

How to get *even* with desires and imperatives*

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Abstract

The scalar particle *even* imposes a constraint on the likelihood of its prejacent and the alternatives on which it operates. This semantic import of *even* restricts its distribution: *even* that associates with a weak predicate in its immediate surface scope – weak *even*, for short – is acceptable only if it is appropriately embedded (cf. Lahiri 1998). This paper investigates the occurrence of weak *even* in three modal environments: under non-factive and factive desire predicates and in imperatives. The structure of the paper is the following: Section 1 describes an approach to *even* according to which *even* may move at LF (Karttunen & Peters 1979, Lahiri 1998 and others). A prediction of the approach is that weak *even* is licit only if it is embedded under a non-upward-entailing operator. Section 2 presents an apparent puzzle for the approach: weak *even* may occur in non-negative desire statements and in imperatives, i.e. in environments that appear to be upward-entailing. Section 3 discusses two strategies for dealing with these facts: according to the first strategy, desire predicates and the imperative operator are non-monotone (e.g. Heim 1992); according to the second strategy, they are upward-entailing (e.g. von Stechow 1999) and weak *even* is rescued by covert exhaustification. Section 4 briefly discusses the licensing of certain negative polarity items in desire statements and imperatives. It is shown that if these negative polarity items are treated as weak associates of a silent *even* (Krifka 1995), their distribution can be explained by the two strategies described in Section 3. Section 5 provides an outlook and concludes the paper.

1 The meaning and distribution of *even*

The primary semantic import of the focus particle *even*, which we assume is adjoined at a clausal level at LF, is a scalar presupposition that orders the prejacent of *even* with respect to the alternatives on which it operates.¹ There have been various proposals about the flavor and the quantificational strength of this presupposition (Karttunen & Peters 1979, Kay 1990, Merin 1999, Herburger 2000 and many others). The choice between them is inconsequential for the

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¹Another inference that is often assumed to be triggered by *even* is the additive (or existential) presupposition. Since additivity is largely tangential to the purposes of this paper, we leave it aside and refer the reader to Rullmann 1997, Guerzoni 2003 and the references cited therein.

discussion in this paper. For concreteness, we assume that the scalar presupposition triggered by *even* requires the likelihood of its propositional argument to be lower than that of a relevant alternative (Bennett 1982, Kay 1990):

- (1) $\llbracket \mathbf{even} \rrbracket^{g,c}(C, p, w)$ is defined only if $\exists q \in C [p \triangleleft_c q]$.
 If defined, $\llbracket \mathbf{even} \rrbracket^{g,c}(C, p, w) = 1$ iff $p(w) = 1$.

The sentence in (2-a) has the structure in (2-b) where *even* associates with the focused element *John* (focal stress is indicated by capitalization). The sentence presupposes that there is an alternative to the sister of *even* that is more likely than the proposition that John made one video, say, that Paul made one video, while its assertive meaning is that John made one video.

- (2) a. Even JOHN made one video.
 b. $\llbracket \mathbf{even} \ C_1 \rrbracket [\mathbf{John}_F \ \mathbf{made} \ \mathbf{one} \ \mathbf{video}]$
 c. $\llbracket (2-b) \rrbracket^{g,c}(w)$ is defined only if $\exists q \in \{\text{that } x \text{ made one video} \mid x \text{ is a relevant individual}\}$: that John made one video \triangleleft_c q. If defined, $\llbracket (2-b) \rrbracket^{g,c}(w) = 1$ iff John made one video in w.

1.1 Scalarity, entailments, and the scope of *even*

The scalar presupposition triggered by *even* is subject to the principle in (3), which follows from basic probability theory.² The principle imposes a hard condition on the distribution of *even*: if *even* is adjoined to a clause whose alternatives entail it, it will trigger a presupposition that violates (3) and is thus unsatisfiable.

(3) Scalarity and entailment

If a proposition p entails a proposition q, q cannot be less likely than p.

An illustration of the principle is in (4-a) where *even* associates with the weak element *one* in its immediate surface scope, i.e. it associates with an element that is entailed by its alternatives. We call such occurrences of *even* ‘weak *even*’ for brevity. The sentence presupposes that it is less likely that John made one video than that he made some other number of videos (4-c). Since making n videos entails making one video for all $n > 0$, all the alternatives in the domain of *even* entail its prejacent. According to (3), none of them can be more likely than it. This clashes with (4-c) and explains the deviance of (4-a).

- (4) a. #John made even ONE video.
 b. $\llbracket \mathbf{even} \ C_1 \rrbracket [\mathbf{John} \ \mathbf{made} \ \mathbf{one}_F \ \mathbf{video}]$
 c. $\llbracket (4-b) \rrbracket^{g,c}$ is defined only if $\exists q \in \{\text{that John made } n \text{ videos} \mid n \in \mathbb{N}_{>0}\}$: that John made one video \triangleleft_c q iff for some $n > 1$: that John made one video \triangleleft_c that John made n videos. (# in all contexts)

A puzzle emerges when we look at certain embedded occurrences of *even* – in particular, at occurrences of *even* in the scope of downward-entailing operators.

²More precisely, it follows from Kolmogorov’s third axiom that states that the likelihood of a union of mutually exclusive propositions equals the sum of the likelihoods of the propositions. Applied to (3), if a proposition p entails a proposition q, it holds that the sum of the likelihoods of p and $q \setminus p$ equals the likelihood of q. Since the likelihood of $q \setminus p$ is greater or equal to zero, it holds that the likelihood of p is at most as great as the likelihood of q.

A pertinent example is in (5-a). If *even* were interpreted in situ in this sentence, it would trigger the same scalar presupposition as in (4); the sentence would accordingly be pragmatically deviant.

(5) John didn't make even ONE video.

To explain the contrast between (4) and (5), Lahiri (1998) builds on the approach to *even* by Karttunen & Peters (1979), according to which *even* may move at LF. A rescue hatch is available to *even* in negative sentences like (5) – it may covertly move above negation where it triggers a consistent scalar presupposition. That is, Lahiri assumes that the sentence in (5) can have the LF in (6-a) where there is an intervening entailment-reversing operator between the moved *even* and its associate *one*. The presupposition of this structure is that it is less likely that John didn't make one video than, say, that John didn't make two videos (6-c). Since the former proposition is logically stronger than the latter, the presupposition is compatible with (3) and may very well be correct.

