Causations, Questions, and Minimizers

Synopsis: This paper is aimed to provide an account for the paradigm on questions of causations with minimizers (see (1) and (2)). In (1) and (2), the minimizer (even) lift a finger occurs in the main clause of both of the questions of causations. However, while the yes-no question in (1) is ungrammatical, the why-question in (2) is grammatical and biased toward the negative answer ‘no reason’. To account for the paradigm shown in (1) and (2), I propose that: (i) with an adequate semantics of because, ungrammaticality in (1) follows from the Guerzoni’s (2003, 2004) analysis on questions with minimizers, and (ii) Heim’s (1994) notions on answerhood play an important role to account for the negative bias in the why-question in (2).

Previous Analysis: Questions with minimizers generally are negatively biased toward the negative answer (see (3) and (4)). In Guerzoni (2003, 2004), it is proposed that the negative bias effect comes from the scope interaction between even and the trace of whether. In (3a) and (4a), even scopes over the trace of whether at LF (see (3b) and (4b)). The possible answers that are not consistent with the scalar presupposition of even (henceforth the ScalarP, see (5)) are excluded (as indicated by striking through, see (1c) and (2c)). Since help is an upward-entailing predicate, the ScalarP fails. In the negative answers, even scopes over the negation that comes from the quantifying-in of whether. Since the ScalarP is not contradicted in the negative answers, they remain in the extension of the questions.

However, Guerzoni’s analysis would leads to the wrong prediction in (1) and (2). This analysis predicts that (1) and (2) have the same grammatical status. However, this prediction is not borne out.

Analysis: To account for the paradigm in (1) and (2), I start out form the semantics of because. The semantics of because I take in this paper is shown in (6). With the semantics in (6), the main clause of the because-sentence is upward-entailing. Therefore, John helped Mary to the minimal degree because he is a good man is entailed by and hence more likely than John helped Mary to more than the minimal degree because he is a good man. This semantics is supported by the licensing of any in the reasoning adverbial clause in the negation of the because-sentence, which is a (Strawson)-downward-entailing environment under (6) (see (7)). In addition, I assume that even can scope over because at LF but cannot scope over not because. This is supported by the contrast in (8a) and (8b).

Now turn back to (1). There are two possible LFs for (1). In (9a) even scopes over because, and in (9b) even scopes under because. (9a’) and (9b’) are the extension of (1) with the LFs (9a) and (9b). Since even scopes under the negation in both of the LFs, the ScalarP fails in both of the possible answers in the extension of (1) under both of the LFs. Given that none of the propositions in the extension of (1) can be the true answer due to the failure of the ScalarP, (1) cannot be felicitously answered and hence ungrammatical.

To account for the negative bias effect in (2), I appeal to Heim’s notions of answerhood (see (10)). With the LF (11a), the why-question in (2) denotes the set of propositions in (11b). However, all the propositions in this set can never be true answers to the why-question in (2), for the main clause of the because-sentence is upward-entailing and hence the ScalarP fails in every proposition. Since the set of true answers to the why-question in (2) is the empty set, applying Ans1 would lead to the tautology. Therefore, Ans2 must apply and yield the negative answer ‘no reason’.

This analysis can be extended to other constituent questions with minimizers (see (12)). With the LF in (13a), (12) denotes the set of propositions in (13b). However, since help is an upward-entailing predicate, the set of true answers is the empty set due to the failure of ScalarP in every proposition in (13b). Hence, only Ans2 can apply and yield the negative answer ‘nobody’.

