The Roadsigns of Communication

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Abstract

Special intonation and discourse particles can act as pragmatic roadsigns that signal specific moves in conversation. By making the nature of a conversational move explicit, these devices can aid in pragmatic processing. I make this idea precise using a Question under Discussion framework. Several case studies are presented.

1 Introduction

Questions under Discussion (Ginzburg, 1995a; Ginzburg, 1995b; Roberts, 1996) have proved to be a powerful concept for capturing the structure of conversation. Among other things, QUDs have demonstrated their usefulness for the understanding of focus (Roberts, 1998; Geurts and van der Sandt, 2004; Büring, 2003), anaphora resolution (Roberts, 2003; Clark and Parikh, 2007; Schoubye, 2009), speech acts (Roberts, 2004), scope resolution (Zondervan et al., 2008), presupposition (Thomason et al., 2006), and quantifier domain restriction (Malamud, 2006).

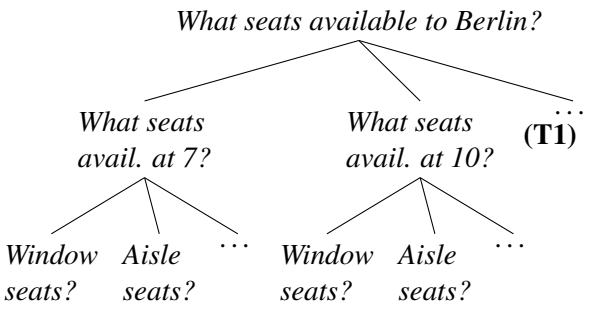
What the QUDs are in a given conversation is a matter that will be inherently interactional, and which is subject to negotiation between speakers. In this paper I discuss explicit devices that speakers can use to signal their views and preferences about the QUDs. These include intonation (Roberts, 1998; Büring, 1999; Büring, 2003) and discourse particles (Beaver and Clark, 2008; McCready, 2006; Davis, 2009; Eckardt, 2007). By making specific conversational moves overt, these devices act as 'pragmatic roadsigns.' This is especially useful when a conversational move is unexpected or could be construed as uncooperative; in those cases, these expressions or intonational devices can help speakers more effectively align their mental maps of the conversation. This paper presents a novel view of how QUD hierarchies are structured and then discusses three such roadsigns in more detail.

2 Discourse as QUDs

Imagine a scenario in which a traveler wants to get a flight to Berlin. If the traveler asks *Are there window seat tickets to Berlin at 7:00?*, then a simple *No* answer is not as helpful as one of the following replies:

1. *There are no seats (at all) for the 7:00 am flight to Berlin.* [no seats as opposed to just no window seats]
2. *The next available seats are for 10:00.*
3. *There are no seats/tickets to Berlin today at all.*

The answers in 1-3 above are helpful assuming that the most important thing for the traveler is to get some seat to Berlin today. A possible goal or question hierarchy is shown below. There, the overarching question is *What seats are available to Berlin?*, with subquestions about the seats at different times of day. These can furthermore have subquestions like *Are there window seats to Berlin available at 7:00?...*



If the travel agent infers that the question asked by the traveler was serving the bigger question *What are the seats available to Berlin at 7:00?*, then instead of just passing on the information that

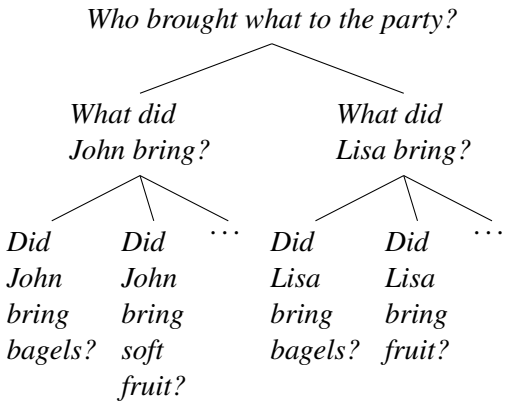
there are no window seats on that plane, she can give an answer that gives more information towards solving the question of what seats (window or otherwise) are available on that plane and utter 1. Or, similarly, if the seats at 7:00 are all gone, she could offer information about flights to Berlin at other times, which also helps towards the answer of the bigger question of what seats are available to Berlin. Finally, the agent can utter 3, thereby resolving the highest question in one go.