- (6) a. [**even** C_I] [**not** [~~even~~ C_I]] [**John make one_F video**]]
 b. $\llbracket (6\text{-a}) \rrbracket^{g,c}(w)$ is defined only if for some $n > 1$: that John didn't make one video \triangleleft_c that John didn't make n videos. (\checkmark in plausible contexts)

1.2 A more general prediction

The core ingredient of Lahiri's (1998) proposal is the assumption that *even* may move to avoid triggering an incorrect presupposition. He has shown that if *even* that associates with a weak element in its immediate surface scope moves above negation or other downward-entailing operators, the resulting structure can have a consistent and plausible interpretation since downward-entailing operators reverse entailments. However, moving *even* across an operator that reverses entailments is not a necessary but a sufficient condition for configurations containing weak *even* to comply with (3). The necessary condition is that *even* moves across an operator that is not upward-entailing, i.e. a downward-entailing or a non-monotone operator.³

- (7) A prediction of the movement approach to *even*
 A sentence with a weak *even* is acceptable only if *even* is at surface structure in the scope of a non-upward-entailing operator.

³As pointed out by Rullmann (1997), a patent issue for an approach that assumes that *even* can move at LF is that it must allow for non-canonical movement of *even*, e.g. *even* may move out of the antecedent clause of a conditional. A possible way to defuse this issue has been suggested by Lahiri (2006): the scalar presupposition that accompanies sentences with *even* is triggered by an *even*-like operator (EmphAssert in Krifka 1995, E in Chierchia 2006) that is attached at a clausal level to check the relevant feature of *even*; *even* itself is truth-conditionally vacuous, it stays in situ, and primarily conditions the insertion of the *even*-like operator. In the following we retain for perspicuity the assumption that *even* itself moves.

2 Weak *even* in desire statements and imperatives

Weak *even* may occur in the immediate surface scope of non-negative desire predicates and in imperatives. This is at first sight at odds with the prediction in (7): there appears to be no non-upward-entailing operator in these sentences across which *even* could move at LF. Accordingly, it should trigger an incorrect scalar presupposition.

2.1 Non-factive desire predicates

Weak *even* may occur in the scope of non-negative desire predicates like *hope* and *would like*. A few naturally occurring examples of this kind are given in (8) where we boldface the embedding desire predicate and capitalize the focused element.

- (8) a. I **hope** to someday make even ONE video of that quality.
b. In fact, I **would like** to find even ONE person who hasn't had at least one paper-cut this year. People without hands do not count.
c. Everyone **wants** to prevent even "ONE bad incident" as BellaQuest points out.⁴

Another conspicuous instance of a non-factive desire predicate that licenses weak *even* is *wish*. Two naturally occurring examples are given in (9).

- (9) a. I **wish** I wrote even ONE riff featured on ANY Death album.
b. This Haley chick **wishes** she could sing even ONE note close to Janis.⁵

In languages that have a dedicated scalar particle (or a collocation of particles) that realizes weak *even* – e.g. *auch nur* in German (e.g. Guerzoni 2003) – that scalar particle is used in examples that correspond to the above data. This is illustrated in (10) where *auch nur* associates with *20%*, an expression denoting a relatively low percentage.

- (10) Ich **hoffe** auch nur 20% von deiner Begeisterung, die du ihm
I hope even 20% of your enthusiasm that you him
geschenkt hast, bei ihm wach halten zu können.
given have with him sustain to be able
'I hope to sustain even 20% of his excitement that you caused.'⁶

2.2 Factive desire predicates

It is well-known at least since Kadmon & Landman (1993) that weak *even* may occur in the scope of non-downward-entailing factive desire predicates like *glad* (11-a). Weak *even* is also licensed in the scope of other factive evaluatives (11-b).

⁴<http://vimeo.com/8918647>, <http://www.murdershewrites.com/tag/natalie-r-collins/http://www.people.com/people/archive/article/0,,20141718,00.html>

⁵<http://www.johnsoncitypress.com/News/article.php?id=91361>,

<http://www.youtube.com/watch?v=c64DHj9yEI>

⁶<http://www.inahallermann.de/index.php?page=rueckmeldungen,onklienten>

- (11) a. John is glad that he read even ONE paper on this topic.
 b. It's good/great/fantastic that John solved even ONE exercise.

2.3 Imperatives

The final class of non-negative modal environments in which weak *even* may occur are imperatives. Some examples of imperatives with weak *even* are given in (12). Translations of these imperatives into German contain *auch nur*, as illustrated in (13).

- (12) a. Show me even ONE party that cares for the people!
 b. Break even ONE record that I can't!
 c. Give me even just ONE reason not to hurt you!
- (13) Zeig mir auch nur eine Partei die sich wirklich ums Volk
 show me even one party that self really for people
 kümmert!
 cares
 'Show me even one party that really cares for the people.'⁷

These imperatives may be given natural paraphrases with the embedding predicates *challenge*, *dare* and *defy* (14). Importantly, if we make the paraphrases non-performative, weak *even* continues to be licensed (15).

- (14) a. I challenge you to show me even ONE party that cares for the people.
 b. I dare you to score even ONE goal against my team.
- (15) John challenged Steve to show him even ONE party that cares for the people.

To summarize: we have presented felicitous sentences in which weak *even* and its German counterpart *auch nur* occur in the scope of non-factive and factive desire predicates and in imperatives, i.e. in three modal environments that tend to be analyzed as upward-entailing.

2.4 Three challenges

Any approach to the above data faces three challenges. First: it needs to explain why weak *even* in modal environments does not trigger an infelicitous scalar presupposition. Second: it needs to explain the restriction of weak *even* to only a subset of modal environments. Third: it needs to explain why the above sentences are accompanied by a distinct bias. We describe these three challenges in turn.

Consistency of the scalar presupposition

The occurrence of weak *even* in the examples above is unexpected on the common assumption about the semantics of desire predicates and the imperative operator – they are upward-entailing (e.g. Hintikka 1962, Schwager 2006). That is, they are commonly taken to license inferences along the lines of (16-a): for

⁷http://www.youtube.com/all_comments?v=VWTmA5oGkeQ

all $n > 0$, that I hope to make n videos entails that I hope to make one video. In accordance with the condition in (3), any likelihood relation between the propositions in (16-a) satisfies the condition in (16-b): for all $n > 0$, that I hope to make n videos is at most as likely as that I hope to make one video.

- (16) a. that I hope to make one video \Leftarrow that I hope to make two videos
 $\Leftarrow \dots$
 b. $\dots \preceq_c$ that I hope to make two videos \preceq_c that I hope to make one video

Now, the sentence in (17-a), repeated from above, may be assigned the structures in (17-b,c). In one structure *even* stays in situ, while in the other it moves above the desire predicate *hope*.

