Presupposition-denying uses of *even*[*]

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Abstract This paper explores a puzzling contrast: *even* can be used in denials of presuppositions, but only when it appears below negation. I present a solution to this puzzle that makes crucial use of the additive presupposition of *even*. This presupposition is controversial; I argue that the evidence used to challenge its presence does not show what it is claimed to show. I show that the puzzle is not unique to English and sketch crosslinguistic implications of the proposed analysis.

Keywords: *even*, presupposition denial, additivity

1   The puzzle

Even can be used in sentences that deny presuppositions, as in (1).

(1)   A: When did Marisa stop smoking?   ⤳ Marisa used to smoke

      B: She didn't **even** smoke!

Curiously, *even* can only be used in this way when it appears below negation.

(2)   A: Did Kenji's wife go to the party?   ⤳ Kenji has a wife (i.e. is married)

      B: He isn't **even** married!

      B′: # He's **even** unmarried/a bachelor!

(3)   A: I hear Maida was late for class again.   ⤳ Maida has been late before

      B: She's never **even** been late before!

      B′: # She's **even** always been on time before!

(4)   A: Who closed the window?   ⤳ The window was open

      B: It wasn't **even** open!

      B′: # It was **even** closed (already)!

This restriction is puzzling for at least two reasons. Firstly, the positive (B′) and negative (B) responses in (2-4) appear to be truth-conditionally equivalent, and so it is unclear why *even* can only be used in the latter. Secondly, the unacceptability of the positive responses does not appear to reflect general properties of *even* or of presupposition denial. Positive presupposition denials without *even*, like (5B′), are perfectly acceptable, as are positive sentences with *even* that do not deny presuppositions, like (6).

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

        B: He isn't married!

        B′:   He's unmarried/a bachelor!

(6)   Context: *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!

Instead, it appears that the contrast in (2-4) reflects something about how *even* interacts with presupposition denial. The goal of this paper is to find out what this something is.

The remainder of the paper is organized as follows. Section 2 will establish background assumptions about *even*. Section 3 will propose an explanation that makes use of a controversial property of *even*. Section 4 will argue that the proposal has desirable consequences for our semantics of *even*. Section 5 will discuss crosslinguistic predictions of the proposal. Section 6 will situate the current project with respect to other work on *even* and presupposition denials. Section 7 will conclude.

2 Background

I will assume the scope theory of *even* (Karttunen & Peters 1979; Kay 1990; Wilkinson 1996; Lahiri 1998, i.a.).[1] This theory holds that *even* is a focus-sensitive operator that obligatorily takes scope above negation in negative sentences and has a lexical entry as in (7).

(7) $[\![\text{even}]\!]^{g,w} = \lambda C_{<st,t>}.\ \lambda p_{<s,t>}: \forall q \in C\ [q \neq p \to p <_w q]\ \&$
                       $\exists q \in C\ [q \neq p\ \&\ q(w) = 1].\ p(w)$

According to this denotation, *even* takes two arguments: the prejacent (p), which is the proposition in the scope of *even*, and a contextually salient subset (C) of the focus

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1 The analysis that I will propose can be translated straightforwardly into 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.

alternatives for p, which are structures derivable from p by making substitutions of the appropriate type for the focused constituent (cf. Rooth 1985, 1992). *Even* introduces two definedness conditions:[2] a scalar presupposition that the prejacent is less likely or more noteworthy than any of the other salient alternatives in C, and an additive presupposition that there is at least one alternative in C besides the prejacent that is true. When defined, *even* is truth-conditionally vacuous.

3 The proposal

I propose that the additive presupposition of *even* is responsible for the contrast observed in Section 1; more particularly, this presupposition is only satisfiable in presupposition denials under negation.

Our first task is to establish what is focused. The prosody of the sentences that we are interested in is in principle compatible with either of the parses in (8). I will assume that what is focused is the entire vP, including the trace of the subject, as in (8b): a constituent of type $<s,t>$.

(8)   He isn't even MARRIED!

   a. LF: even$_C$ [NEG [he is [**MARRIED**]$_F$]]

   b. LF: even$_C$ [NEG [**he is MARRIED**]$_F$]

This means that the focus alternatives will be derived from the prejacent by making substitutions for this proposition-sized constituent.

