



- \* Positive presupposition denials without *even* are acceptable.

(5) A: Did Kenji's wife go to the party?  
 B: He isn't married!  
 B': He's unmarried/a bachelor!

- \* Positive sentences with *even* are acceptable when they do not deny presuppositions.

(6) [Alex keeps falling for married men. Tomo wants to help.]  
 I think Derek would be great for Alex. He's really sweet, and he's even unmarried!

- Diagnosis: The puzzling contrast between the B/B' responses reflects something about how *even* interacts with presupposition denial.

## 2 Background on *even*

- *Even* is a focus-sensitive operator; I assume the framework of Alternative Semantics (Rooth 1985 et seq.).
- I will assume the scope theory of *even* (Karttunen & Peters 1979, Kay 1990, Wilkinson 1996, Lahiri 1998, i.a.)<sup>1</sup> according to which this item has a lexical entry as in (7):

$$(7) \quad \llbracket \text{even} \rrbracket^{g,w} = \lambda C_{\langle st,t \rangle} \cdot \lambda p_{\langle s,t \rangle} : \forall q \in C [q \neq p \rightarrow p <_w q] \\ \& \exists q \in C [q \neq p \& q(w) = 1]. p(w)$$

- $p$  = the prejacent (proposition in the scope of *even*)
- $C$  = a contextually salient subset of the focus alternatives for  $p$  (structures derivable from  $p$  by making substitutions of the appropriate type for the focused constituent)

- *Even* introduces two definedness conditions:<sup>2</sup>
  - \* Scalar presupposition:  $p$  is less likely (more noteworthy) than any other alternative in  $C$ .
  - \* Additive presupposition:  $C$  contains a non- $p$  alternative that is true.
- When defined, *even* is truth-conditionally vacuous.
- In negative sentences, *even* takes scope above negation.

<sup>1</sup>The analysis that I will propose is compatible with the ambiguity theory of *even* (Rooth 1985, Rullmann 1997, i.a.); the two theories make equivalent predictions for the meanings of simple sentences with and without negation. An analysis of this kind is sketched in the Appendix.

<sup>2</sup>The quantificational force of the presuppositions and the precise flavour of the scale have been subjects of debate in the literature on *even*. Nothing that I say hinges on the particular choices made here.

### 3 The proposal

**In a nutshell:** The additive presupposition of *even* is only satisfiable in negative presupposition denials.

- **Step 1:** The salient alternatives contain the trigger for the presupposition that the prejacent denies.

– What is focused?

- \* The entire vP, including the trace of the subject (8-b): a constituent of type  $\langle s, t \rangle$ .

(8) He isn't even MARRIED!

- a.  $\text{even}_C [\text{NEG} [\text{he is} [\text{MARRIED}]_F]]$
- b.  $\text{even}_C [\text{NEG} [\mathbf{he is MARRIED}]_F]$

– What are the salient alternatives?

- \* The structures formed by substituting the propositions made salient by Speaker A's discourse move for the focused constituent.

(9) Did Kenji's wife go to the party? = {Kenji's wife went to the party,  
Kenji's wife didn't go to the party}

- \* These propositions all carry the trigger for the presupposition that Kenji has a wife.

(10) He isn't even married!

- a.  $\text{LF} = \text{even}_C [\text{NEG} [\text{he is married}]_F]$
- b.  $\text{C} = \{\text{NEG} [\text{he is married}],$   
 $\text{NEG} [\text{his wife went to the party}],$   
 $\text{NEG} [\text{his wife didn't go to the party}]\}$   
 $= \{\textit{He isn't married},$   
 $\# \textit{His wife didn't go to the party},$   
 $\# \textit{His wife went to the party}\}$

(11) #He's even unmarried!

