EVEN IF, FACTIVITY AND FOCUS

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Abstract

Pollock (1976) observes that some, but not all, *even-if*-conditionals appear to convey the speaker's commitment to the truth of their consequent, a phenomenon Lycan (1991) dubbed as the 'consequent-entailment problem.' Providing an account of this phenomenon within a unified and compositional theory of *even-if*-conditionals has proven to be far from trivial (c.f. Bennett 1982, Lycan 1991, Barker 1994, Lycan 2001, Bennett 2003). This paper argues that once the focus and scope of *even* (in the sense of Rooth 1985-1996's theory of association with focus) are correctly singled out, the truth of the consequent in the relevant cases follows as an entailment of the assertion together with the existential presupposition of *even*. This view is argued to be preferable over previous attempts in that it provides a compositional and unified analysis of *even if* conditionals which builds on independently justified theories of *even* and of focus association (c.f. Horn 1969, Karttunen and Peters 1979, and Rooth 1985).

1   Introduction

Conditionals where *if* is preceded by *even* (*even-if*-conditionals, henceforth) appear to come in two varieties: some 'imply' the truth of their consequent while others do not (Pollock 1976). The two cases are illustrated respectively in examples (1a) and (1b), from Bennett (1982). (Adopting Bennett's terminology we refer to the two types of conditionals as 'introduced-if' and 'standing-if' conditionals). [1]

(1)   a. *Even if the bridge were standing I wouldn't cross.*   (introduced-if)
          b. *Even if John drank [F one ounce] of whiskey she would fire him.*   (standing-if)

Sentence (1a) carries the implication that the speaker won't cross (under any circumstances), that is that the consequent is true (under any circumstances). In this paper we will refer to this property as 'factivity', for brevity. Sentence (1b) is not factive in the same way. Due to the position of the focus on *one ounce*, this sentence can receive only a so called 'puritanical boss' reading (as Lycan labeled it), that is a reading describing a boss strictly forbidding her employee to consume whiskey. This interpretation of (1b) is not 'factive' in the sense intended above, but carries a weaker implication: provided that one ounce is meant to be the smallest amount one can drink, (1b) implies that John would get fired, no matter how much whiskey he drinks. This is compatible with the falsity of the consequent, i.e. with John not getting fired at all when he refrains to drink whiskey. As we will argue in section 4.3 below,

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[1] Notice that the two sentences in (1) do not really form a minimal pair. The pair of examples (i) and (ii) below is closer to a minimal pair than (1a and b), and features the same contrast attested in (i):

(i)   Even if his relatives visit, he will feel miserable (✓let alone if they don't, # but if they don't he'll be happy) => He will feel miserable no matter what.

(ii)   Even if ONE of his relative visits he will feel miserable (#let alone if they don't, ✓but if they don't he'll be happy) =/=> He will feel miserable no matter what.

As the reader can easily verify, the account of the contrast in (1) we propose in this paper extends naturally to (i) and (ii).

this weaker implication follows from the semantics of degree expressions like *one ounce* and the entailment reversal nature of the antecedent of conditionals.

Much less straightforward is the source of the factive implication of (1a), which will be the main focus of this paper. Specifically, it is not immediately clear how this implication is due to independently justified properties of *even,* of conditionals, and their interaction.

There are two previous attempts to provide such an account for the contrast in (1): Bennett (1982, 2003) and Lycan (1991, 2001). Both proposals claim that the contrast in (1) can be analyzed in terms of general and independently motivated properties of *even* together with differences between the focus associating with *even* in (1a) and in (1b), respectively. This paper shows that neither of these attempts fully succeeds in achieving this purpose: while Bennett assumes a non-compositional contribution of focus in *even-if*-conditionals, Lycan needs to assume a meaning for *even* which arguably is not attested in general.

In the spirit of these two approaches, we propose that the contrast in (1) follows from a difference in the location of focus associating with *even* in the two sentences. Departing from previous approaches, however, we suggest that in (1a), unlike in (1b), the focus of *even* is a silent constituent determining the polarity (negative or affirmative) of the antecedent (c.f. Höhle's (1992) phonetically null VERUM operator and Laka's (1990) Σ-phrase). The paper shows that, once this assumption is adopted, absence or presence of the 'factive' implication follows from differences in the focus value of the focus marked constituent: whereas in (1a) the alternatives are logical opposites, in (1b) they are not. As a consequence, in (1a), but not in (1b), *even* quantifies on a pair of conditionals whose antecedents jointly exhaust the space of (contextually restricted) possibilities. Factivity of (1a) then follows: its assertion of one of these alternatives together with its existential presupposition that other alternative is also true (triggered by *even*) entail the truth of the consequent.

Supporting evidence comes from the observation that also *even-if* conditionals whose focus structure closely resembles that of (1b), but where for independent reasons only the logically opposite alternative to the focused element is available, are also factive. Since their focus values are pairs of conditionals whose antecedents jointly exhaust all contextually relevant possible circumstances, the analysis correctly predicts that these conditionals too should carry the implication that their consequent is true.