- (17) a. I hope to someday make even ONE video of that quality.
 b. [**I hope** [[**even C₁**] [**PRO_I to make one_F video of that quality**]]]
 c. [**even C₁**] [**I hope PRO_I to make one_F video of that quality**]

We have seen in the introduction that if *even* stays in situ (17-b), its scalar presupposition is illicit. The same holds if *even* scopes above *hope*: the scalar presupposition triggered by *even*, given in (18), is at odds with the condition in (16-b) – it cannot both hold that every alternative is at most as likely as the prejacent (16-b) and that there is an alternative that is more likely than the prejacent (18). We are at an impasse.

- (18) \llbracket (17-c) $\rrbracket^{g,c}$ is defined only if for some $n > 1$: that I hope to make one video of that quality \prec_c that I hope to make n videos of that quality.

Constrained distribution of weak *even* in modal environments

Weak *even* is not licit in every type of modal environment. More to the point, it is not licit in epistemic and doxastic modal environments, e.g. in the scope of epistemic and doxastic attitude predicates like *know*, *believe* and *think*:

- (19) #John knows/thinks that he will make even ONE video of that quality.

Furthermore, weak *even* is also illicit in the scope of certain non-doxastic attitude predicates. This holds for *intend* and for the directive attitude predicates *command* and *order* (20). As we have pointed out above, certain directive predicates differ from *command* and allow for a licit occurrence of weak *even* in their scope (21).

- (20) a. #John intends to make even ONE video of that quality.
 b. #John commanded me to make even ONE video of that quality.
 (21) a. John challenged me to make even ONE video of that quality.
 b. I urge you to plant even ONE of these tubers.⁸

⁸http://www.cherrymenlove.com/gardening_flowers/2011/03/story-from-a-spring-garden.html

Extra inference

The occurrences of weak *even* in desire statements and imperatives are accompanied by a distinct bias. For example, the sentences in (22) induce the inferences that I take it to be unlikely that the addressee will find any party that cares for the people and that I take it to be unlikely that I will make one video of that quality, respectively.

- (22) a. Show me even ONE party that cares for the people!
b. I hope to someday make even ONE video of that quality.

More generally, contexts in which non-negative desire statements or imperatives with weak *even* are used are such that the attitude holder or, in the case of imperatives, the speaker is taken to assign a low probability to the alternatives invoked by the sentential complement of the attitude predicate.⁹

- (23) Low probability bias generalization
a. A context satisfies a low probability bias wrt an individual and a set of alternatives if the individual takes the alternatives to be unlikely to obtain.
b. Desire statements with weak *even* are accompanied by a low probability bias wrt the attitude holder and the alternatives invoked by the sentential complement of the desire predicate.
c. Imperatives with weak *even* are accompanied by a low probability bias wrt the speaker and the alternatives invoked by the imperative.

A closely related restriction has been discussed by Kadmon & Landman (1993) with respect to the occurrence of weak *even* in the scope of factive desire predicates. For example, they have claimed that (24) is licit only in contexts in which we did not get better tickets than these tickets (Kadmon & Landman 1993:385). That is, their characterization differs from (23) in that it requires the attitude holder to believe that the alternatives have not obtained and not that they were unlikely to obtain.

- (24) I'm glad we even got THESE tickets!

However, their characterization is too strong in light of the data in (25). In contrast, the weaker characterization in (23) can be used to correctly describe

⁹The sentences in (i) appear not to trigger a low probability bias: it is very likely that Tyson will inspire a lot of kids and due to his well-known self-confidence he probably believes in it too (i-a); (i-b) may be addressed to a very generous philanthropist who is expected to donate a lot of money.

- (i) a. Tyson, who said he hopes to inspire even ONE kid to turn his life around, has given similar speeches around the world.
(<http://www.lvrj.com/sports/15870627.html>)
b. If you can't come, PLEASE donate even ONE DOLLAR!
(<http://iam.bmezine.com/?rebekahsxrevenge>)

We suggest that even these sentences are accompanied by a low probability bias – the difference between them and the cases in the main text is that bias in (i) has the flavor of polite pretense. For example, it arguably holds that although Tyson may in fact be certain that he will inspire many kids, (i-a) presents him as being excessively humble and falsely modest – i.e. a low probability bias obtains under pretense. This allows us to stick to (23) as a uniform characterization of all the data.

the contexts in which (25) and its ilk may be used – the attitude holder only needs to believe that it was unlikely that the relevant alternatives will obtain rather than believe that they did not obtain.

- (25) Just be glad that the Eastern networks could even FIND Elko, let alone have a camera there to record the speech.¹⁰

To summarize: there is a puzzle concerning the distribution of weak *even* – it may occur in modal environments that have traditionally been classified as upward-entailing. Two further questions concerning the occurrence of weak *even* in modal environments were presented: weak *even* is restricted to a subset of modal environments (desire statements, imperatives) and its occurrence is accompanied by a distinct bias.

3 Steps towards a resolution

Two resolutions of the above puzzles are presented. The first is based on Heim’s (1992) non-monotone desire semantics, while the second is based on von Fintel’s (1999) monotone desire semantics. In the latter case, an additional mechanism needs to be assumed to account for the felicity of weak *even*.

3.1 Non-monotone desire

Negation-related semantics of desire and non-monotonicity

Heim (1992) proposes that to want p is, roughly, to believe that p is desirable (good). The belief component of this meaning is fleshed out as a doxastic accessibility function that returns for an attitude holder x and a world w a set of worlds compatible with the beliefs of x in w (cf. Hintikka 1962), while the desirability component is characterized relationally: a proposition is desirable iff it is preferred to its negation, which is the case iff every world in the proposition is better than every world in the complement set of the proposition; in the cases at hand, these propositions are constituted by the closest belief worlds of the attitude holder in which the proposition denoted by the sentential complement of *want* and its negation, respectively, hold (Heim 1992:197):¹¹

- (26) If defined, $\llbracket \mathbf{want} \rrbracket^{g,c}(\succeq, p, i, w) = 1$ iff $\forall w' \in \text{DOX}(i, w)$:
 $\text{SIM}(w', \text{DOX}(i, w) \cap p) \succ_{i,w} \text{SIM}(w', \text{DOX}(i, w) \setminus p)$.

The presupposition triggered by *want* is that its propositional argument is logically independent of the beliefs of the attitude holder. Accordingly, the sentence in (27-a) presupposes that John neither believes that he will make one video of that quality nor that he won’t make one video of that quality; its assertive

¹⁰<http://www.wayiplay.com/news/why-wont-news-networks-air-complete-political-speech-rallies-from-start-to-finish>

¹¹A preference relation among propositions is defined on the basis of a preference relation among worlds as in (i-a) (cf. von Wright 1963:31); the maximal similarity function is defined as in (i-b) (Lewis 1973). We leave the similarity relation \leq out of our representations.

