Unifying Concessives and Unconditionals in Japanese

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1 Introduction

Focus cuts across concessive conditionals (hereafter, *concessives*) and unconditionals among human languages. In English, for example, this can be observed in the overt use of *even* in a concessive ***even if***, and the morphological component of an unconditional *who**ever***. The purpose of this study is to provide a new semantic perspective for this correlation by examining concessives and unconditionals in Japanese.

(1) **Even if** Alex comes, I'll be happy. (Concessives)

(2) a. **Whether** Alex comes **or not**, I'll be happy.
b. **Whoever** comes, I'll be happy.
(Unconditionals)

In Japanese, conditionals, concessives, and unconditionals are marked by a verbal morpheme. While conditionals are marked by *-tara* (3), the other two are marked by *-temo* (4, 5).

(3) A-ga ki-**tara** uresii.
Alex-NOM come-IF happy.
'If Alex comes, I will be happy.' (Conditional)

(4) ALEX-ga ki-**temo** uresii.
Alex-NOM come-TEMO happy.
'Even if Alex comes, I will be happy.' (Concessive)

(5) Dare-ga ki-**temo** uresii.
Who-NOM come-TEMO happy.
'Whoever comes, I will be happy' (Unconditional)

Thus, the morpheme *temo* cuts across concessives and unconditionals in Japanese just as focus particles do in English. Furthermore, since the constructions adopt exactly the same morpheme in Japanese, it would be desirable to derive the all the relevant properties they have (which I will review below) from a unified semantic definition of *temo*. I will make a proposal to achieve this goal through this study, providing further evidence for the correlation of the two constructions.

The rest of this paper is organized as follows. In section 2, I examine semantic properties of concessives and propose the definition of *temo* accordingly. I will show in section 3 that, with a standard semantic assumption, the proposal for concessives can be directly extended to unconditionals. Some differences between English and Japanese will be discussed in section 4. Section 5 concludes this study.

2 Concessives

As evident from the composition of the English concessive *even if*, the semantic properties of concessives in general are similar to the one of *even*. *Even* by itself induces a *likeliness* implication. That is, when one utters *even JOHN came to the party*,[1] it has an implication that John was unlikely

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[1]Throughout this paper, I will express phonological focus with CAPITAL LETTERS.

to come to the party. Informally, the utterance makes the assertion in (6b) and the implication in (6c).[2]

(6) a. Utterance: *Even JOHN came to the party.*
b. Assertion: *John came to the party.*
c. Implication: 'John came to the party' is less likely to be true than 'Mary came to the party', 'Bill came to the party', ...

Similarly, English concessive (1) and Japanese concessive (4) induce the likeliness implication. The sentences imply that the whole conditional, *if Alex comes, I will be happy* is less likely to be true than any other alternative condtional statements, as in (7c).

(7) a. Utterance: *Even if ALEX comes, I'll be happy.*
b. Assertion: *If Alex comes, I'll be happy.*
c. Implication: *If Alex comes, I'll be happy* is less likely to be true than *If Beth comes, I'll be happy*, *If Cathy comes, I'll be happy*, ...

Since Rooth (1985), this implication has been formalized with a set of alternatives. In the current context, the analysis goes as follows: focus constructions provoke a set C of alternatives propositions. Each alternative in C_p is a result of replacing the focused item(s) with some element of the same type. *Even* operates on this set, defining the ranking among the alternatives: propositions which are more likely to be true come to higher ranks. The ranking is expressed with a relation $\geq_L$ 'equally or more likely' For instance, the semantics of the Japanese concessive *p-temo q* is formalized as (8). The meaning of IF will be spelled out below.[3]

(8) *p-temo, q* $\rightsquigarrow$
a. $\texttt{IF}(p,q)$
b. $\forall s \in C_p[\texttt{IF}(s,q) \geq_L \texttt{IF}(p,q)]$
(Among the contextually relevant alternative propositions s_p, p is the least likely proposition such that '*if s, q*' holds.)

In (4), for instance, the focus on *Alex* provokes the set C_p of alternative conditional antecedents in (9).