2   *Even*

We take the contribution of *even* in *even-if* conditionals to be exactly the same as in all its other occurrences. Specifically, we assume that in these conditionals *even* has the two following independently motivated properties.

First, *even* is a propositional focus associating operator, i.e. a quantifier over a set of propositions, which in turn is determined by the proposition expressed in its scope (a.k.a. the prejacent) and the position of the focus. This is illustrated with an example in (2).

(2)   a. *Gil invited even* [$_F$ *Mac*].
       b. Prejacent: Gil invited Mac
       c. LF: [*even* [*Gil invited* [$_F$ *Mac*]]]
       d. {p: ∃x ∈ D$_e$ [p = that Gill invited x]} = {that Gill invited Susan, that Gill invited Mary, that Gill invited George....}[2]

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[2] In Rooth's analysis the set C is in fact a contextually salient subset of the set defined above, which is the focus value of the syntactic overt complement of *even*. This aspect of the analysis will become relevant below.

Rooth argues that *even* takes propositional scope at LF, as shown in (2c). Given this the proposition in its scope is (2b) and the set of alternatives it quantifies over is a contextually salient subset C of the set in (2d), which is the focus value of *Gil invited* [F *Mac*]. Rooth shows that the latter is derived compositionally and it can be informally described as the set of propositions obtained by substituting the focused element with expressions denoting objects of the same semantic type. (See Rooth 1985, 1996).

Second, as shown in Horn (1969) and Karttunen and Peters (1979), *even* makes no contribution to the assertion, but merely introduces a scalar and an existential (a.k.a. additive) presupposition.

(3)   a. *Gil invited even [F Mac]*.

b. **Assertion:** Gil invited Mac

c. **Scalar Presupposition:** Mac was the least likely (most noteworthy[3]) person among the contextually salient people for Gil to invite.

c. **Existential Presupposition:** Gil invited at least one contextually salient person other than Mac.

The two above properties of *even,* paired with an analysis of presuppositions as defined-ness conditions, lead us to the following semantics for this focus particle:

(4) $[\![even]\!]$(C) (p) (w) is defined iff
        $\exists\, q \in C\, [q \neq p\ \&\ q\,(w) =1]$ &   **Additivity**
        $\forall\, q \in C\, [q \neq p \rightarrow p <_{\text{likely/expected}} q]$ **Scalarity**
        If defined, then $[\![even]\!]$(C) (p) (w) = p(w)   **Assertion**

According to the proposal we are about to present, also in conditionals like those in (1) *even* exhibits the independently attested focus associating behavior and semantic import illustrated in this section. Our main claim is that the contrast in factivity attested in (1) follows from differences in the set C being quantified over in (1a) and (1b), respectively.

3   Previous Approaches to Factivity

As mentioned in the introduction, our proposal builds on ideas first found in Bennett (1982, 2003) and Lycan (1991, 2001), in that these two scholars already attempted to reduce the contrast in (1) to differences in the specific internal constitution of the set *even* quantifies over in the two sentences, i.e. the set we referred to as C above. This section discusses these two proposals.

To make it easier to compare them with our proposal, we first recast the gist of Bennett's and Lycan's analyses of (1a) in the terms of Rooth's analysis of focus association.

We then argue that neither Lycan's nor Bennett's analysis of (1a) is fully satisfactory. The problem for both is shown to lie in what they claim to be the set of C in this case. On the one hand Bennett's assumption regarding C is incompatible with a compositional treatment of focus. On the other hand, the set C Lycan derives compositionally leads him to stipulate a meaning for *even* that is not empirically motivated.

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[3] See Rullmann (1997) for a discussion of whether likelihood is the right notion to characterize the scalar presupposition of *even.* In the interest of space, in this paper we will continue talking about likelihood. This simplifying assumption does not affect the point we intend to make.

3.1 Bennett (1982)

Accordig to Bennet the distinctive property of (1a) (repeated for convenience in (5a)) is that *even* quantifies over the pair consisting of the prejacent and the proposition expressed by the consequent, i.e. the set C in (5b).[4]

(5)　　a. *Even if the bridge were standing I wouldn't cross.*
　　　　b. C = {that I will not cross, that if the bridge were standing I would not cross}

Given this, the truth of the consequent in the world of evaluation (which we refer to as "w") can be shown to follow logically from the additive presupposition of *even* in (4) (see (6)):[5]

(6)　　$\exists q$ [q $\in$ {that I will not cross, that if the bridge were standing I would not cross}$\&$　q$\neq$
　　　　that if the bridge were standing I would not cross & q (w)=1]
　　　　$\Leftrightarrow$ *that I will not cross* is true in w

The problem for this account lies in the very claim that the relevant set of alternatives in this case in the one in (5b). Specifically, no matter what the focus in (1a) turns out to be,[6] it is hard to see how the proposition *I will not cross* could be a member (and the only other member besides the prejacent) of a contextually restricted subset of the focus value of the entire sentence, at least insofar as one takes seriously the compositional mechanisms of focus interpretation that Rooth has shown to be at play in the interpretation of *even* sentences in general.

