

Japanese Pseudo-NPI *Dare-mo* as an “Unrestricted” Universal Quantifier

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Abstract

Japanese *dare-mo* has been widely acknowledged to be an NPI, furthermore, a “strict” NPI in the sense of Giannakidou (2011) as it seems to be licensed only in an “antiveridical” environment, specifically, with a clausemate negation. However, there is a type of positive sentences in which *dare-mo* can appear, i.e. non-episodic sentences, which indicates that *dare-mo* is in fact not an NPI and its NPI-like distribution is an epiphenomenon due to *dare-mo*'s lexical meaning and the resulting interpretational properties of *dare-mo* sentences. In the current work, based on novel data we will propose that *dare-mo* is an “unrestricted” universal quantifier and demonstrate that the proposed meaning of *dare-mo* and a reasonable assumption about episodic predicates predict that positive episodic *dare-mo* sentences will be contradictory while negative episodic ones and non-episodic ones, positive or negative will be contingent, nicely characterizing the grammaticality facts of *dare-mo* sentences.

1 Introduction of Japanese *Dare-mo* in Question (“NPI” *Dare-mo*) in Contrast to *Dáre-mo* (“Non-NPI” *Dare-mo*)

In this section the Japanese expression in question, *dare-mo* will be introduced in terms of its morphological, phonological, and preliminary semantic features.

1.1 Morphological Features

Dare-mo is morphologically composed of indefinite pronoun *dare* ‘who’ and particle *mo*, which has been sometimes glossed as ‘also’ and other times as ‘even’.¹

1.2 Phonological Features

As will be seen in the next subsection, there is another *dare-mo* distinct from *dare-mo* in question here syntactically and semantically. In correlation with the syntactic and semantic differences, there is a phonetic and phonological difference between them at least in Tokyo Japanese.

In Japanese, a pitch accent language, the placement of accent induces difference in meaning, as is illustrated in (1):

¹ In this paper the issue is not addressed whether *mo* in question is polysemous, there is a unique meaning, or there are two distinct *mo*'s, in which case, which one is relevant here. In any case, the compositional analysis of the meaning of *dare-mo* out of that of *dare* and that of *mo* will not be dealt with here; thus, throughout this paper, *mo* will be glossed rather ambiguously simply as ‘MO’.

(1) (Adopted from Haraguchi 1995: (6))

Nouns	Glosses	Placement of Accent
a. káki (-ga)	‘oyster’+Nom	initial-accented H L L
b. kakí (-ga)	‘fence’+Nom	final-accented L H L
c. kaki (-ga)	‘persimmon’+Nom	unaccented L H H

In Tokyo Japanese, the accent is placed on the mora before the pitch drop; in other words, the accent is on the H immediately before L. (Haraguchi 1999: 5)

As *dare-mo* in question has the same tone melody as (1c), as is shown in (2), it is considered to be an unaccented word.

(2) The tone melody of “NPI” *dare-mo*

dare-mo
L H H

On the other hand, the near-homonymous, “non-NPI” *dare-mo* has the tone melody as illustrated in (3), which is of the same pattern as in (2a). Thus, “non-NPI” *dare-mo* is regarded to be a word with the accent on *da(re)* ‘who’.

(3) The tone melody of “Non-NPI” *dare-mo*

dáre-mo
H L L

In the above, we have reviewed the features differentiating the so-called “NPI” *dare-mo* and “non-NPI” *dare-mo* from each other. Henceforth, however, we will abandon the nomenclature, for it will be demonstrated that “NPI” *dare-mo* in fact is not an NP, rendering the current term misleading/a misnomer. Instead, we will designate/denote “NPI” *dare-mo* and “non-NPI” *dare-mo* as (plain) “*dare-mo*” and “*dáre-mo*”, respectively, reflecting the accentual contrast between them.

