

Formal Pragmatics of *Even if**

R. Koncel Kedzior

Department of Linguistics, University of Washington,
kedzior@uw.edu

Summary. EVEN-IF counterfactuals are discussed with the goal of advocating for a compositional rather than lexical analysis of the phrase. Previous approaches to *even* are reviewed: one positing multiple homophonous morphemes and another unified approach. Their mean is integrated into the analysis provided in this paper. Finally, a consistent theory of EVEN-IF counterfactuals is provided, replete with specifics on how the presuppositions of *even* are built from the information of the conditional.

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1 Introduction

Consider a hypothetical student Cheyenne who recently failed a course so badly that no degree of success on the final exam could have salvaged his grade. Imagine his professor reporting on the situation thus:

- (1) Even if Cheyenne had aced the exam, he wouldn't have passed the course.

This is a common construction of the English language – a special kind of counterfactual conditional that we will refer to as an EVEN-IF construction (or as EVEN-IFS in the plural). It is distinct from 'normal' counterfactual conditionals in that the consequent of an EVEN-IF holds in the actual world. We often notice (in speech) the absence of any stress in the consequent of an EVEN-IF. This also differs from a normal counterfactual conditional, wherein one will frequently hear a prosodic stress on some part of the consequent (to highlight that this fact – the consequent – distinguishes worlds where the antecedent holds from the actual world).

To illustrate, compare (1) with the following 'normal' counterfactual. Consider another student Dakota who could have passed the course but didn't because she failed the final exam. Of her, the professor says:

* Thanks to Toshiyuki Ogihara and the anonymous reviewers who helped form this work.

- (2) If Dakota hadn't failed the exam, she would have passed the course.

Note that in (2) the consequent does not hold in the actual world. A statement such as (2) would also likely carry prosodic stress on either *would have* or *passed* (in addition to possibly *if* or *hadn't*).

That the consequent holds in the actual world is the defining feature of an EVEN-IF – more so than the presence of the word *even* in the antecedent, as there are many equivalent statements of (1) which omit it:

- (3) a. If Cheyenne had aced the exam, he still wouldn't have passed the course.
b. If Cheyenne had aced the exam, he wouldn't have passed the course anyway.

Alternately, the same reading can be achieved by focusing an element of the antecedent:

- (4) If Cheyenne had ACED the exam he wouldn't have passed the class.

Normal counterfactuals with focused antecedents are discussed in Ogihara (2000). They are structurally identical to the above, and can only be distinguished by evaluating the truth conditions of the consequent. Hence, we know to give this an EVEN-IF reading due to the fact that the consequent obtains in the actual world, whereas the consequents of Ogihara's "normal" counterfactuals do not.

In the absence of any of clue words (*even, still, anyway ...*) to indicate the EVEN-IF reading, it becomes difficult to make sense of the statement:

- (5) #If Cheyenne had aced the exam, he wouldn't have passed the course.

We are inclined to read (5) as a 'normal' counterfactual conditional and we anticipate some contrast between the consequent and the actual world.¹ However, there is no contrast: the actual world is one in which Cheyenne didn't pass the course.

¹ Anderson (1951) offers the following counterexample:

- (i) If Jones had taken arsenic, he would have shown just exactly those symptoms which he does in fact show.

Here, as Anderson notes, we would not assume that the speaker is making a claim about the factuality of the antecedent, and thus this is not a counterfactual because in neither the antecedent nor consequent are facts being countered. (In fact, conditional form of (i) has the effect of a hedge. The speaker is introducing the possibility of the antecedent as a cause of Jones' condition, but they are intentionally working in the modal space of the conditional to avoid asserting the connection directly.)

Expectedly, we cannot say (5) with prosodic stress on any of the constituents of the consequent.

The awkwardness of (5) highlights the role counterfactual conditionals play in a discourse. The purpose of making a counterfactual conditional statement like (2) is to establish a connection between Dakota's failing the exam and her failing the course. Generally, conditionals implicate a non-accidental connection between the antecedent and the consequent (Kratzer, 2012, chapter 4). In the case of counterfactual conditionals, this connection is not of much use to the listener, as it is a connection which holds between a pair of false statements. However, we as listeners know that speakers are not prone to making such useless assertions, and so we interpret the counterfactual conditional as a statement about the actual world by accepting it as an assertion of the non-accidental connection between the negation of the antecedent and the negation of the consequent. This is how we can hear "If Dakota hadn't failed the exam she would have passed the course" and come to the conclusion that "because Dakota did fail the exam she didn't pass the course."

EVEN-IFS do not assert this connection; quite the opposite, the purpose of an EVEN-IF is to assert the absence of a non-accidental connection between the antecedent or its negation and the consequent. Thus, the purpose of (1) is to establish the independence of Cheyenne's exam grade and Cheyenne's failing the course. A person who utters (1) asserts "Cheyenne was going to fail the class regardless of his score on the exam".²

This paper will take up the question of how to analyze EVEN-IFS compositionally. In particular, it will consider treatments of *even* in declarative contexts and assimilate those analyses to the case of the counterfactual conditional.

