



Research question

Puzzle. As noted in (von Fintel, 2001), conditionals can answer different Questions under Discussion (**QuD**, Roberts2012, Roberts2012). We will focus here on a small subset of those possible QuDs and use (1) as a working example. This conditional preferentially provides a partial answer to a question targeting its consequent (see (2a)), granted its antecedent. But (1) could also be used to give some hint about the truth of its antecedent itself (see (2b)). This however requires a context where whether Mary likes baguette can be easily settled. **How to formally relate (1) to those possible QuDs?**

- (1) If Mary is French she likes baguette.
- (2) a. What does Mary like? (Consequent-centric)
b. Where is Mary from? (Antecedent-centric)

Upshot. We suggest that both QuDs can be derived from a general representation of a conditional QuD in the form of a tree whose nodes correspond to sets of worlds. The consequent-centric QuD (2a) is derived by simplifying the conditional QuD-tree from the top-down, while the antecedent-centric QuD (2b) is derived by a bottom-up simplification.

Formal machinery

Building on previous work by Hénót-Mortier (forthcoming-a, forthcoming-b), Onea (2019), Riester (2019), and Zhang (forthcoming), we propose a model to compositionally derive, from a Logical Form (**LF**), the QuDs this LF can address. Following the insights of Büring (2003), we model QuDs as trees, more specifically, *parse trees* of the Context Set (**CS**, Stalnaker, 1974):

- whose nodes denote sets of worlds;
- whose root denotes the CS;
- whose intermediate nodes are all partitioned by the set of their children.

In such trees (“**Q-trees**”):

- ★ Any set of same-level nodes covering the CS can be seen as the “traditional” denotation of a question in the sense of Hamblin (1973).
- ♡ Any set of same-level nodes exhaustively dominated by a higher node N can be seen as the “traditional” denotation of a *conditional* question, taking the proposition N denotes for granted.

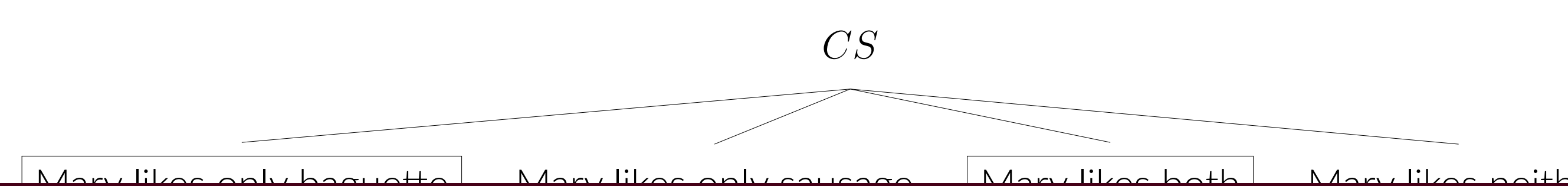
Conditional Q-trees

Simplex case. Büring, D. (2003). On d-trees, beans, and b-accents. *Linguistics & Philosophy*, 26(5). ➔ Ciardelli, I., Groenendijk, J., & Roelofsen, F. (n.d.). *Inquisitive semantics*. Oxford University Press. ➔ Groenendijk, J., & Stokhof, M. (1984). *Studies in the semantics of questions and the pragmatics of answers* (Doctoral dissertation) [(Unpublished doctoral dissertation)]. University of Amsterdam. ➔ Hamblin, C. L. (1973). Questions in montague english. *Foundations of Language*, 10(1). ➔ Heim, I. (2015). Unpublished lecture notes. ➔ Hénót-Mortier, A. (forthcoming-a). “one tool to rule them all”? an integrated model of the qud for hurford sentences. *Special Session “Does semantics have a ‘too many tools’ problem?” of the 29th Sinn und Bedeutung (SuB)*. ➔ Hénót-Mortier, A. (forthcoming-b). Redundancy under discussion. *29th Sinn und Bedeutung (SuB)*. ➔ Karttunen, L. (1977). Syntax and semantics of questions. *Linguistics and Philosophy*, 1(1). <https://doi.org/10.1007/bf00351935> ➔ Onea, E. (2016). *Potential questions at the semantics-pragmatics interface*. Brill. ➔ Onea, E. (2019). Underneath rhetorical relations: The case of result. In *Questions in discourse*. BRILL. https://doi.org/10.1163/9789004378322_008 ➔ Riester, A. (2019). Constructing qud trees. In *Questions in discourse*. BRILL. https://doi.org/10.1163/9789004378322_007 ➔ Roberts, C. (1996). Information structure in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics*, 5. <https://doi.org/10.3765/sp.5.6> ➔ Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics*, 1(1). <https://doi.org/10.1007/bf02342617> ➔ Simons, M. (2001). Disjunction and alternativeness. *Linguistics and Philosophy*, 24(5). <https://doi.org/10.1023/a:1017597811833> ➔ Stalnaker, R. (1974). Pragmatic presuppositions. In *Context and content*. Oxford University Press. ➔ Van Kuppevelt, J. (1995). Main structure and side structure in discourse. *Linguistics*, 33(4). <https://doi.org/10.1515/ling.1995.33.4.809> ➔ von Fintel, K. (2001). Conditional strengthening: A case study in implicature [Unpublished manuscript, MIT]. ➔ Wason, P. C. (1968). Reasoning about a rule. *Quarterly Journal of Experimental Psychology*, 20(3). <https://doi.org/10.1080/14640746808400161> ➔ Zhang, Y. (forthcoming). A qud-based account of redundancy. *Unpublished manuscript*. ➔ Q-trees for simplex LFs (corresponding to the antecedent and consequent of (1)) are given in Fig. 1 and 2. They are obtained by:

- Deriving a set of focus alternatives \mathcal{A}_p to the prejacent proposition p (via substitution within its LF, Rooth, 1992);
- Creating a partition by grouping together worlds of the CS that agree on all the propositions in \mathcal{A}_p (Hamblin, 1973);
- Identifying this partition to the leaves of the Q-tree for p .



Fig. 1. A question-tree (Q-tree) a sentence like p =*Mary lives in France* could be the answer to. Boxed leaves are sets of worlds where p holds.



Deriving QuD-dependence

We propose that (1) is relevant to questions (2a) & (2b) *via* some modification of the Q-tree in Fig. 3. We posit two operations:

- Reroot:** trim the Q-tree from **top down** by inductively replacing its root by one of its daughters. Amounts to focusing on a question in a more restricted CS (=“local question”).
- Refocus:** trim the Q-tree from **bottom up** by homogeneously deleting leaves (i.e. if ℓ gets deleted, all of ℓ ’s siblings get deleted too). Amounts to treating a local question as irrelevant to the conversation (because it can be easily settled, because it is too fine-grained...).

Applying those operations to tree 3 yields the trees in Fig. 4. Tree 4a can be mapped to question (2a) (as per ♡) and tree 4b to question (2b) (as per ★).

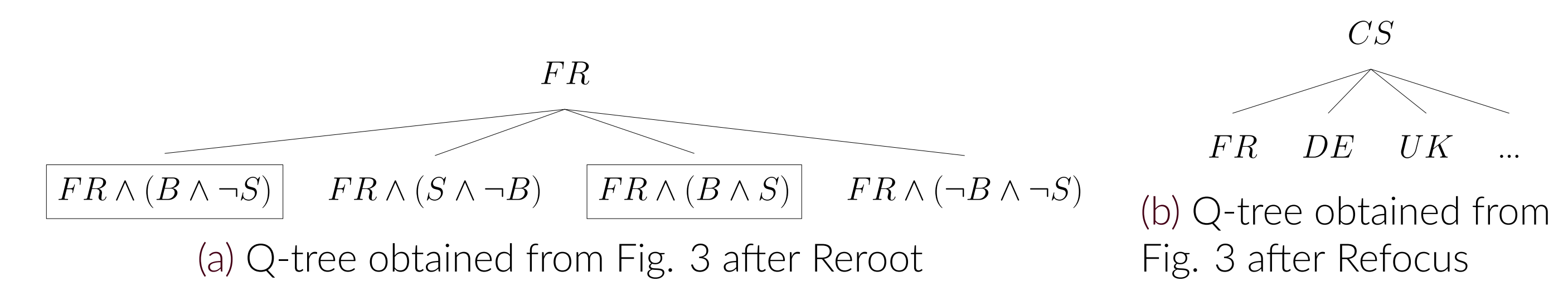


Fig. 4. Applying the two coercion operations to Q-tree 3

Conclusion & Outlook

We sketched a compositional machinery linking assertions to potential QuDs, accounting for certain conditions of use of conditionals. To explore:

- Interaction between Q-trees and presuppositions:** how to make sure Refocus does not derive QuDs dealing with backgrounded material (Heim, 2015)? Hunch: presuppositions don’t create branching, but instead are recursively intersected with the Q-tree generated by the assertion.
- Disjunctions/conjunctions of 2 conditionals:** how to account for the fact antecedents and consequents are respectively linked to similar QuDs? Hunch: disjunction/conjunction “fuse” Q-trees, imposing QuD-connectivity between antecedents and consequents (Simons, 2001; Zhang, forthcoming).
- Concessive uses of “bare” conditionals:** how, in languages such as French, *If Marie is French she doesn’t like baguette* can mean *Mary is French yet doesn’t like baguette*? Hunch: the plausibility of the consequent given the antecedent influences the application of Q-tree coercion operations.