- (i) a. $p \succ_{i,w} q \equiv_{\text{df}} \forall w', w'' (p(w') = 1 \wedge q(w'') = 1 \rightarrow w' \succ_{i,w} w'')$
 b. $\text{SIM}(\leq, w, p) \equiv_{\text{df}} \lambda w'. p(w') = 1 \wedge \forall w'' (p(w'') = 1 \rightarrow w' \leq_w w'')$

meaning is computed in (27-b): each of John’s belief worlds is such that the closest belief worlds to it in which John makes one video of that quality are better than the closest belief worlds to it in which he does not. That is, all else being equal, John would rather be in a world in which he makes one video of that quality than in a world in which he makes no videos of that quality.

- (27) a. John wants to make one video of that quality.
 b. If defined, $\llbracket \text{[John [wants [PRO}_J \text{ to make one video ...]} \rrbracket^{g,c}(w) = 1$ iff $\forall w' \in \text{DOX}(\text{John}, w)$: $\text{SIM}(w', \text{DOX}(\text{John}, w) \cap \text{that John makes one video of that quality}) \succ_{\text{John},w} \text{SIM}(w', \text{DOX}(\text{John}, w) \cap \text{that John makes no videos of that quality})$.

The semantics of desire predicates like *hope*, *wish* and *glad* is built up in a similar fashion, though some modifications might be needed with respect to their presuppositions and the relata of the preference relation (cf. Heim 1992 for details). Furthermore, an analogous meaning can also be assigned to the imperative operator. We simplistically assume that there are two differences between it and desire predicates: first, the imperative operator does not quantify over the doxastic alternatives of an attitude holder but over the worlds in the context set, $\text{cs}(c)$; second, the imperative operator triggers additional presuppositions that are responsible for its performativity (cf. Schwager 2006 for a thorough discussion of performativity of imperatives).

- (28) If defined, $\llbracket \text{IMP} \rrbracket^{g,c}(\sum, p, w) = 1$ iff $\forall w' \in \text{cs}(c)$:
 $\text{SIM}(w', \text{cs}(c) \cap p) \succ_{\text{sp}(c),w} \text{SIM}(w', \text{cs}(c) \setminus p)$.

The imperative in (29-a) has the meaning in (29-b): given the speaker’s preferences, it is better that you show me one party that cares than that you show me no parties that care. And since the speaker is an authority, the imperative effects a command.

- (29) a. Show me one party that cares!
 b. If defined, $\llbracket \text{IMP [you show me one party that cares]} \rrbracket^{g,c}(w) = 1$ iff $\forall w' \in \text{cs}(c)$: $\text{SIM}(w', \text{cs}(c) \cap \text{that you show me one party that cares}) \succ_{\text{sp}(c),w} \text{SIM}(w', \text{cs}(c) \cap \text{that you don't show me one party that cares})$.

The negation-related semantics of desire predicates and the imperative operator described above is non-monotone. For example, it predicts that the propositions denoted in (30) are logically independent. Namely, assume that it holds (i) that I prefer making two videos of that quality to making no or exactly one video of that quality and (ii) that I prefer making no videos of that quality to making exactly one video of that quality. Clearly, (30-b) is true in the scenario due to (i). (30-a) is false in the scenario if there are belief worlds where I make exactly one video of that quality: the closest belief worlds to them in which I make one video of that quality are due to (ii) not better than those in which I make no videos of that quality. This demonstrates the non-upward-entailingness of desire predicates on the negation-related analysis. Their non-downward-entailingness can be demonstrated in a similar way.

- (30) a. I hope to make one video of that quality.
 b. I hope to make two videos of that quality.

Consistency of the scalar presupposition

The sentence in (31-a) where weak *even* occurs in the scope of *hope* may have the LF given in (31-b) where *even* scopes above the desire predicate. The scalar presupposition that it triggers is given in (31-c): there is an alternative that is more likely than that I hope to make one video of that quality.

- (31) a. I hope to make even ONE video of that quality.
b. [**even** C₁] [**I hope** [~~even~~ C_T] **PRO_I to make one_F video ...**]]
c. For some $n > 1$: that I hope_{nm} to make one video of that quality
 \triangleleft_c that I hope_{nm} to make n videos of that quality.

Since due to the non-monotonicity of *hope* it holds that for no $n > 1$, the proposition that I hope to make n videos of that quality entails the prejacent of *even*, the scalar presupposition is compatible with the condition in (3). This is in line with the prediction in (7): weak *even* may be acceptable in the scope of a non-upward-entailing operator, in particular, in the scope of a non-monotone operator.

Plausibility of the scalar presupposition

However, the condition that there are alternatives in the domain of *even* that do not entail the prejacent of *even* is only a necessary and not yet a sufficient condition for the felicity of *even*. Since the scalar presupposition described in (31-c) is not trivial, it is expected to be satisfied only in certain contexts. Specifically, it is satisfied in contexts in which it holds (i) that if there are preferences that distinguish between a proposition that one makes a certain number of videos of that quality and a proposition that one makes another number of videos of that quality, then the proposition that describes one as making a greater number of videos of that quality will be preferred to the proposition that describes one as making a lower number of videos of that quality¹² – ‘the more, the better’ – and (ii) that some relevant alternatives are preferentially distinguishable from the proposition that I make one video of that quality. In such a context, the proposition that I hope to make one video of that quality being true necessitates the distinguishable alternative, say, the proposition that I hope to make two videos of that quality to be true as well (if defined). Furthermore, it holds that the reverse relation is not true in such a context: if I hope to make two videos of that quality, it does not follow that I hope to make one video of that quality. For example, it may be that I hope to make two videos of that quality but that I prefer making no videos to exactly one video of that quality. It consequently does not hold that I hope to make one video of that quality. Thus, relative to the information state that satisfies (i) and (ii), there is an alternative that is more likely than that I hope to make one video of that quality – this is *ex hypothesi* the proposition that I hope to make two videos of that quality.