2 Even

Analyzing *even* has proved difficult due to the variant nature of the morpheme. *Even* seems to be able to modify a DP, V, VP, or C (in keeping with the literature, I will refer to the constituent modified by *even* as the 'focused element'). What's worse, rather than contributing to the truth-conditions of an utterance, *even* seems only to contribute a pair of presuppositions to the context: an existential presupposition and a scalar presupposition (Karttunen and Peters, 1979).³

Consider an example:

(6) Even AVERY loves Blair

² The temporal properties of counterfactual conditionals could be interesting. I leave them for future consideration.

³ Karttunen and Peters refer to these presuppositions as *implicatures*

Here we denote the focused element in capital letters. The presuppositions of *even* in (6) are the following:

Existential: There are other people (besides Avery) who love Blair.

Scalar: Avery is the least element of the set of people x who would love Blair, ordered by the likelihood that $\llbracket x \text{ loves Blair} \rrbracket = 1$.

The existential presupposition, then, asserts the existence of some other entity (or predicate, or clause depending on the type of the focused element) for which a generalized version of the statement holds. The scalar presupposition orders the entities for which the generalized statement holds and asserts that the focused element is the least of these entities.

This much is mostly agreed upon. Opinions bifurcate when negative contexts are considered. While English *even* has but one phonological form, Rooth (1985) and others have argued that there are at least two separate lexical items: one for positive contexts and another for negative contexts, each with different behavior:

(7) Not even AVERY loves Blair

Here, under negation, the scale of the scalar presupposition is reversed:

Scalar: Avery is the GREATEST element of the set of people x who would love Blair, ordered by the likelihood that $\llbracket x \text{ loves Blair} \rrbracket = 1$.

Thus, (7) seems to say that, despite how likely it is for Avery to love Blair, it is not the case. Giannakidou (2007) provides evidence from Greek in support of this lexical ambiguity analysis. Greek, claims Giannakidou, is among a host of languages which have multiple lexical items which correspond to different uses of English *even*, including separate words for use in negative and positive polarity contexts.

Wilkinson (1996) argues, however, that there is a single *even* morpheme, which takes scope over negation. The first piece of evidence for this comes from the fact that the existential presupposition of a sentence like (7) includes the negated VP:

Existential: There are other people (besides Avery) who DON'T love Blair.

Thus, the negated VP should also be included in the scalar presupposition:

Scalar: Avery is the least element of the set of people x who would NOT love Blair, ordered by the likelihood that $\llbracket x \text{ doesn't love Blair} \rrbracket = 1$.

Another piece of evidence for this analysis comes from scope-ambiguous contexts. Consider the following, adapted from Karttunen and Peters (1979):

(8) It's hard to believe that Avery loves even BLAIR

Here, *even* can take scope over either the embedded or matrix clause. The distinction is made clear when we consider the presuppositions of the two readings:

NARROW SCOPE READING

Existential: There are other people (besides Blair) who are loved by Avery.

Scalar: Blair is the least element of the set of people x who would be loved by Avery, ordered by the likelihood that $\llbracket x \text{ is loved by Avery} \rrbracket = 1$ (i.e. Blair is the worst.)

This would be the natural reading of (8) in a world where most people are seen as basically pretty good, except for Blair who is the sole jerk that nearly everyone hates. Thus, while we know Avery to be a loving person, it's hard to believe they could be so loving as to love even Blair.

This contrasts with the wide scope reading:

WIDE SCOPE READING

Existential: There are other people (besides Blair) such that it's hard to believe that they are loved by Avery.

Scalar: Blair is the least element of the set of people x about whom it's hard to believe that they would be loved by Avery, ordered by the likelihood that $\llbracket \text{it's hard to believe that } x \text{ is loved by Avery} \rrbracket = 1$ (i.e. there are worse people out there than Blair).

The world which gives us the wide scope reading of (8) is one which is populated by jerks, many of whom are far worse than Blair. But Blair is undeniably bad, and so it is amazing that Avery loves even Blair, let alone the rest of the jerks which inhabit this terrible world.

Nakanishi (2006) supports the scope theory of *even* with evidence from Japanese. Nakanishi analyzes the morphemes *-mo*, *-demo*, and *-dake-demo*, showing that these analogs of English *even* have predictable scope patterns and do not conform to the positive/negative polarity distinction.

3 Even if

Can we make use of any of the above in analyzing EVEN-IFS? Ideally, we could combine the formal properties of *even* with formal properties of counterfactual conditionals to arrive at an analysis which predicts the descriptive qualities of EVEN-IFS outlined in section 1.

In order to remain non-controversial, I am going to adopt a naive Possible Worlds analysis of counterfactual conditionals which can serve as a basis for integrating the theory developed here with a theory of counterfactuals like those of

Kratzer (2012, chapter 3) or Veltman (2005). We will not use much of the machinery of those works in this paper.

For our purposes, it suffices to consider the pragmatics of a counterfactual conditional as described in section 1: the force of such an utterance is to assert a non-accidental connection between the facts being countered (the negations of the antecedent and consequent). As noted above, EVEN-IFS are distinguished from counterfactual conditionals by their factual consequents. However, given the falsity of the antecedent of an EVEN-IF, as well as the *if ... then ...* form of the construction, we will be able to accommodate these within our general framework for counterfactual conditionals.