By representing the problem structure that the traveler is facing in terms of a question hierarchy, we can make sense of different conversational strategies. Answers 1-3 are all more effective in advancing the traveler towards solving their bigger goal of getting a flight to Berlin than the direct answer *No*. Even though answers 1-3 are very effective given this problem structure, they do depart from the most direct answer. If a polar question *p or not p?* signals a request for either one of the answers *p* or *not p*, then 1-3 are marked with respect to this most expected type of answer. Such marked or less expected moves are often signalled using special intonation or discourse particles. This idea will be illustrated in section 4.

3 The S-tree formalism

3.1 S-trees

Roberts (1996), Groenendijk (1999) and Büring (2003) developed the idea of a hierarchy of questions. When going about a difficult problem, interlocutors may divide it into pieces that are simpler and attempt to solve these instead. In terms of questions, this means that each question is divided into a collection of related questions which, when answered, provide just enough information to answer the original question. An example of how this subdivision into simpler questions might look is shown below:



(T2)

The S-tree formalism differs from the question hierarchies in Roberts (1996) and Groenendijk (1999) in that it allows more flexibility with respect to presuppositions. Namely, in S-trees presuppositions can be added or removed at different levels of the tree. Why this is desirable can be seen in tree (T2). The superquestion *Who brought what to the party?* might have the presupposition that each person (in a contextually relevant set) brought something to the party. Its daughter questions, for instance *What did John bring?*, do not have this presupposition, but possibly a weaker presupposition that John brought something. As we go one level lower in the tree, we get questions like *Did John bring pizza?* that have no presupposition.

Even though presuppositions present in a parent question can be missing in the child questions or vice versa, the presence or absence of presuppositions can have important effects on the conversation, as well as on the use of discourse particles (see 4.3). To allow us to track presuppositions, we relax the definition of questions as partitions of the entire world set (Groenendijk and Stokhof, 1982; Groenendijk and Stokhof, 1984; Lewis, 1988). Let W be the set of possible worlds. A question is represented as a partition of some proper or improper subset of W. Equivalently, a question is defined as a symmetric, transitive binary relation Q on W. When Q is reflexive, the question is a partition on the whole world set. When Q is not reflexive, we can think of it as a partition on a proper subset $S \subsetneq W$. In this case S corresponds to the presupposition of the question Q.

An *answer* to a question Q will be defined as in Groenendijk (1999), as an assertion that picks out an integer number (zero or more) of full cells of Q. A *complete* or *full answer* is a question that picks out a single cell of Q. A *partial answer* is an answer that picks out two or more full cells of Q.

The goal is to define S-trees in such a way that they are question trees with the following properties:

1. If we answer all the daughter questions of a parent question Q, we arrive at the answer to Q (or the statement that Q is not answerable).
2. If we provide a full answer to the parent question Q, we get an answer to each daughter question (or the statement that a daughter question is not answerable).

3. A question in an S-tree can introduce a presupposition not present in its parent question.

4. A daughter question may lack a presupposition present in the parent question.

To characterize the relationship between children nodes and mother nodes in S-trees, I define the concepts of *narrowing* and *combination*. Roughly speaking, a question q *narrows* Q if q only raises issues raised by Q. Intuitively, two questions q_1 and q_2 *combine* to give Q if answering q_1 and q_2 is a way to get the answer to Q. Using this terminology, S-trees are question trees that satisfy the following:

- Each child node *narrows* its parent node
- The children of a node Q (intersected with the presupposition of Q) *combine* to produce Q

First we define the *completion* of a question: a question is *completed* by adding a cell containing all worlds not already in the question. When applied to a statement p it results in a polar question: p or not p?

Definition 1 (completion)**.** The *completion* $\bar{q}$ of q is

$$\bar{q} \equiv q \cup \{\, \langle v, w\rangle \mid \langle v, v\rangle \notin q \;\&\langle w, w\rangle \notin q \,\}.$$

The narrowing relation generalizes the notion of subquestion from Groenendijk (1999).