There are contexts that do not satisfy the two conditions discussed above: contexts in which people are indifferent between making a greater and making a lower number of videos of that quality, contexts in which they prefer making a lower to making a greater number of videos of that quality, and contexts in which it is open what people’s preferences are. Since besides its desiderative

¹²See e.g. Hansson 2001:67-70 on how to define preferences among compatible propositions.

component, which is not helpful in the just described contexts, there is nothing in the content of the sentence in (31-a) that could be used to support the scalar presupposition in (31-c), the sentence is either perceived as pragmatically odd in these contexts or an appropriate preference relation is accommodated. The same considerations apply to the derivation of the plausibility of weak *even* in the scope of factive desire predicates and in imperatives.¹³

Restricted distribution

Weak *even* is illicit in the scope of doxastic attitude predicates. This is expected on the approach to attitude predicates entertained in this section: desire but not doxastic attitude predicates have a negation-related semantics; the semantics of doxastic attitude predicates is upward-entailing (Hintikka 1962). Accordingly, the scalar presupposition triggered by the sentence in (32-a), given in (32-c), is unsatisfiable: due to the upward-entailingness of *believe* it holds that for every $n > 0$, the proposition that I believe that John made n videos of that quality entails the proposition that I believe that John made one video of that quality and thus none of the former propositions can be more likely than the latter proposition, contra (32-c).

- (32) a. #I believe that John made even ONE video of that quality.
 b. [**even C₁**] [**I believe John made one_F video of that quality**]
 c. For some $n > 1$: that I believe that John made one video of that quality \triangleleft_c that I believe that John made n videos of that quality.

The infelicity of weak *even* under *intend* and *command* has a different source. Although both predicates arguably share the non-monotone semantics of *want*, which suffices for *even* that scopes above them to trigger a presupposition compatible with (3), this presupposition is not plausible. Unlike with *hope* and its kin, the desiderative component of *intend* and *command* cannot be used in tandem with the preferences in the context to support the scalar presupposition in (33-c): if I intend to make one video of that quality and prefer making two videos of that quality to making one video of that quality, it does not necessarily hold that I intend to make two videos of that quality (similar reasoning applies to *command*). Furthermore, there is nothing else in the meaning of *intend* and *command* that would make it plausible to treat weaker intentions and commands as less likely than stronger ones.

- (33) a. #I intend to make even ONE video of that quality.
 b. #[**even C₁**] [**I intend [PRO_I to make one_F video of that quality]**]
 c. For some $n > 1$: that I intend_{nm} to make one video of that quality \triangleleft_c that I intend_{nm} to make n videos of that quality.

This is different with *challenge*. Its semantic import includes the requirement that the challenged task is difficult, e.g. (34-a) gives rise to a requirement that

¹³There is a prominent approach to *even* that assumes that *even* is ambiguous and that weak *even* spells out the item with a more restricted distribution (e.g. Rooth 1985, Rullmann 1997). Applied to the cases above, such an approach has a difficulty (i) explaining why weak *even* may not occur in positive episodic sentences but may occur in desire statements and imperatives and (ii) accounting for the glaring context-dependence of weak *even* in these environments.

it is difficult to make one video of that quality. This information can be used in supporting an appropriate likelihood relation among the alternatives: it may very well be less likely that one is challenged to perform an easy task – making one video of that quality – than to perform a harder alternative task – making two or more videos of that quality.

- (34)
- a. I challenge you to make even ONE video of that quality.
 - b. [**even C₁**] [**I challenge you [PRO_{you} to make one_F video of that quality]**]
 - c. For some $n > 1$: that I challenge_{nm} you to make one video of that quality $<_c$ that I challenge_{nm} you to make n videos of that quality.

Extra inference

Desire statements containing weak *even* occur in contexts that exhibit a low probability bias with respect to the attitude holder and the alternatives invoked by the sentential complement of the desire predicate, as described in (23), repeated below. For example, any context in which (35-a) is used satisfies the condition in (35-b): John, the attitude holder, takes it to be unlikely that an alternative to the sentential complement of *hope* will obtain, i.e. that he will make one or more videos of that quality.

- (23) Low probability bias generalization
- a. A context satisfies a low probability bias wrt an individual and a set of alternatives if the individual takes the alternatives to be unlikely to obtain.
 - b. Desire statements with weak *even* are accompanied by a low probability bias wrt the attitude holder and the alternatives invoked by the sentential complement of the desire predicate.
 - c. Imperatives with weak *even* are accompanied by a low probability bias wrt the speaker and the alternatives invoked by the imperative.
- (35)
- a. John hopes to make even ONE video of that quality.
 - b. John believes it is unlikely that he will make one video of that quality.

We tentatively submit that the low probability bias accompanying desire statements with weak *even* emerges from the interaction of the scalar presupposition triggered by *even*, which is satisfied in contexts in which stronger alternatives to the sentential complement of the desire predicate are better than the proposition denoted by the sentential complement, and the link between one’s desires and one’s actions. Since a more thorough and formal investigation of these issues goes beyond the scope of this paper, we only outline the reasoning that might be behind the bias described in (35): Having a desire to make a certain number of videos of that quality is linked to how the attitude holder chooses to act. Different acts result in different outcomes and the attitude holder’s choice is guided by optimizing her chances of being happy with the outcomes. Now, having the desire to make one and the desire to make, say, two videos of that quality is linked to the pursuit of outcomes corresponding to making one and to making two videos of that quality, respectively. In a context in which (35-a) is felicitous, the latter outcomes are more desirable to the atti-

tude holder than the former (or at least as desirable). The pursuit of the former is thus legitimate only if the attitude holder takes the latter to be sufficiently less likely to obtain. Namely, only in this case is she optimizing her chances of being happy.

A problem for the approach

The negation-related approach to desire and imperatives successfully explains the potential felicity of weak *even* in their scope. However, it faces the problem that its treatment of desire predicates and the imperative operator as non-monotone functions does not seem to be warranted in light of the data in (36) and (37),¹⁴ as argued by von Fintel (1999). Namely, if the semantics of desire predicates were non-monotone, the inference pattern in (36) should be invalid and the discourse in (37) should be acceptable since the conjuncts would be independent. This appears not to be the case.

- (36) a. John hopes to make more than five videos of that quality.
 b. \Rightarrow John hopes to make more than one video of that quality.
- (37) #John wants a free flight on the Concorde but he doesn't want a flight on the Concorde.

To summarize: we have presented an approach to desire predicates and the imperative operator according to which these are non-monotone functions that allow the embedding of weak *even* in appropriate contexts. Although the approach does shed light on the distribution of weak *even* in desire statements and imperatives, it faces the problem that desire predicates and the imperative operator appear to be monotone functions. In the following subsection, we present an approach that is not affected by this problem. However, to explain the distribution of weak *even*, it needs to employ mechanisms that the approach in this subsection can remain agnostic about.