(9) $\{\lambda w.\texttt{Alex\_came\_to\_the\_party}_w$,
$\lambda w.\texttt{Beth\_came\_to\_the\_party}_w$,
$\lambda w.\texttt{Cathy\_came\_to\_the\_party}_w$, ... $\}$.

As seen in (8), the complete formalization of the construction requires an exact specification of the semantics of IF, i.e., conditionals. For the purpose of this study, I will adopt the restrictor analysis proposed by Kratzer (1986). There, the English *if* is taken as semantically vacuous. Conditionality of *if p, (then) q* is then expressed by a combination of an antecedent p and a (covert) modal component in the consequent. The (covert) modal introduces a modal base f to define accessibility relations among worlds. It takes a world w as its argument and returns a set of propositions. The intersection of these propositions $\bigcap f(w)$ returns a set of accessible worlds from w. This set waits

[2]The use of the term *implication* is intentional. In the following investigation of concessive constructions, I'll take this implication as the part of assertion. However, it has often been argued to be a *presupposition/conventional implicature* (e.g., Kartunnen and Peters 1979; Wilkinson 1996). The whole debate over the status of this implication is beyond the scope of this study.

[3]Technical detail: I assume an indirect way of interpreting natural languages. Natural language expressions are translated into (via $\rightsquigarrow$) the logical language, containing constants (expressed with `typewriter font`), variables (*italicized*), connectives ($\wedge$, $\rightarrow$, etc.), and operators ($\forall$, $\exists$, etc.) These logical expressions will get model-theoretic interpretation via function $[\![\ ]\!]^{M,g}$, with model M and assignment function g. I will omit the last interpretation part. I use a subscript w as a world variable of constants. That is, $\texttt{student}_w$ is equivalent to $\texttt{student}(w)$ Since the internal compositions of an antecedent and a consequent is irrelevant to this study, I simply take them as a propositional constant.

for further restriction, which is saturated by the antecedent proposition p. It restricts the set $\bigcap f(w)$ by intersecting it, namely $[\bigcap f(w)] \cap p$. The modal in the consequent quantifies over this set. In the default, covert case, the modal is a universal modal $\Box$.

(10) a. Antecedent: *if* $p \rightsquigarrow \lambda w.p(w)$
b. Consequent: $\Box\ q \rightsquigarrow \lambda t_{st}.\lambda w.\forall w' \in (\bigcap[f(w)] \cap t)\ [q(w')]$
c. *if p, q* $\rightsquigarrow \lambda w.\forall w' \in (\bigcap[f(w)] \cap p)\ [q(w')]$

Given the specification of the conditionals above, I will now propose the fully formalized analysis of concessive *temo*. Since *temo* encodes the likeliness of an entire conditional statement, it should take a wider scope than the component of the consequent. I thus propose a higher type denotation for this particle. It takes two arguments, an antecedent proposition p of type $\langle s,t\rangle$ for one, and a consequent-type argument T of $\langle st,t\rangle$ for the other. Then it asserts that $T(p)$, the conditional, is true; the likeliness implication compares $T(p)$ and $T(s)$ for alternatives s of p in the set C_p.

(11) *temo* $\rightsquigarrow \lambda p_{st}.\lambda T_{\langle st,t\rangle}.\lambda w.\ T(p)(w) \wedge \forall s \in C_p\ [T(s) \geq_L T(p)]$

Applying this to (4), we have the following denotations. The result in (12) successfully represents the intuitive meaning of concessives. (12) says that *If Alex comes, I'll be happy* is true and this conditional is less likely than *if s, then q* for alternatives s in C_p.