Definition 2 (narrowing)**.** If q and Q are questions in $W \times W$, then we say that q *narrows* Q ($q \prec Q$) if and only if, for every pair of worlds $(v, w) \in W \times W$,

$$\langle w, w\rangle \in q \;\text{ and }\; \langle v, w\rangle \in Q \implies \langle v, w\rangle \in q$$

and

$$\langle v, v\rangle \notin Q \;\text{ and }\; \langle w, w\rangle \notin Q \implies \langle v, w\rangle \in \bar{q}$$

If q narrows Q then q only raises issues raised by Q. Any answer for q partially answers Q, or shows Q is invalid. Any answer to Q completely resolves q.

The definition of a *combination* follows:

Definition 3 (combination)**.** The *combination* $q_1 \sqcap q_2$ of q_1 and q_2 is $q_1 \sqcap q_2 \equiv (\bar{q_1} \cap \bar{q_2}) \cap (q_1 \cup q_2)$.

The combination of two questions q_1 and q_2 is the most general question that can be answered by resolving q_1 and q_2.

The *smash* of a question q is the statement that q can be answered. Intuitively, it is the presupposition implicit in q.

Definition 4 (smash)**.** The *smash* $\hat{q}$ of q is defined by

$$\hat{q} \equiv \{\, \langle v, w\rangle \in W \times W \mid \langle v, v\rangle \in q \;\&\langle w, w\rangle \in q \,\}$$

We are now ready to define S-trees.

Definition 5 (S-tree)**.** A strategy tree, or S-tree, is a question tree satisfying the following:

Every child q of a node Q satisfies the relation $q \prec Q$, and the children $q_1, \ldots, q_k$ of Q satisfy $Q = \sqcap_{i=1}^{k} q_i \cap \hat{Q}$.

S-trees are useful tools to understanding the flow of conversation. In order to capture the evolution of a conversation, we must establish rules for how one may move in an S-tree. The rules of traversal below build on Roberts (1996):

Definition 6 (Rules of traversal)**.** We may proceed from a node to a sister node or to a child node. However, we may only move to a parent or ancestor node if we do one of the following:

(i) Resolution: Resolve parent node Q by providing a full answer to it

(ii) Doubting: Show the parent node Q to be unanswerable by stating the negation of its presupposition, $\neg\hat{Q}$.

Alternatively, we can try to move upwards from a question Q by forming the polar questions corresponding to the *resolving* and *doubting* moves. A valid move upwards in a tree is called an *ascending* move.

The S-tree formalism presented here is based on Rojas-Esponda (To appear a).

3.2 Comparison with other QUD theories

Two ways in which the S-tree formalism differs from the question hierarchies in Roberts (1996) and Groenendijk (1999) are the explicit tracking of presuppositions and the freedom to add and remove presuppositions at different levels of the tree.

Keeping track of presuppositions is achieved by letting a question be a partition on a subset of the world set. A question in the S-tree formalism is a symmetric, transitive binary relation R on W instead of an equivalence relation as in Groenendijk

and Stokhof (1984) and Groenendijk (1999). By allowing some world pairs $\langle w, w \rangle$ to be excluded from the relation R (i.e. by not requiring reflexivity) one can model that some questions have non-trivial presuppositions and thus are only answerable on a proper subset $S \subsetneq W$. This does not mean that a question defined on a proper subset $S \subsetneq W$ asserts S. Rather, the truth of S can be negotiated among speakers. The greater point here is that allowing questions to partition subsets allows one to make sense of the notion that not only assertions, but also questions can be challenged (see (Rojas-Esponda, To appear a) and (Rojas-Esponda, To appear b) for why this is important for the particles *überhaupt* and *doch*, respectively).

Another difference from, e.g. the subquestion relation of Groenendijk (1999), is that child nodes are only required to narrow the parent node and combine to give the parent node. This allows the flexibility of adding or removing presuppositions as you move down one level in the tree, from a parent to a child node. Why this is desirable is shown below:

Another theory of QUD-trees, called D-trees, was developed by Büring (2003). I explain below why D-trees don't share one key feature with the formalism of S-trees or the formalisms of Roberts (1996) and Groenendijk (1999), namely that of being information-theoretically hierarchical.