3.2 Monotone desire

Doubly-relative modal analysis and upward-entailingness

The modal semantics of desire predicates is relativized to two conversational backgrounds (von Fintel 1999). The first conversational background – the modal base – delivers a set of doxastically accessible worlds of the attitude holder, while the second conversational background – the bouletic ordering source – provides the propositions that are used in ordering this set. For perspicuity, we assume that among the doxastically accessible worlds one can always find a set of worlds that are not worse with respect to the given bouletic ordering source than other doxastically accessible worlds (limit assumption); these are the desire-

¹⁴Apparently convincing examples that do support the idea that desire predicates are non-monotone and that do not crucially involve context-shifting discourses are the so-called Ross's paradox examples (i) (cf. Aloni 2007 and others). We defer an investigation of them to another occasion.

(i) I hope to send this letter \nRightarrow I hope to send or burn this letter

best worlds.¹⁵ A desire statement of the form *i hopes that p* then states that all the desire-best worlds of *i* are such that *p* is true in them (38). As before, desire predicates presuppose that their propositional argument is independent of the attitude holder’s belief state. The semantics of imperatives is identical to (38), modulo the authority presupposition (cf. Schwager 2006).

$$(38) \quad \text{If defined, } \llbracket \mathbf{hope} \rrbracket^{g,c}(f, g, p, i, w) = \forall w' \in \text{BEST}(\cap f(i,w), g(i,w)) [p(w')=1].$$

Desire predicates and the imperative operator are clearly upward-entailing on this approach: if I hope to make two videos, then all my desire-best worlds are such that I make two videos in them; it follows that all my desire-best worlds are such that I make one video in them and thus that I hope to make one video.

The puzzle

If desire predicates and the imperative operator are upward-entailing, the occurrence of weak *even* in their scope is unexpected. Namely, a sentence like (39-a) may have the two structures in (39-bc) and in both structures the domain of *even* contains only alternatives that entail the prejacent of *even*, causing its scalar presupposition to be illicit. For example, the presupposition of (39-c) is given in (40). It is deviant since it holds that for all $n > 1$, the proposition that I hope to make n videos of that quality entails the proposition that I hope to make one video of that quality and thus cannot be more likely than it.

- (39) a. I hope to make even ONE video of that quality.
 b. **[I hope [[even C₁] PRO_I to make one_F video of that quality]]**
 c. **[even C₁] [I hope to make one_F video of that quality]**
- (40) $\llbracket (39\text{-c}) \rrbracket^{g,c}$ is defined only if for some $n > 1$: that I hope_{ue} to make one video of that quality \triangleleft_c that I hope_{ue} to make n videos of that quality. (# in all contexts)

Exhaustification in grammar

Although *even* in (39-a) does move above the desire predicate at LF, as in (39-c), we put forward that it quantifies in its target position over a different domain of alternatives than indicated in (40). Its domain is rather the one given in (41) where the alternatives are mutually exclusive: e.g. if it holds that I hope to make one video and I am okay with making exactly one video, then it is false that I hope to make, say, two videos and vice versa.¹⁶

- (41) {that I hope_{ue} to make n videos of that quality & I am okay with making exactly n videos of that quality | $n \in \mathbb{N}_{>0}$ }

¹⁵A world w' is not worse than a world w'' with respect to an individual i , a world w and an ordering source g iff for all $p \in g(i,w)$: if $w'' \in p$, then $w' \in p$. The best worlds with respect to f, g, i, w are $\text{BEST}(\cap f(i,w), g(i,w)) = \{w' \mid w' \in \cap f(i,w) \text{ and there is no } w'' \in \cap f(i,w) \text{ such that } w'' <_{g(i,w)} w'\}$.

¹⁶The paraphrase that I am okay with making exactly one video of that quality stands for the existential modal proposition that given my attitudes there are some desire-best worlds in which I make exactly one video of that quality.

This domain is obtained by inserting a covert exhaustification operator *exh* that associates with *one* into the structure and moving *even* above it:

(42) [even C₁] [exh C₀] [I hope to make one_F video of that quality]

A simplified meaning of *exh* is given in (43): its import is that all the alternatives in its domain that do not entail the prejacent are false (see Fox 2007 for a more sophisticated analysis). The meaning of the sister of *even* in (42) is computed in (44) and is equivalent to the proposition that I hope to make one video of that quality and I am okay with making exactly one video of that quality. The alternatives in the domain of *even* in (42) are determined analogously and the domain has thus the form given in (41).

(43) $\llbracket \text{exh} \rrbracket^{g,c}(C, p, w) = 1$ iff $p(w) = 1 \wedge \forall q \in C [p \not\leq q \wedge q(w) = 0]$

(44) $\llbracket [\text{exh C}_0] [\text{I hope to make one}_F \text{ video of that quality}] \rrbracket^{g,c}(w) = 1$ iff I hope_{ue} to make one video of that quality in w & for $n > 1$, it is not the case that I hope_{ue} to make n videos of that quality in w .

Consistency and plausibility of the scalar presupposition

The scalar presupposition triggered by *even* in (42) is given in (45): there is an alternative that is more likely than that I hope to make one video of that quality and I am okay with making exactly one video of that quality. Since the alternatives in the domain of *even* are mutually exclusive, the presupposition in (45) complies with (3).

(45) $\exists q \in \{\text{that I hope}_{ue} \text{ to make } n \text{ videos of that quality \& I am okay with making exactly } n \text{ videos of that quality} \mid n \in \mathbb{N}_{>0}\}$: that I hope_{ue} to make one video of that quality & I am okay with making exactly one video of that quality $\triangleleft_c q$.

Although due to their mutual exclusivity any likelihood relation may obtain on the alternatives described in (45), not every likelihood relation on them is plausible. More concretely, the presupposition in (45) is satisfied in contexts in which it jointly holds (i) that if there are preferences that distinguish between making more and making fewer videos of that quality, then making more videos of that quality is preferred to making fewer – ‘the more, the better’ – and (ii) that some alternatives are preferentially distinguishable from the proposition that I make one video of that quality. Namely, given this information, the expectation is that one hopes to make a notable number of videos of that quality rather than that one hopes to make one video of that quality and is okay with just one. Thus, in such a context there is an alternative that is more likely than the prejacent.

Restricted distribution and extra inference

The infelicity of weak *even* in the scope of *believe*, *intend* and *command* is a consequence of an implausible scalar presupposition. That is, although the exhaustification mechanism rescues moved *even* from triggering a presupposition that would clash with (3), the presupposition it does trigger is implausible. An example with a doxastic predicate is given in (46). The sentence in (46-a) has the structure in (46-b): *even* scopes above the doxastic predicate and the

exhaustification operator. The assertive meaning of the sentence is expressed in (46-c).