- a.  $\text{LF} = \text{even}_C [\text{he is unmarried}]_F]$
- b.  $\text{C} = \{\text{he is unmarried},$   
 $\text{his wife went to the party},$   
 $\text{his wife didn't go to the party}\}$   
 $= \{\textit{He is unmarried},$   
 $\# \textit{His wife went to the party},$   
 $\# \textit{His wife didn't go to the party}\}$

– Bad prediction: Both (10) and (11) suffer from a failure of *even*'s additive presupposition.

- \* The non-prejacent alternatives are undefined whenever the prejacent is true.

- Needed: A way of preventing the alternatives from being presupposition failures just in case they contain negation.

- **Additional ingredient:** A local accommodation (meta-assertion) operator *A* (Bochvar 1939).

- (12) Truth table for *A*
- | p | A(p) |
|---|------|
| T | T    |
| F | F    |
| # | F    |
- Maps presupposition failures to false, as if the presupposition had been asserted (cf. Heim’s 1983 local accommodation).
  - Independently used for presupposition denials in trivalent semantics (Beaver 1997, Beaver & Krahmer 2001).

- When inserted under negation, the *A* operator allows presuppositions to be negated instead of projected.

(13) The king of France isn’t bald; there is no king of France!

- (14) a. NEG [the king of France is bald]
- (i) Presupposes: There is a unique king of France.
  - (ii) Asserts: The king of France is not bald.
- b. NEG [**A** [the king of France is bald]]
- (i) Presupposes: nothing
  - (ii) Asserts: It is not the case that [there is a unique king of France and he is bald].

- **Step 2:** Select a parse that includes an *A* operator.

- In the negative presupposition denials, adding an *A* operator under negation allows the unsatisfied presupposition to be negated within the alternatives.

- \* The resulting propositions are true whenever the prejacent is true.
- \* **Additive presupposition satisfied.**

- (15) He isn’t even married!
- a. LF = even<sub>C</sub> [NEG [**A** [he is married]<sub>F</sub>]]
  - b. C = {NEG [A [he is married]],  
NEG [A [his wife went to the party]],  
NEG [A [his wife didn’t go to the party]]}
- = {*It’s not true that he is married,*  
*True! It’s not true that he has a wife and she went to the party,*  
*True! It’s not true that he has a wife and she didn’t go to the party*}

- In the positive presupposition denials, where there is no higher negation, an *A* operator can only assert the unsatisfied presupposition.

- \* The resulting propositions are false whenever the prejacent is true.
- \* **Additive presupposition unsatisfied.**

- (16) #He's even unmarried!
- a. LF = even<sub>C</sub> [A [he is unmarried]<sub>F</sub>]
  - b. C = {A [he is unmarried],  
A [his wife went to the party],  
A [his wife didn't go to the party]}
- = {*It's true that he is unmarried,*  
*False! It's true that he has a wife and she went to the party,*  
*False! It's true that he has a wife and she didn't go to the party*}

#### 4 The additive presupposition

- The proposal presented above relies on the failure of the additive presupposition of *even* when the alternatives that *even* encounters are mutually exclusive.
- Potential objection: It has been claimed that the additive presupposition of *even* is not active when the alternatives are mutually exclusive (von Stechow 1991, Krifka 1992, Rullmann 1997, Crnič 2011).

(17) A: Mary won a bronze medal.  
B: No, she even won a SILVER medal. (Crnič 2011: 152)

(18) [At yesterday's party, people stayed with their first choice of drink. Bill only drank WINE, Sue only drank BEER, and]  
John even<sub>1</sub> only<sub>2</sub> drank [WATER]<sub>F1, F2</sub> (Krifka 1992: 22)

- Response: These data do not show what they are supposed to show.
  - Native speakers of English judge examples like (17) to be infelicitous.
  - Native speakers of English judge examples like (18) to be felicitous, but upon closer examination the alternatives turn out to not be mutually exclusive.

