Indeterminate Phrase Quantification in Japanese*

Junko Shimoyama

McGill University

Department of Linguistics
1085 Dr. Penfield Ave.
Montreal, Quebec H3A 1A7
Canada

Phone: (514) 389-4867
Fax: (514) 398-7088
E-mail: junko.shimoyama@mcgill.ca

Abstract

This paper examines the question of how so-called indeterminate phrases in Japanese (Kuroda 1965) associate with relevant particles higher in the structure. In the universal construction in Japanese, the restrictor (provided by an indeterminate phrase) sometimes appears to be separate from the universal particle *mo. It is proposed that quantification at

* This paper is partially based on part of my dissertation submitted to the University of Massachusetts, Amherst. I am most grateful to those who are acknowledged there, and I would in particular like to repeat my gratitude to Angelika Kratzer for discussions, comments and most of all, encouragement. I would also like to thank Kyle Johnson, Bernhard Schwarz and a reviewer for very useful comments. All remaining inadequacies are my own.
a distance is only apparent, and that the restriction is in fact provided locally by the sister constituent of *mo* as a whole. The proposal leads us to a straightforward uniform picture of the syntax-semantics mapping of the universal construction and wh-questions, building upon Hamblin's (1973) semantics for wh-phrases as sets of alternatives. It allows for a switch of perspective on a long-standing puzzle regarding locality effects in the indeterminate-particle association by deriving the locality pattern from the way indeterminate phrases are interpreted and associated with particles without any stipulations.

1. **Introduction**

   The way in which universal quantification is expressed in Japanese differs in an interesting way from how it is expressed by a determiner quantifier like *every* in English. In the examples in (1), the universal particle *mo* is accompanied by what is called an "indeterminate phrase" (Kuroda 1965). While example (1)a looks rather straightforward from an English perspective, in (1)b the restrictor *dono gakusei* 'which student' appears to associate with the particle *mo* 'every' in a long-distance manner, crossing a complex NP island.

   (1) a.  **Dono gakusei-mo**  odotta.
       which student-MO danced
       'Every student danced.'
Yet the seemingly long-distance association is not completely without locality constraints: the association cannot cross wh-islands, as first discussed in Nishigauchi (1990). The same is true for association between indeterminates and the question particle ka.

It has commonly been assumed that the association between indeterminate phrases and the question particle ka in wh-questions is mediated through movement, and a similar idea has been proposed for the association of indeterminate phrases and mo 'every' in the universal construction (Nishigauchi 1990, Watanabe 1992a, von Stechow 1996, Takahashi 2002). The movement analysis, however, has not fully succeeded in deriving without stipulations the fact that the association is only sensitive to wh-islands but not to other islands, as we will see below.

In this paper, I propose that the quantification at a distance in (1)b is only apparent, and that the restrictor of mo is in fact its whole sister constituent. The proposal is implemented in terms of Hamblin's (1973) semantics for indeterminate phrases, which provides a maximally simple theory of the syntax-semantics mapping for both the universal construction and wh-questions without assuming any movement (cf. Hagstrom 1998). Furthermore, the puzzling locality pattern will be shown to fall out automatically from the interpretive mechanism at no additional cost. The new analysis makes previously proposed mechanisms such as covert pied-piping of islands, as well as
subsequent wh-extraction out of islands and their reconstruction unnecessary (Nishigauchi 1990, von Stechow 1996).

The paper is organized as follows. Section 2 introduces how indeterminate phrases participate in various types of quantification, and lays out a full picture of locality constraints on indeterminate-particle association that need to be accounted for. In section 3, I present a new analysis of the semantics of the universal construction that departs from the standard view that it could involve quantification at a distance. The new analysis will be spelled out using a Hamblin semantics for indeterminate phrases in section 4. This will lead us to a straightforward uniform analysis of indeterminate phrases in both interrogative and universal contexts. Section 5 presents another striking consequence of the new analysis, namely that it allows a switch of perspective on the puzzling locality pattern; the pattern is shown to follow from the interpretive process without any additional stipulations. The new straightforward picture of the syntax-semantics mapping of indeterminate phrase constructions will then be compared to one representative previous attempt that involves movement in section 6. I conclude the paper with a summary and questions for future studies in section 7. Some interpretational aspects of the universal construction not introduced in the main text will be addressed in the Appendix.

2. Indeterminate Phrases and the Island Puzzle

2.1 The Island Puzzle in Wh-Questions

Let us start with a well-known locality puzzle found in the association of indeterminate phrases and the question particle *ka*. Japanese is a wh-in-situ language as
shown in example (2), where the indeterminate phrase *nani* 'what' remains in its base position. And yet the language has been reported to show a wh-island effect. With example (3), it is difficult to construe the indeterminate phrases *dare* 'who' and/or *nani* 'what' within the embedded interrogative clause as taking matrix scope; cf. (3)b-d.¹ The sentence is most readily interpreted as involving an embedded wh-question and a matrix yes-no question, as in (3)a.²

¹ The particle *ka* is ambiguous between a wh-question marker and a yes/no question marker. Replacing the embedded *ka* with *kadooka*, which is unambiguously an (embedded) yes/no question marker for most speakers, is useful when checking whether the interpretation in (3)d is available or not.