- (46) a. #John believes that he will make even ONE video of that quality.
 b. [even C₁] [exh C₀] [John believes he will make one_F video of that quality]
 c. John believes that he will make one video of that quality & John believes that he might make exactly one video of that quality.

The scalar presupposition of the sentence is that there is an alternative in the domain of *even* that is more likely than its prejacent (47). Unlike with desire predicates where their desiderative component and the relevant preferences in the context were shown to play a decisive role in making the scalar presupposition plausible, there is no component in the semantics of *believe* that could perform a similar function.

- (47) For some $n > 1$: that John believes that he will make one video of that quality & John believes that he might make exactly one video of that quality \triangleleft_c that John believes that he will make n videos of that quality & John believes that he might make exactly n videos of that quality.

Similar considerations apply to *intend* and *command*. Namely, there is no component of the meaning of these predicates that would support the scalar presupposition triggered by weak *even* (see discussion in the preceding subsection). Accordingly, weak *even* is pragmatically deviant under *intend* and *command*. This is different for *challenge* that has a component that can be utilized to support the respective scalar presupposition: it requires the challenged task to be difficult. Since it naturally holds that more difficult tasks qualify as more reasonable challenges, it may very well be less likely that someone is challenged to do an easy task rather than a hard task. The extra inference is derived as in the preceding subsection.

A problem for the approach

The exhaustification operator *exh* may apply in the absence of intensional operators. Accordingly, it could be used to rescue weak *even* in simple episodic sentences. For example, the sentence in (48-a) could be parsed as (48-b) where *even* takes scope above *exh*. The scalar presupposition of (48-b) is given in (48-c). It complies with (3) and may be true – it may be the case that it is less likely that John read exactly one book than, say, that he read exactly two books. However, the sentence in (48-a) is judged as deviant even in contexts in which this presupposition is satisfied and this is problematic for the account. Although we do not currently have a solution to this problem, we hope that an investigation of the conditions on the insertion of *exh* will prove helpful in explaining the unavailability of (48) (see e.g. Fox & Spector 2009).

- (48) a. #John read even ONE book.
 b. [even C₁] [exh C₀] [John read one_F book]
 c. \llbracket (48-b) $\rrbracket^{g,c}$ is defined only if for some $n > 1$: that John read exactly one book \triangleleft_c that John read exactly n books.

To summarize: if we adopt an approach that treats desire predicates and the imperative operator as monotone functions, an additional grammatical mechanism needs to be assumed to account for the felicity of weak *even* in their scope. The mechanism that we assumed and that allowed us to explain the distribution of weak *even* is the covert exhaustification operator. An issue for employing this mechanism is that, all else being equal, it leads us to expect a broader distribution of weak *even* than what we find. A more thorough study of the interaction of *even* and *exh* is required.

4 Negative polarity items in desire statements and imperatives

Certain negative polarity items (NPIs), such as stressed *any* and *ever*, are licensed in non-negative desire statements and imperatives.

- (49) a. I am glad that ANYONE likes me. (Kadmon & Landman 1993)
 b. Find me a politician that EVER cared for us AT ALL.
 c. He wished ANYONE AT ALL would look at him with that same love and sweetness.

This is unexpected on the characterization of NPI licensing condition in (50) (von Stechow 1999). This is because desire predicates and the imperative operator are either non-monotone or upward-entailing functions, as we have extensively discussed in preceding sections, and definitely not (Strawson) downward-entailing ones.

- (50) NPI licensing condition
 NPIs are only grammatical if they are in the scope of a Strawson downward-entailing operator.

A possible response to the data in (49) is to redefine the NPI licensing condition, e.g. so that it requires NPIs to occur under non-upward-entailing operators (cf. Progovac 1994:279). However, any such response leaves a crucial property of the NPIs in (49) unexplained: their context-dependence. For example, Kadmon & Landman (1993:388) point out that (49-a) is only felicitous in contexts in which the attitude holder has a preference for a certain subset of people in the domain of *anyone* to like him. In this respect, the sentences in (49) closely resemble desire statements and imperatives with weak *even* that we have discussed in this paper.

The resemblance between the context-dependent distribution of weak *even* and stressed NPIs like *any* and *ever* suggests that a successful way of explaining the data in (49) might be to assume that the distribution of the latter expressions is governed by a covert *even* (Krifka 1995). More precisely, we may assume that stressed *any* and *ever* denote existential quantifiers that are obligatorily accompanied by a covert *even*. Their alternatives are existential quantifiers that differ from *any* and *ever* only in that their domains are subsets of the domains of *any* and *ever*, i.e. *any* and *ever* are entailed by their alternatives (Krifka 1995, Chierchia 2010).

- (51) a. $\llbracket \text{any D} \rrbracket^{g,c} = \lambda P_{\text{et}}. \lambda Q_{\text{et}}. \exists x \in D [P(x) = Q(x) = 1]$

$$b. \text{ ALT}([\mathbf{any D}]) = \{\lambda P_{\text{et}}.\lambda Q_{\text{et}}.\exists x \in D' [P(x) = Q(x) = 1]: D' \subseteq D\}$$

Accordingly, if covert *even* and the existential quantifier cannot take split scope in a sentence, the sentence will be pragmatically deviant: it will trigger a scalar presupposition that the prejacent of *even*, which is entailed by all the alternatives, is less likely than some of the alternatives.

- (52) a. #ANYONE likes me
 b. [**even C₁**] [[**any D**]_F **one**] likes me]
 c. $\llbracket (52\text{-b}) \rrbracket^{g,c}$ is defined only if $\exists q \in \{\text{that someone from } D' \text{ likes me: } D' \subseteq D\}$: someone from D likes me \triangleleft_c q iff for some $D' \subseteq D$: someone from D likes me \triangleleft_c someone from D' likes me. (# in all contexts)

If covert *even* and the existential quantifier are separated by a non-monotone quantifier at LF, as exemplified in (53) (if we adopt Heim's treatment of desire predicates), we obtain configurations in which *even* may trigger a correct presupposition: e.g. if there is a specific group of people that I want to like me, it is plausible that me being glad that someone from a bigger group likes me is less likely than me being glad that someone from the specific group likes me.

- (53) a. I am glad that ANYONE likes me
 b. [**even C₁**] [**I am glad that anyone_F likes me**]
 c. $\llbracket (53\text{-b}) \rrbracket^{g,c}$ is defined only if for some $D' \subseteq D$: I am glad that someone from D likes me \triangleleft_c I am glad that someone from D' likes me.