3.2 Lycan (2001): a universal *even*

Lycan suggests that in (1a) (repeated for convenience in (7a)), the scope of *even* is the entire conditional, and its focus is the syntactic complement of *if*. Consequently, C can be roughly described as in (7c), i.e. (a subset of) the set obtained by substituting the proposition in the antecedent with all other contextually salient propositions:

(7)　　a. *Even if the bridge were standing I wouldn't cross.*

　　　　b. LF *even* [$_{IP}$ *if* [$_F$ *the bridge was standing*], *I wouldn't cross*]

　　　　c. C= {that if the bridge were standing I wouldn't cross, that if the bridge were submerged would not cross, that if I was followed by coyotes I would not cross...}

This, paired with the otherwise justified assumption that *even* has a meaning of the sort illustrated in (4), is insufficient to account for the implication of the truth of the consequent. Let us see why. The predicted assertion, scalar presupposition and existential presupposition are given in (8a, b and c) respectively.

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[4] In this paper, we adopt the notation "that S" to refer to the proposition a sentence S of the object language denotes.

[5] According to Bennett, the alternative to the antecedent in (1a) is no antecedent at all. In Bennett's words, it is *even* that introduces the antecedent in conditionals like (1a) (hence the label "introduced-if" conditionals). Bennett suggests that reason why (1b) is not factive is that the latter is not an introduced-if conditional and therefore the set of alternatives C in this case has the form {that John drank one ounce of whiskey, that John drank one glass of whiskey, …, that John drank two pints of whiskey,…}.

[6] In fact, while it is clear from the intonation what the focus of *even* in (1b) is; singling out its focus in (1a) on the basis of intonational clues is less straightforward. This is an issue we will return to below.

(8)　　a. **Assertion:** *if the bridge were standing I would not cross*
　　　b. **Scalar presupposition:**
　　　　$\forall$q [q $\neq$ that if the bridge were standing I would not cross & q $\in$ {that if the bridge
　　　　were standing I would not cross, that if the bridge were submerged I would not
　　　　cross, that if I was followed by coyotes I would not cross*, …, ...*} $\rightarrow$ q $>_{\text{likely}}$ that
　　　　if the bridge were standing I would not cross
　　　$\Leftrightarrow$ It is less likely *that I would not cross if the bridge were standing* than *that I would
　　　not cross under any other (envisaged) condition*

　　　c. **Existential presupposition:**
　　　　$\exists$ q [q $\neq$ that if the bridge were standing I would not cross & q (w) = 1]

　　　　　$\Leftrightarrow$ There is some other condition under which, I would not cross

Neither any one of the presuppositions taken individually entails the consequent, nor does their conjunction with each other and with the assertion. This is because the scalar presupposition only concerns what is likely and not what is actually true, while the assertion and the existential presupposition jointly entail only that there exist two types of (envisaged) circumstances under which the speaker would not cross. All this is of course compatible with the existence of some other circumstances under which the speaker WOULD cross.

To address this problem, Lycan proposes a semantics for *even* that is different form that in (4). Specifically he argues that in all its occurrences *even* denotes a universal quantifier asserting that every proposition in its restrictor is true (for a similar view see Barker 1991). Moreover, the restrictor of *even* is taken to be the subset of C whose members are the prejacent and the alternatives that are more likely than the prejacent (a requirement that is trivially satisfied if Karttunen and Peters are right in claiming that *even* presupposes that the prejacent is the least likely in C). This amounts to saying that, for any property P, a simple sentence like (9a) asserts (9b).

(9)　　a. *Even [$_F$ Mary] is P*
　　　b. **Assertion:** Mary and every x that is more expected/likely than Mary to have the
　　　　　　　　　property P, has the property P.

If this was indeed the meaning of *even* then (7a) would indeed entail that the speaker will not cross under any (envisaged) circumstances. This is because, due to the scalar presupposition of *even*, all the alternatives in (7c) are quantified over and therefore conjunctively asserted. The conjunction of all the propositions in (7c) does clearly entail that the consequent is true under any envisaged circumstance.

(10)　　a. If the tall radio tower was still standing, I would not cross and if the bridge were
　　　　　submerged, I would not cross and if I was chased by coyotes, I would not cross…
　　　b. If the bridge were standing,　I would not cross
　　　　―――――――――――――――――
　　　　I would not cross (under any envisaged circumstance)

The main problem for Lycan's view is that there is compelling evidence against his unified universal treatment of *even* (c.f. Lycan 2001 chapter 5 and Berkmans 1993). Here is a counterexample that is a slight modification of examples due to Gibbard (p.c. with Lycan, quoted in Lycan 2001), and Berkmans (1993):

(11)　　Speaker 1: Who was at the party last night?
　　　Speaker 2: Well some of the usual suspects were there, but not all of them, and yet
　　　even Eve was there!

(12)　　Speaker 1: Who was at the party last night?

