

2. Stand der Forschung, eigene Vorarbeiten

2.1 Stand der Forschung

The central theoretical question addressed by the network is this:

- (1) What is the right way of thinking about questions in a discourse?

In particular this question pertains to the need for an explicit formal model of questions, of question-answer paradigms, and of the role that implicit and explicit questions play in discourse structuring and in the interpretation of information structural markers, discourse particles, as well as other expressions that may turn out to be question-sensitive.

In the following we develop five research questions that have been recently addressed in the literature and which, we think, are in urgent need of answers:

2.1.1. Explicit and implicit questions

The central assumption of virtually all current question-based models in the literature is that not only overt questions, but also implicit questions play a role in the discourse-semantic interpretation of utterances in dialogue. For instance, (3) is a natural answer to the explicit question in (2), but, if (3) is uttered in isolation, the focus accent on the subject *Bugs Bunny* (indicated by capitals) still indicates that it functions as an answer to the (implicit) question in (2) (e.g. Roberts 1996, Büring 2003).

- (2) Who ate the carrots?
- (3) BUGS BUNNY ate the carrots.

In this sense, the role of questions in a dialogue is not restricted to that of explicit linguistic objects.

This directly leads to the question of how explicit question-answer paradigms relate to implicit questions. A potentially confounding factor has to do with the fact that the implicit question that is conventionally marked by a given utterance (by means of focus marking) is also the question to which the utterance is the most direct possible answer. By contrast, explicit questions can be answered in quite different, often indirect ways. This leads to differences, or even (apparent) incompatibilities, between the explicit and the implicit question that an utterance may answer, as shown in (4): The answer in (4b) is interpreted as an indirect answer to (4a) although the implicit question signaled by (4b) has nothing to do with John kissing anyone (4c) (Büring 2003).

- (4) After a party in Berlin:
 - a. Michael: "Who did John kiss at the party?"
 - b. Jack: "/MARY was in PARIS\."
 - c. implicit question coded by (3b): Who was where?

In recent models of discourse representation by means of question trees (e.g. Beaver & Clark 2008) one and the same formal mechanism is used for representing implicit and explicit questions, but there are a number of properties of both types of questions to be accounted for: e.g. implicit questions can appear in embedded contexts, whereas explicit

questions cannot, and explicit questions have particular pragmatic properties, such as actually requesting information, which implicit questions appear to lack.

2.1.2. Questions as semantic objects

Questions crucially differ from assertions in that they request information from the hearer instead of proffering (asserted) information for inclusion into the common ground. This property of questions has often been formalized in terms of Alternative Semantics (Rooth 1985, 1992). While assertions are alternatively represented as propositions or sets of possible worlds, questions are thought of as sets of propositions, or sets of sets of possible worlds, containing the possible direct answers. Hence a yes/no question could be represented as in (5) and a *wh*-question could be represented as in (6):

- (5) [[Did Peter kiss Mary?]] = {Peter kissed Mary, Peter did not kiss Mary}
(6) [[Who did Peter kiss?]] = {Peter kissed Mary, Peter kissed Jane, Peter kissed Mary and Jane...}

This leads to a question-answer paradigm according to which an answer to a question picks out some alternative from the semantic value of a question (Hamblin 1973, Karttunen 1977).

More recently, this conception has been taken a step further in inquisitive semantics (e.g. Groenendijk & Roelofsen, 2009). In this framework, not only interrogative sentences, but sentences in general are taken to express a proposal to update the common ground of a discourse. Such a proposal may suggest just one possible update (in this case it is an assertion), but it may also suggest various possible updates, and invite other discourse participants to provide information in order to establish one or several of these possible updates (in this case the proposal is inquisitive). In this way, assertions and inquisitive sentences are analyzed in terms of one uniform notion of semantic meaning. This subtle shift in perspective has various consequences for the analysis of questions in discourse that need to be explored.

Alternative-based frameworks have been criticized on various counts. For instance, Groenendijk & Stokhof (1982, 1984) argued that Hamblin's and Karttunen's alternative semantics do not give a satisfactory account of embedded questions. They took this to motivate an analysis in which questions induce a partition of logical space into mutually exclusive sets of possible worlds, each of which embodies a complete exhaustive answer to the question; see also Bäuerle & Zimmermann (1991) for relevant discussion. By contrast, Heim (1994) and Beck & Rullmann (1999) offer alternative-based accounts that derive the exhaustiveness of embedded questions from the lexical meaning of the embedding predicate.

