

Guerzoni on Minimizers and *even* in polar questions

1. Bias in polar questions

Guerzoni reports a contrast between polar questions that host *even*-NPIs and polar questions that merely host one of the weak NPIs *any* and *ever*. The former, but not the latter, consistently carry a *negative bias*.

- (1) a. Was there even a single student at the meeting?
- b. Did Holmes have even the slightest idea who committed the murder?
- c. Did Mary contribute even a red cent?

- (2) a. Was there any student at the meeting?
- b. Did Holmes have any idea who committed the murder?
- c. Did Mary contribute any money?

Guerzoni notes moreover that negative bias can also be present in polar questions with an *even* that is not accompanied by a NPI.

- (3) a. Could Sam even lift the SMALLEST rock? biased
- b. Could Sam even lift the LARGEST rock? not biased
- c. Could Sam even lift BLUE rock? biased/not biased

- (4) Does Sam even know ITALIAN? biased/not biased

Guerzoni offers an attractive analysis of these facts that relies on the scope theory of *even*.

2. What *even* might mean

Let us review the analysis of *even* given in the classic article by Karttunen and Peters (1979).

- (5) Sam even knows ITALIAN.
 asserts: that Sam knows Italian
 presupposes: that Italian is hard (roughly)

- (6) a. It is possible that Sam even knows ITALIAN.
- b. Unless Sam even knows ITALIAN, they won't hire him.
- c. Is it true that Sam even knows ITALIAN?

- (7) **even [Sam knows [Italian]_F]**
- (8) a. **[[Sam knows [Italian]_F]]** =
that Sam knows Italian
b. **[[Sam knows [Italian]_F]]^f** =
{that Sam knows Romanian, that Sam knows French}
- (9) *even* ϕ
Existential presupposition
that at least one proposition in **[[ϕ]^f** is true
Scalar presupposition
that **[[ϕ]** is less likely than any element of **[[ϕ]^f**
- (10) **even [Sam knows [Italian]_F]**
Existential presupposition
that Sam knows Romanian or French
Scalar presupposition
that Sam is less likely to know Italian than Romanian or French

3. Two analyses of *even* under negation

The presupposition carried by a negative *even*-sentence seems to be the reverse of that carried by its positive counterpart.

- (11) a. Sam *even* knows ITALIAN.
presupposes: that Italian is hard (roughly)
b. Sam *doesn't even* know ITALIAN.
presupposes: that Italian is easy (roughly)
- (12) a. **even [Sam knows [Italian]_F]**
b.* **not [even [Sam knows [Italian]_F]**

The observation that the presupposition triggered by *even* in positive sentences is unavailable in negative sentence indicates that *even* cannot be interpreted in the scope of clausemate negation. Apparently, *even* is a positive polarity item.

This leaves the question how the actual interpretation of negative *even* sentence is derived. There are two different accounts offered in the literature. Rooth (1985) posits a negative polarity item *even_N* whose presupposition is the reverse of that triggered by normal *even*.

(13) *even*_N ϕ

Existential presupposition

that at least one proposition in $[[\phi]]^f$ is false

Scalar presupposition

that $[[\phi]]$ is more likely than any element of $[[\phi]]^f$

(14) **not [even_N [Sam know [Italian]_F]]**

Existential presupposition

that Sam doesn't know Romanian or doesn't know French

Scalar presupposition

that Sam is more likely to know Italian than Romanian or French.

Assuming just one *even*, Karttunen and Peters (1979) and Wilkinson (1996) propose instead that *even* can scope over clausemate negation.

(15) **even [not [Sam know [Italian]_F]]**

Existential presupposition

that Sam doesn't know Romanian or doesn't know French

Scalar presupposition

that Sam is less likely not to know Italian than Romanian or French =

that Sam is more likely to know Italian than Romanian or French

4. Doubts about the scope theory

Presupposition inversion with *even* is not only found under sentence negation, but in more or less any kind of NPI context. Ambiguity arises when *even* occurs in an NPI context where PPIs are not anti-licensed. This is just what is Rooth's ambiguity account predicts.

(16)a. I find it hard to believe that Sam knows any foreign language.

b. I met few people there who knew any foreign language..

(17)a. I find it hard to believe that Sam even knows ITALIAN. "easy"/"hard"

b. I met few people there who even knew ITALIAN. "easy"/"hard"

Rullmann (1997) notes that the scope theory needs to assume that *even* can move non-locally out of its licensing context.

(18)a. **I find it hard to believe [even [that Sam knows [Italian]_F]**

b. **[even [I find it hard to believe that Sam knows [Italian]_F]**

(19)a. **I met few people there who₁ [even [t₁ knew [Italian]_F]]**

b. **even [I met few people there who₁ [t₁ knew [Italian]_F]]**

And he notes that the scope theory needs to explain why the same movement is not possible in structurally isomorphic cases where NPIs are not licensed.

- (20)a. I find it easy to believe that Sam even knows ITALIAN. unambiguous (?)
b. I met many people there who even knew ITALIAN. unambiguous (?)