Following Krifka (1995), we have effectively reduced configurations with stressed *any* and *ever* to those with weak *even* discussed above. The derivation of the correctness of the scalar presuppositions of the sentences in (49) as well as of other inferences accompanying these sentences can proceed along the lines described in Section 3. Since stressed *any* and *ever* are 'licensed' if the covert *even* that associates with them triggers a correct scalar presupposition, their felicity and context-dependence in (49) is explained.

5 Conclusion

Weak *even* may be felicitous in non-negative desire statements and in imperatives. If we assume that *even* can move at LF, this is expected on the negation-related approach to desire and imperatives. Namely, since the approach assigns the respective operators a non-monotone semantics, moving *even* above them at LF allows *even* to trigger a presupposition that is correct in appropriate contexts. The main problem for the negation-related approach is that non-negative desire predicates and the imperative operator appear to be upward-entailing rather than non-monotone. On the more standard modal approach to desire and imperatives, the occurrence of weak *even* is at first unexpected in these environments – this is because the environments are upward-entailing on this approach and weak *even* cannot occur in upward-entailing environments. We dealt with this puzzle by assuming that an exhaustification mechanism may apply in the scope of moved *even* that allows it to trigger a correct presupposition. The main problem for the approach is restricting the application of this rescuing

mechanism. A further investigation into both of the above-mentioned problems is mandated.

We conclude by pointing out two additional avenues for future research. First: An issue that we set aside in this paper is the additive inference that often accompanies *even*, i.e. the inference that an alternative other than the prejacent of *even* is true (see footnote 1). If we were to encode this inference as a presupposition of *even*, we would obtain wrong predictions for the sentences discussed in this paper. For example, the prediction for (54-a), where *even* moves above *glad* at LF, would either be that it conveys that John is glad that he read two papers (on Heim’s semantics of desire predicates) or that it is inconsistent (on a more standard modal semantics of desire predicates coupled with covert exhaustification). However, the sentence is consistent and lacks any such entailment.

- (54) a. John is glad that he read even ONE paper on this topic.
b. \nRightarrow John is glad that he read two papers on this topic.

Interestingly, if *even* takes scope above the desire predicate at surface structure, an additive inference does appear to be generated, as illustrated in (55). We face a dilemma: if we encode an additive presupposition into *even*, we fail to derive a correct prediction concerning (54); if we do not encode an additive presupposition into *even*, we fail to derive a correct prediction concerning (55) (see Rullmann 1997 for a third alternative). This needs to be explored further.

- (55) a. I am even glad that we got THESE tickets.
b. \Rightarrow I am glad that we got some tickets other than these.

Second: The prediction described in Section 2 leads us to expect that weak *even* should in appropriate contexts be able to occur in the scope of non-monotone nominal quantifiers. This prediction is borne out, as illustrated in (56-a). Strikingly, the distribution of weak *even* is again mirrored by the distribution of certain NPIs (56-b) (cf. Linebarger 1987). A uniform explanation of the felicity of sentences like (56) is called for and we plan to pursue it at another occasion.

- (56) a. Exactly two congressmen read even ONE book.
b. Exactly two congressmen read ANY book AT ALL.

References

- Aloni, Maria. 2007. Free choice, modals, and imperatives. Natural Language Semantics 15(1). 65–94.
- Bennett, Jonathan. 1982. *Even if*. Linguistics and Philosophy 5(3). 403–418.
- Chierchia, Gennaro. 2006. Broaden your views. Implicatures of domain widening and the ‘logicality’ of language. Linguistic Inquiry 37(4). 535–590.
- Chierchia, Gennaro. 2010. Meaning as an inferential system: Polarity and free choice phenomena. Harvard University.
- von Stechow, Kai. 1999. NPI licensing, Strawson entailment, and context dependency. Journal of Semantics 16(2). 97–148.

- Fox, Danny. 2007. Free choice and the theory of scalar implicatures. In Uli Sauerland & Penka Stateva (eds.), Presupposition and Implicature in Compositional Semantics, 71–120. Palgrave Macmillan.
- Fox, Danny & Benjamin Spector. 2009. Economy and Embedded Exhaustification. Handout from a talk at Cornell. MIT & ENS.
- Guerzoni, Elena. 2003. Why *even* ask? On the pragmatics of questions and the semantics of answers: MIT dissertation.
- Hansson, Sven Ove. 2001. The Structure of Values and Norms. Cambridge University Press.
- Heim, Irene. 1992. Presupposition projection and the semantics of attitude verbs. Journal of Semantics 9(3). 183.
- Herburger, Elena. 2000. What counts: Focus and quantification, vol. 36. The MIT Press.
- Hintikka, Jaakko. 1962. Knowledge and belief: an introduction to the logic of the two notions. Cornell University Press.
- Kadmon, Nirit & Fred Landman. 1993. *Any*. Linguistics and Philosophy 16(4). 353–422.
- Karttunen, Lauri & Stanley Peters. 1979. Conventional implicature. In C.-K. Oh & D. A. Dinneen (eds.), Syntax and semantics, vol. 11, 1–56. Academic Press.
- Kay, Paul. 1990. *Even*. Linguistics and Philosophy 13(1). 59–111.
- Krifka, Manfred. 1995. The Semantics and Pragmatics of Weak and Strong Polarity Items. Linguistic Analysis 25. 209–257.
- Lahiri, Utpal. 1998. Focus and Negative Polarity in Hindi. Natural Language Semantics 6. 57–123.
- Lahiri, Utpal. 2006. Scope, presuppositions and dimensions of meaning: Some observations on scalar additive particles in English, Hindi and Spanish. Handout from Sinn und Bedeutung 11, Universitat Pompeu-Fabra, Barcelona.
- Lewis, David. 1973. Counterfactuals. Wiley-Blackwell.
- Linebarger, M.C. 1987. Negative polarity and grammatical representation. Linguistics and Philosophy 10(3). 325–387.
- Merin, Arthur. 1999. Information, relevance, and social decisionmaking: some principles and results of decision-theoretic semantics. In Larry Moss, Jonathan Ginzburg & Maarten de Rijke (eds.), Logic, Language and Computation, vol. 2, CSLI Publications.
- Progovac, Ljiljana. 1994. Negative and Positive Polarity: A Binding Approach. Cambridge University Press.
- Rooth, Mats. 1985. Association with focus: University of Massachusetts, Amherst dissertation.

- Rullmann, Hotze. 1997. *Even*, polarity, and scope. Papers in Experimental and Theoretical Linguistics 4. 40–64.
- Schwager, Magdalena. 2006. Interpreting imperatives: University of Frankfurt/Main dissertation dissertation.
- von Wright, Georg H. 1963. The Logic of Preference. University of Edinburgh Press.