1.3 Syntactic Distribution of *Dare-mo* and *Dáre-mo*

Having identified two “*dare-mo*”s, i.e. *dare-mo* and *dáre-mo*, let us consider some example sentences in which they do or do not occur:

- (4) a. *Dare-mo paatii-ni ki-ta.
who-MO party-Dat come-Past
- b. Dare-mo paatii-ni ko-nakat-ta.
who-MO party-Dat come-Neg-Past
‘Nobody came to the party.’
- (5) a. Dáre-mo-ga paatii-ni ki-ta.
who-MO-Nom party-Dat come-Past
‘Everybody came to the party.’
- b. Dáre-mo-ga paatii-ni ko-nakat-ta.
who-MO-Nom party-Dat come-Neg-Past
‘Nobody came to the party.’

What is to be noted in the contrast between (4) and (5) is that first, *dáre-mo* is followed by a case marker, e.g. nominative marker *ga* in (5) while *dare-mo* is not, second, *dare-mo* seems to be licensed only in negative sentences while *dáre-mo* is not sensitive to polarity. Because of the second feature, *dare-mo* has been widely acknowledged to be an NPI. However, in the next section, we will see some evidence that *dare-mo* is not a genuine NPI.

2 *Dare-mo* IS a Pseudo-NPI

Data like (4) apparently suggest that *dare-mo* is an NPI, which has been widely accepted and prompted many analyses of *dare-mo* as such (e.g. Kato 1985, Kawashima 1994, Kishimoto 2008).

However, there is a type of sentences questioning the legitimacy of *dare-mo* as a genuine NPI. Consider the following examples:

(6)²

- a. Hito-wa dare-mo itsukawa shinu.
human-Top who-MO someday die
'Everyone (Anyone) dies someday.'
- b. Hito-wa dare-mo jibun-ni amai.
human-Top who-MO self-Dat lenient
'Everyone (Anyone) is lenient to herself.'
- c. Hito-wa dare-mo yume yabure, furikaeru.
human-Top who-MO dream break reflect
'Everyone (Anyone) loses in her dream and
reflect on herself.'

In terms of tone melody and co-occurrence with a case marker, *dare-mo* in (6) is to be identified with *dare-mo*, not *dáre-mo*, as it has LHH as its tone melody and the sentences resulting from (6a-c) by adding a (nominative-)case marker will be ungrammatical.

Contrary to what has been widely acknowledged about *dare-mo*; i.e., it is an NPI, specifically, *strict* NPI, which requires the accompaniment of negation for its being licensed, in terms of Giannakidou (2011), the data like (6) clearly show that *dare-mo* is not a strong NPI, not even a weak NPI, which is licensed in antiveridical contexts; in short, not an NPI at all.

Now that *dare-mo* has been shown not to be an NPI, has the “NPI”-ness of *dare-mo* been lessened accordingly? The answer is Yes and No. No because the fact remains that *dare-mo* cannot grammatically cooccur with a positive predicate in examples like (4a). Yes because the “NPI”-ness of *dare-mo* is now characterized not as a feature of *dare-mo* on its own, but an epiphenomenon mirroring its interaction with its environment whatever it is. Thus, *dare-mo* is now better termed as “Pseudo-NPI” and will be analyzed as such in the following.

² Someone suggested that *dare-mo* in (6) should be considered a phonetic variant of “free-choice anyone” *dare-demo* ‘who-even’, as is indeed the case that the resulting sentences from the examples in (6) with *dare-mo* being replaced by *dare-demo* would be basically synonymous with the original ones. Nonetheless, as *dare-demo* is not always replaced by *dare-mo*, as is illustrated in *dare-demo/*dare-mo sono kouenkai-ni sanku-suru koto ga dekiru* ‘Anyone can participate in the lecture’, the apparent replacability of *dare-mo* by *dare-demo* in (6) cannot justify the claim unless it is augmented with an principle predicting when the phonetic variation is possible.