Büring uses two types of restrictions in defining the class of D-trees. The restrictions that are based just on information-theoretic content are shown below:

Definition 7. A is an answer to Q if A shifts the probabilistic weights among the propositions denoted by Q.

Definition 8. q is a daughter question of Q iff at least one answer to q is an answer to Q.

Unraveling these definitions, we get that q is a daughter question of Q iff there exists at least one proposition a_1 that shifts the probabilistic weights of both q and Q. But this restriction is symmetric in q and Q. Therefore, without the other constraints used by Büring (based on CT- or F-marking), we would get that q is a daughter question of Q if and only if Q is a daughter question of q. This would not give us a directed structure, but due to its symmetry would yield something more akin to a cluster or graph.

4 Case Studies

In this section I will present a number of case studies that illustrate how we can use special language resources, like intonation or discourse particles, in order to obtain insights into how interlocutors are negotiating issues in discourse.

4.1 Intonation

Intonation is an important pragmatic roadsign, as different choices of intonation can give crucial clues as to what QUDs interlocutors are entertaining. Moreover, intonation can either mark congruence with a question asked or signal a change to a different question under discussion. These ideas were developed in Roberts (1998), Büring (1999) and Büring (2003), among other places.

Consider the following conversation:

Conversation 1

(i) *A: Who brought bagels?*

(ii) *B: SONJA brought bagels.*

In conversation (C1), B's answer has focus marking that is congruent with the question asked. Since the proper name Sonja is stressed, accounts of focus as generating alternatives (Jackendoff, 1972; von Stechow, 1981; Rooth, 1985; Taglicht, 1984), yield the set of propositions *X brought bagels.*[1] Importantly, B's focus marking seems to be coherent with the question raised by A.

Compare this to the following exchange:

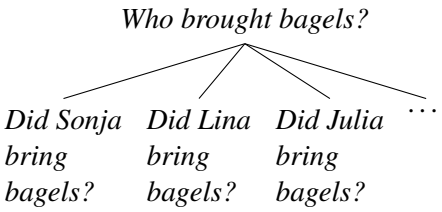
Conversation 2

(i) *A: Did Sonja bring bagels?*

(ii) *B: LINA brought bagels.*

The declarative *LINA brought bagels,* with contrastive topic accent on LINA, is not an answer to to A's question about Sonja. What is the rationale behind B's reply? Instead of merely answering the polar question asked, B offers information about Lina. This makes sense if B sees A's question not as the only QUD in the conversation, but sees A's question as serving another, larger QUD. This could be the question *Who brought bagels?*. Thus a tree incorporating both what A and what B said could be the following:

[1] It is important that B's accent is a focus accent, not a topic accent. This was shown by Büring (1999).



(T3)

Looking at tree (T3), we can see why B's answer in (C2) is strategic. However, B is not providing the exact information requested by A's polar question about whether Sonja brought bagels. The contrastive topic accent used by B is a clue that makes overt B's less expected conversational move (in this case, a move to answer a sibling question tied to A's question by a common superquestion).

4.2 The discourse particle *noch*

In this section I discuss a further roadsign, namely the German particle *noch* as analyzed by Eckardt (2007).[2]

The following is an example of a discourse use of *noch*, from Eckardt (2007).

Conversation 3

Tick kann schwimmen, und TRICK kann noch *schwimmen, (aber) Track kann nicht schwimmen.*
Tick can swim, TRICK can *noch* swim, (but) Track cannot swim.

Here, the question under discussion seems to be *Who can swim?* or *Which of Donald Duck's nephews can swim?* This question could be thought of as having three subquestions (in the sense of Groenendijk (1999)), *namely Can Tick swim?*, *Can Trick swim?* and *Can Track swim?* The first is answered in the positive, the second is answered in the positive as well, and the third is answered in the negative. This forms the basis for Eckardt's analysis. Namely, Eckardt proposes that *noch* in assertions can be used when we have a series of assertions that are answers to subquestions of a larger QUD and when all of the preceding assertions in this series have been 'yes'-answers to their corresponding questions.

