

Additivity and the Syntax of *Even*

Linguistics Colloquium, University of Chicago, December 3 2015.

Michael Wagner. McGill University. chael@mcgill.ca

Even

The meaning of ‘even’ according to (cf. Horn, 1969; Karttunen and Peters, 1979):

- (1) Even John read Moby Dick.
 - a. Assertion: John read Moby Dick.
 - b. Unlikelihood presupposition: John is the least likely to have read Moby Dick.
 - c. Additive Presupposition: Someone else read Moby Dick.

Karttunen and Peters (1979) treat *even* as an operator that takes a propositional argument:

- (2) Syntax: $\text{even}(p)$ (where p is syntactic constituent that denotes a proposition)
Example: $\text{even}(\text{John read Moby Dick})$

This would make *even* similar to propositional adverbs like *always* or *probably*. But the syntactic distribution of *even* suggests that it has a very different syntax:

- (3) a. John watches even/only *Canadian* football.
b. ?*John watches always/probably *Canadian* football.

The syntax is more compatible with a 2-place operator (cf. Rooth, 1985; Drubig, 1994; Krifka, 1996; McCawley, 1995; Wagner, 2006, on *only*):

- (4) $\text{even}(x)(y)$ (where x is the focus constituent and $\llbracket xy \rrbracket$ denotes a proposition)
Example I: $\text{even}(\text{John})(\lambda x. x \text{ read Moby Dick})$
Example II: $(\text{even Canadian football})(\lambda x. \text{John watches } x)$

In the analysis of (Wagner, 2006), two-place *even* takes an argument of type σ and one of $\langle \sigma t \rangle$, and has the following meaning:

- (5) a. $\text{even}(x)(y)$: Asserts that $\llbracket xy \rrbracket$, and has two presuppositions:
 - b. Unlikelihood Presupposition: For all relevant alternatives to x , $\llbracket xy \rrbracket$ is less likely than $\llbracket x'y \rrbracket$.
 - c. Additive Presupposition: There is an alternative x' to x , such that $\llbracket x'y \rrbracket$ is true.

The two-place syntax can capture the syntactic distribution of *only*, *even*, and also differences with other focus sensitive adverbs like *always* Beaver and Clark (observed in 2003, 2008), if these have the syntax in (2).

- **The Puzzle:** There are strong arguments for and against the additivity of *even*
- **The Claim:** We can resolve this puzzle if we pay attention to the syntax of *even*.

Evidence for and against the additivity of *even*

To test whether *even* is additive, we can compare it to uncontroversially additive operators:

- (6) a. John read Moby Dick, too.
b. John also read Moby Dick.

Horn (1969, 106):

- (7) a. It's only Muriel who...
b. #It's even MURIEL who...
c. #It's also MURIEL who...

Or consider (b is 'offensive but grammatical' according to my Canadian consultants):

- (8) I heard the results of this year's marathon were surprising.
a. Oh yes. # Even a Canadian won it (> 1 winner of gold)
b. Oh yes. It's even the case that a CANADIAN won it.

Similar when *even* attaches to the object:

- (9) John was a favorite in the marathon. Did he win a medal?
a. Oh yes. He won even the gold medal. (he won > 1 medal)
b. Oh yes. It's even the case that John won the GOLD MEDAL.

Adding a modal removes the problem in both cases as expected if additivity is the problem:

- (10) a. Even a Canadian is able to win the gold medal.
b. John is able to win even the gold medal.

Another argument for an additive presupposition (Mortazavinia, 2013):

- (11) #Even Russia is the biggest country in the world.

But: Why are the paraphrases in (8-b) and (9-b) felicitous then?

- (12) Only one relevant alternative appears to be true:
a. { It's the case that a Canadian won the gold medal, it's the case that a Russian won the gold medal, ... }
b. { It's the case that John won the gold medal, It's the case that John won the silver medal, ... }

Likewise, how come the following exchange is felicitous (Rullmann, 1997, 61)?

- (13) A: Is Claire an Assistant Professor?
B: No, she's even an ASSOCIATE Professor

It seems like now you see the additive presupposition and now you don't...

