Domain uniformity in questions

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We argue that a requirement on domain restriction in questions, which we call Domain Uniformity, is responsible for the contrast between the acceptable polar interrogative (1a) and the unacceptable "alternative" interrogative (1b), which contain focus-sensitive *even*.

(1) a. Did John even eat the CAKE? b. *Did John even eat the CAKE, or the CANDY?

Polar and "alternative" interrogatives. Consider the judgments regarding the *even*-less variant of (1a) in (2a), and the *even*-less variant of (1b) in (3a). We assume (following Karttunen 1977), that these interrogatives denote questions (i.e., functions from possible worlds to sets of true possible answers) that have at most two true answers, as in (2b) and (3b), respectively ($[\alpha]_{\varphi}^g$ is the intension of α relative to assignment g; $[\alpha]_{\varphi}^{w,g}$ is the extension of α in world ω relative to g). We adopt the disjunctive LFs in (2c) and (3c) because of their syntactic uniformity and semantic transparency (see Guerzoni & Sharvit 2014; cf. Han & Romero 2004, Biezma & Rawlins 2012).

- (2) a. Did John eat the cake?
 - Expected answers: (i) John ate the cake. (ii) John didn't eat the cake.
 - Surprising answers: (iii) John ate the apple. (iv) There was no cake.
 - b. λw . $\{p: p(w) = 1 \land (p = [\![] \text{John ate the cake }]\!]_{\mathfrak{c}}^g \lor p = [\![] \text{not [John ate the cake }]\!]_{\mathfrak{c}}^g \}$
 - c. LF of (2a): whether 3 [? [[John ate the cake] or₃ [not [John ate the cake]]]]
- (3) a. Did John eat the cake, or the candy?
 - Expected answers: (i) John ate the cake. (ii) John ate the candy.
 - Surprising answers: (iii) John ate the apple. (iv) John ate the cake and the candy.
 - (v) John ate the cake; there was no candy.
 - $\text{b.} \quad \lambda w. \ \{p: p(w) = 1 \land (p = [\![\text{John ate the cake }]\!]^g_{\mathfrak{C}} \lor p = [\![\text{John ate the candy }]\!]^g_{\mathfrak{C}})\}$
 - c. LF of (3a): whether 3 [? [[John ate the cake] or₃ [John ate the candy]]]

Presupposition exhaustivity (PE). That (iii)-(iv) in (3a) are surprising is due to Answerhood (as in Heim 1994, Dayal 1996). But the surprising status of (v) in (3a) suggests that questions obey Strong PE (cf. Heim 1983) rather than Weak PE (cf. Guerzoni 2003, 2004). Under WPE, (v) would be unsurprising to the issuer of the question, who would be presumed to be biased towards cake.

- (4) Where Q is a question issued in world w...
 - a. **SPE**: Q is felicitous in w only if $Q^{POSS} \neq \emptyset$, and for all $p \in Q^{POSS}$, every presupposition q of p, and all w' compatible with the beliefs of the issuer of Q in w : q(w') = 1
 - b. WPE: Q is felicitous in w only if there is some p such that $p \in Q^{POSS}$, and for every presupposition q of p and all w' compatible with the beliefs of the issuer of Q in w: q(w') = 1
- (5) For any question Q, $Q^{POSS} = \{p : \text{there is a } w' \text{ such that } p \in Q(w')\}$

A stronger argument for SPE is provided by the contrast in acceptability between the polar (1a), whose LF is (6), and the "alternative" (1b), whose LF is (7). (Note: (6) and (7) are faithful to the Guerzoni & Sharvit format; (6) is modified from the non-disjunctive LF in Guerzoni 2004 to fit that format.)

- (6) whether 3 [? [[even-C [John ate the cake_F]]] or₃ [not even-C [John ate the cake_F]]]]
- (7) whether 3 [? [[even-C [John ate the cake_F]] or₃ [even-C [John ate the candy_F]]]]

Suppose the food options in w are cake and candy, and John is allergic to something in the cake. With (8) (cf. Wilkinson 1996) and WPE, both (1a) and (1b) are predicted to be acceptable because $[\![C]\!]^{w,g} = \{[\![]\!]$ John ate the cake $[\![]\!]_{\psi}^g, [\![]\!]$ John ate the candy $[\![]\!]_{\psi}^g\}$, and the issuer of (6)/(7) may believe just that John eating the cake is less likely than John eating the candy. But under SPE, (1b) is correctly excluded by the requirement that the issuer of (7) believe contradictory presuppositions.