Speaker 2: Well some of the usual suspects were there, <u>but not all of them</u>, and yet <u>everyone you would expect to be there more than Eve was there</u>, and so was Eve!

The point to be made here (which we take to be Gibbard's and Berkman's original point) is that on the one hand the sentence in (11) is compatible with a context where the presence of ANY of the usual suspects would have been more likely than Eve's. On the other hand, if uttered in such a context the underlined portions in the first and second conjuncts in (12), which in Lycan's view should be a paraphrase of (11), are immediately perceived to contradict each other.

Another weakness of Lycan's proposal is that it lacks cross-linguistic generality. As we will show in section 7.1, in various languages other than English factive conditionals like (1a) involve focus particles that, like English *also*, are additive but clearly not universal.

4   The Proposal

The solution we are about to propose derives the factivity of standing-if conditionals from the additive presupposition of *even* (like Bennett did) and still takes the set of propositions that *even* quantifies over to be generated by general compositional mechnisms of focus interpretation (like Lycan did). In section (4.1), we start by illustrating what assumptions need to be made in order for such an analysis to be feasible. Sections 4.2 and 4.3 illustrate how the analysis accounts for the contrast in (1). Section 4.4 discusses some apparent counterexamples.

4.1   Scope and focus of *even* in standing-if conditionals

Following Lycan we assume that the scope of *even* in (1a), as well as in (1b), is the entire conditional. This is a plausible assumption, as it is compatible with the position of *even* in the sentence.

The task of establishing which consituent is the focus associating with *even* in (1a) is far less trivial, because intonational clues fail to univocally signal its position. In fact, native speakers would spontaneously stress either the auxiliary or the main verb, without perceiving a difference in factivity between the two intonational patterns:[7]

(13)   a. *Even if the bridge were STAnding I wouldn't cross.*
        b. *Even if the bridge WERE standing I wouldn't cross.*

To address this problem, we essentially follow Höhle's 1992 suggestion that the focus that associates with *even* in these conditionals has the effect of VERUM focus, that is an element whose focus value (in these cases) generates a set containing only two alternatives, the focused constituent itself and its logical opposite.[8] Implementing this idea in the syntax of LF amounts to assuming that the focus of *even* in these cases is a (possibly covert) element establishing (negative or affirmative) polarity of the antecedent (c.f. Laka's Σ-phrase, but see also Romero and Han 2004 for a different interpretation of VERUM).[9]

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[7] Some speakers find acceptable also the variant in which *if* is stressed, but the judgments we collected so far appear to indicate that this is a more contextually restricted modality of pronunciation (c.f. Barker 1994).

[8] The idea that the focus value of the focus associating with *even* is this set is also found in Barker (1994), however one finds no indication there of how this set and the resulting set of alternatives *even* quantifies over can be obtained compositionally. Moreover Barker adopts Lycan's universal semantics of *even*, an assumption that turns out to be undesirable, as we argued above, and unnecessary, as we will show below.

[9] Alternatively, one could suggest that *standing* and *were* are the foci of *even* in (13a) and (13b) respectively and then assume that the only alternative predicate to *standing* that is 'plausible' for a bridge is *not standing*, and the only plausible alternative to *were* is *were not*. An obvious advantage of this alternative is that it takes structural

Supporting evidence comes from the observation that in 'standing-if-conditionals' whose antecedent is negated, main stress falls clearly on negation.

(14)   *Even if the bridge had NOT/HADN'T collapsed, I would not cross.*

We take this as an indication that also in (1a) the focus of *even* must be an (unpronounced) polarity head, say AFF, which denotes the one place identity truth-function shown in (15).

(15) $[\![\text{AFF}]\!]^0 = \lambda t.t$

We further assume that stress on the main verb or on the auxiliary must be the somehow indirect phonological realization of an f-marked AFF. Putting our assumptions together, the LF of (1a) will be (16):

(16)   Even [if [$_F$AFF] the bridge were standing, I would not cross]

Since arguably the only meaningful alternative of the same semantic type as AFF (i.e.<t,t>) is negation (the other two options being constant functions), the the focus value of AFF is the pair shown in (17):

(17) $[\![\text{AFF}]\!]^f = \{\lambda t.t , \lambda t.t=0\}$ (i.e. {AFF , NEG})

Consequently, the focus value of the whole LF in (16) is the pair in (18). This is the set *even* quantifies over:

(18)   {That if the bridge were standing I wouldn't cross, that if the bridge were not standing I wouldn't cross}

4.2   Factivity derived from additivity

We are now in the position to address the consequent-entailment problem. It follows from the assumptions we made above that (1a) asserts (19a) and presupposes (19b and c).

(19)   a. **Assertion**: If the bridge were standing I would not cross.

　　　　b. **Existential Presupposition**: $\exists q$ [$q \in$ {That if the bridge were standing I wouldn't cross, that if the bridge weren't standing I wouldn't cross} & $q \neq$ That if the bridge were standing I wouldn't cross & q(w)=1}

　　　　$\Leftrightarrow$ *That if the bridge were not standing I would not cross* is true in evaluation world

　　　　c. **Scalar Presupposition**: that *I would not cross* is less likely *if the bridge were standing* than *if the bridge weren't standing*.