A Syntactic Generalization

A new generalization: NP-*even* is additive, VP-*even* is not

- (14) The results in the Marathon were quite surprising. A Russian won the gold medal.
- a. #Even a Canadian won the SILVER medal. (unless two people won it)
 - b. #The SILVER medal was won even by a Canadian. (unless two people won it)
 - c. The SILVER medal was even won by a Canadian. (one winner)

Also:

- (15) Last week we only did half of the work we were supposed to.
- a. #This week, we did even nothing.
 - b. This week, we even did nothing.

Two more arguments against additivity from the literature:

- (16) a. [John actually didn't touch the Tequila or the Rum.]
In fact, he even drank only WATER. (cf. Krifka, 1992, 22)
- b. [Bill didn't dance with many partners.]
In fact, he even danced only with SUE. (cf. Stechow, 1991, 817)

The following minimal pairs show that NP-*even* is different again:

- (17) a. #He drank even only WATER.
b. #He danced even only with SUE.

Let's reconsider Rullmann's example:

- (18) She's even an ASSOCIATE Professor.

But this could be VP-*even*, compare *probably*, which can also follow the auxiliary:

- (19) a. Claire was probably an Assistant Professor.
b. *Claire met probably an Assistant Professor.

Compare variations with a full predicate instead of an auxiliary:

- (20) a. John married an Assistant Prof., and Bill even married an Associate Prof.
b. #John married Assistant Professor, and Bill married even an Associate Professor.
(Odd because Bill seems to have married two people)

Or a different auxiliary:

- (21) a. Claire must be a Quebecker, and Sally must even be an Australian.
b.?#Claire must be a Quebecker, and Sally must be even an Australian.

Upshot: NP-*even* is necessarily additive, VP-*even* is not.

A further test for additivity: Association with universals

Additivity doesn't like entailment relations between alternatives:

- (22) a. Everyone solved the problem. # Someone also solved the problem.
b. Someone solved the problem. # Everyone also solved the problem.

In fact, this is more general than just entailment (adapted from Cohen, 2009, 14):

- (23) a. A: Miranda called Val
b. B: Not just her. At least two residents called Val, too.
(Only felicitous if three people called Val)

This suggests that what makes the antecedent of the additive presupposition true has to be an 'independent' fact. Compare Kratzer (1989, 608):

- (24) The only thing I did yesterday was paint this still life over there.
a. Pedant: This cannot be true. You must have done something else like eat, drink, look out of the window.
b. Lunatic: This is not true. You also painted these apples and you also painted these bananas.

I will not define 'independent' here (for approaches to this within situation semantics see Kratzer (1989); Kratzer and Shimoyama (2002) and event semantics see Cohen (2009)), but just assume the following:

- (25) **Non-Redundancy (NR):** The alternative(s) an (additive) operator is anaphoric to have to be 'independent'.

Let's use the non-redundancy constraint to test the syntactic generalization

NP-even cannot associate with universal operators:

- (26) a. I was hoping that at least some of the students would be able to pass the test.
But in the end, even EVERYONE was able to do it.
b. I was hoping that the students would be able to solve at least some of the problems. # But in the end, they solved even ALL of the problems.

In the right context, where the *incoming students* are the least likely to pass the test), (26-a) should be essentially equivalent to:

- (27) I was hoping that at least some of the advanced students would be able to pass the test. But in the end, even the INCOMING students were able to do it.

The observed effect is general and not just constrained to *every*:

- (28) Did anyone solve the problem?
a. #Yes. Even EVERYONE did.
b. #Yes. Even ALL OF THEM did.
c. #Yes. Even MOST OF THEM did.

There is one previous discussion of an example similar to those in (26) that I know of. König (1991, 37) observes the following:

- (29) #We are fingerprinting even ALL/EACH/EVERY STUDENT.

In contrast to the general hypothesis in NR, König hypothesizes that this is a lexical point of variation between focus particles: Some are compatible with entailed and entailing alternatives, some are not (see paper draft for why this won't work).

VP-even can associate with universal operators:

- (30) Did John read some of the books?
a. #He read even ALL of the books.
b. He even read ALL of the books.

More controversy about whether <i>even</i> is additive: Downward-entailing contexts
--

Consider: (Wilkinson, 1996):

- (31) a. He didn't even show up ONCE.
b. He didn't show up even ONCE.