Next, we must establish which focus alternatives are salient. All of the *even* sentences under consideration are used in response to something that another speaker has said; Speaker A's discourse move will make certain propositions salient, and thus particularly attractive as substitutions. In (2), for example, Speaker A asks a polar question, repeated in (9a), which denotes the set of propositions in (9b) corresponding to its possible answers.

(9)   a. Did Kenji's wife go to the party?

   b. {Kenji's wife went to the party, Kenji's wife didn't go to the party}

These propositions all contain the presupposition trigger *Kenji's wife*. When they are substituted into the prejacent in place of the focused constituent, the resulting alternatives will therefore contain the trigger for the presupposition that the prejacent denies. This means that all of the non-prejacent alternatives will be undefined when the prejacent is true, as shown in (10) and (11).

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2 The quantificational force of the presuppositions and the precise flavour of the scale have been subjects of debate in the literature on *even*. Nothing hinges on the particular choices made here.

(10) He isn't even married!

    a. LF = even$_C$ [NEG [he is married]$_F$]

    b. C = {NEG [he is married],

          NEG [his wife went to the party],

          NEG [his wife didn't go to the party]}

      = {*He isn't married,*

        #*His wife didn't go to the party,*

        #*His wife went to the party*}

(11) #He's even unmarried!

    a. LF = even$_C$ [he is unmarried]$_F$

    b. C = {he is unmarried,

          his wife went to the party,

          his wife didn't go to the party}

      = {*He is unmarried,*

        #*His wife went to the party,*

        #*His wife didn't go to the party*}

Because the additive presupposition of *even* requires that C contains at least one non-prejacent alternative that is true, both (10) and (11) will suffer from an a failure of this presupposition. This cannot be the whole story, because it fails to predict the observed contrast between positive and negative presupposition denials with *even*. We need a way of preventing the non-prejacent alternatives from being undefined just in case they contain negation.

A tool with exactly this property can be found in trivalent logic:[3] Bochvar's (1939) A operator. This operator has the truth table in (12); it takes a propositional argument and asserts that it is true. It maps true propositions to true, false propositions to false, and presupposition failures to false, as if the presupposition had been asserted; the A operator therefore has the effect of Heim's (1983) local accommodation.

(12) Truth table for A

p	A(p)
T	T
F	F
#	F

This means that, when inserted under negation, the A operator allows presuppositions to be negated instead of projected.

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3 The domain of truth values in trivalent systems contains not two but three members: 1, 0, and #. Presupposition failures receive the third truth value.

This operator provides a way of accounting for the acceptability of presupposition denials like (13) in trivalent systems (Beaver 1995; Beaver & Krahmer 2001).

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

(14)   a. NEG [the king of France is bald]

b. NEG [**A** [the king of France is bald]]

If the first clause in (13) is given the parse in (14a), the presupposition triggered by the definite description *the king of France* will project across negation to become a definedness condition for the entire clause; because the continuation denies this presupposition, (13) should be incoherent, contrary to fact. Beaver & Krahmer (2001) observe that, if the first clause is instead given the parse in (14b), the A operator will turn the presuppositions of the definite description into part of the assertive content of the proposition under negation. The entire first clause will therefore presuppose nothing but instead assert that it is not true that there is a (unique) king of France and that individual is bald; this is perfectly compatible with the continuation, and so we correctly predict (13) to be acceptable.

With this additional ingredient in hand, all that is needed to derive our puzzling contrast is to assume a parse of our presupposition denials with *even* that includes an A operator.

In negative presupposition denials, assuming an LF with an A operator under negation as in (15a) ensures that all of the alternatives contain this presupposition-negating configuration, as in (15b).