Given this the truth of the consequent, that is *I will not cross*, logically follows from the assertion together with the additive presupposition (because q follows from ((if p then q) & (if not p then q))). This is illustrated in (20).

(20)   If the bridge was standing I would not cross   (from (19a))
　　　　If the bridge was not standing I would not cross   (from (19b))
　　　　_____
　　　　I would not cross

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focus to be mapped intonationally in an ordinary fashion. However, this alternative seems to us to lead to the same problem Lycan's view faces. Here is why. There are actually several plausible alternatives to *standing* that ultimately amount to *not standing; e.g. submerged, reduced to debris, still under construction…*When all these alternatives are made salient, the conditional in (13a) remains factive:

(i)   *Not only if the bridge were submerged, reduced to debris or still under construction I would not cross, but even if the bridge were STANding I wouldn't cross.*

Notice, moreover, that the predicted scalar presupposition appears to be plausible and correct as well. We can easily imagine that in all cases where this conditional is uttered felicitously it is taken for granted that the speaker would more easily refuse to cross if the bridge was not standing than if it was.

4.3   Lack of factivity in standing-if-conditionals

The reason why examples like (1b), repeated below in (21), are not factive is that here the set C is not a pair of conditionals whose antecedents are logical opposites.

(21)   *Even if John drank [$_F$ one ounce] of whiskey she would fire him.*   (standing-if)

Our view regarding these cases is essentially Bennett's view. Since the scope of *even* is the entire conditional and its focus is the degree phrase *one ounce*, the set of alternatives that provides a restrictor to *even* is the one shown in (22a) and informally illustrated in (22b):[10]

(22)   a. {p: ∃d & p = that if John drank d-much whiskey he would be fired}

   b. {that if John drank one ounce of whiskey she would fire him,
        that if John drank one and half ounce of whiskey she would fire him,
        that if John drank two ounces of whiskey she would fire him
        that if John drank a pint of whiskey she would fire him,...}

Given this and the semantics of *even* in (4), (22) is predicted to assert (23a) and to presuppose (23b and c).

(23)   a. **Assertion:** If he drank one ounce of whiskey she would fire him.

   b. **Existential Presupposition**:
        ∃q [q∈(22b) & q ≠(22a) & q(w) =1]
        ⇔ ∃d ≠ 1 oz s.t. if John drank d-much whiskey she would fire him is true in the evaluation world.

   c. **Scalar Presupposition:**
        It is less likely that she would fire John if he drank one ounce of whiskey than if he drank any other amount of whiskey.

As the reader can easily verify, the consequent does not follow from the assertion or from either of the two presuppositions individually, nor does it follow from their conjunction (see discussion of example (8) above). In fact the analysis correctly predicts that the sentence is compatible with the possibility of John not getting fired at all (for example if he doesn't drink any whiskey). The weaker implication that this sentence carries is that if he drinks whiskey, he will be fired no matter how small is the amount he drinks.

(24)   *Even if John drank [$_F$ one ounce] of whiskey she would fire him.*
        ≈> For every amount d, if he drank d-much whiskey, she'd fire him

According to Lycan, this weaker implication provides support to his universal semantics of *even*. However, one can show that in fact it follows from the scalar requirement of *even* and the semantic properties of degree expressions and of conditionals. Let us see how.

First notice that, independently of the presence of *even*, the conditional exhibits the following universal entailment:

(25)   *If John drank one ounce of whiskey, she would fire him.*
        => for any d > one ounce, if John drank d-much she would fire him.

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[10] We use "d" as a variable over degrees.

This entailment is due to the interaction between the monotonic nature of degree predicates (illustrated in (26)) and the entailment reversal properties of the antecedent of conditionals (illustrated in (27)). (c.f. von Fintel 1999).

(26) For any individual x, and any pair of degrees {d, d'}, s.t. d> d'
      x drank d-much of whiskey => x drank d'-much whiskey

(27) For any individual x, and any pair of degrees {d, d'}, s.t. d> d':
      If x drank d'-much whiskey, she would fire x =>
      If x drank d-much whiskey, she would fire x

Given this (28) follows from (21):

(28) For any d> 1 oz: If John drank d-much whiskey she would fire him

This is not yet the entailment we have in (24). However, notice that the scalar presupposition of *even* in (23c) can be satisfied only if *one ounce* is the smallest amount among the contextually relevant amounts of whiskey. If we add this to (28) then we obtain (29), which is the implicatum in (24):[11]

(29) For any d ≠1 oz: If he drank d-much whiskey she would fire him

An advocate of Lycan's view could object that also (30) exhibits a universal entailment, just like (21), although the focus doesn't contain a degree expression.

(30) a. *Even if John drank [$_F$ diet coke], she would fire him.*
      b. ≈> *if John drank wine, whiskey or rum, she would fire him.*

The absence of a universal entailment from the conditional without *even* appears to reinforce the objection.