\* Context suggests a second focus on the subject (Wilkinson 1996: 205):<sup>3</sup>

(19) [At yesterday's party, people stayed with their first choice of drink. Bill only drank WINE, Sue only drank BEER, and]

[JOHN]<sub>F(1)</sub> even<sub>1</sub> only<sub>2</sub> drank [[WATER]<sub>F2</sub>]<sub>F1</sub>

- a. LF = even<sub>C1</sub> [only<sub>C2</sub> [[John]<sub>F(1)</sub> drank [[water]<sub>F2</sub>]<sub>F1</sub>]]
- b. C<sub>1</sub> = {John only drank water, Sue only drank beer, Bill only drank wine...}

\* When the salient alternatives are mutually exclusive, the string is infelicitous.

<sup>3</sup>This is corroborated prosodically; *John* cannot be deaccented, even if he is mentioned earlier.

(20) [At the party last night, John stayed with his first choice of drink. You'll never guess what he chose.]

#He even<sub>1</sub> only<sub>2</sub> drank [water]<sub>F1, F2</sub>.

a. LF: even<sub>C1</sub> [only<sub>C2</sub> [he drank [water]<sub>F1, F2</sub>]]

b. C<sub>1</sub> = {He only drank water, He only drank beer, He only drank wine...}

- These data are exactly what we should expect if the additive presupposition is active.

## 5 Crosslinguistic extensions

- The puzzle is reproduced for items in Russian (*daže*),<sup>4</sup> Greek (*kan*), and German (*überhaupt*).

(21) Russian

A: Did Kenji's wife go to the party?

B: ?Da on **daže** ne ženat!

DA he DAŽE NEG married

'He isn't even married!'

B': #Da on **daže** xolostyak!

DA he DAŽE unmarried

Intended: 'He's even unmarried!'

(22) Greek

A: Did Kenji's wife go to the party?

B: Ma then ine **kan** pandremenos!

but NEG is KAN married

'But he isn't even married!'

B': \*Ma ine **kan** anipandros!

but is KAN unmarried

Intended: 'He's even unmarried!'

(23) German

A: Did Kenji's wife go to the party?

B: Er ist **überhaupt** nicht verheiratet!

he is ÜBERHAUPT NEG married

'He isn't even married!'

B': #Er ist **überhaupt** unverheiratet!

he is ÜBERHAUPT unmarried

Intended: 'He's even unmarried!'

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<sup>4</sup>Native speakers of Russian report that *voobščē*, another *even*-like item, can be used instead of *daže*. However, judgements vary considerably between speakers. Some can use this item on its own and report a contrast in the same direction as the other languages examined here; others can use this item on its own and report no contrast. There are also speakers who require that *voobščē* be accompanied by the particle *-to*; when *-to* is present, both positive and negative presupposition-denials are acceptable.

- All of these items have an *even*-like semantics (Iatridou & Tatevosov 2016; see also Anderssen 2006, Giannakidou 2007), plausibly including an additive component.
  - A prediction: An item that has a scalar component but lacks an additive component will be acceptable in both positive and negative presupposition denials.
    - Hebrew *bixlal* appears to be just such an item:
      - \* *Bixlal* has an *even*-like scalar component (Greenberg & Khrizman 2012, Greenberg 2016).
      - \* *Bixlal* is compatible with mutually-exclusive alternatives (24), suggesting that it lacks an additive component.
- (24) [B is a journalist doing a feature on bronze medallists. A is suggesting people for B to interview.]
- A: Mary won a bronze medal.  
 B: Lo! Hi **bixlal** zaxta be-medaljat [kesef]<sub>F</sub>.  
 NEG she BIXLAL won in-medal silver  
 ‘No! She even won a silver medal.’  
 (cf. Greenberg & Khrizman 2012: 141, Greenberg 2016: 3)
- *Bixlal* is compatible with both positive and negative presupposition denials!
- (25) A: Did Kenji’s wife go to the party?  
 B: Hu **bixlal** lo nasuj.  
 he BIXLAL NEG married  
 ‘He isn’t even married!’  
 B’: Hu **bixlal** ravak.  
 he BIXLAL bachelor  
 ‘He’s even a bachelor!’