² Some variations in judgments have been reported in the literature on the degree of acceptability of sentences that involve wh-island violation. See Yoshida (1999) for discussion on this issue. Certain factors have been known to make island violations milder. For example, a single indeterminate phrase in a *whether*-island may take matrix scope more easily than the examples I discuss in this paper. An indeterminate phrase at the left edge of an island may also get marginal matrix scope interpretation, presumably because it can be interpreted as occurring in the matrix clause as in 'About what did Taro ask whether Yoko bought it or not?' The judgments reported for (3) and further examples that involve islands (not just with *ka* but also with *mo*) in section 2.4 are based on renditions of these sentences in appropriate prosody, corresponding to the intended scopes of indeterminate phrases. For some, but not all speakers, appropriate prosody rescues some cases of *whether*-island violations (see Deguchi and Kitagawa 2002, Hirotani 2003 and Ishihara 2003).
(2) Taro-wa nani-o tazunemasita ka?

Taro-Top what-Acc asked Q

'What did Taro ask?'

(3) Taro-wa [Yamada-ga dare-ni nani-o okutta ka] tazunemasita ka?

Taro-Top Yamada-Nom who-Dat what-Acc sent Q asked Q

a. 'Did Taro ask what Yamada sent to whom?'

b. ?* 'Who_x did Taro ask what Yamada sent to x?'

c. * 'What_x did Taro ask to whom Yamada sent x?'

d. ?* 'Who_x did Taro ask whether Yamada sent what to x?'


This movement postulated for Japanese is known to differ in one significant way from its overt counterpart in English. As illustrated in the examples in (4), indeterminate phrases can be associated with particle ka across a Complex NP island or an Adjunct island.³

³ Naze 'why' is sensitive to these islands, while doo 'how' is not, as shown in (i) and (ii). See, for example, Huang (1982) and Lasnik and Saito (1992).
This long-standing puzzle, which I will refer to as the "island puzzle", presents a challenge to any movement theory — the exceptional behavior of indeterminate phrases embedded in Complex NP and Adjunct islands needs to be accounted for.

2.2 The Indeterminateness

As the term "indeterminate phrases" suggests, phrases such as dare 'who' and nani 'what' in Japanese differ from their English counterparts in yet another respect. These phrases in the examples above do not have interrogative meaning inherently. They also

See Tsai (1994) for relevant discussion of adjunct wh-phrases.
participate in other types of quantification, as we briefly saw in section 1. It is thus desirable that an analysis of wh-questions be couched within a general theory of quantification involving indeterminate phrases.

Interrogative meaning comes about when indeterminate phrases associate with the question particle \(ka\) higher up, as in column (a) of table (5) (where apostrophes indicate the location of accent). When the particles \(mo\) and \(ka\) attach to these phrases as in columns (b) and (c), they take on universal meaning and existential meaning, respectively. Further, when the particles \(mo\) and \(de-mo\) attach to unaccented indeterminates as shown in columns (d) and (e), they are interpreted as something like negative polarity item \textit{any} and free choice \textit{any}, respectively.\(^5\) Lines mark gaps in the

\(^4\) For similar cross-linguistic data, see Haspelmath (1997).

\(^5\) Some items in the FC series in (5)e may also allow accented indeterminates. Further, in \textit{dono} \(N-mo\) 'any\(_{\text{NPI}}\) \(N\)' and \textit{dono} \(N-de-mo\) 'any\(_{\text{FC}}\) \(N\)' , depending on the length and lexical accentual pattern of \(N\), it may become difficult to keep these phrases unaccented. The same holds for the entire NPI series and FC series, when some material intervenes between indeterminate phrases and \(mo\) or \(de-mo\). This makes the distinction between the universal series and the NPI series blurred. See Takahashi (2002) and Ishihara (2003) for brief related discussions.

\(^6\) For recent discussions of the NPI series, see Watanabe (2004) and Shimoyama (2004). \(De\) in the FC series is arguably a copula, and the series is open to an analysis in which it is related to the clausal universal construction where \(mo\) is attached to a clausal element. The question of whether a conditional-like semantics that involves universal
paradigm, while entries in parentheses do not seem to have productive uses, occurring typically in fixed expressions.

(5)

<table>
<thead>
<tr>
<th>a. interrogative</th>
<th>b. universal</th>
<th>c. existential</th>
<th>d. NPI <em>any</em></th>
<th>e. FC <em>any</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>da’re...ka 'who'</td>
<td>da’re-mo</td>
<td>da’re-ka</td>
<td>dare-mo</td>
<td>dare-de-mo</td>
</tr>
<tr>
<td>na’ni...ka 'what'</td>
<td>(na’ni-mo)</td>
<td>na’ni-ka</td>
<td>nani-mo</td>
<td>nan-de-mo</td>
</tr>
<tr>
<td>do’re...ka 'which (one)'</td>
<td>do’re-mo</td>
<td>do’re-ka</td>
<td>dore-mo</td>
<td>dore-de-mo</td>
</tr>
<tr>
<td>do’no N...ka 'which_{det}'</td>
<td>do’no N-mo</td>
<td>do’no N-ka</td>
<td>dono N-mo</td>
<td>dono N-de-mo</td>
</tr>
<tr>
<td>do’tira...ka 'which of the two'</td>
<td>do’tira-mo</td>
<td>do’tira-ka</td>
<td>dotira-mo</td>
<td>dotira-de-mo</td>
</tr>
<tr>
<td>do’ko...ka 'where'</td>
<td>do’ko-mo</td>
<td>do’ko-ka</td>
<td>doko-mo</td>
<td>doko-de-mo</td>
</tr>
<tr>
<td>i’tu...ka 'when'</td>
<td>i’tu-mo</td>
<td>i’tu-ka</td>
<td>_____</td>
<td>itu-de-mo</td>
</tr>
<tr>
<td>na’ze...ka 'why'</td>
<td>_____</td>
<td>na’ze-ka</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>do’o...ka 'how'</td>
<td>(do’o-mo)</td>
<td>(do’o-ka)</td>
<td>(doo-mo)</td>
<td>doo-de-mo</td>
</tr>
</tbody>
</table>