If *even* were interpreted in its position embedded under negation, it seems that the prejacent would constitute the *most likely* alternative, contrary to what would be expected (Compare: # *He even showed up once*).

Two approaches:

(i.) **NPI-even.** There is an NPI-version of *even* with a *most-likely* scalar presupposition (Rooth, 1985; Rullmann, 1997, and others).

(ii.) **Movement.** *Even* always has a *least likely* reading, but can scope over negation (Karttunen and Peters, 1979; Wilkinson, 1996, and others).

Wilkinson (1996) makes an argument against the NPI-even approach and in favor of the movement view, based in part on the following example:

- (32) I'm sorry I even OPENED the book.

If *even* is additive and an NPI with flipped scale, then then I would have to have done something else to the book other than opening it.

Rullmann (1997) and Giannakidou (2007), however, question whether *even* really (necessarily) introduces an additive presupposition.

Note: Wilkinson's crucial example involves VP-even!

Does *even* ever necessarily introduce an additive presupposition in DE contexts? At least according to our test based on universals: yes, NP-*even* does!

- (33) Almost everyone read several semantics textbooks to study for the exam, some more and some less related to the course content.
- a. #John didn't read even ANY book.
 - b. John didn't even read ANY book.
- (34) – Which of these books did they need to read to pass?
- a. #- Every student who read even *any* book passed the exam.
 - b. – Every student who even read *any* book passed the exam.

And in conditionals:

- (35) – Which of these books do I need to read to pass?
- a. #- If you read even ANY book, you will pass the exam.
 - b. – If you even read ANY book you will pass.

If *even* indeed comes with an additive presupposition when attaching to NPs, we can now see that Wilkinson's argument against the *NPI-even* might go through after all, albeit based on different examples that actually involve additive *even*:

- (36) a. John didn't show up even once.
(Does not presuppose that he showed up some number of times.)
- b. John didn't win even a bronze medal.
(Does not presuppose that he won some other medal)

The additive presupposition of *even* can be fulfilled if *even once* moves above negation, but not if it is interpreted in-situ (with the NPI-even meaning).

- Wilkinson (1996) presents evidence for movement account assuming additive *even*.
- Rullmann (1997) argues against additivity of *even* and against Wilkinson's argument.
- Wilkinson's example involves non-additive VP-*even*, so Rullman's criticism is justified. Once we look at additive examples, Wilkinson's argument seem to go through after all. (but see Giannakidou (2007) for other problems with the movement account)

What explains the syntactic generalization? Three conceivable explanations:

- **Even is always additive**—but when it attaches to the VP, the alternatives considered can create the illusion that there is no additive presupposition.
- **Two evens:** There is a sentence adverb *even* (similar in syntax to ‘probably’) which has the unlikelihood presupposition but lacks the additive one, and a focus-adverb *even* (similar in syntax to *only* which has both).
- **Even is always non-additive**—but when it attaches to the NP, the alternatives considered lead to an additive inference.

Approach 1: *Even* is always additive

Under this view, there must be some element that *even* can scope over in the VP-cases like (37-b) which breaks the entailment between *everything* and its alternatives:

- (37) John read a lot.
- a. #He read even EVERYTHING.
 - b. He even read EVERYTHING.

One possibility is that it’s something like *once* (Heim, p.c., points out that this could account for at least some cases):

- (38) John read a lot once.
- a. #John read even EVERYTHING once.
 - b. John even read EVERYTHING once. (*once* = *some other occasion*)

It’s true that with *once*, actually additive operators become acceptable:

- (39) John read a lot (once). John also read EVERYTHING once.

But crucially, an overt *once* is necessary for those, in contrast to the case of *even* (37-b):

- (40) #He also read EVERYTHING.

No matter high you attach the additive *also*, it seems that its additive presupposition creates a problem, unless overt material breaks the entailment:

- (41) John read a lot. # It’s also the case that John read everything.

Also, there is no intuition that something additive is implied in the following use of *even*:

- (42) Last week the the students only did half of the work they were supposed to.
- a. #This week, they did even *nothing*.
 - b. This week, they even did *nothing*.