3 *Dare-mo* as an “Unrestricted” Universal Quantifier

In this section we will argue that *dare-mo* denotes a universal quantifier as well as *dáre-mo*, but unlike the case of *dáre-mo*, the universal quantifier denoted by *dare-mo* is “unrestricted” in that it lacks the restrictor in terms of the *tripartite structure* of quantification (Kamp (1981), Heim (1982), Partee (1995)).

3.1 Analyses of *Dare-mo* as an Existential Quantifier á la Kadmon and Landman (1993)

Because of the apparent similarity of *dare-mo* to English *any* N’, specifically, *anyone* in this case in that they both are “NPI”s and mean ‘no one’ in the context of negation, it was widely assumed that a very influential analysis of *any* by Kadmon and Landman (1993) would/should be carried over to Japanese *dare-mo* with the basic assumption that *dare-mo* was an existential quantifier; furthermore, it needs to be under the scope of negation. Among the analyses proposed along the line are Kato (1985), Kawashima (1994), and Kishimoto (2008).

However, given that *dare-mo* can occur in a non-negative sentence as in (6) and the resulting sentence is of a universal-quantificational force, *dare-mo* as a quantifier should be taken to be a universal one instead of an existential one; consequently, the logical structure of the “nobody”-interpretation associated with a negative *dare-mo* sentence should be construed as a universal quantifier over negation, $\forall\neg$ instead of negation over an existential quantifier, $\neg\exists$. This conclusion in fact has been independently reached by Shimoyama (2008, 2011) and Kataoka (2006, 2007), neither of whom, however, has an account for *dare-mo*’s “(pseudo-)NPI-ness”.

3.2 Domain of Quantification for *Dare-mo*

In philosophical logic, the question has been hotly debated whether there is an absolute, unrestricted quantifier, while in linguistic semantics, it is a general understanding that there is no expression denoting an unrestricted quantifier in the absolute sense in natural languages.

Consider the following English sentence.

- (7) Every student had a good time.

The universal quantifier involved in (7), (denoted by) *every* has its domain restricted to the set of students. Furthermore, as the sentence is about not all the students in the world, but some contextually determined group of students.

In general, quantifiers in natural languages are considered to have their domains of quantification restricted linguistically, e.g. common noun (phrases), relative clauses, and partitives for D(eterminer)-quantifiers, and *when/if*-clauses for A(dverbial)-quantifiers, and furthermore, contextually. The linguistic and contextual restriction of domain is illustrated by the following logical forms of (7) in some semantic frameworks, where variable C represents the contextual restriction.

(8)

a. $\forall x[[\text{student}(x) \wedge C(x)] \rightarrow \text{had-a-good-time}(x)]$
(first-order logic)

b. $[[\text{every}]] ([[\text{student}] \cap [C]]) ([[\text{had-a-good-time}]])$
(generalized quantifier theory) (von Stechow (1994))

c. $\text{every}_x [{}_{\text{Restrictor}} \text{student}(x) \wedge C(x)] [{}_{\text{Nuclear Scope}} \text{had-a-good-time}(x)]$
(tripartite structure of quantification: Kamp (1981), Heim (1982), Partee (1995))

3.3 *Dare-mo* as an “Unrestricted” Quantifier

Contrary to the widely acknowledged assumption about natural-language quantifiers, i.e., they are restricted quantifiers, we would like to propose that *dare-mo* is an “unrestricted” quantifier. Obviously, a word is in order here. In the above we have agreed that *dare-mo* basically means ‘every person’; therefore, its domain is clearly restricted (at least) to the set of humans. That being correct, *dare-mo* cannot be an unqualified, unrestricted quantifier, which is why “unrestricted” has scare quotes around it. Then the question is in what sense the domain of quantification for *dare-mo* is “unrestricted”.

We propose that the domain of quantification for *dare-mo* is indeed restricted to the set of humans, but that’s it; that is, no further restricted linguistically or contextually. Admittedly that may sound counterintuitive given examples like the following.