It was Kuroda (1965) who adopted a view held in the traditional Japanese grammar and referred to the common core in (5) as "indeterminate pronouns", which reflects their varying semantics.

quantification over situations would derive the properties of the FC series is left for future studies. See Haspelmath (1995) and Lin (1996) for related discussions.
2.3 The Non-local Universal Construction

The nature of association of indeterminate phrases and the universal particle mo, which we briefly observed in section 1, may seem exotic to eyes used to universal determiners in well-studied languages such as every in English. Indeterminate phrases can associate with non-local mo, in a similar fashion to the association with the question particle ka in (2), as discussed in Kuroda (1965), Hoji (1985) and Nishigauchi (1990) among others. (6) shows that mo can be attached to an NP or DP in which an indeterminate phrase is embedded.\(^7\)\(^8\) In (6)a, dono gakusei 'which student' is a possessor,

\(^7\) Ohno (1991) discusses a very similar construction in Korean.

\(^8\) Non-local association of indeterminate phrases and the existential particle ka seems to be difficult for some reason, as shown in (i) and (ii).

(i) ? [Dono gakusei-no hon]-ka-o karita.

which student-Gen book-KA-Acc borrowed

'(I) borrowed some student's book.'

(ii) ?? [Dono gakusei-ga katta] hon -ka-o karita.

which student-Nom bought book-KA-Acc borrowed

'(I) borrowed a book that some student had bought.'

The following example from Nishigauchi (1990, pp. 121-122) may seem like a non-local case at a first glance.

(iii) Dare-kara-ka henna tegami-ga todoita.

who-from-KA strange letter-Nom arrived

'A strange letter came from God knows who.'
and in (6b), it is in the subject position in a relative clause. The English translations given below may not necessarily convey the precise interpretations of these sentences. These interpretations will be discussed shortly.

(6) a. \[\text{Dono gakusei-no okaasan]-mo odotta.}\]

\text{which student-Gen mother -MO danced}

'Every student's mother danced.'

b. \[\text{[Dono gakusei-ga syootaisita] sensei]-mo odotta.}\]

\text{which student-Nom invited teacher -MO danced}

'For every student x, the teacher(s) that x had invited danced.'

More than one indeterminate phrase can occur in the scope of \textit{mo}, as shown in (7).

(7) \[\text{[Dono gakusei-ga dono ie-ni syootaisita] sensei]-mo odotta.}\]

\text{which student-Nom which house-to invited teacher-MO danced}

'For every student x and every house y, the teacher(s) x had invited to y danced.'

The particle \textit{ka} in this example could possibly be the question marker \textit{ka}, as hinted at in Nishigauchi's paraphrase 'a letter came from someone, but I don't know who it is from' and the discussion in the text surrounding (iii). \textit{Dare-kara-ka} 'who-from-KA' in (iii) is interchangeable with \textit{dare-kara-da-ka} 'who-from-Cop-KA', which suggests that it might very well be an elliptical form of embedded question. See Takahashi (2002) and Yatsushiro (2004) for data from more permissive dialects.
2.4 *Ka* and *Mo*: The Need for a Uniform Analysis

2.4.1 The Island Puzzle in the Universal Construction

The locality effects observed in the association of indeterminate phrases and the question particle *ka* are repeated in the same form in the association of indeterminate phrases and the universal particle *mo*, as pointed out in Nishigauchi (1990). This calls for a uniform analysis.

First of all, sentence (8) shows that when no indeterminate phrases are in the scope of *mo*, *mo* is interpreted as 'also' or 'even'. In the non-local universal construction in (9), *dare* 'who' or *nani* 'what' in the embedded interrogative clause cannot be associated with the universal particle *mo* across the wh-island, just as in the case of association with the question particle *ka* we saw in (3). The only available reading is expressed in (9)a, in which *mo* is interpreted as 'also' or 'even' as expected.⁹

---

⁹Nishigauchi's (1990, p. 164) example in (i) makes the same point.

(i) [[[Dare-ga kaita ka] Mary-ga siritagatteiru] tegami]-ni]-mo

who-Nom wrote Q Mary-Nom want.to.know letter -to -MO

John-ga henzi-o kaita.

John-Nom answer.Acc wrote

a. 'Also to the letter such that Mary wants to know who wrote it, John wrote a reply.'

b. *'For all x, x a letter, Mary wants to know for y, y a person, y wrote x, John wrote a reply to x.'

b'. *'For every person y, and for every letter x, such that Mary wants to know whether y wrote x, John wrote a reply to x.'
The unavailable interpretation expressed in (ib) is Nishigauchi's paraphrase. Judging from his remarks in the text, his intention may be better expressed as (ib').
Not only is the association of indeterminate phrases and the particles *ka* and *mo* blocked by the presence of a wh-island, but the same association is also blocked by the presence of the universal construction. That the association with *ka* is blocked by the intervening universal *mo* is illustrated in (12).