Another is that *even* scopes an embedding ‘performative verb’—an overt embedding verb can indeed remove the oddness even for true additive operators:

- (43) (I assert that) John read a lot.
- a. I even assert that John read everything.
 - b. I also assert that John read everything.

But then again, why the contrast between (37-b) and (40)? (Another possibility: hidden ‘at least’, but same issue arises.

Upshot: The even-is-always-additive approach seems hard to get to work.
--

Approach 2: Two <i>Evens</i>

Consider a difference between *only* and *even* observed in Jackendoff (1972):

- (44) a. JOHN has always given his daughter a new bicycle.
b. #JOHN has only given his daughter a new bicycle.
c. JOHN has even given his daughter a new bicycle.

Suppose there are two lexical entries for *even* (similar to Horn (1969), who posits an additive subject-even and suggests a scalar VP-even). Note: this is a different type of lexical ambiguity than the ones proposed in Rooth (1985) and Giannakidou (2007).

- (45) a. *p*-even (*p*): Asserts that *p*, and has the following presupposition:
b. Unlikelihood Presupposition: Among all relevant alternatives to *p*, *p* is the least likely alternative.

Since only *p*-*even* can backwards associate with subjects, these cases should be non-additive:

- (46) Is it really true that someone from North America won the Marathon?
- a. #Even A CANADIAN (won it)!
 - b. ?A CANADIAN even won it!
 - c. A CANADIAN won it even!
 - d. A CANADIAN even!

- (47) Did some students not do their homework again?
- a. #Even NO ONE (did them).
 - b. ?NO ONE even did them.
 - c. NO ONE did them even.
 - d. NO ONE even.

- (48) a. #Even ALL of the students solved the problem.
b. ALL of the students even solved the problem.
c. ALL of the students solved the problem even.
d. ALL of the students even.

Erlewine (2014) actually reports backwards association with *every* to be bad:

(49) *?Of course we arrested some protesters. EVERY protester was even arrested.

Wagner (2013) had also observed a difficulty of associating with *every*, but relates it to distributivity. Compare:

(50) Of course we arrested some protesters. ALL of the protesters were even arrested.

Erlewine (2014) also hypothesizes that backwards association with universal DPs is impossible (e.g., with *every student*).

However, note that backwards association with *everyone* is fine, which would be unexpected:

- (51) a. Some people really should try yoga. Everyone should even do it.
b. #Some people really should try yoga. Even everyone should do it.

Crucially, *every x* but not *everyone* is **necessarily distributive**, as expected if the interaction with distributivity is the problem:

- (52) a. Every student gathered in the seminar room.
b. Everyone gathered in the seminar room.

In other words, the account in terms of two evens is compatible with the data, and potentially offers a new insight into Jackendoff's puzzle.

A lexical approach seems further motivated by the observation that German lexically distinguishes an additive (*selbst*) and a non-additive (*sogar*) version of *even* (Eckardt, 2001).

But: Erlewine (2014) has a more elegant idea of how to account for Jackendoff's puzzle (which might need a slightly different implementation if the data pattern about universal presented here is correct). The intuition:

- (53) Backwards association with *only* leads to a contradiction
a. JOHN and SUE even solved this.
JOHN even solved this, and SUE even solved this.
b. JOHN AND SUE only solved this.
ONLY JOHN solved this and ONLY SUE even solved this.

And: the cross-linguistic multipl even argument backfires. German *sogar* is in fact sometimes additive after all—essentially, it is like English *even*! The See Appendix.

- An account of the syntactic generalization in terms of two evens seems feasible, and would shed light on Jackendoff's puzzle.
- It is not very insightful, however, and there might be a better explanation for Jackendoff's puzzle along the lines of Erlewine (2014).

Approach 3: *Even* is always non-additive

Here's an example that looks like *even* is non-additive (adapted from Mortazavinia, 2013):

- (54) A: Do you have a queen?
B: I even have an ace. (B might have only one card)

But now consider the following example, where there is an additive inference after all:

- (55) A: Do you have an ace?
B: Yes. And I even have a queen.
(B must have at least two cards, and queen + ace must be better than just an ace)

Proposed explanation: *even* requires a scale, and if the associate isn't intrinsically higher (here: queen < ace), then a **subset scale** is necessary to make sense of this:

- (56) a. 'Intrinsic Scale': queen < king < ace
b. 'subset scale' over *ace*:
{ ace } < { ace, queen, } < { ace, king } < { ace, queen, king, } ...