[8] [even-C [$_S \ldots \alpha_F \ldots$]]] $_{\psi,g}^{w,g}$ is defined only if [[$_S \ldots \alpha_F \ldots$]]] $_{\psi}^g$ is less likely in w than any other proposition in [[$_S \ldots \alpha_F \ldots$]]] $_{\psi}^g$ (where [[$_S \ldots \alpha_F \ldots$]]] $_{\psi}^g$ and some other element). When defined, [[even-C [$_S \ldots \alpha_F \ldots$]]] $_{\psi,g}^{w,g} = 1$ iff [[$_S \ldots \alpha_F \ldots$]]] $_{\psi,g}^{w,g} = 1$.

Domain Uniformity (DU). SPE does not suffice to account for the unacceptability of (1b), however. The LF of any interrogative must crucially also obey DU (which requires all possible answers to have the same restrictor for *even*). (7) respects DU, but (1b) can also have the LF in (9) where – without DU – it is in principle possible that $[C]^{w,g} \neq [C']^{w,g}$ and the issuer of the question believes the presuppositions of both possible answers, thus satisfying SPE.

(9) whether 3 [? [[even-C [John ate the cake_F]] or₃ [even-C' [John ate the candy_F]]]]

Biased polar questions. On the other hand, the claim that questions obey SPE and DU is at odds with the full analysis of *even* in polar interrogatives proposed in Guerzoni 2003, 2004. According to Guerzoni, (1a) has another LF in addition to (6), where *not* is in the scope of *even*, and each occurrence of *even* may have a different restrictor. (In Guerzoni's system, domain restriction of *even* is done implicitly, but this is orthogonal to the point made here.)

(10) whether 3 [? [[even-C [John ate the cake_F]]] or₃ [even-C' [not [John ate the cake_F]]]]]

Suppose the food options in w are cake and candy, and John is allergic to something in the candy. In this case, (1a) is acceptable only as a negatively-biased interrogative. Guerzoni's reasoning (which is based on WPE and no DU) is as follows. Since $[C]^{w,g} = \{[John ate the cake]_{\varphi}^g, [John ate the candy]_{\varphi}^g\}$, both possible answers of (6) have a presupposition that is false in w. But on the assumption that $[C]^{w,g} = \{[Inot[John ate the cake]]_{\varphi}^g, [Inot[John ate the candy]]_{\varphi}^g\}$ one possible answer of (10) – namely, $[Inot[John ate the cake]]_{\varphi}^g$ has a true presupposition in w (that John not eating the cake is less likely than John not eating the candy). If we impose DU, we derive, contrary to fact, that (1a) is acceptable only when the beliefs of its issuer are compatible with a neutral, information-seeking, interpretation (and can never be acceptable as a negatively-biased interrogative).

We propose, instead, that the negative bias of (1a) stems from (11) where *even* scopes above the speech-act operator ASK (cf. Iatridou & Tatevosov 2016 for question-focusing *even*, Krifka 2001 for pair-list interrogatives as every-over-ASK, Sauerland & Yatsushiro 2017 for 'remind-me' interrogatives as again-over-ASK), DU holds vacuously, and SPE can be respected. (11) presupposes that the issuer of the question is less likely to ask whether John ate the cake than she is to ask whether John ate its alternative(s). A bias arises towards whichever answer has a lower likelihood than its counterpart-answers in the alternative question acts. The analysis predicts a bias to arise when the high endpoint of a scale is focused as well (cf. Guerzoni 2004, fn. 5).

(11) even-C [ASK [whether 3 [? [John ate the cake_F] or₃ [not [John ate the cake_F]]]]]

The LF [ASK (6)], with *even* under ASK, is still a possible LF of the information-seeking reading of (1a), but (1b) has no licit LF. [ASK (7)] and [ASK (9)], with *even* under ASK, are excluded by SPE and DU; (12), with *even* over ASK, is excluded because $[C]^{w,g}$ is the singleton [ASK] [Whether 3 [? [John ate the cake_F] or₃ [John ate the candy_F]]]] $[g]^{g}$, violating the presupposition of *even* in (8) (we assume Q^{POSS} cannot be a singleton, which excludes, for example, a *cake-or-cake* alternative).

(12) even-C [ASK [whether 3 [? [[John ate the cake $_F$] or 3 [John ate the candy $_F$]]]]]

Interrogatives with *even* embedded under *wonder*, *know* etc. will behave similarly (with *even* optionally scoping above the verb), subject to the semantic requirements of the embedding verb.

Conclusion. The contrast in (1) strongly suggests that questions obey DU. This requires an analysis of bias in questions that does not rely on circumventing DU.

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