(15)   He isn't even married!

a. LF = even$_C$ [NEG [**A** [he is married]$_F$]]

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 non-prejacent alternatives, the A operator will prevent the unsatisfied presupposition that Kenji has a wife from projecting across negation;[4] instead, it maps *his wife went to the party* and *his wife didn't go to the party* to false – a truth value that

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4 The presence of the A operator does not result in denial of the presupposition triggered by the definite description *the party*. It has been independently argued (Romoli 2011) that A operators need to be able to selectively accommodate some presuppositions in their scope while leaving others untouched; one way of implementing this, suggested by Fox (2013), is to co-index the A operator with the trigger(s) of the presupposition(s) it accommodates.

negation will reverse. The resulting propositions (*It's not true that he has a wife and she went to the party, It's not true that he has a wife and she didn't go to the party*) are compatible with the prejacent (*It's not true that he's married*); in fact, they are entailed by it. This means that whenever the prejacent is true the additive presupposition will be satisfied. The scalar presupposition of *even* is likewise trivially satisfied; if the prejacent entails the non-prejacent alternatives, it cannot be more likely than them. We therefore correctly predict that negative presupposition denials with *even* will be felicitous.

In the positive presupposition denials, adding an A operator does not help. If the LF of (2B′) is as in (16a), all of the alternatives will contain an A operator but no higher negation (16b); the unsatisfied presupposition will therefore be asserted instead of negated.

(16)   # He's even unmarried!

　　　a. LF = even$_C$ [**A** [he is unmarried]$_F$]

　　　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*}

The resulting propositions are false whenever the prejacent is true; the additive presupposition of *even* thus remains unsatisfied, and so we correctly predict that positive presupposition denials with *even* will be infelicitous.

To sum up, we have successfully derived the puzzling contrast between positive and negative presupposition denials with *even* from properties of *even* and properties of presupposition denial. *Even* introduces an additive presupposition that is in danger of being unsatisfied when the salient focus 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 from being presupposition failures only under negation.

4　The additive presupposition

The proposal made above relies on the additive presupposition of *even* being unsatisfied when the alternatives that it encounters are incompatible with each other. However, 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). This claim is based on the alleged acceptability of examples like (17) and (18).

(17) A: Mary won a bronze medal.

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

(18) Context: *At yesterday's party, people stayed with their first choice of drink. Bill only drank* WINE, *Sue only drank* BEER, *and*

     John even$_1$ only$_2$ drank [WATER]$_{F1, F2}$.   (Krifka 1992: 22)

In (18), the exclusive contribution of *only* means that if John drank water he did not drink anything else. In (17), world knowledge that one can win at most one medal in a given event ensures that if Mary won a silver medal she did not win bronze or gold. If these sentences are acceptable, the additive presupposition of *even* cannot be active when the salient alternatives are mutually exclusive, and so it cannot be responsible for the unacceptability of positive presupposition denials with *even* as proposed in Section 3.

    Upon closer examination, these data do not show what they are claimed to show. I have been unable to replicate the judgement in (17); the native speakers of English that I consulted judge this example to be infelicitous. The case of (18) is more complicated. Native speakers do judge (18) to be acceptable, but only to the extent that the alternatives are not taken to be mutually exclusive. As Wilkinson (1996) observes, the context in (18) does not make salient a mutually exclusive set of propositions of the form *John only drank x*; instead, it makes salient a set of alternatives of the form *y only drank x*, which are perfectly compatible with each other. This suggests a second focus, as in (19).

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

     [JOHN]$_{F(1)}$ even$_1$ only$_2$ drank [[WATER]$_{F2}$]$_{F1}$.

     a. LF = even$_{C1}$ [only$_{C2}$ [[John]$_{F(1)}$ drank [[water]$_{F2}$]$_{F1}$]]

     b. C$_1$ = {John only drank water, Sue only drank beer, Bill only drank wine...}
                                  (adapted from Wilkinson 1996: 205)

This is corroborated prosodically; the subject cannot be deaccented, even if *John* has been mentioned previously. When the context and prosody are controlled so that the salient alternatives are mutually exclusive, as in (20), the result is infelicitous.

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

   # He even$_1$ only$_2$ drank [water]$_{F1, F2}$.

     a. LF = even$_{C1}$ [only$_{C2}$ [he drank [water]$_{F1,F2}$]]

     b. C$_1$ = {He only drank water, He only drank beer, He only drank wine...}

Thus, it appears that – at least for the speakers whose judgements are reported in this paper – *even* is unacceptable when the alternatives it encounters are mutually exlusive but acceptable when the alternatives are not mutually exclusive. These data are exactly what we should expect if the additive presupposition of *even* is active.