(9) Yamada-sensei-no gakusei-wa
Yamada-professor-of student(s)-Top

dare-mo paatii-ni ko-nakat-ta
who-MO party-Dat come-Neg-Past
‘None of Professor Yamada’s students came to the party.’

As the gloss of the example suggests, it seems natural to take *Yamada-sensei’s gakusei* ‘Professor Yamada’s students’ as restricting the domain of quantification for *dare-mo*; however, we will argue and see some evidence that the nominal is to be interpreted as part of not the restrictor, but the nuclear scope in terms of the tripartite structure of quantification. In fact, we propose that the meaning of *dare-mo* should be something as follows:

(10) The proposed meaning of *dare-mo*

dare-mo: $\lambda Q \forall x^h [Q(x^h)]$, where x^h is
a sortal variable for humans.

As the variable bound by \forall is a sortal one for humans, the domain of the universal quantifier is naturally restricted to the set of humans; however, as the restrictor is lacking, there will be no more restriction on the domain. As a consequence, the content of the nominals construed with *dare-mo* will be entered into the nuclear scope. For instance, the logical form of (9) will be analyzed to be as in (11) instead of (12)

(11) $\forall x^h \neg [\text{Prof.Y’sStudents}(x^h) \wedge \text{Came}(x^h)]$

(12) $\forall x^h [\text{Prof.Y’sStudents}(x^h) \rightarrow \neg \text{Came}(x^h)]$

Some readers might be quick to point out that (11) and (12) are equivalent, which is true. But what we are concerned here is not just the right truth conditions, but also the correct logical form. Sure enough, later we will see some examples in which the interpretation of a nominal as part of the restrictor and that of the nuclear scope differ in the resulting truth conditions and the latter ones are correct.

3.4 Evidence against the Restrictivity of the Domain for *Dare-mo*

Incompatibility with Partitives: A Partitive occurring with a nominal quantifier is considered to restrict the domain of quantification, as in (13).

(13) All/Most/None of the students laughed.

In (13), *of the students* clearly functions as restricting the domain of the quantifier denoted by *all/most/none*. In Japanese as well, partitives serve as the restrictor of quantifiers as illustrated in the example corresponding to (13).

(14)

- a. Gakusei-no zen-in ga ki-ta.
students-of all-CI Nom come-Past
'All of the students came.'
- b. Gakusei-no hotondo ga kit-ta.
students-of most Nom come-Past
'Most of the students laughed.'

Then, let us see the cases of *dare-mo* and *dáre-mo*; that is, whether they can be restricted with a partitive. Starting with *dáre-mo*, it can cooccur with a partitive grammatically with the latter restricting the domain of the former, as exemplified by (15).

(15) Gakusei-no dáre-mo ga ko-nakat-ta.
students-of who-MO Nom come-Neg-Past
'None of the students came.'

Next, consider the following example, (16), which is minimally different from (15) in that *dare-mo* appears in place of *dáre-mo* and (since *dare-mo* cannot cooccur with a case marker,) the nominative marker, *ga* is missing.

(16) ??Gakusei-no dáre-mo ko-nakat-ta.
students-of who-MO come-Neg-Past

As the “??” indicates, compared with (14) and (15), (16) is considerably less unacceptable if not downright ungrammatical.

In the above, it has been shown that a partitive as a domain restrictor sits well with *dáre-mo*, but not with *dare-mo*. This, we contend, strongly imply that unlike the “regular” quantifiers or *dáre-*

mo, *dare-mo* does not have the restrictor in terms of the tripartite structure of quantification. In the following we will see additional evidence to the effect.

Incompatibility with Relative Clauses: In the same vein as with partitives, when occurring with a quantificational nominal, (restrictive) relative clauses are regarded as restricting the domain of the quantifier, as illustrated in the following example:

(17) Every one who came to the party had a good time.

In (17), the relative clause, *who came to the party* clearly restricts the domain from the set of (contextually-determined) people denoted by *one* further into that of people who came to the party.