## 6 *Even* and presupposition denial

- Iatridou & Tatevosov (2016) describe a use of *even* in questions<sup>5</sup> that bears a family resemblance to the one we have been exploring:
  - (26) A: Let’s meet at Oleana<sup>6</sup> for dinner. Is that okay?  
 B: Where is that **even**? (Iatridou & Tatevosov 2016: 298)
- They observe that the presence of *even* in (26B) triggers an uncancellable inference of extreme ignorance: B doesn’t know the first thing about Oleana.
- They note that what *even* does here can be thought of as a kind of presupposition denial.
  - \* A’s discourse move presupposes that B is equipped to answer the QUD.

<sup>5</sup>They also discuss polar questions, where *even* has additional discourse effects.

<sup>6</sup>Oleana is a restaurant in Cambridge.

\* By displaying extreme ignorance, B demonstrates that this is not the case.

• Iatridou & Tatevosov's (2016) proposal:

– This is garden-variety *even* scoping over and focus-associating with a question.

\* *Even* can have a higher type, taking a question as its prejacent and a salient set of questions as its alternatives.

(27) LF: even [Q + where is that]<sub>F</sub> (Iatridou & Tatevosov 2016: 305)

\* *Even* presupposes that the prejacent is the least likely of these alternatives.

· Relevant notion of likelihood: likelihood of being asked/askable in context.

– Deriving extreme ignorance:

\* The question least likely to be asked is the one whose answer is most likely to be known (the 'Asking-to-Ignorance Link').

\* The fact that B asks this question shows that they do not know the answer to the question that they are most likely to know the answer to.

\* From this, we can conclude that B does not know the answer to any of the other salient questions relevant to the QUD.

– Iatridou & Tatevosov (2016) show that this phenomenon also shows up for *even*-like items in Russian, Greek, and German.

(28) Russian<sup>7</sup>  
Eto **voobščē** gde?  
this VOOBŠČE where  
'Where is that even?' (Iatridou & Tatevosov 2016: 316)

(29) Greek  
Pu ine **kan** afto?  
where is KAN this  
'Where is that even?' (Iatridou & Tatevosov 2016: 316)

(30) German  
Wo ist das **überhaupt**?  
where is that ÜBERHAUPT  
'Where is that even?' (Iatridou & Tatevosov 2016: 317)

• Open questions: Is this a unified phenomenon? Is there a connection between scalarity and presupposition denial?

– In both cases, *even* is used in an objection to another speaker's discourse move.

\* Speaker B objects that some necessary precondition for Speaker A's discourse move to have its intended effect is not met.

<sup>7</sup>Iatridou & Tatevosov (2016) note that *daže*, the garden-variety *even* item, cannot appear in presupposition-challenging questions. As we saw earlier, it can appear in declarative presupposition denials. One possible explanation for this difference could be that *daže* cannot have the higher type needed to combine with questions.

- *Even* plays different roles in the two accounts.
  - \* In questions, the scalar presupposition of *even* is responsible for the extreme ignorance inference that produces the presupposition-denying effect.
  - \* In declaratives, the presupposition-denying effect comes from the meaning of the prejacent.
- Could *even* be marking both kinds of presupposition denials as unlikely discourse moves?
  - \* In cooperative discourse, one should only presuppose what is common ground; challenging a presupposition is a maximally unlikely (or noteworthy) discourse move to be able to make.
  - \* In my proposal, the scalar contribution of *even* is trivial in the declarative presupposition denials where it is acceptable.
    - Once we assume A operators in the structure, the prejacent entails all of the salient alternatives in the negative sentences.
    - What is *even* contributing?
- There's lots more to do!