5 Crosslinguistic extensions

The puzzle observed in Section 1 is not just a quirk of English; it is reproduced for *even*-like items in Russian (*daže*),[5] 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

(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

(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

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5 Native speakers of Russian report that *voobšče*, an *even*-like item along the lines of *überhaupt*, 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 *voobšče* 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). *Daže* is the garden-variety Russian *even* and behaves like its English counterpart. Greek has several *even* items, of which *kan* is one; this item, often translated as *so much as*, has the distribution of an NPI (Giannakidou 2007). Its unacceptability in positive presupposition denials is thus unsurprising but fits with the crosslinguistic pattern nonetheless. *Überhaupt* does not mean *even*; it is characterized by Anderssen (2006) as a generalized domain widener. However, like *even* it picks out extreme or noteworthy values on a scale, as shown in (24) and (25); this suggests a scalar component.[6]

(24) Meine Mutter kennt (**überhaupt**) jeden   in Mindelheim.
     my   mother knows ÜBERHAUPT everybody in Mindelheim
     'My mother knows (absolutely) everybody in Mindelheim.'

                                                    (Anderssen 2006: 62)

(25) Von solchen Leuten kann man selten (**überhaupt**) etwas   lernen.
     from such   people can one rarely ÜBERHAUPT something learn
     'It's rare that you can learn anything (at all) from such people.'

                                                    (Anderssen 2006: 60)

These items are also *even*-like in that they appear to have an additive component, as demonstrated below. *Daže* and *überhaupt*, like English *even*, are unacceptable in the medals scenario discussed in Section 4; this is shown in (26) and (27), respectively. Greek *kan* is similarly unacceptable when its prejacent is the only true alternative; in (28), where Alex is the only individual who Sam did not talk to, *kan* cannot be used.

(26) A: Masha vyigrala bronzovuyu medal'.
         Masha won   bronze   medal
         'Masha won a bronze medal.'

     B: # Net! Ona **daže** vyigrala [serebryanuyu]_F medal'!
         No she DAŽE won   silver   medal

(27) A: Maria hat eine Bronzemedaille gewonnen.
         Maria has a   bronze-medal   won
         'Maria won a bronze medal.'

     B: # Nein! Maria hat **überhaupt**   eine [Silbermedaille]_F gewonnen!
         No   Maria has ÜBERHAUPT a   silver-medal   won

(28) Context: *Sam talked to everyone at the party, with one notable exception.*

     # Den mílise **kan** me ton [Álex]_F.
       NEG talked KAN to   the Alex

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6 This can be thought of as *even* associating with subdomain alternatives (cf. Chierchia 2006).

If the contrast between positive and negative presupposition denials with scalar additive particles is due to their additive presupposition, we can make a testable prediction: An item that is scalar like *even* but lacks an additive component will be able to appear in both positive and negative presupposition denials. Hebrew *bixlal* appears to be such an item. *Bixlal* has an *even*-like scalar component (Greenberg & Khrizman 2012; Greenberg 2016).[7] For example, on the scale of places that are difficult to visit from Massachusetts that is made salient in (29),[8] *bixlal* picks out the most noteworthy (i.e. most distant) alternative, as shown in (29a) and (29c). It cannot pick out the least noteworthy (i.e. least distant) alternative, as demonstrated by the unacceptability of (29b) and (29d).

(29)   Context: *The Greens live in Boston, Massachusetts. They are complaining that their three grown-up children all live too far away to visit easily.*

  a.   Ann gara be-Amherst, Dan gar   be-Ontario, ve Jan gar **bixlal**
       Ann lives in-Amherst Dan lives in-Ontario and Jan lives BIXLAL
       be-Israel!
       in-Israel
       'Ann lives in Amherst, Dan lives in Ontario, and Jan even lives in Israel!'