Since there does not seem any such explanation in sight, the ambiguity theory of *even* may seem preferable to the scope theory. This is what makes Guerzoni's argument for the scope theory particular interesting.

5. Polar questions

Following Karttunen (1977), Guerzoni assumes that any polar question denotes a set of two propositions, one for each possible (complete) answer to the question.

- (21)a. Does Sam know Italian?
b. {that Sam knows Italian, that Sam doesn't know Italian}

Guerzoni assumes that polar matrix questions contain a silent *whether*. The most straightforward syntax/semantics for this *whether* would seem to be the following.

- (22)a. **whether [Sam knows Italian]**
b. **[[whether α]] = {Y([[α]]), N([[α]])}**

- (23)a. Y := [λq . that q is true]
b. N := [λq . that q is false]

However, Guerzoni instead assumes the following somewhat more complex analysis.

- (24)a. **whether₁ [t₁ [Sam knows Italian]]**
b. **[[whether₁ α]] = {[[α]](Y), [[α]](N)}**

This analysis in principle allows for *whether* and its trace to be separated by other material. It seems hard to find cases where this actually happens.

- (25) Did Sam say he knows Italian?

(26)a. **whether₁ [t₁ [Sam say [he knows Italian]]]**
b. **whether₁ [Sam say [t₁ [he knows Italian]]]**

6. *Even* in polar questions

But Guerzoni argues that *whether* and its trace can be separated by *even* at logical form.

- (27)a. **whether₁ [t₁ [even [Sam knows [Italian]_F]]]**
b. **whether₁ [even [t₁ [Sam knows [Italian]_F]]]**

To keep matters transparent, let us depart from Guerzoni's exposition and assume that a "proposition" is a pair of a presupposition and an assertion.

- (28)a. **[[even [Sam knows [Italian]_F]]] =**
that Italian is hard//that Sam knows Italian
[[even [not [Sam knows [Italian]_F]]]] =
that Italian is easy//that Sam doesn't know Italian

Following Guerzoni, we also assume that (just like the denotation of *not*) polar operators Y and N pass on presuppositions unaltered.

- (29)a. Y := [λp//q. p//that q is true]
b. N := [λp//q. p//that q is false]

The two logical forms for *Does Sam even know ITALIAN?* then have the following denotations.

- (30) **[[whether₁ [t₁ [even [Sam knows [Italian]_F]]]]] =**
{that Italian is hard//that Sam knows Italian,
that Italian is hard//that Sam doesn't know Italian}
- (31) **[[whether₁ [even [t₁ [Sam knows [Italian]_F]]]]] =**
{that Italian is hard//that Sam knows Italian,
that Italian is easy//that Sam doesn't know Italian}

This predicts that, if Italian is considered an easy language, the only felicitous answer to the question is No. Guerzoni proposes that this accounts for the observed bias. Let's see how this applies to the rock examples.

- (32)a. Could Sam even lift the SMALLEST rock? biased
b. Could Sam even lift the LARGEST rock? not biased

- (33) **[[whether₁ [t₁ [even [Sam could lift the [smallest]_F rock]]]]] =**
{that the smallest rock is hard to lift//that Sam could lift the smallest rock,
that the smallest rock is hard to lift//that Sam couldn't lift the smallest rock}

- (34) [[**whether**₁ [**even** [**t**₁ [**Sam could lift the [smallest]_F rock**]]]]] =
{that the smallest rock is hard to lift//that Sam could lift the smallest rock,
that the smallest rock is easy to lift//that Sam couldn't lift the smallest rock}

Since small rocks are normally considered easier to lift than large ones, the only felicitous answer to the question is No. This account straightforwardly extends to polar questions with *even*-NPIs

But, if we replace *smallest* with *largest*, then both Yes and No answers are predicted to be felicitous. So Guerzoni correctly predicts that the *largest* example does not carry bias.

- (35) [[**whether**₁ [**t**₁ [**even** [**Sam could lift the [largest]_F rock**]]]]] =
{that the largest rock is hard to lift//that Sam could lift the largest rock,
that the largest rock is hard to lift//that Sam couldn't lift the largest rock}

- (36) [[**whether**₁ [**even** [**t**₁ [**Sam could lift the [largest]_F rock**]]]]] =
{that the largest rock is hard to lift//that Sam could lift the largest rock,
that the largest rock is easy to lift//that Sam couldn't lift the largest rock}

Guerzoni moreover observes that the ambiguity theory of *even* does not seem able to correctly derive the distribution of bias.

7. Constraints on scope

As we have seen, Guerzoni needs to assume that some principle can be found which would prevent *whether* from moving non-locally. In addition, Guerzoni herself notes that *even* is the only scopal element that should be allowed to scope over the trace of *whether*.

- (37)a. Did only MARY attend?
b. * **whether**₁ [**only** [**t**₁ [**[Mary]_F attend**]]]]]
- (38)a. Did everyone attend?
b. * **whether**₁ [**everyone** **2** [**t**₁ [**t**₂ attend]]]]]

Guerzoni does not consider this a compelling argument against her account, but rather takes it to be yet another illustration of the fact that *even* is has more freedom in its scope taking behavior than virtually any other scopal element.