(31) *if John drank diet coke , she would fire him.*
      ≈/≈> (?) *if John drank wine, whiskey or rum, she would fire him.*

However, our intuition as well as the intuition of the native speakers we consulted, is that in the reading of (30) that does intuitively entail (30b), *diet coke* is interpreted as concealed degree expression. In other words, this reading of (30a) is perceived as equivalent to (32).

(32) *Even if John's drink had [$_F$ as much alcoholic content as a diet coke does], she would fire him.*

If this is correct, than the view proposed above would extend straightforwardly to (30) as well.

4.4 The effects of the utterance context on *even-if*-conditionals

Sometimes aspects of the utterance context can affect our judgments about *even-if*-conditionals as to obscure their merely semantic properties. This section discusses two instances of this effect. The first instance is a case where a shift of the contextually

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[11] At first the account proposed above appears to cope less well that Lycan's with the following variant of our example, which implies (29).

(i)   Even if John drinks exactly/only one ounce of whiskey she would fire him.

Notice, however, that these examples are naturally pronounced with emphasis on *exactly* (or *only*) and therefore the relevant alternatives *even* quantifies over in these cases are propositions where *exactly* and *only* are substituted with object of the same semantic type, rather than propositions where the denotation of the degree expression *one ounce* is substituted with other objects of the same type. Neither our view, in its current formulation, nor Lycan's view seems to us to offer a satisfactory analysis of the intuitive meaning and implications of (i). We leave this issue open for further research.

determined conversational background obscures the factive nature of *even-if*-conditionals; the second instance is a case where *even-if*-conditionals, which are otherwise non-factive, are perceived as factive due to some natural contextually induced domain restriction on what counts as envisaged circumstances.

Lycan (2001) discusses the following example, which was brought to his attention by Gibbard (p.c.).

(33)   *I will be polite even if you inSULT me, (but I won't be polite, if you insult my wife).*

The example is interesting because, when uttered in isolation, the first conjunct (i.e. *I will be polite even if you insult me*) appears to be factive; however, if 'factivity' is an entailment of the assertion (as Lycan has it) or of the conjunction of assertion and presuppositions (as we suggested) the continuation in parenthesis should sound contradictory, while it doesn't. Similarly, the following variant of example (1a) appears to indicate that the implication of the consequent must be weaker than Lycan's, Bennett's and our analysis predict.

(34)   *Even if the bridge were STAnding I wouldn't cross, but of course if a helicopter were here to take me to the other side, I would.*

Following Lycan's response to Gibbard, we believe that (33) and (34) do not constitute real counterexamples to our analysis in that each one of them involves a change in the background context after the first conjunct is uttered, so that the context relative to which the second conjunct is uttered is different from the context where the first conjunct is: In von Fintel's (1999) terminology, the context "shifts" from the first to the second conjunct; this shift is what prevents a contradiction in (33) and (34).

Specifically, we claim that the conversational background relative to which the first conjunct is uttered is such that the consequent IS implied. In (33) this background does not include as a live possibility that the addressee could insult the speaker's wife. This is why insulting the speaker himself can be the least likely circumstance compatible with the speaker not getting offended. Analogously, in (34), the option of a helicopter transporting the speaker is not compatible with the initial conversational background; this is how not crossing if the bridge is standing can be the least likely among the contextually relevant alternatives. In fact, when the conversational background shifts and insulting the speaker's wife, or being carried by an helicopter, become live possibilities, not only are the two consequents no longer implied, but also the scalar presuppositions of *even* ceases to be satisfied. That context-shift is what prevents a contradiction in (33) is confirmed by the fact that the example is perceived as odd or contradictory if insulting the speaker's wife is an already envisaged possibility when the first conjunct is uttered. This is shown in (35).

(35)   *I know you are capable of insulting me or even my wife. Well, be aware that I will be polite (# even) if you inSULT me, but I won't be polite, if you insult my wife.*

(36) shows that the same point holds of (34):

(36)   *This river is too deep to wade across it. But if one could use the bridge or, better even, a helicopter, one could get to the other side. Yet, (#even) if the bridge were STAnding I wouldn't cross, but of course if a helicopter were here to take me to the other side, I would.*

Our second instance of contextually triggered effects on the interpretation of *even-if* conditionals is illustrated in (37):

(37)   a. *Even if he wore an [$_F$ Armani suit], John would look bad.*
        b. *Even if he wore something [$_F$ as elegant/flattering as an Armani suit], John would look bad.*

c. He looks bad no matter what he wears.
d. He looks bad (under all circumstances)

The reading of (37a) that is relevant here is the one which is equivalent to (37b). In virtue of this equivalence (37a) implies (37c) (see discussion of example (30)). However, many of the speakers we consulted had the intuition that (37a) also carries the stronger implication that its consequent is true (that is (37d)).

We believe that this judgment is due to the fact that speakers imagine themselves naturally uttering (37a) in conversational contexts where it is implicitly assumed that John wears something when we judge how good he looks. It is easy to see that if this assumption is explicitly suspended, the sentence becomes compatible with the falsity of its consequent.