(4) ALEX-ga ki-**temo** uresii.
Alex-NOM come-TEMO happy.
'Even if Alex comes, I will be happy.' (Concessive)

(12) a. *Alex-ga ki* $\rightsquigarrow \lambda w.\texttt{Alex\_comes}_w$
b. $\Box$ *uresii* $\rightsquigarrow \lambda t_{st}.\lambda w.\forall w' \in (\bigcap[f(w)] \cap t)\ [\texttt{I'm\_happy}_{w'}]$
c. [[*Alex-ga ki temo*] [$\Box$ *uresii*]] $\rightsquigarrow$
$[\lambda p_{st}.\lambda T_{\langle st,t\rangle}.\lambda w.\ T(p)(w) \wedge \forall s \in C_p\ [T(s) \geq_L T(p)]]$
$(\lambda w.\texttt{Alex\_comes}_w)(\lambda t_{st}.\lambda w.\forall w' \in (\bigcap[f(w)] \cap t)\ [\texttt{I'm\_happy}_{w'}])$
$= [\lambda T_{\langle st,t\rangle}.\lambda w.\ T(\lambda w.\texttt{Alex\_comes}_w)(w) \wedge \forall s \in C_p\ [T(s) \geq_L T(\lambda w.\texttt{Alex\_comes}_w)]]$
$(\lambda t_{st}.\lambda w.\forall w' \in (\bigcap[f(w)] \cap t)\ [\texttt{I'm\_happy}_{w'}])$
$= \lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Alex\_comes}_w)\ [\texttt{I'm\_happy}_{w'}] \wedge$
$\forall s \in C_p[[\forall w' \in (\bigcap[f(w)] \cap s)\ [\texttt{I'm\_happy}_{w'}]]$
$\geq [\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Alex\_comes}_w)\ [\texttt{I'm\_happy}_{w'}]]]$

3 Unconditionals

The next step of the semantic unification is to extend the proposal for *temo* to unconditionals. However, despite the adoption of the same morpheme *temo*, the semantic property of the unconditional *temo* differs significantly from the concessive one. The unconditional sentence in (5) does not have the likeliness implication. Rather, it has an *indifference implication*: the speaker's state of being happy will be obtained anyway, not affected by who comes.

(5) Dare-ga ki-**temo** uresii.
Who-NOM come-TEMO happy.
'Whoever comes, I will be happy' (Unconditional)

Although these properties may first look peculiar, the present proposal for the concessive *temo* is already prepared for explaining the unconditional. (The resultant system is similar to the proposal for English unconditionals by Rawlins (2013). I will discuss the difference of the two languages below.) The only additional assumption is a fairly standard one, namely that indeterminate *wh* pronouns denote a set of (relevant) individuals (Shimoyama, 2006).

(13) *dare* $\rightsquigarrow \{x \in C_e \mid [\![\texttt{person}(x)]\!]^{M,g} = 1\}$

The set enters a derivation via Hamblinian point-wise functional application (Hamblin, 1973).

(14) Pointwise functional application (Rawlins, 2013, notation modified)
If α and β are daughters of γ, and $\alpha \rightsquigarrow \alpha'_{\langle A,B\rangle}$ and $\beta \rightsquigarrow \beta'_A$ for some types A and B, then $\alpha'(\beta') = \{Y | \exists f \in \alpha' : \exists X \in \beta' : f(X) = Y\}$

Ignoring *temo*, the antecedent of (5) will be (15).

(15) *dare-ga ki* $\rightsquigarrow$ $\{p | \exists x \in C_e[\texttt{person}(x) \wedge p = \lambda w.x\_\texttt{comes}_w]\}$
$= \{\lambda w.\ \texttt{Alex\_comes}_w, \lambda w.\ \texttt{Beth\_comes}_w, \lambda w.\ \texttt{Cathy\_comes}_w, ...\}$

The computation further proceeds, eventually resulting in the set containing all of the following propositions:

(16) a. $\lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Alex\_comes}_w)\ [\texttt{I'm\_happy}_{w'}] \wedge$
$\forall s \in C_p[[\forall w' \in (\bigcap[f(w)] \cap s)\ [\texttt{I'm\_happy}_{w'}]]$
$\geq [\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Alex\_comes}_w)\ [\texttt{I'm\_happy}_{w'}]]]$

b. $\lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Beth\_comes}_w)\ [\texttt{I'm\_happy}_{w'}] \wedge$
$\forall s \in C_p[[\forall w' \in (\bigcap[f(w)] \cap s)\ [\texttt{I'm\_happy}_{w'}]]$
$\geq [\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Beth\_comes}_w)\ [\texttt{I'm\_happy}_{w'}]]]$

c. $\lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Cathy\_comes}_w)\ [\texttt{I'm\_happy}_{w'}] \wedge$
$\forall s \in C_p[[\forall w' \in (\bigcap[f(w)] \cap s)\ [\texttt{I'm\_happy}_{w'}]]$
$\geq [\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Cathy}_{-w})\ [\texttt{I'm\_happy}_{w'}]]]$

I follow Rawlins (2013) in that the default universal operator is inserted on top of the composition. Then the truth condition of $[\![(5)]\!]^{M,g}$ will be specified as follows.[4] This truth condition derives the facts we should explain, namely the indifference implication and the absence of the likeliness implication.