## 7 Conclusions

- We have explained the puzzling contrast between positive and negative presupposition denials with *even* using properties of *even* and of presupposition denial.
  - *Even* introduces an additive presupposition that is in danger of being unsatisfied when the alternatives contain the trigger for a presupposition that the prejacent denies.
  - The A operator, a tool used to account for presupposition denials in trivalent semantics, can save the alternatives only under negation.
- Unsatisfied presuppositions within focus alternatives can affect the acceptability of a sentence that does not itself contain the relevant trigger.
- *Even* is additive... even when the alternatives it encounters are mutually exclusive.
- There is a rich landscape in which to explore connections between presupposition denial and focus operators across languages and environments.

## 8 Appendix

- The ambiguity theory (Rooth 1985, Rullmann 1997: a.o.) of *even* holds that there are two lexical entries for *even*.

- In positive sentences, *even* has the meaning we have been assuming (repeated from (7)):

$$(31) \quad \llbracket \text{even} \rrbracket^{g,w} = \lambda C_{\langle st,t \rangle} \cdot \lambda p_{\langle s,t \rangle} : \forall q \in C [q \neq p \rightarrow p \prec_w q] \\ \& \exists q \in C [q \neq p \& q(w) = 1]. p(w)$$

- \* *Even* introduces two definedness conditions:

- Scalar presupposition: *p* is less likely (more noteworthy) than any other alternative in *C*.
- Additive presupposition: *C* contains a non-*p* alternative that is true.

- \* When defined, *even* is truth-conditionally vacuous.

- In negative sentences, a homophonous item with reversed presuppositions is inserted. This item is an NPI (*even*<sub>NPI</sub>).

$$(32) \quad \llbracket \text{even}_{\text{NPI}} \rrbracket^{g,w} = \lambda C_{\langle st,t \rangle} \cdot \lambda p_{\langle s,t \rangle} : \forall q \in C [q \neq p \rightarrow \mathbf{q} \prec_w \mathbf{p}] \\ \& \exists q \in C [q \neq p \& q(w) = \mathbf{0}]. p(w)$$

- \* *Even*<sub>NPI</sub> introduces two definedness conditions:

- Scalar presupposition: *p* is **more** likely (less noteworthy) than any other alternative in *C*.
- Additive presupposition: *C* contains a non-*p* alternative that is **false**.

- \* When defined, *even*<sub>NPI</sub> is truth-conditionally vacuous.

- The proposal made in Section 3 can be translated into the ambiguity theory of *even* as follows:<sup>8</sup>

- Because both theories assume the same semantics for *even* in positive sentences, we can explain the unacceptability of positive presupposition denials as before.

$$(33) \quad \# \text{He's even unmarried!}$$

- LF =  $\text{even}_C [A [\text{he is unmarried}]_F]$
- $C = \{A [\text{he is unmarried}], \\ A [\text{his wife went to the party}], \\ A [\text{his wife didn't go to the party}]\}$
- $= \{\text{It's true that he is unmarried}, \\ \text{False! It's true that he has a wife and she went to the party}, \\ \text{False! It's true that he has a wife and she didn't go to the party}\}$

- Because *even*<sub>NPI</sub> is an NPI, it is inserted below negation and encounters the same set of non-prejacent alternatives as the positive *even* in (33).

<sup>8</sup>Provided that the additive presupposition of *even* is still part of the lexical entry of *even*. This assumption is not made by all accounts in the ambiguity camp, such as Rullmann (1997).

\* Because the reversed additive presupposition of  $even_{NPI}$  requires that there be a non-prejacent alternative that is false, it is satisfied.

- (34) He isn't even married!
- a. LF: NEG [ $even_{NPI}$  [A [he is married]<sub>F</sub>]]
  - b. C = {A [he is married],  
A [his wife went to the party],  
A [his wife didn't go to the party]}
  - c. = {*It's true that he is married,*  
*False! It's true that he has a wife and she went to the party,*  
*False! It's true that he has a wife and she didn't go to the party*}

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