These scales might be involved also in (57), from Fauconnier (1976), via Kay (1990, 71)¹:

- (57) George drank a little wine, a little brandy, a little rum, a little calvados, and even a little armagnac.

The 'little armagnac' is not necessarily the least probable, what's improbable is rather the total amount. (One could model this with conditional probabilities, see discussion by Kay).

Such scales have been proposed for 'exclusive' (and apparently non-scalar) readings of *only* (Schwarzschild, 2004; Klinedinst, 2005), and certain cases of contrastive negation (Wagner, 2006) (cf. principal ultrafilters generated by individuals in Barwise and Cooper 1981).

- (58) a. Scalar and exclusive reading for *only*:
I didn't see the Provost. I only saw the Vice-Provost.
(I didn't see anyone that high up./I didn't see both.)
b. Exclusive reading only:
I didn't see the Vice-Provost. I only saw the Provost. (I didn't see both.)

Proposal for syntactic additivity generalization:

Scale Hypothesis: When *even* attaches to an NP, only superset scales (or maybe more generally, scales based on sets of individuals) are available, but 'inherent' scales are not. (alternative version: The two-place-operator version of *even* only allows for subset scales.)

If the Scale-Hypothesis is true, then the syntactic generalization follows: The preadjacent asserts the actual alternative is true, and the true alternative is not the lowest item on the subset scale, so necessarily there has to be at least one more item that is true.

¹This relates to subset comparatives (Grant, 2010; Aparicio, 2013), there is no time to discuss this here.

Testing the Scale-Hypothesis

The NP/VP scale restriction should be true for other operators. Otherwise, we essentially stipulate that NP-even is additive, but VP-even is not! Consider: *just*

- (59) A: Do you have a queen?
a. B: I don't just have a queen. I have an ace. (might have one card)
b. #B: I don't have just a queen. I have an ace.

As expected based on scale-hypothesis, negated NP-*just* is additive:

- (60) B: I don't have just a queen. I have an ace, too.

→ NP-*just* can only operate over subset scales, while VP-*just* can operate over inherent scales—like NP-*even*, and just as predicted by scale hypothesis.

Approach 3: Problems

Example (54) sounds worse when combined with *no*:

- (61) A: Do you have a queen?
a. B: #? No. I even have an ace. (Grinsell, p.c.)
b. B: (No,) not just a queen. I even have an ace. (B might have only one card)

This makes it look like *even* is, in some sense, additive in some sense after all. Of course, the sense of 'additive' here is non-obvious, as a comparison with truly additive operators shows, like *also* shows—or NP-*even*, for that matter:

- (62) A: Do you have a queen?
a. B: Not just a queen. I also have an ace. (must have at least two cards)
b. B: Not just a queen. I have even an ace. (must have at least two cards)

Here's a reason to think that *only* might be similar to *just* in the relevant sense:²

- (64) Tequila-Arroyo Test (Beaver and Clark, 2008, 238) One year there were 90 students in Arroyo. 30 drank Tequila and nothing else. 30 drank EANABs and nothing else. 30 drank everything, no matter what.
a. How many Arroyans didn't only drink Tequila? (30 or 60?)
b. How many Arroyans didn't drink only Tequila? (30 or 60?)

²But *only* is not an option in the card examples, irrespective of whether it's NP-only or not:

- (63) Do you have a queen?
a. Not only do I have queen, I have an ace. (must have two cards)
b. ?I not only have a queen, I have an ace. (must have two cards)
c. #I don't have only a queen. I (also) have an ace (irrespective of # of cards)

Finding: The answer 60 is more likely with VP-*only*-as expected based on scale-hypothesis!

But it seems that based on the medal-test, inherent scales are possible with NP-*only*:

- (65) Sally was hoping for a silver medal, maybe even a gold medal.
- a. She was disappointed that she only won the bronze medal.
 - b. She was disappointed that she won only the bronze medal.

(b) does not entail that she was hoping to win two medals—contrary to expectations based on the scale hypothesis. On the other hand:

- (66) (speaker has elitist bias) (adapted from Klinedinst, 2005, 29):
- a. Unfortunately, only a poor linguist married him.
 - b. Unfortunately, He only married a poor linguist.