  b. # Jan gar   be-Israel, Dan gar   be-Ontario, ve   Ann gara **bixlal**
       Jan lives in-Israel Dan lives in-Ontario and Ann lives BIXLAL
       be-Amherst!
       in-Amherst

  c.   Ann lo   gara be-Boston, Dan lo   gar be-arcot ha-brit,   ve Jan
       Ann NEG lives in-Boston, Dan NEG lives in-states the-united and Jan
       bixlal   lo   gar ba-xeci ha-ze   shel ha-kadur!
       BIXLAL NEG lives in-half the-this of   the-globe

       'Ann doesn't live in Boston, Dan doesn't live in the United States, and Jan doesn't even live in this hemisphere!'

  d. # Jan lo   gar ba-xeci ha-ze   shel ha-kadur, Dan lo   gar be-arcot
       Jan NEG lives in-half the-this of   the-globe Dan NEG lives in-states
       ha-brit,   ve Ann **bixlal**   lo   gara be-Boston!
       the-united and Ann BIXLAL NEG lives in-Boston

This item is compatible with mutually-exclusive alternatives, as shown in (30), suggesting that it lacks an additive component.

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7 In other environments, Greenberg & Khrizman (2012) and Greenberg (2016) report that *bixlal* has a similar profile to *überhaupt*.

8 Special thanks to Itai Bassi and Danny Fox for their help in constructing this example. *Amherst* here refers to Amherst, Massachusetts.

(30)   Context: *B is a journalist doing a feature on bronze medallists. A is suggesting people for B to interview.*

      A: Meri zaxta be-medaljat arad.
             Meri won in-medal   bronze
             'Meri won a bronze medal.'

      B: Lo! Hi **bixlal**   zaxta be-medaljat [kesef]$_F$.
             NEG she BIXLAL won in-medal   silver
             'No! (What are you talking about?) She won a silver medal.'
                       (cf. Greenberg & Khrizman 2012: 141, Greenberg 2016: 501)

Bixlal can appear in both positive and negative presupposition denials, as predicted.

(31)   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
          '(What are you talking about?) He's a bachelor!'

Thus, the crosslinguistic predictions of our proposal appear to be supported.

6 *Even* and presupposition denial

Declaratives are not the only environment where a connection has been made between *even* and presupposition denial. Iatridou & Tatevosov (2016) describe a use of *even* in questions[9] that bears a family resemblance to the one we have been exploring:

(32)   A: Let's meet at Oleana for dinner. Is that okay?

      B: Where is that **even**?   (Iatridou & Tatevosov 2016: 298)

They observe that the presence of *even* in (32) triggers an uncancellable inference of extreme ignorance to the effect that Speaker B does not know the first thing about Oleana.[10] Importantly for our purposes, they suggest that what *even* does in (32) can be thought of as a kind of presupposition denial. More particularly, they argue that there is a general felicity condition on asking questions, namely that one does not ask questions of people who are not equipped to answer them. Thus, Speaker A's discourse move presupposes that Speaker B is equipped with enough

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9 They also discuss polar questions, where *even* has the additional effect of biasing the question toward the negative answer (cf. Guerzoni 2004).

10 Oleana is a restaurant in Cambridge.

information about Oleana to answer the Question Under Discussion (QUD). By displaying extreme ignorance, Speaker B demonstrates that this is not the case.

Iatridou & Tatevosov (2016) derive the extreme ignorance inference that produces this presupposition-denying effect from the scalar component of *even* acting on a question. More particularly, they argue that in the cases under consideration *even* takes scope over and focus-associates with the entire question, as shown in (33).[11]

(33)   LF: even [Q + where is that]$_F$ (Iatridou & Tatevosov 2016: 305)

The resulting set of alternatives will be a set of questions that are salient in the discourse; in this case, questions about Oleana. When applied to this set of alternatives, *even* presupposes that the prejacent question is the least likely of these alternatives, where the relevant notion of likelihood is likelihood of being asked or askable in the discourse context. Iatridou & Tatevosov (2016) derive extreme ignorance via what they call the "Asking-to-Ignorance Link", which holds that the likelihood of asking a question is inversely proportional to the likelihood of knowing its answer; in short, cooperative speakers do not sincerely ask for information that they already know. Thus, by marking a question as the least likely to be asked, Speaker B also marks it as the most likely to have its answer be known. The fact that Speaker B asked this question shows that they do not know the answer to the question they are most likely to know the answer to. This, Iatridou & Tatevosov (2016) claim, licenses the inference that Speaker B does not know the answer to any of the other, more difficult questions that are relevant in the discourse, meaning that Speaker B is in a state of extreme ignorance.