In her own words:

> *noch* in assertions can occur in the n-th assertion of an ongoing strategy iff $n > 1$ and if all previous assertions pertained to the current question under debate positively (i.e. were a 'yes' answer to the local subquestion).

In order to account for *noch* in questions, Eckardt uses the notion of a remnant question (see also Büring (2003)). Roughly speaking, a remnant question is obtained when a question Q such as *Who can swim?* is addressed via a partial resolution, e.g. *Pat can swim*, and a question *Who else can swim?* that asks for the part of the question that remains unaddressed. This notion is handy as *noch* can be used in exactly this kind of question:

Conversation 4

Lucy kann schwimmen. Wer kann NOCH schwimmen?
Lucy can swim. Who else can swim?

Eckardt then analyses *noch* in questions as follows:

> Use of *noch* in questions: A question q licenses *noch* iff (a) it is a remnant question and (b) it is dominated by a question Q such that there are assertions between Q and q, and all assertions between Q and q are positive answers to Q.

I will sketch how Eckardt's account of *noch* can be captured within an S-tree formalism. The formalism in Eckardt's account is called a Question Answer Discourse — QAD. Let's start with the answerhood definition in the QAD formalism. In the S-tree formalism an (informative) answer to a question Q is an assertion that eliminates one or more full cells from Q. In QAD, the answerhood relation is more permissive: it allows overanswering. In terms of partitions, this would mean that an answer could pick out parts of cells, not just entire cells. However, Eckardt does not make use of this freedom in her *noch* examples. Thus, one could prohibit overanswering and the examples would stay intact. In fact, overanswering is not desirable for *noch*. Let's say we have a question Q = *Who can swim?* with subquestions *Can Tick swim?*, *Can Trick swim?* and *Can Track swim?* Let's also assume we allow overanswers. Because *Trick is a world champion swimmer* entails *Trick can swim*, we should be able to say:

[2] Focus marking is relevant for the particle *noch*, but I gloss over the distinctions between focused and unfocused *noch* here for reasons of brevity. For a fuller description, see Eckardt (2007).

Conversation 5

 # Tick kann schwimmen, TRICK ist noch ein Weltmeister im Schwimmen, aber Trick kann nicht schwimmen.

Tick can swim, TRICK is *noch* a world champion in swimming, (but) Track cannot swim.

However, (C5) is not felicitous. Thus, it is not desirable to allow overanswering in a *noch* formalism. However, once overanswering is eliminated and we allow only full cells to be removed, then the notion of subquestion from Eckardt (2007) becomes essentially a special case of the narrowing relation from 3.1.

Now, if instead of requiring q to be a subquestion of Q, one merely requires it to narrow Q, then one gains freedom with respect to introduction or elimination of presuppositions. I claim this does not hurt the *noch* analysis, and is even desirable:

Let Q be the question *Who can swim?* We may want to cut this into the three subquestions *Can Anna swim?, Can the neighbor's daughter swim?* and *Can Lisa swim?* The second question has a presupposition about the existence of a neighbor and a daughter of this neighbor. The particle *noch* can be used here:

Conversation 6

Wer kann schwimmen?
Who can swim?
Anna kann schwimmen, die Tochter des Nachbarn kann noch schwimmen und Lisa kann noch schwimmen.
Anna can swim, the daughter of the neighbor can noch swim and Lisa can noch swim.

By the arguments above, S-trees preserve the essential features of the QAD framework while capturing some of the data better. S-trees also handle assertions (a special type of question with just one cell) naturally. In the QAD framework, there are two different ways that a parent question can split into child nodes. One involves a splitting into two questions and the other splitting into an assertion plus a remnant question. These have to be defined separately because the splitting into questions is defined via answerhood and answerhood is not defined for an assertion. In the S-tree framework, the relation between parent and child nodes is defined using narrowing and combination, neither of which directly use the notion of answerhood. Thus, no extra work is needed to incorporate assertions into S-trees. In an S-tree, we can define a remnant question simply as the sole right sibling to an assertion node.