    Yoko-Top Taro-Nom what-year-in what-about wrote paper -MO A-was Q want.to.know
    a. 'Yoko wonders whether for every topic x, every year y, the paper that Taro wrote on x in y got an A.'
    b. '?' 'Yoko wonders for which year y, for every topic x, the paper that Taro wrote on x in y got an A.'
c. * 'Yoko wonders for which topic x, for every year y, the paper that Taro wrote on x in y got an A.'

d. (?) 'Yoko wonders for which topic x and for which year y, the paper that Taro wrote on x in y also got an A.'

In the reading in (12)a, nan-nen 'what year' and nani 'what' are both associated with mo, and the embedded question is interpreted as a yes-no question. The unavailable (12)b and (12)c are the readings in which one of the indeterminate phrases is associated with ka, across the universal mo. In the reading in (12)d, where mo is interpreted as 'also', both indeterminate phrases are associated with ka.10

Similarly in (13), the association with the higher universal mo is blocked by the lower universal mo.

10 In (12), as well as in (13) below, associating both of the indeterminate phrases with the higher particle across the intervening non-universal mo 'also', as in the d-readings, does not result in syntactic ungrammaticality (cf. (3) and (9) above; but see Nishigauchi 1990, p. 213 for a different judgment). As brought to my attention by a reviewer, a very similar pattern is reported for association of wh-phrases with question operators across non-question operators in Chinese in Li (1992). To obtain the readings in question, appropriate contexts need to be set up that satisfy the presuppositions that come with mo 'also'. (Reducing the number of indeterminate phrases to one in these examples makes it easier to obtain the relevant type of readings, and still serves the purposes here.) This suggests that the universal mo and mo 'also' should be treated as two distinct lexical items (but see Suzuki 2003 for an attempt at unification).
In the reading in (13)a, both nan-nen 'what year' and nani 'what' are associated with the lower mo, and the higher mo is interpreted as 'also'. In the unavailable (13)b and (13)c, one of the indeterminate phrases is associated with the higher mo, skipping the intervening universal mo.\(^{11}\) In (13)d, the lower mo is interpreted as 'also', and both indeterminate phrases are associated with the higher mo.

\(^{11}\) Association with mo across intervening ka or mo as in (9) or (13) seems to result in more severe ungrammaticality than association with ka across the interveners as in (3) or (12). Presently I do not have an account for this contrast, if it is real. Note also that the readings in which the relative surface scope of the two indeterminates is not preserved
The complete island puzzle is summarized in (14). Indeterminate phrases can associate with particle ka or mo across Complex NP and Adjunct islands, while the association is blocked when ka or mo intervenes.

(14)  a.  * [..... [..... indeterminate .....]-ka/mo .....]-ka/mo

b.  [..... [..... indeterminate .....]CNP/Adjunct .....]-ka/mo

A theory of indeterminate phrase-particle association should derive this pattern.

2.4.2 A Brief Overview of Previous Attempts at a Uniform Analysis

Attempts have been made to make the non-local universal construction look less exotic, and more like the familiar type of determiner or adverbial quantification found in well-studied languages like English. This has been done by bringing the universal particle mo and the indeterminate phrase into a (almost) local relationship either at a pre-surface structure level (Takahashi 2002) or at a post-surface structure level (Nishigauchi 1990, Watanabe 1992a, von Stechow 1996), or by treating mo as having a function similar to adverbs of quantification in English (Nishigauchi 1990).

Apparent support for the movement analysis assumed by the above authors comes from the fact that it fits well with the common view on Japanese wh-questions that the relation between indeterminate phrases and the question particle ka is mediated through (i.e., the c-readings in (3), (9), (12) and (13)) are even more difficult to obtain than the readings in which the surface scope is preserved (see Hoji 1985).
movement (see references cited in section 2.1). For instance, by moving indeterminate phrases covertly so that they get into a Spec-head relation with *ka* or *mo*, a nice syntactic parallelism obtains as schematized in (15).

\begin{align*}
(15) & \quad \text{a. } [\text{CP indeterminate } [\text{…..t…..} Q_{\text{ind}}]] \\
& \quad \text{b. } [\text{MoP indeterminate } [\text{…..t…..} \text{ } \forall_{\text{mo}}]]
\end{align*}

A challenge for the movement analysis, of course, is to explain the island puzzle. Nishigauchi (1990) made an influential proposal in this area, known as the "pied piping analysis", which subsequent movement analyses built upon (see also Choe 1987). We will see in section 5, however, that the pied piping analysis does not quite derive the puzzling locality pattern in a satisfactory manner.

Furthermore, syntactic uniformity of the kind found in (15) is an advantage only if it succeeds in deriving the semantics of each construction. As we will see in section 6, a uniform analysis like (15) based on the extension of the standard LF wh-movement

\footnote{Takahashi's (2002) movement analysis of the universal construction and Hagstrom's (1998) movement analysis of wh-questions form a syntactic parallel in that, abstracting away from the details, the particles *ka* and *mo* start out from the position local to indeterminate phrases and undergo overt movement. Takahashi (2002, fn. 12), however, tentatively rejects a uniform analysis of the universal construction and wh-questions (as well as the clausal universal construction).

\footnote{Since the exact categorial status of the projection that *mo* heads is not clear, I refer to it as MoP (see, for example, Nishigauchi 1990, pp. 159-161).}
analysis to the universal construction is only possible at the expense of stipulations that we do not have independent evidence for. In what follows, it will be shown that a very simple picture emerges once we free ourselves from the practice of looking at the indeterminate phrase constructions through eyes used to the surface forms of English wh-questions and universal quantification.