According to Klinedinst, examples like (a) are ‘totally uninformative, and perhaps odd’. Klinedinst’s proposal: ‘Pragmatic scales’ (this is what I called ‘inherent scales’ above) only possible with VP-*only*, not with subject-*only* (similar proposal in Horn, 1969).

- (67) Is it just subject-*only* that shows these effects, or maybe NP-*only*, more generally?
(speaker has elitist bias)
- a. Unfortunately, John only married a poor linguist.
 - b. Unfortunately, John married only a poor linguist.

(67-b) seems fine—*only* does not pattern according to scale hypothesis.

Upshot: The even-is-always-non-additive account could capture some the asymmetry if we adopt something like the scale-Hypothesis. But there are some unresolved problems.

Conclusions

- Apparently paradoxical findings with respect to the additivity of *even* can be reconciled when we take syntactic differences between VP- and NP-*even* into account: NP-*even* is necessarily additive, VP-*even* is, apparently, not.
- Three accounts for this syntactic generalization were considered: One in which *even* is uniformly additive (but other operators sometimes scopally intervene); one in which *even* is uniformly additive (but additive inferences sometimes emerge via the interaction with scales); and one that involves two *evens*.
- At this point, the non-additive account based on the scale-hypothesis seems promising.

Apparent counterexample I: *maybe even all*

- (68) A: Did some of the students solve the problem?
a. #B: Even all of them (did). (expected since NP-*even*)
b. B: All of them even (did). (expected non-VP-*even*)
c. B: Maybe even all of them (did). (unexpected!)
- (69) A: What did we find out? Not much.
a. #B: Even nothing. (as expected since NP-*even*)
b. B: Nothing, even. (as expected since non-NP-*even*)
c. B: Maybe even nothing. (unexpected!)

Solution: *Maybe* (and a certain class of propositional adverbs, which relates to veridicality, since *definitely* or *evidently* aren't like this) allow *p-even* to precede the subject:

- (70) A: I think the weather won't be all that bad today.
a. #B: Even the sun will shine.
b. B: Maybe even the sun will shine.

There are probably other adverbs like *maybe*, the precise class of elements that show the same effect yet needs to be identified. Some other adverbs that seem to work are *probably*, *perhaps*, and *hopefully*, while *tomorrow* and *in fact* do not work:

- (71) a. Probably/perhaps even everyone.
b. ?Hopefully even everyone.
c. #In fact, even everyone.

Apparent counterexample II: *or even all*

- (72) He read some or even all of the books. (why is *all* felicitous with NP-*even* here?)

But this might be non-NP-*even*! Collins (1988) (cf. Barry Schein's work):

- (73) a. I saw John and probably Bill.
b. #I saw probably Bill.
c. I saw John or maybe Bill.
d. #I saw maybe Bill.

We can test that indeed, the additive presupposition is absent in these cases:

- (74) a. I think she won the bronze medal or even the silver medal.
b. He married an Assistant Professor or even an Associate Professor.

Or, more crisply:

- (75) A: What have we learned?
B: Very little or even nothing.

Apparent counterexample III: Numerals

Why is this example odd (cf. Giannakidou, 2007, 52):

(76) Mary reviewed a book. # Sally reviewed even two.

Often assumed: Numerals have an *at least* reading such that (cf. Spector, 2013):

(77) John read two books. → John read one book.

They also have a strengthened *exactly* reading. We use a test by Hurford to show this:

- (78)
- a. John is from France, **but** not from Paris.
 - b. #John is from France **and** not from Paris.
 - c. #John is from Marseille, **but** not from Paris.
 - d. John is from Marseille, **and** not from Paris.

Numerals allow **both** connectors, a new argument for the two readings of numerals:

- (79)
- a. John read one **but** not two books.
 - b. John read one **and** not two books.

Consider now the interaction of numerals with additive particles: The at-least-reading is out because of NR; the strengthened reading is out because it's mutually exclusive:

(80) #John read one book. He also read two books.