The particle *noch* provides hearers with information about the QUD structure of a conversation. Namely, *noch* signals that the utterance containing it is a positive answer in a sequence of (positively answered) sibling questions tied together by a common superquestion. The particle is especially useful when the hearer might have thought that all positive answers to the subquestions had already been listed. For instance, in (C6), a listener might have thought that the question of who can swim was exhaustively answered by *Anna can swim.* , an expectation which is overwritten by the two *noch*-clauses. By making overt the QUD move that is being made, the speaker can facilitate comprehension for the listener. Compare this to a similarly structured dialogue without *noch*.

Conversation 7

Wer kann schwimmen?
Who can swim?
Anna kann schwimmen. Lisa kann schwimmen.
Anna can swim. Lisa can swim.

In conversation (C7) there is a greater risk that the information about Lisa will not be understood as an additional piece of information, but instead as a correction to the assertion that Anna can swim.

4.3 The discourse particle *überhaupt*

I argue that the German particle *überhaupt* acts as a conversational roadsign, namely by signalling a move to a higher question under discussion in a hierarchical QUD strategy. The discussion will show that in order to deal with *überhaupt*, we need to rely on the mechanisms for handling presuppositions discussed in section 3. For instance, a looser notion than that of subquestion is needed, namely *narrowing* (see 3.1). I argued in 4.2 that the looser notion of narrowing is also useful for analyzing the particle *noch*.

The particle *überhaupt* has several, apparently disparate uses (König, 1983; Anderssen, 2006), and focus plays a role. Here I summarize a unified account that considers *überhaupt* as signaling a move to a higher Question under Discussion. For more details, see Rojas-Esponda (To appear a).

The uses of *überhaupt* are outlined below.

Focused *überhaupt* is used in a statement which generalizes previous statements in the dialogue:

Conversation 8

(i) *A: Verkaufen Sie Marmorkuchen?*
A: Do you sell marble cake?

(ii) *B: Nein.*
B: No.

(iii) *A: Verkaufen Sie Schokoladenkuchen?*
A: Do you sell chocolate cake?

(iv) *B: Wir verkaufen* ÜBERHAUPT *keinen Kuchen.*
B: We sell ÜBERHAUPT no cake.

The last utterance can be paraphrased as *We don't sell any cake at all.* Once this is uttered, the line of interrogation about what cake interlocutor B sells is terminated because the answer to every question (*No*) is implied by statement (C8.iv). Alternatively, if B had merely said he sells no chocolate cake, A could have replied *Verkaufen Sie* ÜBERHAUPT *Kuchen?* (Do you sell ÜBERHAUPT cake?), which can be paraphrased as *Do you sell any cake at all?*.

Below is an example illustrating the use of unfocused *überhaupt*.

Conversation 9

(i) *A: Möchtest du ein Glas Wein?*
A: Would you like a glass of wine?

(ii) *B: Nein, Danke.*
B: No, thank you.

(iii) *A: Hättest du gerne ein Bier?*
A: Would a beer appeal to you?

(iv) *B: Nein. Ich trinke überhaupt keinen Alkohol.*
B: No. I drink *überhaupt* no alcohol.

The last sentence can be paraphrased by *I actually don't drink alcohol.* As in (C8), *überhaupt* here has the effect of terminating a line of inquiry by generalizing over it. But in its unfocused form, *überhaupt* plays an additional role, namely that of invalidating a presupposition. A question equivalent of this usage also exists. If B had merely said he wants no beer, A could have replied *Trinken Sie* überhaupt *Alkohol?* (Do you even drink alcohol?).

Finally, *überhaupt* may be used with a universal quantifier or scalar predicate. In this use, *überhaupt* is always focused.

Conversation 10

(i) *A: Wie war das Wetter, als du in Rom warst?*
A: How was the weather when you were in Rome?

(ii) *B: Das Wetter war gut.*
B: The weather was good.

(iii) *A: Wie waren die Leute?*
A: How were the people?

(iv) *B: Die Leute waren sehr nett. Es war* ÜBERHAUPT *(alles) sehr schön in Rom.*
B: The people were very nice. It was ÜBERHAUPT very nice in Rome.