Iatridou & Tatevosov (2016) show that this phenomenon is attested for *even*-like items not just in English but also in Russian,[12] Greek, and German.

(34)   Russian

Eto **voobšče** gde?
this VOOBŠČE where
'Where is that even?'   (Iatridou & Tatevosov 2016: 316)

(35)   Greek

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

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11 They propose that *even* can have a higher type than is usually assumed, taking a question as its prejacent and a set of questions as its focus alternatives.

12 Iatridou & Tatevosov (2016) note that *daže* 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.

(36) German

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

Thus, *even*-like scalar items show up in presupposition-challenging discourse moves in both declaratives and questions in multiple languages.

This result raises a new question: Is this a unified phenomenon? That is, is there a connection between scalarity and presupposition denial? There is a clear family resemblance between the questions discussed in this section and the declaratives discussed in the rest of this paper; in both cases, a sentence with *even* is used to object that some precondition for another speaker's discourse move to be felicitous is not met. However, the two accounts are very different, particularly in the role that *even* plays. As we have seen, in Iatridou & Tatevosov's (2016) account, *even* is responsible for deriving the presupposition-denying effect; the scalar presupposition of *even* acts at the level of discourse moves to produce extreme ignorance, and that extreme ignorance challenges Speaker A's presupposition that Speaker B knows enough to answer the QUD. In the story for declaratives presented here, the presupposition-denying effect comes from the prejacent, not from *even*; *He isn't married* challenges the presupposition that Kenji has a wife just as well as *He isn't even married* does.

Despite their differences, there are ways of bringing the two accounts closer together. For example, we could take Iatridou & Tatevosov's (2016) idea of *even* operating at the level of discourse moves and generalize it. That is, we could say that what *even* is really doing in these presupposition denials is marking them as unlikely or noteworthy discourse moves. In cooperative discourse, speakers should not presuppose what is not common ground; if the conversation is unfolding as it should, presupposition-denying discourse moves are thus very unlikely to be made. *Even* could be making this fact salient, pointing out that something has gone amiss in the conversation. However, it should be noted that on the proposal made in Section 3 the scalar presupposition of *even* is trivially satisfied in declarative presupposition denials under negations because the prejacent entails the other alternatives. This means that the scalar presupposition of *even* will be satisfied in any context that makes salient the set of alternatives that we have been assuming, and so it should not contribute any additional information about the likelihood of the discourse move being made. I will therefore leave the question of whether the phenomenon observed here can or should be unified with that discussed by Iatridou & Tatevosov (2016) as a matter for future work.

7 Conclusions

This paper has identified and explained a puzzle about how *even* interacts with presupposition denial: *even* can be used in declarative presupposition denials only under negation. Its core proposal is that the additive presupposition of *even* cannot be satisfied when the salient alternatives contain the trigger for a presupposition that the prejacent denies unless that presupposition is appropriately negated within the alternatives. This means that presuppositions generated within focus alternatives can affect the acceptability of a sentence that does not itself contain their trigger. We have also seen evidence that *even* is additive even when the alternatives it encounters are mutually exclusive. Finally, there is a rich landscape in which to explore connections between presupposition denial and focus operators across languages and environments.

References

Anderssen, Jan. 2006. Generalized domain widening *überhaupt*. In Donald Baumer, David Montero & Michael Scanlon (eds.), *West Coast Conference on Formal Linguistics (WCCFL) 25*, 58–66. Somerville, MA: Cascadilla Proceedings Project.

Beaver, David. 1995. *Presupposition and assertion in dynamic semantics*. Edinburgh, UK: University of Edinburgh PhD dissertation.

Beaver, David & Emiel Krahmer. 2001. A partial account of presupposition projection. *Journal of Logic, Language and Information* 10. 147–182. doi:10.1023/A:1008371413822.