(17) $[\![(5)]\!]^{M,g} = 1$ in w iff $\forall p \in (16)[p(w) = 1]$
I.e., $[\![(5)]\!]^{M,g} = 1$ in w iff $[\![(16a)]\!]^{M,g} = [\![(16b)]\!]^{M,g} = [\![(16c)]\!]^{M,g} = 1$ in w

The absence of the likeliness implication is due to the requirement of each proposition for the likelihood ranking. For each of the three propositions not to contradict with each other, for all s,t in the set, it should be the case that $s =_L t$. That is, for all the conditionals *if p, q* in the set must be equally likely. This is why the likeliness implication disappears.

The indifference implication also follows straightforwardly. Recall that *dare* denotes a set of all contextually relevant individuals. Thus, for all x in the set, it is the case that if x comes, the speaker will be happy. The speaker's happiness is not affected by who comes, hence indifference.

Notice, however, that the presence of the indifference implication does not necessarily mean that the unconditional in (5) *entails* the consequent, *I will be happy*. Although the speaker's happiness

[4] Alternatively, we can argue that the universal quantification is introduced by *temo* itself. This argument has an intuitive attractiveness, because *temo* contains *mo*, which has been argued to contribute to universal quantification (Nishigauchi, 1990; Shimoyama, 2006, among many others). The validity of the argument, of course, is an empirical question. If *mo* in *temo* works as a universal operator, conditionality and the likeliness implication have to be due to the rest of the morpheme, namely *te*. However, *te* by itself does not express the likeliness implication. Furthermore, although *te* conveys certain conditionality/causality in past tense, it does not in other circumstances.

(i) Alex-ga ki-**te**, uresik-atta.
Alex-NOM come-TE, happy-PAST
'I was happy because Alex came.'

(ii) # Alex-ga ki-**te**, uresii-darou.
Alex-NOM come-TE, happy-PAST
Intended: 'I will be happy if Alex comes.'

Thus, despite the intuitive appeal of the argument, I tentatively conclude that the decomposition of *temo* into *te* and *mo* is not valid and I will keep assuming the covert universal quantifier over the set of propositions. Nevertheless, see Matsui (2009) for an attempt of decomposition.

is not affected by who will come, it may be affected by other factors. In such a case, we can easily falsify the truth of the consequent, as in (18). This is a major difference between English and Japanese unconditionals, to which I will turn next.

(18) Dare-ga ki-temo uresii. Kedo, daremo ko-nakat-tara kanasii.
who-NOM come-TEMO happy. But, anyone come-NEG-IF sad.
'Whoever comes I'll be happy. But if no one comes, I'll be sad.'

4 Differences between English and Japanese

4.1 English unconditional vs. Japanese unconditional

The consequent of unconditionals is entailed if the set of antecedent propositions together *exhaust* the set of possible worlds. For instance, in (16), if Alex's, Beth's, and Cathy's coming are all and only possibilities, they exhaust the possibilities. Since the consequent (*I'll be happy*) is obtained in every possible scenario, the consequent would be entailed.

In fact, Rawlins (2013) observes that the following unconditional does *entail* the consequent *Alfonso should stay from school*.

(19) Whether he is sick or not, Alfonso should stay from school.

According to him, the semantics of this sentence involves a set containing the following two propositions, and it is true iff $[\![(20a)]\!]^{M,g,w} = [\![(20b)]\!]^{M,g,w} = 1$.