In this regard, let us examine the compatibility of *dare-mo* with relative clauses. Consider, for instance, the following example.

(18) ??*[Paatii-ni kita] dare-mo
party-Dat came who-MO

osake-o noma-nakat-ta.
alcohol-Acc drink-Neg-Past

As the “??/*” indicates, (18) is almost ungrammatical or simply ungrammatical, along with which the intended reading “nobody who came to the party drank alcoholic beverages” is not available, either. On the other hand, the *dáre-mo* counterpart, i.e. (19) is perfectly grammatical.

(19) [Paatii-ni kita] dáre-mo ga
party-Dat came who-MO Nom

osake-o noma-nakat-ta.
alcohol-Acc drink-Neg-Past
'Everybody who came to the party didn't drink alcoholic beverages/Nobody who came to the party drank alcoholic beverages.'

The incompatibility of *dare-mo* with relative clauses again implies the absence of the restrictor for *dare-mo*. The plausibility is further strengthened by the contrast with *dáre-mo*, which is perfectly compatible with relative clauses. In the

above we have argued against the restrictivity of the domain of quantification for *dare-mo* by demonstrating its incompatibility with typical domain-restricting expressions, specifically, partitives and relative clauses. This time, we will argue for the same thesis by presenting (grammatical) examples such that if a nominal construed with *dare-mo* were interpreted as restricting the domain for *dare-mo*, that would result in the wrong readings.

Restricted Quantification Predicts Wrong Readings: Consider the following sentence, (20).

(20) [[Paatii-ni kita] gakusee]-wa
party-Dat came students-Top

dare-mo ga i-nakat-ta
who-MO Nom be/exist-Neg-Past

The sentence has the reading in which the nominal in the topical phrase, i.e. *paatii ni kita gakusee* ‘the students who came to the party’ restricts the domain of the universal quantifier denoted by *dare-mo*, i.e., that all students who came to the party were not/no students who came to the party were at some place which is unspecified, but contextually understood place. For instance, you can imagine the classroom for a class on the following day of the party. The question is whether the sentence that is minimally different from (20) in that *dare-mo* is replaced by *dare-mo* with nominative-marker *ga* deleted, i.e. (21) will have the same reading as (20). If the nominal in the topical phrase, i.e. *paatii ni kita gakusee* ‘the students’ restricted the domain of *dare-mo* as in the case of *dare-mo*, (21) would be expected to have the same reading as (20).

(21) [[Paatii-ni kita] gakusee]-wa
party-Dat came students-Top

dare-mo i-nakat-ta
who-MO be/exist-Neg-Past

However, the matter of fact is that the reading of (21) is that no student came to the party, which is truth-conditionally distinct from that of (20). The reading in fact corresponds to the one expected of the meaning of *dare-mo* as in (10) and the content of the topical phrase being entered into the nuclear

scope, which is represented in (22), where “St.” and “C.T.P” are abbreviations of “Student” and “CameToTheParty”, respectively.

(22) $\forall x^h \neg [\text{St.}(x^h) \wedge \text{C.T.P.}(x^h) \wedge \text{Existed}(x^h)]$

The interpretational difference we have observed between a *dare-mo* sentence, (20) and the corresponding *dare-mo* one, (21), again points to the unrestrictiveness of *dare-mo*.

Nominals Construed with *Dare-mo* Are Interpreted Predicatively: Consider the following two example sentences.

(23) okyaku-ga dare-mo ko-nakat-ta.
customer(s)-Nom come-Neg-Past.
‘There were no customers (who) came.’

(24) okyaku-wa dare-mo-ga ko-naka-tta.
customer(s)-Top -Nom come-Neg-Past.
‘None of the customers came.’

The two sentences are minimally different from each other with some necessary adjustments; *dare-mo* occurs in (23) while *dare-mo* with the nominative case-marker, *ga* in (24), and *okyaku* ‘customer(s)’ can be marked only with the topic marker, *wa*, not the nominative marker in (24), which is presumed to be due to there being a nominative-case marked phrase, i.e. *dare-mo-ga*.