3. A New Semantics for the Universal Construction

3.1 The Embedded Restrictor View

As mentioned above, attempts have been made to make the non-local universal construction look less exotic by placing the indeterminate phrase and *mo* closer to each other at a covert level. In fact, some authors view the non-local universal construction as a kind of inverse linking construction in the sense of May (1985). The underlying assumption is that it is the denotation of the indeterminate phrase that provides the restriction for the universal quantification (Ohno 1989, von Stechow 1996, Takahashi 2002). This view construes the non-local universal construction as involving a universal quantifier whose restriction is provided by one or more indeterminate phrases.

---

14 See von Stechow (1996) and Takahashi (2002). Obstacles for complete assimilation are briefly discussed in Shimoyama (2001, pp. 34-36; these page numbers refer to the page numbers of the version available from GLSA).

15 It is assumed in Nishigauchi (1990) that the head noun of the relative clause, in addition to the indeterminate phrase that is moved up, provides the restriction. See Ohno (1989) and von Stechow (1996) for criticisms of this assumption.
possibly deeply embedded in its sister constituent. I will refer to it as the "embedded restrictor view".

The remainder of this section presents an alternative analysis of the semantics of the universal construction. It will then be shown in the next section that the alternative can be spelled out using an existing analysis of interrogative pronouns due to Hamblin (1973). The puzzling locality pattern will be shown to follow from the interpretation process automatically without any further assumptions, which therefore makes any independent statement on locality unnecessary. The new view also makes the mapping from syntax to semantics of the universal construction much simpler than any previous attempts.

3.2 The Direct Restrictor View

The alternative to the embedded restrictor view I propose assumes that the domain of quantification for mo is provided directly by its sister constituent, rather than by indeterminate phrases embedded in its sister. According to this new view, which I will refer to as the "direct restrictor view", the universal quantification contributed by mo in the non-local case in (16), for example, is over the set of mothers of some student or other as in (17)a, rather than over the set of students as in (17)b.\footnote{An extensional system is employed for simplicity in the paper, except when the semantics of questions is discussed in section 4.1.}\footnote{See Keenan and Stavi (1986) and Moltmann (1995) for a similar view on English.} For ease of presentation, I focus on a definite singular interpretation of bare NPs in the main text, even though they do not usually carry any markings for definiteness/indefiniteness or

\footnote{An extensional system is employed for simplicity in the paper, except when the semantics of questions is discussed in section 4.1.}
singularity/plurality. Other interpretations of bare NPs and how they affect the overall interpretations of the non-local universal construction will be discussed in the Appendix.

(16) [Dono gakusei-no okaasan]-mo odotta.

which student-Gen mother -MO danced

'Every mother of some student or other danced.'

(17) a. $\forall x [x \in \{t y[mother(z)(y)]: \text{student}(z)\} \rightarrow \text{dance}(x)]$

b. $\forall x [\text{student}(x) \rightarrow \text{dance}(t y[mother(x)(y)])]

Representation (17)a expresses that every mother of a student danced, whereas (17)b expresses that for every student, his or her mother danced. If Taro, Ziro, and Saburo were all the students in the context, the domain of universal quantification in (17)a is the set $\{t y[mother(Taro)(y)], t y[mother(Ziro)(y)], t y[mother(Saburo)(y)]\}$. Assuming for the moment that every student in the domain has exactly one mother (which allows us to stay away from the question of definedness of the definite description denotation), we can see that (17)a and (17)b express the same truth condition.

The interpretation of (18), which involves even more non-local association than our previous example in (16), can be expressed as in (19)a according to the direct restrictor view, as opposed to (19)b according to the embedded restrictor view.

(18) [[Dono gakusei-ga teisyutusita] syukudai]-mo yuu-datta.

which student-Nom submitted homework assignment-MO A-was

'Every homework assignment that a student had handed in got an A.'
(19)  a. \( \forall x [x \in \{ty[\text{homework assignment}(y) \land \text{submit}(y)(z)] : \text{student}(z)\}] \rightarrow \text{get an A}(x) \]

b. \( \forall x[\text{student}(x) \rightarrow \text{get an A}(ty[\text{homework assignment}(y) \land \text{submit}(y)(x)])] \)

If Taro, Ziro and Saburo were all the students in the context, the set that \( \text{mo} \) quantifies over in (19)a is \( \{ty[\text{homework assignment}(y) \land \text{submit}(y)(\text{Taro})], ty[\text{homework assignment}(y) \land \text{submit}(y)(\text{Ziro})], ty[\text{homework assignment}(y) \land \text{submit}(y)(\text{Saburo})]\} \). (19)a and (19)b amount to predicting the same truth condition in a simple scenario where every student in the context had handed in exactly one homework assignment.\(^{18}\) Other cases will be discussed in the Appendix.

The direct restrictor view proposed here relates local \( \text{mo} \)-phrases such as \textit{dono gakusei-mo} 'every student' and \textit{itu-mo} 'always' (see column (b) of table (5)) and non-local \( \text{mo} \)-phrases such as those in (16) and (18) above by assuming that \( \text{mo} \) always quantifies over what is denoted by its sister constituent. This contrasts with the embedded restrictor view (as well as its predecessor, Nishigauchi 1990), which relates the two cases by

\(^{18}\) Since \textit{syukudai} 'homework assignment' can also be interpreted as plural, sentence (18) is compatible with a situation where each student handed in more than one assignment. So more generally speaking, the universal quantification in (18) is over the set of maximal individuals that are homework assignments submitted by each student. The direct restrictor view being proposed here agrees with the view due to Ohno (1989) and von Stechow (1996) that the apparent universal quantificational force associated with the head noun of the relative clause is due to its definite plural interpretation, contra Nishigauchi (1990).
assuming that *mo* always quantifies over what is denoted by indeterminate phrases.