NP-*even* (additive) *even* should then act the same way, but not VP-*even*, and this is correct:

- (81)
- A: Mary reviewed a whole book about focus.
 - a. #B: Sally reviewed even TWO.
 - b. B: Sally even reviewed TWO.
 - c. B: Sally reviewed TWO, even.

Bottom line: Numerals pattern as predicted by the NR and the syntactic generalization!

Yet another appendix: Two evens in German, and one is like *even*

Selbst is necessarily additive; *sogar* is not (Eckardt, 2001, 405):

- (82)
- a. Die Verena wurde sogar VOM PAPST getauft.
The Verena was even by the pope baptized
'Verenas was even baptized by the pope.' (Can be 1 baptizer)
 - b. Die Verena wurde selbst VOM PAPST getauft.
the Verena was even by the pope baptized
'Verenas was baptized even by the pope.' (2 baptizers)

Schwarz (2005, 141) similarly concludes that *sogar* lacks the additive presupposition (in

contrast to some focus operators related to *sogar*, in particular *auch nur* and *einmal*, which are similar to English flipped *even*, but clearly show evidence for an additive presupposition):

- (83) Hans hat sogar DIE SILBERMEDAILLE gewonnen.
 Hans has even the silver medal won.
 ‘Hans has even won the silver medal. (one medal)’

The variation in (84) shows that Eckart is correct in arguing that *selbst* must be additive:

- (84) Hans hat selbst DIE SILBERMEDAILLE gewonnen.
 Hans has even the silver medal won.
 ‘Hans has even won the silver medal.’ (> one medal)

But things are more complex than Eckart suggests! *Sogar* is additive in first position:

- (85) Sogar DIE SILBERMEDAILLE hat Hans gewonnen.
 even the silver medal has Hans won.
 ‘Hans has even won the silver medal.’ (> one medal)

Consider also the following contrast:

- (86) (At the Montreal Marathon): A: how did it go?
 a. B: Super! Es hat sogar/# selbst ein Quebecker gewonnen.
 great it has even a quebecker won
 b. B: Super! # Sogar/# Selbst ein Quebecker hat gewonnen.
 great even a quebecker has won
 ‘Great! A Quebecker has even won.’

Since *sogar* doesn’t come with an additive presupposition, it should be able to associate with a universal irrespective of where it occurs. But it cannot do so when in first position:

- (87) I initially hoped that one student would solve the problem.
 a. Am Ende hat es sogar/# selbst JEDER lösen können.
 in the end has it even everyone solve could
 b. # Sogar/# selbst JEDER hat es am Ende lösen können.
 even everyone has it in.the end solve could
 ‘In the end, EVERYONE was even able to solve it.’

The two evens in German, whose existence at first seems to support the lexical two-even story, actually provide evidence for the non-additive-even approach.

Thanks to Luis Alonso-Ovalle, Alan Bale, Meghan Clayards, Jon Gajewski, Dan Goodhue, Elena Guerzoni, Irene Haim, Maire Noonan, and, in particular, to Bernhard Schwarz for comments and discussion. Thanks also to the McGill semantics reading group (April 2013), and the audience at USC (April 2013), the McGill Implicature Workshop (May 2013), Goethe Universität Frankfurt (May 2013), a workshop organized by Martin Prinzhorn and Viola Schmidt in Austria (June 2013), and the audience at the Colloquium at UMass Amherst in April 2015, particularly Seth Cable, Tim Grinsell, and Jeremy Hartmann, and Angelika Kratzer.

