UV(q) = EU(P_q, U) - EU(P, U)$. In other words, it is the difference between expected utilities of two desire-belief states (P stands for probability and U for utility). The analysis makes use of the following decision theoretic fact: if someone just wants to know what the actual world is, utility value, $UV(q)$, provably reduces to informativity, $\inf(q)$, where it holds that $\inf(q) > \inf(\neg q)$ iff $P(q) < P(\neg q)$. Specifically, we propose that the speaker prefers to ask a positive PQ if the utility of the positive answer is higher or equal to that of the negative answer, i.e., $UV(q) \geq UV(\neg q)$. We can thus capture the fact that the unmarked way to ask whether q is true or not is by using the positive PQ. For negative polar questions, we assume that $UV(\neg q) > UV(q)$. It follows that bipolar questions are preferred in case both propositions are (equally) optimal, and thus $UV(q) \approx UV(\neg q)$. As noted by Bolinger, bipolar questions can be asked with a different degree of urgency (*Did you buy it or not? Did you buy it or did you not buy it?*), which we model by an increased utility value

(the speaker just needs to know whether q or $\neg q$). We consider two most common cases which can increase the utility value of the positive answer over the negative one, namely:

1. after learning the proposition q it is more likely that one reaches a desirable g-world than when its negation is true, i.e., $P(g/q) > P(g/\neg q)$, or

2. the information value of the proposition q being higher than the information value of its negation and thus $UV(q) > UV(\neg q)$ if $P(q) < P(\neg q)$.

With the decision-theoretic notions in mind, we discuss again the previously summarized data. We focus in detail on so-called reversed polarity questions, where the speaker believes the proposition with the polarity opposite to the proposition contained in the question to be true. Ladd refers to this type of negative PQs as *outer-negation* PQs, and, following Ladusaw, suggests that negation in these questions is not used descriptively (i.e., does not negate the proposition in the question), but metalinguistically - its function is to turn the question into a polite suggestion. (For example, if the speaker says *We'd like to eat out tonight - isn't there a vegetarian restaurant around here - Mosewood, or something like that?*, she clearly believes that there *is* a vegeterian restaurant in the neighbourhood.) It turns out, however, that reversed-polarity questions can be found with positive PQs as well. We suggest that the two types of PQs - non-reversed and reversed polarity - can be accounted for by means of our proposal that the utility value of the questioned proposition is higher than its alternative. For negative PQs, there is thus no need to distinguish between two different kinds of negation: in both cases, the negation simply negates the proposition contained in the question and always $UV(\neg q) > UV(q)$. For negative PQs without any epistemic implicature (the speaker doesn't believe that the positive proposition is more likely), the proposition $\neg q$ takes the speaker closer to her goal (case (1) above). For questions *with* epistemic implicature, the information value of the proposition $\neg q$ is higher than q (case (2)). Questions with preposed negation, like *Gibt es nicht ein vegetarisches Restaurant in diesem Gegend?* (which often function as suggestions) and confirmation (grounding) questions with canonical *accented* negation, like *Gibt es KEIN vegetarisches Restaurant in diesem Gegend?* belong to the latter category. The difference between the two is that a confirmation question asks for surprising new (though not yet accepted) information to be confirmed, whereas the former does not. Note that Romero & Han's proposal that the questioner takes the proposition with the polarity opposite to the proposition contained in the question to be most likely *follows* as type (2) PQ from our more general utility based analysis. We also don't have to adopt their assumption that the accent introduces a question of the form *What is the probability of q?* (R&H appeal to Roberts' notion of superquestion but the shortcoming of their suggestion is that a polar question would in fact not be represented by a more course-grained partition so the parallel cannot be maintained).

Selected references: D. BOLINGER (1978) 'Yes-no questions are not alternative questions' In H. Hiz (ed.)*Questions*, D. BÜRING & C. GUNLOGSON (2000) 'Aren't positive and negative polar questions the same?' semanticsarchive.net, M. ROMERO & C. HAN (2001) 'On Certain Epistemic Implicatures in Yes/No Questions', in *Proceedings of the 13th Amsterdam Colloquium*, R. LADD (1981) ' A first look at the semantics and pragmatics of negative questions and tag questions', *CLS* 17, W. LADUSAW (1979) *Polarity Sensitivity as Inherent Scope Relations*, PhD., C. ROBERTS (1996) *Information Structure in Discourse*, semanticsarchive.net.