(20) a. $\lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Alfonso\_is\_sick}_w)\ [\texttt{Alfonso\_stay\_home}_{w'}]$
b. $\lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\texttt{Alfonso\_is\_not\_sick}_w)\ [\texttt{Alfonso\_stay\_home}_{w'}]$

The entailment holds because the two antecedent propositions above exhaust the logical possibilities: the sum of the worlds where Alfonso is sick and the ones where he is not is equivalent to the set of all worlds.

He further observes that even when the antecedent propositions are not logical complement to each other, the consequent is entailed. He argues that this is because unconditional presupposes that the antecedent propositions exhausts *contextually relevant set of worlds*. This is formalized with context set *cs* (Stalnaker, 1978), a set or worlds where all the propositions the discourse participants believe to be true are true. Since the antecedents together exhaust the contextual possibilities, the consequent is entailed.

(21) *whether P, q*, where P is a set of propositions, presupposes:
$\forall w \in cs, \exists p \in P[p(w) = 1]$

If this presupposition is not satisfied, a sentence will be degraded. This can be seen in the following scenario. The antecedents does not exhaustify the context set, because the context contains the possibility that no one brings a salad.

(22) (Scenario: Suppose that we are planning a potluck, and we (mutually) know that either Alfonso or Joanna might bring a salad, and also mutually know and have jut been discussing the fact that maybe no one at all bring one. We are running short on food, but if someone brings a salad it will be just enough.)
#Whether Alfonso or Joanna brings a salad, we will have enough food.
(Rawlins, 2013, p. 136)

Japanese unconditionals, built essentially from the concessive meaning, has no reason to presuppose the exhaustification. This is indeed the case as we can see from the felicity of (23).

(23) (Context: Suppose we have only 10 players for soccer game, and need one more. We mutually know that Alex, Beth, or Cathy might come soon, but also mutually know and have just

been discussing the fact that maybe no more person will come.)
Dare-ga ki-**temo** ninzuu-ga tariru.
who-NOM come-TEMO number.of.people suffice.
'Whoever, we will have enough members.'

This discussion indicates that Japanese concessives are semantically distinct from English ones, despite the apparent similarity in the formalization.

4.2 Alternative Unconditinoals in Japanese

A further difference between English and Japanese is the way to express what Rawlins (2013) called alternative unconditionals, which are exemplified in the following sentence.

(24) Whether John comes or not, I'll be happy.

A straightforward analysis of this sentence, which Rawlins adopted, is that disjunctive propositions denote a set of propositions. Above, *John comes or not* is translated into the set $\{\lambda w.\texttt{John\_comes}_w, \lambda w.\neg\texttt{John\_comes}_w\}$. Via point-wise functional application and the covert universal quantification, the sentence gets expected denotation.

The same procedure, however, is not applicable to Japanese. The Japanese disjunction *ka* plus the morpheme *temo* does not result in unconditional meaning. Rather, the sentence only conveys concessive meaning.

(25) Alex ka Beth -ga ki-**temo** uresii.
Alex or Beth NOM come-TEMO happy.
'Even if Alex or Beth comes, I'll be happy.'
'Whether Alex or Beth comes, I'll be happy.'

The difference between Japanese and English, I argue, lies in the difference in the semantics of disjunction. In order to see this, consider the following pair of sentences. As Han and Romero (2004) observes, with a certain intonation the English question in (26) allows the alternative question interpretation in (26aii). This is impossible in the Japanese example in (26b) under any intonation.

(26) a. Did John drink coffee or tea?
i. 'Is it the case that John drank either of these two things, coffee or tea?'
ii. 'Which of these two things did John drink: coffee or tea?'
(Han and Romero, 2004)

b. John-wa koohii ka ocha -o nomu no?
John-TOP coffee or tea ACC drink Q?
i. 'Is it the case that John drank either of these two things, coffee or tea?'
ii. # 'Which of these two things did John drink: coffee or tea?'