A second difficulty for alternative-based frameworks is that they cannot easily distinguish between so-called term answers (7a) and full answers (7b). Jacobson (2008) recently argued that such a distinction is necessary when it comes to exhaustiveness inferences, since (7a) is arguably more exhaustive than (7b) (an observation that is also at odds with the partitioning account).

- (7) What did Pluto eat?
a. Bones.
b. Pluto ate BONES.

If Jacobson's observation turns out to be correct, alternative frameworks for question-answer paradigms, such as function-based approaches (von Stechow & Zimmermann 1984) or structured meanings (Krifka 2001) may prove more useful for capturing the

relevant facts. However, such alternative frameworks only seem relevant for explicit questions, as implicit questions do not license term-answers at all.

2.1.3. Questions and discourse structure

Questions have been viewed as a general discourse structuring mechanism in the sense of Klein & Stutterheim (1987): This perspective has led to the development of complete discourse models that are based on question hierarchies (Roberts 1996). The central idea is that, while the general aim of discourse is to maximize information, the specific role of questions is to single out communicative strategies, hence making parts of the required information “at issue”. Assertions are then always interpreted with regard to the so called current question, e.g. Beaver & Clark (2008).

Such models are quite valuable for the analysis of discourse particles, e.g. Umbach (2005), Eckardt (2006a), Jasinskaja & Zeevat (2009), Onea & Volodina (2009, 2010) and information structure (Roberts 1996, Büring 2003, Beaver & Clark 2008, Beaver & Velleman 2010), but there remain three important issues to be clarified:

First, how do question-based discourse models relate to discourse models based on discourse relations, such as SDRT (Asher and Lascarides 2003) or RST (Mann & Thompson 1988)? One possibility to consider is that all discourse relations are in fact based on implicit question-answer paradigms. Research on discourse particles seems to favor this possibility: discourse particles and connectives play an important role in the computation of discourse relations, but, at the same time, some of them can be successfully analyzed in terms of question hierarchies conventionally derived from their lexical meaning. A particular question we wish to address is whether these findings generalize to all discourse particles, or whether modal and epistemic particles, which are also often subsumed under the notion of discourse particle (Eckardt 2006b, Zimmermann 2009) do not relate to particular discourse relations, but to the epistemic states of the discourse participants.

Second, how can a discourse model based on questions be appropriately formalized in a fully specific way, and how can a formal structure of discourse representation based on questions be accessed from conventionally coded semantic material? To put it another way: How can questions be part of the background ontology that is accessed by the meaning of linguistic expressions? One possibility would be to treat implicit questions as presuppositions in a way similar to the focus-analysis of Geurts & van der Sandt (2004). It has been argued, though, that there are significant differences to classical lexical presuppositions at least regarding the analysis of discourse particles (cf. Zeevat 2003): most prominently the lexical contribution of discourse particles cannot be accommodated.

Finally, there is a methodological trap to be avoided. We know from explicit discourse paradigms that questions may be answered indirectly. Implicit questions used to model discourse structure, however, must be reconstructed from the linguistic signals at hand, such as prosody, focus-sensitive items etc., such that the utterance under discussion will always provide a maximally direct answer to the current implicit question. This leads to the already mentioned observation that the current (implicit) question that is directly answered by an utterance may differ from the (explicit) current question in terms of what kinds of information are at issue or in need of resolution. The term current question then is in need of further explicit clarification.

This is of particular importance since the notion of answerhood to the current question, often in terms of being the at issue meaning, has been called upon in order to deal with the projection behavior of projective meanings, such as presuppositions and conventional implicatures (Potts 2005, Simons et. al 2010). In a similar vein, experimental studies have been conducted concerning the relevance of the current question for the calculation of scalar implicatures (Zondervan 2010).

2.1.4. Questions and information structure

One of the prime motivations for introducing question-based discourse models was that focus, when overtly marked in a language, is generally taken to be a feature of the answering constituent to a corresponding question. This is particularly transparent in Alternative Semantics, in which the focus semantic value of an utterance containing a focused expression corresponds to the ordinary semantic value of some question. This raises the question of how information structure, and more specifically the notion of focus, relates to (implicit) questions.