Suppose it is sunny and we are outside hunting for oysters. I announce:

(9) Even if it was RAINING we would be out hunting oysters.

I would announce (9) to assert something to the effect of (10):

(10) The weather does not factor in our decision to be out hunting oysters.

Perhaps we love oyster hunting so, or perhaps we must catch three-hundred oysters by sundown for a banquet. Regardless of the deeper context, the statement in (9) has the interpretation in (10).

How do we get from (9) to (10)? We first consider the counterfactual conditional form. A counterfactual conditional of the form “If α , β ” asserts that all α worlds are β worlds, for sufficiently similar worlds.⁴ In the case of (9), I have asserted that all sufficiently similar worlds in which it is raining are worlds where we are oyster hunting.

Having dealt with the counterfactual properties of (9), we now turn to the presuppositions provided by *even*: Because this is a counterfactual and analyzed in terms of possible worlds, we may want to frame our presuppositions in terms of possible worlds. However, in saying (9) I do not intend to predicate over worlds: I am predicating over properties of worlds. The focused element sets up a category of properties (in (9) these properties are weather conditions), and the scalar presupposition asserts an ordering on those properties. Following the usual analysis, we will treat properties as sets of worlds in which that property holds:

Existential: There are other properties which are weather conditions (besides “it is raining”) in which we would be out hunting oysters.

Scalar: The property “it is raining” (i.e. the set of rainy worlds) is the least element of the set of properties P such that for each w in each P [**we would be**

⁴ The constraints on *which* worlds count as sufficiently similar in a counterfactual conditional is the subject of some debate.

out hunting oysters] holds in w . The P s are ordered by the likelihood that **we are out hunting oysters**] would hold in worlds of P .

Of interest is the scalar presupposition: it states that of all the worlds in which you could find us out hunting oysters, you are least likely to find us doing so in the rainy worlds.⁵

Due to the conversational maxim of informativeness, a listener expects that if we would oyster hunt in a world where our likelihood of being found oyster hunting is γ , then we would oyster hunt in all worlds with likelihood greater than γ . Taken together, the scalar presupposition and the counterfactual statement assert that we would be out oyster hunting in even the most unlikely of worlds. Thus, a listener can assume that we would be out oyster hunting in all worlds under consideration. Since we are considering worlds according to the properties which obtain in them, and the property under consideration in (9) is the weather conditions of a world, that we would hunt oysters in all worlds means we would hunt oysters under all weather conditions. Thus, weather conditions are independent of our oyster hunting. This is the expected conclusion.

EVEN-IFS, unfortunately, do not provide good evidence for the scope theory of *even*. Being on the left edge of the counterfactual conditional clause, we cannot raise *even* to take scope over a matrix clause.

- (11) It's hard to believe that even if it was raining we would be out here hunting oysters.

If *even* is given scope over the matrix clause, (11) must be interpreted as a claim such as "of all the weather conditions P about which it is hard to believe we would be oyster hunting in P , we are least likely to hold that opinion about rain". Such an interpretation runs counter to our intuitions. This is due to the fact that the presence of *even* in the embedded EVEN-IF plays a critical role in both the pragmatics and the semantics of the sentence. Scoping it outside of this clause prohibits it from fulfilling its pragmatic function.

The lexical theory of *even*, where we posit a separate lexical item with a reverse scale for NPI contexts, works fine. In fact, at first blush it seems we must amend our other EVEN-IF constructions significantly to get the same reading in the absence of NPI *even*:

- (12) a. Not even if it had rained would we have ceased our oyster hunt.
b. If it had rained, we would not have ceased our oyster hunt anyway.
c. If it had rained we still would not have ceased our oyster hunt.

⁵ A suitable formalism for determining the likelihood of an event is absent from this lineage of analysis of presupposition

In (b) and (c) it seems to be necessary to negate the consequent in order to achieve the same reading as (a). However, given the syntactic difference between (a) and (b), in particular the lack of subject-aux inversion in (a), it is likely that *not* has raised from the consequent to the front of the clause. This fact is corroborated by the obligatory subject-aux inversion of similar constructions:

- (13) a. Even if it had rained *we would* have ceased our oyster hunt.
b. *Even if it had rained *would we* have ceased our oyster hunt.
- (14) a. If it had rained *we would* have ceased our oyster hunt.
b. *If it had rained *would we* have ceased our oyster hunt.

Thus, EVEN-IFS do not yet provide evidence for either the lexical or scope theory of *even*. I believe further research may reverse this result.

4 Conclusion

EVEN-IFS are an interesting construction, and their analysis encourages us to better develop the formalisms we have for describing the pragmatic concerns which affect semantic interpretation. I have offered a rudimentary sketch of such an analysis and extended previous formalizations of the pragmatic/semantic interface in order to begin to account for EVEN-IFS, but much work remains.⁶

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⁶ Future work could include a general theory of the interaction of *even*, *still*, and etc. . . with conditionals of all tenses.

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