Under the new view, the universal quantification in Japanese looks less exotic since *mo* can now be analyzed as simply forming a regular generalized quantifier with the phrase it combines with.

Before moving on, let us briefly look at certain anaphora facts that have been observed in relation to the universal construction. Example (20), in which the variables associated with the indeterminate and the pronoun appear to be co-bound by the universal quantifier, may appear to support the embedded restrictor view at first sight, as it provides a simple semantic parse as in (20)a (see Nishigauchi 1990 for more examples of this type). On the direct restrictor view proposed here, on the other hand, the pronoun will have to be seen as an E-type pronoun, which can be paraphrased by a definite description as in (20)b (Evans 1980).

\[
\text{(20) }\quad \left[\text{Dono hune-o eranda] hito}\right] -\text{mo sono nedan-ni odoroita.}
\]
which boat-Acc chose person-MO its price-at was_surprised

a. 'For every boat x, the person who chose x was surprised at the price of x.'

b. 'For every person y who chose some boat, y was surprised at the price of the boat y chose.'

This may be considered an advantage of the embedded restrictor view. However, for the slightly more complex example in (21), the paraphrase according to the bound variable analysis in (21)a does not provide an appropriate interpretation. The direct restrictor view, on the other hand, can stick to the E-type analysis of the pronoun as in (21)b.
Thus, even though for a sentence like (20) the embedded restrictor view appears to provide a simpler semantic representation than the direct restrictor view, based on the bound variable analysis of the pronoun, the E-type analysis is more general than the bound variable analysis in that the former can accommodate examples like (21), as well as (20). Therefore the fact that the embedded restrictor view allows a simple semantic parse for an example like (20) does not by itself constitute evidence for this view.

4. Unifying the Indeterminate Phrase Constructions Under a Hamblin Semantics

4.1 A Hamblin Semantics for Wh-pronouns

If sets like those in (17)a and (19)a can be obtained from the sister constituent of *mo* which contains one or more indeterminate phrases, the syntactic structure of the non-local universal construction can be transparently mapped into the tripartite structure just like the local cases or sentences with *every* in English. One way of making such sets
available can be spelled out by adopting the idea due to Hamblin (1973) that interrogative pronouns in English denote sets of alternatives.

According to Hamblin (1973), wh-pronouns like *who* and *what* denote sets of individuals. For instance, the denotation of *who* is the set of all persons. This semantics is adopted by Hagstrom (1998) for Japanese indeterminate phrases that occur in the scope of particle *ka*, that is, in the interrogative and existential contexts.\(^{19}\) *Dare* 'who' in the wh-question in (22), for example, denotes the set of human individuals as in (23)a (with an appropriate contextual domain restriction). The denotations of lexical items that are not indeterminate phrases are now singleton sets whose sole members are their normal denotations. Thus the VP *odorimasu* 'dance' in (22) denotes a singleton set whose only member is its ordinary denotation, as shown in (23).

\(^{(22)}\) \[\text{[Dare-ga odorimasu] ka?}\]

'Who dances?'

\(^{(23)}\) For all possible worlds \(w\) and variable assignments \(g\),

\[\begin{align*}
a. \quad &[[\text{dare}]]^w_g = \{x \in D_x : \text{person}(x)(w)\} \\
\text{b.} \quad &[[\text{odorimasu}]]^w_g = \{\lambda x \lambda w'[\text{dance}(x)(w')]\}
\end{align*}\]

\(^{19}\) As far as I am aware, the first application of Hamblin's semantics to indeterminate phrases is found in Ramchand (1997) on Bengali. See also Lin (1996), who assumes an alternative set analysis for Chinese indeterminate phrases in the *wulun* 'no matter'-construction, and a free variable analysis for those in other contexts.
We now compose the denotations of the NP *dare* 'who' and the VP *odorimasu* 'dance' by applying functional application in a pointwise manner, namely, by applying the function \( \lambda x \lambda w'[dance(x)(w')] \) to each member of the set of human individuals, and thus forming the following set of propositions in (24).

\[
\text{(24) } [[\text{dare-ga odorimasu}]]^{w,g} = \{ f(x): f \in [[\text{odorimasu}]]^{w,g}, x \in [[\text{dare}]]^{w,g} \}
\]

\[= \{ \lambda w'[dance(x)(w')]: \text{person}(x)(w) \}\]

If Taro, Ziro and Saburo are all the people in the context, the question denotes the set \( \{ \lambda w'[dance(Taro)(w')], \lambda w'[dance(Ziro)(w')], \lambda w'[dance(Saburo)(w')] \} \). This is a suitable basic denotation for the interrogative sentence in (22), along the lines of Hamblin (1973) and Karttunen (1977).