Bochvar, Dmitri A. 1939. Ob odnom trehznachom iscislenii i ego primeneii k analizu paradoksov klassicskogo rassirennogo funkcional 'nogo iscislenija. *Matematiciskij sbornik* 4. 287–308. English translation (1981): On a three-valued logical calculus and its applications to the analysis of the paradoxes of the classical extended functional calculus. *History and Philosophy of Logic* 2, 87-112.

Chierchia, Gennaro. 2006. Broaden your views: Implications of domain widening and the "logicality" of language. *Linguistic Inquiry* 37(4). 535–590. doi:10.1162/ling.2006.37.4.535.

Crnič, Luka. 2011. *Getting* even. Cambridge, MA: Massachusetts Institute of Technology PhD dissertation.

Fox, Danny. 2013. Presupposition projection from quantificational sentences: trivalence, local accommodation, and presupposition strengthening. In Ivano Caponigro & Carlo Cecchetto (eds.), *From Grammar to Meaning: The Spontaneous Logicality of Language*, 201–232. Cambridge: Cambridge University Press. doi:10.1017/CBO9781139519328.011.

Giannakidou, Anastasia. 2007. The landscape of EVEN. *Natural Language and Linguistic Theory* 25(1). 39–81. doi:10.1007/s11049-006-9006-5.

Greenberg, Yael. 2016. Operating over (internal) 'covert-based' alternatives with scalar focus sensitive particles: Evidence from Modern Hebrew. In Robert Truswell, Chris Cummins, Caroline Heycock, Brian Rabern & Hannah Rohde (eds.), *Sinn und Bedeutung (SuB) 21*, 499–516.

Greenberg, Yael & Keren Khrizman. 2012. The Hebrew *bixlal*: A generalized strengthening operator. In *Israel Association for Theoretical Linguistics (IATL) 27*, 139–162. Cambridge, MA: MIT Working Papers in Linguistics.

Guerzoni, Elena. 2004. *Even*-NPIs in yes-no questions. *Natural Language Semantics* 12(4). 319–343. doi:10.1007/s11050-004-8739-0.

Heim, Irene. 1983. On the projection problem for presuppositions. In Daniel P. Flickinger (ed.), *West Coast Conference on Formal Linguistics (WCCFL) 2*, 114–125. Stanford, CA: CSLI Publications.

Iatridou, Sabine & Sergei Tatevosov. 2016. Our *even*. *Linguistics and Philosophy* 39. 295–331. doi:10.1007/s10988-016-9190-7.

Karttunen, Lauri & Stanley Peters. 1979. Conventional implicature. In Choon-Kyu Oh & David A. Dineen (eds.), *Syntax and Semantics*, vol. 11: Presupposition, 1–56. New York: Academic Press.

Kay, Paul. 1990. *Even*. *Linguistics and Philosophy* 13(1). 59–111. doi:10.1007/BF00630517.

Krifka, Manfred. 1992. A compositional semantics for multiple focus constructions. In Joachim Jacobs (ed.), *Informationsstruktur und Grammatik*, vol. 4 Linguistische Berichte Sonderhefte, 17–53. Verlag für Sozialwissenschaften.

Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6(1). 57–123. doi:10.1023/A:1008211808250.

Romoli, Jacopo. 2011. Presupposition wipe-out can't be all or nothing: a note on conflicting presuppositions. *Snippets* 24. 11–12.

Rooth, Mats. 1985. *Association with focus*. Amherst, MA: University of Massachusetts PhD dissertation.

Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1(1). 75–116. doi:10.1007/BF02342617.

Rullmann, Hotze. 1997. *Even*, polarity, and scope. In Martha Gibson, Grace Wiebe & Gary Libben (eds.), *Papers in Experimental and Theoretical Linguistics*, vol. 4, 40–64. Edmonton, AB: Department of Linguistics, University of Alberta.

von Stechow, Arnim. 1991. Current issues in the theory of focus. In Arnim von Stechow & Dieter Wunderlich (eds.), *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung / Semantics: An International Handbook of Contemporary Research*, 804–825. Berlin/New York: Walter de Gruyter.

Wilkinson, Karina. 1996. The scope of *even*. *Natural Language Semantics* 4(3).

193–215. doi:10.1007/BF00372819.

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