The last sentence can be paraphrased as *It was overall very nice in Rome*. This use also has a corresponding question form: *"War* ÜBERHAUPT *(alles) schön in Rom?*" (Was generally everything nice in Rome?).

When confronted with a series of questions that appear to be subquestions of a larger question Q, interlocutors can use *überhaupt* to move to the higher question Q or even to a superquestion of Q.

We use *überhaupt* if we doubt a higher question makes sense, or to resolve it directly rather than by answering subquestions.

In the conversation about drinks (C9), the use of unfocused *überhaupt* signals that a presupposition of the superquestion might have been invalid, suggesting that the superquestion was something like *What is the alcoholic drink that you want?* In the Rome conversation (C10), on the other hand, B may understand that A is asking a series of subquestions of the larger question *What were things like in Rome?* and B decides to answer this higher question directly, in an utterance that includes *überhaupt*.

> *The meaning of* überhaupt: After utterances U, interlocutor i may felicitously utter *überhaupt* (q) only if q is an ascending move in $S(i, U) \in \mathrm{Stra}(U)$. Thus the presence of *überhaupt* in q signals that q is an ascending move in $S(i, U)$.

Notation used in the denotation above: q stands for either a question or a declarative sentence. Say the set of utterances so far in the conversation is U. Let $\mathrm{Stra}(U)$ be the set of all compatible strategy trees. The tree 'favored' by each interlocutor i among the set of trees $\mathrm{Stra}(U)$ is denoted $S(i, U)$. Intuitively, the tree $S(i, U)$ is interlocutor i's view of how the discourse is organized.

By using *überhaupt* a speaker can make explicit a conversational move that deviates from the exact information requested. For instance, in (C8), the

explicit questions concerned just marble cake and chocolate cake, so the answer that B provides deviates from an answer that gives strictly the information requested and nothing else. B's answer violates the notion of relevance as defined in (Groenendijk, 1999). Yet B's answer is strategic, as B is trying to help A answer what she presumes is the overarching question. Using *überhaupt*, a speaker can make overt that she is undertaking a move to a higher QUD, thus making the deviation from the most expected direct answer less burdensome for the hearer.

5 Other roadsigns

In this paper, I explained how language resources such as intonation and discourse particles can act as pragmatic roadsigns that overtly signal specific moves in conversation. As we saw in section 4, this is especially useful when the move is unexpected or marked. I presented the framework of S-trees, and showed that it is both precise and flexible enough to capture the particles *noch* and *überhaupt*, as well as their interaction with presuppositions.

In German, and crosslinguistically, there are many other roadsigns that may provide information about the structure of discourse and the QUDs that are being navigated. For one, the particle *überhaupt* has a number of equivalents and near-equivalents in other languages (Migron, 2005a; Migron, 2005b). This suggests that unifying the various uses of *überhaupt* using QUDs was fruitful, and that other languages have resources to signal a move to a higher QUD. In (Rojas-Esponda, To appear b), I argue that the particle *doch* signals the raising of a previously settled issue. It thus goes against the expectation that questions whose answers are known will not be brought up again (see the maxims of *inquisitive sincerity* or *interactive sincerity* in Groenendijk and Roelofsen (2009) and Coppock and Brochhagen (2013), respectively). The analysis of German *ja* and St'á'imcets *qa7* by Kratzer and Matthewson (Kratzer and Matthewson, 2009) is keyed into a related idea: They analyze ja(p) and qa7(p) as signaling that the question of whether or not p is not currently considered on the table. For Japanese, Davis (2009) convincingly argues that the particle *yo* signals the resolution of the addressee's decision problem (See also McCready (2006)). The overarching idea is that languages have resources, such as intonation and discourse particles, that can help interlocutors coordinate and align their views of the conversation. They might signal a change in the QUD, a move to a higher QUD, whether or not a QUD is considered on or off the table, and whether a QUD has been resolved, among other things. Making precise how this works could give new insights for the view of language as interaction and negotiation (Clark, 1996; Parikh, 2001; Stone and Thomason, 2003; Stone et al., 2007).

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