---

\[\text{20} \text{ A general rule for pointwise functional application is given in (i) (see Rooth 1985, 1996).} \]

\[(i) \text{ If } \alpha \text{ is a branching node with daughters } \beta \text{ and } \gamma, \text{ and } [[\beta]]^{w,g} \subseteq D_{\text{core}}, \text{ and } \]
\[[[\gamma]]^{w,g} \subseteq D_w, \text{ then } [[\alpha]]^{w,g} = \{ f(x) \in D_{\nu}: f \in [[\beta]]^{w,g} \& x \in [[\gamma]]^{w,g} \}. \]

\[\text{21 Note that the semantic contribution of the question particle } ka \text{ may now be seen as a rather trivial one. Alternatively, } ka \text{ can be considered to return a singleton set whose sole member is a question denotation as proposed in Groenendijk and Stokhof (1982), as suggested to me by Angelika Kratzer (p.c.) (see Heim 1994 and Beck and Rullmann 1999).} \]
4.2 Extension to the Universal Construction

The Hamblin semantics for indeterminate phrases in the interrogative context extends naturally to the universal construction as conceived in the direct restrictor view. In the local case in (25)a, the phrase that *mo* combines with, *dono gakusei* 'which student', denotes the set of all individuals that are students (with appropriate contextual restriction) as in (25)b, where possible worlds are omitted for simplicity.

\[(25)\]
\[a. \quad \text{Dono gakusei}-\text{mo \ odotta.}\]
\[\quad \text{which \ student-MO \ danced}\]
\[\quad \text{’Every student danced.’}\]
\[b. \quad \left[[\text{dono gakusei}]\right] = \{x \in D: \text{student}(x)\}\]

In the non-local example in (26)a, repeated from above, the indeterminate *dono gakusei* 'which student' is embedded in a complex NP. The individual alternatives introduced by *dono gakusei* 'which student' can now 'expand', and the complex NP denotes the set of unique homework assignments that each student submitted, as in (26)b. (Recall that I am focusing on the definite singular interpretation of the bare NP *syukudai* 'homework assignment').

\[(26)\]
\[a. \quad \left[[\text{Dono gakusei}-\text{ga \ teisyutusita}] \ syukudai]-\text{mo \ yuu-datta.}\]
\[\quad \text{which \ student-Nom \ submitted \ homework \ assignment-MO \ A-was}\]
\[\quad \text{’Every homework assignment that a student had handed in got an A.’}\]
b. \[ \{ [1 \text{ [dono gakusei-ga t1 teisyususita]} \text{ syukudai }] \}^g = \{ ty[\text{homework assignment(y) & submit(y)(z)}]: \text{student(z)} \} \]

In the context where Taro, Ziro and Saburo are all the students and they had handed in exactly one homework assignment, the complex NP denotes the set \{ ty[\text{homework assignment(y) & submit(y)(Taro)}], ty[\text{homework assignment(y) & submit to(y)(Ziro)}], ty[\text{homework assignment(y) & submit(y)(Saburo)}] \}.\footnote{Sentences (25)a and (26)a can be paraphrased by (i) and (ii) respectively, in which the alternative individuals are spelled out. The \textit{mo}-phrases here seem to be interpreted conjunctively.}

(i) Taro-mo Ziro-mo Saburo-mo odotta.
\[\text{Taro-MO Ziro-MO Saburo-MO danced.} \]
'Taro, Ziro and Saburo danced.'

(ii) [Taro-ga teisyususita syukudai]-mo
\[\text{Taro-Nom submitted homework assignment-MO} \]
\[\text{[Ziro-ga teisyususita syukudai]-mo} \]
\[\text{Ziro-Nom submitted homework assignment-MO} \]
\[\text{[Saburo-gateisyususita syukudai]-mo yuu-datta.} \]
\[\text{Saburo-Nom submitted homework assignment-MO A-was} \]
'The homework assignment that Taro had handed in, the one that Ziro had handed in, and the one that Saburo had handed in got an A.'

For attempts to unify the universal \textit{mo} and conjunctive/additive \textit{mo}, see Ohno (1989) and Suzuki (2003). See also footnote 10.
In the Hamblin analysis of indeterminate phrases, in the local example in (25)a as well as in the non-local example in (26)a, the phrase that *mo* combines with denotes a set of alternatives, which serves as a direct restrictor of *mo*. The contribution of *mo* can be stated as in (27), where it simply forms a generalized quantifier with the phrase it combines with.

\[(27) \quad \text{For } [[\alpha]]^\mathcal{E} \subseteq \mathcal{D}_e, \]
\[\quad [[\alpha \text{ mo}]]^\mathcal{E} = \{\lambda P \forall x [x \in [[\alpha]]^\mathcal{E} \rightarrow P(x) = 1]\}

*Mo* is now not as exotic as it first appeared. This makes stipulations for otherwise unmotivated movement in the embedded restrictor view unnecessary. There is now no need to bring *mo* and indeterminates closer in covert syntax, unlike what was considered mandatory in previous works such as Nishigauchi (1990), Watanabe (1992a), von Stechow (1996) and Takahashi (2002), among others (see section 6).

The resulting truth conditions for sentences (25)a and (26)a, ignoring tense, are (28)a and (28)b respectively.

\[(28)\]
\[a. \quad \{\forall x [x \in \{y: \text{student}(y)\} \rightarrow \text{dance}(x)]\}\]
\[b. \quad \{\forall x [x \in \{y[\text{homework assignment}(y) \& \text{submit}(y)(z)]: \text{student}(z)\} \rightarrow \text{get an A}(x)]\}\]

According to (28)a, sentence (25)a is true if and only if every student danced. According to (28)b, sentence (26)a is true if and only if every unique individual that is a homework
assignment that some student or other had submitted got an A. These truth conditions fit
with our intuitions about these sentences. Note that the final denotations of the sentences
end up as singleton sets.

As pointed out in section 2.3, a non-local universal construction with multiple
indeterminate phrases is possible, as in (29).