Now, following Karttunen (1977) and Hamblin (1973), suppose that questions denote a set of propositions. Then, if disjunctions denote a set – *tea or coffee* denotes $\{\texttt{tea}, \texttt{coffee}\}$, for example – the semantics of the alternative question in (26aii) is straightforward. Via point-wise functional application, the sentence denotes $\{\lambda w.\texttt{John\_drink\_coffee}_w, \lambda w.\texttt{John\_drink\_tea}_w\}$, as predicted. The unavailability of interpretation (26bii), however, indicates that this compositional procedure is unavailable in Japanese. This in turn suggests that the disjunction *ka* there does not provoke the set containing coffee and tea.

Therefore, I propose that disjunction in Japanese works as an existential quantifier. This move obtains an intuitive support from the fact that *ka* is adopted for more canonical indefinite items, say *dare-**ka*** 'someone'. For disjunction over individuals, I will adopt the following denotation.

(27) $ka \rightsquigarrow \lambda x.\lambda y.\lambda P.\lambda w.\exists z \in \{x,y\}[P(z)(w)]$

With this definition, (25) results in the following denotation. It says that either Alex or Beth comes, the speaker will be happy; and the truth of this conditional statement is less likely than any other alternatives. This truth condition captures the intuitive meaning of the sentence.

(28) $\lambda w.\forall w' \in (\bigcap[f(w)] \cap \lambda w.\exists x \in \{\texttt{Alex}, \texttt{Beth}\}\ [x_{\_w}])\ [\texttt{I'm\_happy}_{w'}] \wedge$
$\forall s \in C_p[[\forall w' \in (\bigcap[f(w)] \cap s)\ [\texttt{I'm\_happy}_{w'}]]$
$\geq [\forall w' \in (\bigcap[f(w)] \cap \lambda w.\exists x \in \{\texttt{Alex}, \texttt{Beth}\}\ [x_{\_w}])\ [\texttt{I'm\_happy}_{w'}]]]$

Instead of disjunction, alternative unconditionals in Japanese are expressed with iteration of *temo*:

(29) Alex-ga ki-**temo** Beth-ga ki-**temo** uresii.
Alex-NOM come-TEMO Beth-NOM come-TEMO happy.
'Whether Alex comes or Beth comes, I'll be happy.'

Unfortunately, I do not have a concrete argument for this construction. I tentatively propose that this construction involves the ellipsis of conjoined concessives. Since both conjuncts must be true at the same time, via the same reasoning above the indifference implication and lack of the likeliness implication are derived.

(30) Alex-ga ki-**temo** ~~uresii~~, Beth-ga ki-**temo** uresii.

5 Conclusion

In this study, I proposed the definition of *temo*, which accounts for the properties of unconditionals and concessives in a unified way. Some differences between English and Japanese has also been discussed, and the differences also conform to the present proposal.

References

Hamblin, Charles Leonard. 1973. Questions in Montague English. *Foundations of Language* 10:41–53.
Han, Chung-hye, and Maribel Romero. 2004. Disjunction, focus, and scope. *Linguistic Inquiry* 35:179–217.
Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1:3–44.
Kartunnen, Lauri, and Stanley Peters. 1979. Conventional implicature. In *Syntax and Semantics 11: Presuppositions*, ed. C. Oh and D. Dineen, 1–59. New York: Academic Press.
Kratzer, Angelika. 1986. Conditionals. In *Proceedings of CLS 22*, ed. A.M. Farley, P. Farley, and K.E. McCollough, 1–15. Chicago: The Chicago Linguistic Society.
Matsui, Ai. 2009. Constructing concessive conditionals: In case of Japanese. In *Proceedings of Sinn und Bedeutung 13*, ed. A. Riester and T. Solstad, 357–370.
Nishigauchi, Taisuke. 1990. *Quantification in the Theory of Grammar*. Springer.
Rawlins, Kyle. 2013. (Un)conditionals. *Natural Language Semantics* 21:111–178.
Rooth, Mats. 1985. Association with Focus. Doctoral dissertation, University of Massachusetts at Amherst.
Shimoyama, Junko. 2006. Indeterminate phrase quantification in Japanese. *Natural Language Semantics* 14:139–173.
Stalnaker, R. 1978. Assertion. In *Pragmatics*, ed. Cole P., 315–332. New York: Academic Press.
Wilkinson, Karina. 1996. The scope of Even. *Natural Language Semantics* 4:193–215.

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