There is a difference between (23) and (24) in interpretation, specifically, with respect to whether the speaker has some particular clientele in mind when uttering the sentences. (24) can be felicitously uttered only when the speaker has some preexisting set of people as the clientele, of whom she checked whether they came or not. On the other hand, (23) can be felicitously uttered without the speaker having any clientele in mind; the sentence can be interpreted that there were no events of visiting by people who would have been predicated of as customers if they had visited the (implicit) store.

We propose that the above interpretational difference between (23) and (24) is an reflection of the difference between *dare-mo* and *dare-mo* with regards to the presence and absence of the restrictor. It has been generally acknowledged that for a given natural-language quantified sentence with the tripartite structure, it is presupposed that

there exists an (at least one) instance satisfying the content of the restrictor. In terms of felicity conditions, this would be rendered that when one utters a quantified sentence, she has a particular set of individuals as satisfying the restrictor. Then, what is the function of the nuclear scope? Given a set of individuals that satisfy the restrictor as given, it is asserted that the content of the nuclear scope is or is not predicated of a certain quantity of the individuals.

With the understanding of the restrictor and the nuclear scope, it is proposed that the difference between (23) and (24) in interpretation corresponds to where the content of the nominal construed with the quantifier, *okyaku* ‘customer’ is entered, the nuclear scope or the restrictor. Specifically, it is proposed that *dare-mo* has the content of the nominal entered into the nuclear scope, which is necessitated by the absence of the restrictor while *dáre-mo*, into the restrictor. Thus, the logical form of (23) and that of (24) are as in (23)’ and (24)’, respectively.

$$(23)' \quad \forall x^h \neg [\text{customer}(x^h) \wedge \text{came}(x^h)]$$

$$(24)' \quad \forall x^h [\text{customer}(x^h) \rightarrow \text{came}(x^h)]$$

However, (23)’ and (24)’ are equivalent and do not properly represent the distinction between the nominal being used attributively/entered into the restrictor and being used predicatively/entered into the nuclear scope. Although we cannot go into detail because of lack of space, we amend (23)’ and (24)’ to (23)'' and (24)'', respectively.

$$(23)'' \quad \forall x^h \neg \exists e [\text{customer}(e, x^h) \wedge \text{came}(e, x^h)]$$

$$(24)'' \quad \forall x^h [\text{customer}(x^h) \rightarrow \neg \exists e [\text{came}(e, x^h)]]$$

In (23)'' and (24)'', ‘e’ is an event variable and ‘customer(e, x^h)’ reads ‘x^h manifests herself as a customer in e’, which is in contrast with ‘customer(x^h)’ where x^h is designated as a customer independently of a(n) (shopping) event. All in all, (23)'' and (24)'' are contended to represent the readings of (23) and (24), capturing the differences between (23) and (24) in interpretation. That is made possible by the hypothesis that *dare-mo* does not have the restrictor.

3.5 Truth Conditions of *Dare-mo* Sentence

In the current section we hypothesized that *dare-mo* is an ‘unrestricted’ universal quantifier that lacks the restrictor part, with the proposed meaning in (10), which is reproduced here, and have seen some pieces of evidence for the thesis.

(10) The proposed meaning of *dare-mo*

$$\text{dare-mo: } \lambda Q \forall x^h [Q(x^h)], \text{ where } x^h \text{ is a sortal variable for humans.}$$

We conclude this section with the truth conditions of a *dare-mo* sentence that are necessitated by the proposed meaning of *dare-mo*, i.e. (10). The logical form of a *dare-mo* sentence is now $\forall x^h [P(x^h)]$, where P is a possibly complex, one-place predicate. It is assumed that sortal, human variable x^h ranges over the entire set of humans at world w in model M, denoted D_{h, w, M}. From which, the truth conditions of a *dare-mo* sentence, $\forall x^h [P(x^h)]$ are determined as follows:

(25) Truth Conditions of *Dare-mo* Sentences $\forall x^h [P(x^h)]$

$\llbracket \forall x^h [P(x^h)] \rrbracket^{M, t, w} = 1$ if and only if the entire set of humans at world w in model M is a subset of the extension of P, i.e.,

$$D_{h, w, M} \subseteq \{a : \llbracket P(x) \rrbracket^{M, g[x/a], t, w} = 1\}.$$

4 Condition on the Extension of Episodic Predicates

Putting the meaning of *dare-mo* itself aside for now let us go back to a phenomenon surrounding *dare-me* we observed in sections 1 and 2, i.e., *dare-mo* cannot occur in some positive sentences as in (4a), which is why *dare-mo* was believed to be an NPI, but it can appear in other positive sentences, as in (6), which disqualifies *dare-mo* from being a genuine NPI. Although *dare-mo* has turned out to be a pseudo-NPI, it remains a fact that its distribution is somewhat restricted, which deserves to be explained. Since *dare-mo* does not always require negation for occurring grammatically in sentences, the necessary co-occurrence of negation for it in some sentences cannot be a direct consequence from a lexical feature or requirement of *dare-mo* alone. The

phenomenon should rather be taken to be an epiphenomenon mirroring some interaction of the lexical semantics of *dare-mo* with its environment. The question is what aspect of the environment is relevant to the interaction. In the following we will propose that it is the (non-)episodicity of the predicate that is relevant and formulate a condition on the extension of episodic predicates.

4.1 Condition on the Extension of Episodic Predicates

The obvious differences between sentences in which *dare-mo* requires negation, e.g. (4) and those in which it doesn't, e.g. (6) is that the former is an episodic sentence while that in the latter is a non-episodic, or "tenseless" one.

As events or situations, which are referred to by episodic sentences, are spatio-temporally bounded, it is reasonable to suppose that the extensions of episodic predicates cannot contain the entire domain of individuals of any sort. For illustration, let us take episodic predicate "came to the party" as an example. Referring to a certain coming-to-the-party event at some time in the past, the predicate cannot contain the entire set of humans, for a spatio-temporally bounded event cannot have as its participants, humans who were dead or unborn at the time of the event. The property of episodic predicates can be formulated as the following condition on the extension of episodic predicates:

(26) Condition on the Extension of Episodic Predicates

Given model M , variable assignment g , point of time t , possible world w , sort s , the domain of sort s at world w in M , $D_{s,w,M}$, and episodic predicate P , the following condition holds:

$$D_{s,w,M} \not\subseteq \{a : \llbracket P(x) \rrbracket^{M, g[x/a], t, w} = 1\}.$$

5 An Account of *Dare-mo*'s NPI-like Distribution

With the meaning of *dare-mo* proposed and the condition on the extension of episodic predicate postulated, from which follows some consequence relevant to *dare-mo*'s NPI-like distribution. To see

that, the truth conditions of a *dare-mo* sentence, (25) and the condition on the extension, strictly speaking, its special case where the sort is human, (26)' are reproduced here:

(25) Truth Conditions of *Dare-mo* Sentences $\forall x^h \llbracket P(x^h) \rrbracket$

$\llbracket \forall x^h \llbracket P(x^h) \rrbracket \rrbracket^{M, t, w} = 1$ if and only if the entire set of humans at world w in model M is a subset of the extension of P , i.e.,

$$D_{h,w,M} \subseteq \{a : \llbracket P(x) \rrbracket^{M, g[x/a], t, w} = 1\}.$$

(26)' Condition on the Extension of Episodic Predicates

Given model M , variable assignment g , point of time t , possible world w , human sort h , the domain of sort h at world w in M , $D_{s,w,M}$, and episodic predicate P , the following condition holds:

$$D_{h,w,M} \not\subseteq \{a : \llbracket P(x) \rrbracket^{M, g[x/a], t, w} = 1\}.$$

From (25) and (26)', it immediately follows that positive episodic *dare-mo* sentences will never be true. Since (26) and (26)' are considered to hold at any admissible models it follows that positive episodic *dare-mo* sentences will never be true at any admissible model; that is, they are contradictory.