There are two traditional linguistic approaches to information structure: The more syntax-based generative approach like in Jackendoff (1972), Chomsky (1971), and later Rizzi (1997), on the one hand, and more prosody-based accounts like Schwarzschild (1999), on the other. The former approach takes central information-structural notions, such as focus and topic, to be syntactically coded in form of abstract features that operate at the sentence level, are subject to syntactic rules, and have a prosodic reflex in the phonological representation. In addition, Szabolcsi (1981, 1994) and É. Kiss (1998, 2009) have argued that information structure in terms of focus marking comes with hard-wired truth-conditional or presuppositional effects on the interpretation of sentences. Proponents of the second approach assume that intonation, or even the syntactic coding of information structure, is a direct means of signaling information status in terms of new and given information or activation, although these analyses often still assume some underlying abstract features (e.g. Schwarzschild 1999, Riester 2008, Beaver & Clark 2008). In the same vein, the exhaustiveness effects found with focus-marked answers are commonly analyzed in terms of pragmatic strengthening procedures, such as non-monotonic reasoning and utility measures (Schulz & van Rooij 2006, van Rooij & Schulz 2007; see similarly for contrastive topics van Rooij 2009) or Gricean conversational implicatures (Spector 2006, 2007). Question-based models have the potential of combining these views since being an answer to a question can be described in terms of new and given information or activation, but these effects can also be derived at the level of grammar (Büring 2003). Moreover, semantic effects like association with focus can be derived by way of conventional association with questions in the sense of Beaver & Clark (2003, 2008).

Previous studies have shown that a mapping between the two central information-structuring accents in English (A-accent, B-accent) and particular kinds of discourse trees based on question hierarchies (Büring 2003) does indeed exist, but things get significantly more intricate when taking into account the complexities of information structure, which goes way beyond the identification of focus marking and topic marking devices. Even for English, it has been shown that marking the answer to a question is not the only triggering factor for prosodic prominence, nor for its absence (cf. Bolinger 1972, Beaver & Clark 2008, Beaver & Velleman 2010), and recent cross-linguistic studies have shown that focus marking in natural languages can involve a number of different grammatical strategies that are only partly correlated with different interpretation strategies, such as exhaustiveness, new information etc. In addition, in some languages there appears to be no overt correlation between any kind of focus marking and overt questions as shown in Hartmann & Zimmermann (2007), which gives rise to the question of what types of grammatical focus marking interact with implicit questions under discussion, and how they interact in detail. To be concrete, potential issues of investigation could be whether implicit questions under discussion induce exhaustiveness in the answer, and why only certain types of foci give rise to exhaustiveness inferences.

At the same time the correlation between *wh*-words in questions and foci may also be relevant for the compositional derivation of the semantic value of questions proper. For instance Haida (2007) argues that *wh*-question words are in fact indefinites with a focus feature which is used to trigger an exhaustive interpretation, *sensu* Groenendijk & Stokhof (1984). Conversely, Eckardt (2007) argues that *wh*-words need not be focused as focus accents may also appear inside *wh*-questions on constituents other than the *wh*-word.

2.1.5. Concealed questions

Finally, apart from explicit and implicit questions, which make up an important part of the strategy by means of which interlocutors maximize the content of the common ground, there are additional occurrences of questions in discourse that play a different (although related) role. These include embedded and concealed questions (Heim 1979, 1994, Lahiri 2002, Beck and Sharvit 2002, Romero 2005, Frana 2006, Schwager 2008, Percus 2009). While such questions seem irrelevant from a purely discourse-structure oriented perspective, they can provide important clues as to which semantic analysis for questions is viable and general enough. In particular, we would like to raise three questions: First, do embedded questions, such as (8a), play a special role in the conventional marking of implicit questions? Second, do utterances containing concealed questions, such as (8b), answer to the same (implicit) questions as utterances containing fully spelt-out embedded questions (8a)? Third, can the existing semantic analyses of indirect scope-marking constructions in (8c) (Dayal 1994, Lipták & Zimmermann 2007), in which the question domain of the matrix question is determined by the embedded question, help in answering the first two?

- (8) a. John knows how much the MILK costs.
- b. John knows the prize of MILK.
- c. Was glaubst du, wieviel die MILCH kostet?

Summing up, there are a number of uses of questions in semantic and pragmatic theory that lead to important new insights regarding information structure, discourse particles, discourse structure and some related phenomena. At the same time, though, there is whole array of open questions concerning the correct semantic analysis of questions in need of clarification. The research network attempts to tackle some of these questions in a systematic collaborative way.