- Aparicio, H. (2013). Additive readings in spanish amount comparatives. ESSLLI 2013 Student Session.
- Barwise, J. and Cooper, R. (1981). Generalized quantifiers and natural language. *Linguistics and Philosophy*, 4:159–219.
- Beaver, D. I. and Clark, B. Z. (2003). "Always" and "Only": Why not all focus sensitive operators are alike. *Natural Language Semantics*, 11(4):323–362.
- Beaver, D. I. and Clark, B. Z. (2008). *Sense and sensitivity: How focus determines meaning*. Wiley-Blackwell.
- Cohen, S. (2009). *On the semantics of too and only: Distinctness and subsumption*. PhD thesis, UMass Amherst.
- Collins, C. (1988). Conjunction adverbs. MS. MIT.
- Drubig, H. B. (1994). Island constraints and the syntactic nature of focus and association with focus. In *Arbeitspapiere des Sonderforschungsbereichs 340: Sprachtheoretische Grundlagen der Computerlinguistik*, volume 51. Sonderforschungsbereich 430, Tübingen/Stuttgart.
- Eckardt, R. (2001). Reanalysing selbst. *Natural Language Semantics*, 9(4):371–412.
- Erlewine, M. (2014). *Movement Out of Focus*. PhD thesis, MIT.
- Fauconnier, G. (1976). *Etude de certains aspects logiques et grammaticaux de la quantification et de l'anaphore en francais et en anglais*. Champion, Paris.
- Giannakidou, A. (2007). The landscape of EVEN. *Natural Language and Linguistic Theory*, 25:39–81.
- Grant, M. (2010). Subset comparatives: a psycholinguistic investigation. UMass Amherst.
- Horn, L. R. (1969). A presuppositional analysis of *only* and *even*. In Binnick, R. I., Davison, A., Green, G., and Morgan, J., editors, *Papers from the 5th Annual Meeting of the Chicago Linguistic Society*, volume 4, Chicago. Chicago Linguistic Society.
- Jackendoff, R. S. (1972). *Semantic Interpretation in Generative Grammar*. MIT Press, Cambridge, Ma.
- Karttunen, L. and Peters, S. (1979). Conventional implicature. In Dinneen, D. and Oh, C.-K., editors, *Syntax and Semantics 11: Presupposition*, pages 1–56. Academic Press, New York.
- Kay, P. (1990). Even. *Linguistics and philosophy*, 13(1):59–111.
- Klinedinst, N. W. (2005). Scales and only. Master's thesis, MA thesis. UCLA.
- König, E. (1991). *The meaning of focus particles: A Comparative Perspective*. Routledge, London.
- Kratzer, A. (1989). An investigation of the lumps of thought. *Linguistics and philosophy*, 12(5):607–653.
- Kratzer, A. and Shimoyama, J. (2002). Indeterminate pronouns: The view from Japanese. In *Paper presented at the 3rd Tokyo Conference on Psycholinguistics*.
- Krifka, M. (1992). A compositional semantics for multiple focus constructions. In Jacobs, J., editor, *Informationsstruktur und Grammatik*, volume Sonderheft 4 of *Linguistische Berichte*, pages 17–53. Westdeutscher Verlag, Opladen.
- Krifka, M. (1996). Frameworks for the representation of focus. In Kruijff, G.-J. M., Oehrle, R. T., and Morrill, G., editors, *Formal Grammar Conference. Proceedings of the Conference on Formal Grammar at the 9th European Summer School in Logic, Language, and information*, pages 99–112, Prague. Follli.
- McCawley, J. D. (1995). The focus and scope of *only*. In Partee, Barbara, H. and Sgall, P., editors, *Discourse and Meaning. Papers in Honor of Eva Hajicová*, pages 171–194. Benjamins, Amsterdam/Philadelphia.
- Mortazavinia, S. (2013). *Even and only*. MS. McGill University.
- Rooth, M. (1985). *Association with Focus*. PhD thesis, University of Massachusetts, Amherst.
- Rullmann, H. (1997). Even, polarity, and scope. In Gibson, M., Wiebe, G., and Libben, G., editors, *Papers in Experimental and Theoretical Linguistics*, volume 4, pages 40–64. Department of Linguistics, University of Alberta.
- Schwarz, B. (2005). Scalar additive particles in negative contexts. *Natural Language Semantics*, 13(2):125–168.
- Schwarzschild, R. (2004). Association with only, givenness and anaphora resolution. Talk given at the University of Stuttgart, December 2004.
- Spector, B. (2013). Bare numerals and scalar implicatures. *Language and Linguistics Compass*, 7(5):273–294.
- Stechow, A. v. (1991). Current issues in the theory of focus. pages 805–825. de Gruyter, Berlin.
- Wagner, M. (2006). Association by movement. Evidence from NPI-licensing. *Natural Language Semantics*, 14(4):297–324.
- Wagner, M. (2013). Additivity and the syntax of *even*. Colloquium Talk, MIT.
- Wilkinson, K. (1996). The scope of even. *Natural Language Semantics*, 4(3):193–215.