The difference on (un)grammaticality between (1) and (2) can be attributed to the difference on the accessibility to Ans2 between yes-no and wh-questions. Since Ans1 and Ans2 yields the same result when applying on yes-no questions, I postulate that Ans2 does not apply to yes-no questions. In (1), applying Ans1 would lead to the tautology due to the set of true answers being the empty set. Given that Ans2 does not apply to yes-no questions, the felicitous answerhood to (1) can never be derived. On the other hand, when the set of true answers to a wh-question is the empty set, Ans2 can always apply and yield the negative answer.
Examples:
(1) *Did John (even) lift a finger to help Mary because he is a good man?
(2) a. S: Why did John (even) lift a finger to help Mary?
   A: No reason.  #A: Because he is a good man.
   b. [Whether, Q [even [ t [ John helped Mary to the [minimal] F degree]]]]
   c. [even[John helped Mary to the [minimal] F degree], [even[−[John helped Mary to the [minimal] F degree]]]]
(3) a. S: Did John (even) lift a finger to help Mary?
   A: No, he didn’t.    #A: Yes, he did.
   b. [Whether, who Q [even [ t [ John helped Mary to the [minimal] F degree]]]]
   c. [even[John helped Mary to the [minimal] F degree], [even[−[John helped Mary to the [minimal] F degree]]],
      [even[Peter helped Mary to the [minimal] F degree]], [even[−[Peter helped Mary to the [minimal] F degree]]].
(4) a. S: Who (even) lifted a finger to help Mary?
   A: Nobody.     #A: Mary did (with plain intonation).
   b. [Whether, who Q [even [ t [ John helped Mary to the [minimal] F degree]]]]
   c.
   {[even[John helped Mary to the [minimal] F degree], [even[−[John helped Mary to the [minimal] F degree]]],
     [even[Peter helped Mary to the [minimal] F degree]], [even[−[Peter helped Mary to the [minimal] F degree]]].
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(5) \([\text{even}]\) \((C)(p)(w)\) is defined iff \(\forall q [q \in C \& q \neq p \rightarrow q > \text{likely} p]\) (The Scalar Presupposition (ScalarP))
   If defined, \([\text{even}]\)(C)(p)(w)=1 iff p(w)=1.
   Fro any two propositions p and q and p \neq q, q > \text{likely} p if p entails q.
(6) \([\text{because}]\)^R(p)(q)(w) = 1 if w \in q and for all w’ \in \text{Max}(\cap A(w))(R(w)): w’ \in (q \cap p);
   \([\text{because}]\)^R(p)(q)(w) = 0 if w \in q and for some w’ \in \text{Max}(\cap A(w))(R(w)): w’ \in (q \cap \neg p)
   Otherwise, it is undefined (where \(\cap A(w)\) is the set of accessibility worlds from w and \text{Max}(A(w))(R(w))
   is the set of best-worlds in \(\cap A(w)\) relative to R(w)).
(7) John did not marry Mary because he got any money from her.
(8) a. I called Mary because she was sick (and not because I like her), I took her to the doctor
   because she was sick (and not because I like her), I even did her shopping for her because
   she was sick.
   b. I didn’t call Mary because she was sick (but because I like her), I didn’t take her to the
   doctor because she was sick (but because I like her), *I didn’t even do her shopping for her
   because she was sick.
(9) a. [Whether, [t [ even [because John is a good man][John helped Mary to the [minimal] F degree]]]]
   a’. {[even[John helped Mary to the [minimal] F degree because he is a good man]],
     [not[even[John helped Mary to the [minimal] F degree because he is a good man]]]
   b. [Whether, [t [ [because John is a good man][even[John helped Mary to the [minimal] F degree]]]]
   b’. {[because John is a good man][even[John helped Mary to the [minimal] F degree]],
     [not[because John is a good man][even[John helped Mary to the [minimal] F degree]]]
(10) a. Ans1(Q)(w)=\(\lambda w’. w’ \in \cap A(w) [p \in Q(w) \& p(w)=1]\)  \(\text{Weak-exhaustive answer}\)
   b. Ans2(Q)(w)=\(\lambda w’. \text{Ans1}(Q)(w’)=\text{Ans1}(Q)(w)\)  \(\text{Strong-exhaustive answer}\)
(11) a. [Why, Q [even [ [because t [John helped Mary to the [minimal] F degree]]]]]
   b. \(\lambda p \in C, t. \exists q \in C, t. [\text{reason}(q) \& p=\text{even}[John helped Mary to the [minimal] F degree because q]]\)
(12) S: Who (even) lifted a finger to help Mary? A: Nobody.  #A: John did.
(13) a. [Who, Q [even [ t, helped Mary to the [minimal] F degree]]]
   b. \(\lambda x \in C, t. [\text{person}(x) \& p=\text{even}[x, helped Mary to the [minimal] F degree]]\)

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