(38) *Nowadays fashion is so limiting that it is completely unfit to some. Take John. We all know that even if he wore an [$_F$ Armani suit], he would look bad and yet all his baseball teammates and his girlfriend know that when he wears nothing he is absolutely gorgeous.*

As (39) below shows, what prevents a contradiction in (38), cannot be an instance of context-shift, but must be the non factive semantics of the *even-if*-conditional in (37a).

(39) *Nowadays fashion is so limiting that it is completely unfit to some. Take John. Although all his baseball teammates and his girl know that when he wears nothing he is absolutely gorgeous, no clothes fit him well. Even if he wore an [$_F$ Armani suit], he would look bad.*

5 Crosslinguistic Evidence

Our approach views factivity of some *even-if*-conditionals as a by-product of the additive presupposition of *even*. Support for the role we attribute to additivity comes from languages different from English. Factive *even-if*-conditionals in languages as different as German, Italian and Korean feature focus particles that are uncontroversially additive. For example, (1a) is most naturally translated in Korean as (40a). (40b) is an indicative conditional which is also factive. (40c) illustrates that the particle *to* in Korean carries an existential presupposition, just like English *also* and *too*.

(40) a. *Tali-ka   se   isse-**to**   na-nun an kennekessta.*   ***Korean***
       Bridge-Nom stand exist-**also**   I-Top   not cross-Fut-Decl.
     "Even if the bridge were standing I would not cross''
    b. *Pi-ka   wa-**to**   na-nun sanchayk-ul hakeyssta.*
       Rain-Nom come-**also**   I-Top   walk-acc   do-Fut-Decl
     "Even if it rains I will take a walk"
    c. *Na-nun ku chayk-**to**   sassta.*
       I-Top that book-**also**   buy-Past-Decl
     "I bought also that BOOK"
     Assertion: I bought that book.
     Presupposition: I bought something else besides that book.

The example in (41a) features the only natural Italian translations of *even* in (1a): *anche* and *pure*. As (41b) shows, these focus particles are additive.

(41) a. ***Anche/pure*** *se il ponte   fosse saldamente in piedi, non attraverserei*   ***Italian***
       Also   if the bridge were solidly   in feet,   not would cross1stS
     "Even if the bridge were standing, I would not cross"
    b. *Mario è **anche/pure**   un professore ORDINARIO.*
      Mario is also   a professor full
     "Mario is also a FULL professor"
     Assertion: Mario is a full professor

Presupposition: Mario is also an assistant or associate professor (in some other institution).

That German exhibits the same pattern is shown in (42).

(42) a. ***Auch*** *wenn die Brücke noch STÜNDE, würde ich sie nicht überqueren.* ***German***
     Also if   the bridge still stood   would I it not cross.
     "Even if the bridge were standing I would not cross it"
   b. *Ich habe **auch** ein Buch gekauft.*
     I   have also a   book bought
   "I bought also that BOOK"
   Assertion: I bought a book.
   Presupposition: I bought something else besides a book.

While the issue of whether *even* carries an existential presupposition is controversial (see discussion in section 7.1), this is not the case for *auch, anche/pure* and *to.*

6 Further Predictions

We have analyzed factive *even-if*-conditonals as a special case of standing-if-conditionals, differing from non-factive ones only in that *even* happens to quantify over a pair of conditionals whose antecendents are logical opposites. Given this, the analysis predicts that associating *even* with any focused expression whose only alternative is its opposite, besides AFF, should also trigger factivity.

The following three examples suggest that this prediction is correct.

(43) a. *Even if you placed it INdoors, this plant would die* ≈> This plant will die
   b. *Even if the coin turned up HEADS, she would claim she won* ≈> She would claim she won under every envisaged circumstance.
   c. *Even if R. Ebert gave thumbs UP to that film, I wouldn't see it.* ≈> I won't see that film.

In each example in (43) the expression in focus and its only possible alternative are mutually exclusive and jointly exhaustive. As predicted, these conditionals, like (1a), imply that their consequent is true under all envisaged circumstances.[12]

7 Open Questions

7.1 Is *even* additive?

We argued above that a universal semantics of *even*, as Lycan has it, does not appear to be descriptively correct. However, the theory we have adopted in this paper, i.e. Karttunen & Peter's, is not entirely uncontroversial either. In fact the very aspect of that theory that is most crucial to our approach, that is that *even* carries an existential presupposition, is the subject of an ongoing debate.

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[12] Apparent counterexamples to this claim, like (ia), are cases of context-shift, as the degraded status of (ib) clearly indicates (c.f. section 4.4):

(i) a. *Even if you placed it INdoors, this plant would die. But you can rescue it if you put it indoors AND close all the blinds.*
   b. *Placing it in total darkness for a while might help this plant, but # even if you placed it INdoors, this plant would die. You can still rescue it if you put it indoors AND close all the blinds.*

On the one hand Krifka (1991), Horn (1992), von Stechow (1991), and Rullmann (1997) provide evidence that *even* is not an additive particle, like the example in (44) (from Rullmann 1997):

(44)   *John is even a FULL professor.*

The argument goes as follows: the alternatives to John being a full professor that are generated by focus are the propositions 'that John is an assistant professor' and 'that John is an associate professor'. Since both alternatives are logically incompatible with the assertion, the sentence should be systematically infelicitous if *even* presupposed that one of these alternatives is true.

