Scalar NPIs in Embedded Questions

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Overview of the Puzzle

Scalar NPIs, including so-called 'minimizers' and transparently scalar expressions like even ONE, are not licensed in all embedded polar questions:

i. Sue asked whether Bill had read even ONE article on the list
ii. Sue knew whether Bill had read even ONE article on the list
iii. Sue was certain about whether Bill had read even ONE article on the list

Guerrzoni and Sharvit 2007 observe that weak NPIs like any and ever are licensed only in strongly-exhaustive embedded questions; they note that weak NPIs are uniformly licensed in polar questions, however, which are necessarily strongly-exhaustive by virtue of their assumed denotation. I show that the account of this observation presented in Guerrzoni and Sharvit 2004, and of scalar NPIs in questions in Guerrzoni 2004, predicts scalar NPIs to be uniformly licensed in polar questions as well.

NPIs and Question Strength

- Guerrzoni and Sharvit 2007, 2014: main-clause questions always license weak NPIs like any and ever, but not all embedded questions do

1. Which of John's students read any articles on the reading list?
2. a. John knew [which of his students read any articles on the reading list]
b. John wondered [which of his students read any articles on the reading list]c. It surprised John [which of his students read any articles on the reading list]

- Questions embedded under predicates that can support strongly-exhaustive inference patterns license NPIs, while questions embedded under predicates that cannot don't (cf. Groenendijk and Stokhof 1984 on know, Heim 1994 on surprise)

3. Strongly-exhaustive inference patterns

a. John knew [which of his students read the article]
   Bill didn't read the article → [John knows that Bill didn't read the article]
   b. It surprised John [which of his students read the article]
   Bill didn't read the article → [It surprised John that Bill didn't read the article]

- Only predicates that support such inferences embed polar questions; thus, all embedded polar questions license weak NPIs

4. a. *It surprised John [whether Bill read the article]
b. John knew [whether Bill read any articles]
   Heim 1994 etc.: the contrast between weakly- and strongly-exhaustive readings is a result of there being (at least) two distinct notions of an answer to a question

- The NPI facts seem to motivate a different view of the contrast, with strength being a property of the question itself (Nicolaie 2015)

New Data

- Scalar NPIs are licensed in matrix polar questions, where they induce a negative bias (Borkin 1971, Heim 1984, Guerrzoni 2004, etc.)

5. Has Bill read even ONE article on the reading list? → Asker expects that Bill hasn't read even ONE article

- Unlike weak NPIs, scalar NPIs are sensitive to more properties than just whether the embedding predicate supports strongly-exhaustive inferences; this is illustrated by the fact that not all polar questions license scalar NPIs

- Scalar NPIs are licensed in polar questions embedded under negator verbs (Lahiri 2002 — verbs that select for questions exclusively)

6. Rogative verbs
   a. Sue wondered [whether Bill read even ONE article on the list]
   b. Sue asked[whether Bill read even ONE article on the list]
   c. Sue investigated [whether Bill read even ONE article on the list]

- Scalar NPIs are not licensed in polar questions embedded under responsive verbs (Lahiri 2002 — verbs that embed questions and declarative clauses)

7. Episodic responsive verbs
   a. Sue knew [whether Bill read even ONE article on the list]
   b. Sue told Mary [whether Bill read even ONE article on the list]
   c. Sue was certain about [whether Bill read even ONE article on the list]

- The sentences in (7) improve when the matrix verb is embedded under responsive verbs (Lahiri 2002 — verbs that select for questions exclusively)

Responsive verbs embedded underwant

8. a. Sue wants to know [whether Bill read even ONE article on the list]
   b. Mary wants Sue to tell her [whether Bill read even ONE article on the list]
   c. Sue wants to be certain about [whether Bill read even ONE article on the list]

- Only responsive verbs are licensed in polar questions embedded under negator verbs (Lahiri 2002 — verbs that embed questions and declarative clauses)

Responsive verbs interpreted habitually

9. In those days, people monitored Bill's reading patterns carefully...
   a. Sue always knew [whether Bill read even ONE article]
   b. Sue always told Mary [whether he read even ONE article]
   c. Sue was always certain about [whether he read even ONE article]

- Responsive verbs are interpreted habitually

Responsive verbs in future tense

10. Next month, people will monitor Bill's reading patterns carefully...
    a. Sue will know [whether he read even ONE article]
    b. Sue will tell Mary [whether he read even ONE article]
    c. Sue will be certain about [whether he read even ONE article]

Scalar NPI Licensing

- Guerrzoni 1999, Lahiri 1998, etc.: the distribution of scalar NPIs is constrained by the satisfiability of the presupposition contributed by an overt or implicit even

11. For any proposition p, set of alternative propositions C_{ω}, and world w, e\{even\}p(C_{ω}) is defined only if ∀q ∈ C, p_\{q\} (p is less likely than q in w)

- Since scalar NPIs consist of even with a focus-associate that is entailed by all alternatives, even is at risk of triggering an unsatisfiable presupposition; entailment affects the relative likelihood of two propositions as in (12)

12. Entailment-likelihood constraint (Lahiri 1998, Cnizi 2011) If p_{ω} ⊆ q_{ω}, [w : q \ni p_{ω}] = ⊤

- Karttunen and Peters 1979 etc. can even move to take scope, movement over non-UL functions like negation allows scalar NPIs to trigger a satisfiable presupposition

Scalar NPIs in Questions

- Guerrzoni and Sharvit 2014: strongly-exhaustive questions have different LFs from weakly-exhaustive ones — the former involve conjunction of p and ¬p with the (potentially elided) negation in the second disjunct licensing NPIs

13. LF of did Bill read the article?

   [whether | 4 | ? [Bill read the article] or [not Bill read the article]]

- The presence of a DE function in a polar question allows even to trigger satisfiable presuppositions

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