On the other hand, negative *dare-mo* sentences will be a contingent proposition irrespective of the kind of the predicate, episodic or not, as can be seen in their truth conditions, (27).

(27) Truth Conditions of Negative *Dare-mo* Sentences $\forall x^h \neg \llbracket P(x^h) \rrbracket$

$\llbracket \forall x^h \neg \llbracket P(x^h) \rrbracket \rrbracket^{M, g, w} = 1$ if and only if the entire set of humans in the model is outside the extension of P , i.e.,

$$D_{h,w,M} \cap \{a : \llbracket P(\dots, x, \dots) \rrbracket^{M, g[x/a], t, w} = 1\} = \emptyset.$$

Compared with the impossibility of conceiving an event in which absolutely every human being in the world, dead, alive, or to be born at the time of the event participates, it is easy to imagine a poor party or concert to which absolutely no one came or a property which cannot be applicable to any

human being throughout history, e.g., being immortal.

How about positive non-episodic predicate *dare-mo* sentences? A non-episodic predicates is not subject to the condition of (32)'; thus, it can have a superset of the entire set of humans as its extension, which is the truth conditions for a *dare-mo* sentence as given in (25). For instance, let us take (6a) for an example. This example is not about any particular group of people at any time at any place, but expresses a timeless truth about humanity. Although human beings are normally assumed invariably to die sooner or later, it is easy to conceive worlds such that at least some people are immortal in them. That is why (6a) is contingent.

As is shown in (28), the logical properties of *dare-mo* sentences characterized by the current analysis, contradictory and contingent coincide with the grammaticality of the sentences, ungrammatical and grammatical, respectively. In the current analysis, the grammaticality facts of *dare-mo* sentences, or the NPI-like distributions of *dare-mo* are now reduced to the logicity, or the contingency/contradiction of *dare-mo* sentences. Giannakidou (2011) has strongly opposed to such a pragmatic approach to NPIs pursued in, e.g. Kadmon & Landman (1993), Krifka (1995) and Chierchia (2006), on the basis that pragmatic infelicity is too weak to characterize the categorical nature of the ungrammaticality judgments involving (strict) NPIs. Alternatively, she has argued that strict NPIs are lexicalized, or grammaticalized as such and their distributions are dealt with in syntax; for *dare-mo*, Giannakidou (2007, 2011) and Yoshimura (2007) argued that the characteristic rising tone on *dare-mo* is a marker of the lexicalization of its NPI-ness on a par with, e.g. the accent on Greek emphatic n-word KANENA. Now that there is evidence that *dare-mo* is not a strict NPI or a weak one for that matter, as is indicated by data like (2), the hard-wired, syntax-based account has lost its rationale, while the current pragmatic, semantics-based analysis is empirically better motivated to say the least.

(28) Logical Properties and Grammaticality of *Dare-mo* Sentences

<i>Dare-mo</i> sentences	Logical Property	Grammaticality
positive episodic predicate	contradictory	ungrammatical
negative episodic predicate	contingent	grammatical
non-episodic, or “tenseless” predicate	contingent	grammatical

6 Conclusion

We have seen that Japanese *dare-mo* is in fact a pseudo-NPI, being licensed in some type of positive sentences, which suggests that its NPI-like distribution should be attributed to other factors than the hard-wired requirement of negation in syntax. We have proposed that *dare-mo*'s NPI-like distribution is a reflection of some logicity property of a *dare-mo* sentence; that is, *dare-mo* is licensed in a contingent sentence while it is not licensed in a contradictory sentence. The above analysis is crucially dependent on the hypothesis that *dare-mo* is an “unrestricted” universal quantifier in contrast to *dáre-mo*, which is a restrictive quantifier.

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