On the other hand, there are compelling arguments in favor of an additive semantics of *even* (c.f. also Wilkinson 1996). The following examples are also from Rullmann (1997):

(45)   a.   *# We even invited BILL, although we didn't invite anyone else.*
       b.   *# I even assigned LGB to the students, but they didn't have to read anything else.*
       c.   *# Bill even drank a BEER, but that was the only drink he had.*

It is difficult to explain the oddness of these three sentences without assuming that *even* introduces an existential presupposition.

Guerzoni (2003), in a footnote regarding this issue, and Gast (in preparation), in a paper discussing a related issue in sentences containing *only*, make a proposal which might solve this puzzle. Their proposal essentially amounts to the claim that in sentences like (37) the relevant scale is one where the expression *FULL* is converted into a contextually appropriate gradable predicate like, say, *as far in his career as a full professor.*[13]   We saw above in section 4.3., that something along these lines might also provide an account for the unrelated problem of universal entailments of some *even-if* clauses.

At this stage we are not in the position to provide direct evidence in favor of this solution, however, we notice that, because our analysis of English *even-if* conditionals crucially hinges on the assumption that *even*, like German *auch,* Italian *anche* and Korean *–to,* is additive, if we are on the right track, then factivity in *even-if* conditionals provides further (albeit indirect) evidence in favor of the additivity view of *even*.

7.2   *If even* vs. *even if*

Before concluding we would like to present a curious fact about *even* and conditionals. Most of our consultants found the sentence in (1b), repeated in (46b) for convenience, equivalent to (46a), where *even* occurs inside the *if*-clause:

(46)   a. *If he even drank [F one ounce] of whiskey she would fire him*
       b. *Even if he drank [F one ounce] of whiskey she would fire him.*

However there seems to be no counterpart of (1a) where *even* occurs in the *if*-clause. All variations of (47a) are judged marginal if not straight-out unacceptable.

(47)   a. *If (??/*even) the bridge (??/*even) were (??/*even) standing I would not cross.*
       b. *Even if bridge were standing I would not cross.*

We currently are in the position to offer no more than a speculation regarding this difference. Paired with the observation that in English the focus associating with *even* must occur in its surface scope, the anomaly of (47a) can be taken as an indication that AFF, which we take to

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[13] While Guerzoni proposes that this is the result of a presuppositional requirement of *even* relative to the scale it quantifies over; Gast suggests that this is the result of a secondary, metonymical use of *only* (which should then extend to *even* as well).

be the focused constituent associating with *even* in (1a), must be located in the CP somewhere higher than *if* (e.g. Rizzi's FocusP, c.f. Rizzi 1997). Interestingly in German, where *auch* can occasionally follow its focus, the counterpart of (47a) is judged acceptable and equivalent to (1a):

(48)   *Wenn die Brücke auch STÜNDE, würde ich sie nicht überqueren*

Whether or not our speculations are on the right track, the difference between (46a) and (47a), together with the implications we discussed in section 6, lead us to the prediction that (49a) (50a) and (51a) should imply their consequent, just like (43 a, b and c) repeated below in (49b), (50b) and (51b). This prediction seems to be correct.

(49)   a. *If you even placed it INdoors, this plant would die* ≈> This plant will die
         b. *Even if you placed it INdoors, this plant would die* ≈> This plant will die
(50)   a. *If the coin even turned up HEADS, she would claim she won*
            ≈> She would claim she won under every envisaged circumstance.
         b. *Even if the coin turned up HEADS, she would claim she won*
            ≈> She would claim she won under every envisaged circumstance.
(51)   a. *If R. Ebert even gave thumbs UP to that film, I wouldn't see it*
            ≈> I won't see that film.
         b. *Even if R. Ebert gave thumbs UP to that film, I wouldn't see it.*
            ≈> I won't see that film.

8   Conclusions

This paper proposes a unified and compositional analysis of *even-if*-conditionals which derives the difference between factive and non-factive instances of these conditionals from a difference in the focus associating with *even*: in factive *even-if*-conditionals the focus value of the focused constituent is a pair of opposite alternatives, in non-factive ones it is not. This proposal is contingent on the assumption that in some factive *even-if*-conditionals what is focused is a silent element establishing that the polarity of the antecedent is affirmative. This assumption is sufficient to show that the consequent in factive conditionals is an entailment of the conjunction of the assertion together with the additive presupposition of *even*.

This approach, we argued, is superior to previous attempts to account for the differences in *even-if*-conditionals in terms of *even* and its focus, in that it presupposes an independently motivated analysis of *even* and of focus association.

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