(29)  ([Dono gakusei-ga dono T.A.-ni teisyutusita] syukudai]-mo
      which student-Nom which T.A.-to submitted homework assignment-MO
      yuu-datta.
      A-was

      'Every homework assignment that a student had handed in to a T.A. got an A.'

The multiple case works just like the simple case in (26)a. The set of alternatives
introduced by the two indeterminates dono gakusei 'which student' and dono T.A. 'which
T.A.' keep expanding, up to the point where mo is encountered. Mo can then quantify
over the set \{x[homework assignment(x) & submit to(x)(y)(z)]: student(z) & T.A.(y)\}.23

\footnote{In fact, the head of the relative clause in (29) can be an indeterminate, too, as shown in
(i). The structural position of dono 'which' in the head must be higher than its surface
position. Though this type of example presents interesting issues, I leave detailed
discussion of them for future.}
To summarize the present section, the Hamblin analysis of indeterminate phrases makes possible a uniform and very simple analysis of the syntax-semantics mapping of the interrogative and universal constructions. In this analysis the non-local universal construction is no longer as exotic as it first appeared.

5. Back to the Island Puzzle

5.1 The Puzzling Locality Patterns Fall Out

Not only does the Hamblin analysis of indeterminate phrases provide a very simple uniform analysis of the interrogative and universal constructions, it also derives the puzzling locality pattern without any additional assumptions. Recall that indeterminate phrases can associate with particle *ka* or *mo* across Complex NP and Adjunct islands, while the association is blocked when *ka* or *mo* intervenes, as summarized in (30), repeated from above.

(30) a. * [..... [..... indeterminate .....]-ka/mo .....]-ka/mo

b. [..... [..... indeterminate .....]-ka/mo

   [CNP/Adjunct .....]-mo]

(i) [[Dono gakusei-ga  dono T.A.-ni  teisyutusita]  dono syukudai]-mo

   which student-Nom which T.A.-to submitted which homework assignment-MO

   yuu-datta.

   A-was

   'Every homework assignment that a student had handed in to a T.A. got an A.'
Some representative examples are repeated below. In example (31), *dare* 'who' or *nani* 'what' in the embedded interrogative clause cannot be associated with the universal particle *mo* across particle *ka*. (31)a is the only available reading, in which *mo* is interpreted as 'also' or 'even' as expected.

(31) [[[Yamada-ga dare-ni nani-o okutta ka] sitteiru] syoonin]-mo
[[[Yamada-Nom who-Dat what-Acc sent Q] know] witness]-MO
damatteita.

was silent

a. 'The witness who knew what Yamada sent to whom was also silent.'

'Even the witness who knew what Yamada sent to whom was silent.'

b. * 'For every person x, the witness who knew what Yamada sent to x was silent.

c. ** 'For every thing x, the witness who knew to whom Yamada sent x was silent.'

d. * 'For every person x, for every thing y, the witness who knew whether Yamada sent y to x was silent.'

On the other hand, indeterminate phrases can be associated with particle *mo* across complex NPs and adjunct clauses as shown in (32) and (33), as well as in simpler examples such as (26).
The most prevalent view on this island puzzle has been to take the apparent wh-island effect in (30)a to be suggestive of movement of indeterminate phrases (or some other items, as proposed in Watanabe 1992a, b and Hagstrom 1998) across islands in general. This is in analogy to English, in which wh-phrases move overtly and the movement shows a wh-island effect. In this view, the lack of other island effects in (30)b has to be dealt with by a special mechanism, which I will come back to shortly.

The Hamblin analysis of interrogative and universal constructions now allows us to switch perspective and see something else in the patterns in (30). The Hamblin analysis allows for in-situ interpretation of indeterminate phrases, and this makes a theory of LF very simple: there is no covert movement of indeterminate phrases. The proposed mode of association of indeterminates and particles is not sensitive to islands. The sets of alternatives introduced by indeterminates can expand, for example, across relative clause boundaries. Thus there is nothing special about the lack of complex NP and Adjunct
island effects in (30)b. The question is now turned around: Where does the apparent wh-island effect in (30)a come from if not from movement?

The answer is that the apparent wh-island effect is completely expected from the very architecture of the interpretation system. The alternatives created by indeterminate phrases expand until they encounter the first operator of the relevant kind, namely, one that takes a Hamblin denotation as its (first) argument. In the picture in (30)a, for example, the expanding alternatives that originate from the indeterminate are necessarily 'absorbed' by the first ka or mo they meet higher up in the structure. That is, ka and mo take sets of alternatives and return singleton sets, and thus the structure created by indeterminates is no longer accessible from higher particles. This way, the Hamblin analysis derives the apparent wh-island effect automatically, while allowing for long-distance associations as in (30)b.

The Hamblin analysis makes independent statements of a Relativized Minimality-type locality principle (Rizzi 1990) as proposed in Shimoyama (1999, 2001) as well as in Ochi (1999), Tanaka (1999) and Yoshida (1999) unnecessary, as far as the indeterminate-particle association is concerned. In Shimoyama (1999, 2001), I explored a different way of implementing the direct restrictor view of the universal construction that builds on the assumption that indeterminates introduce free variables. There, the locality condition

---

24 Alternatively, the alternatives are caught by a question embedding verb, rather than ka. But see footnote 28.

25 Kuroda (1965, p. 101) first noted that "the role of the indeterminate pronouns [is] very much like that of yet unbounded logical variables". Nishigauchi (1990) pursued this insight and made an important connection to the analysis of indefinites in English by
had to be built into the rule of copying index on indeterminates to a set creating operator (see Heim 1982). The Hamblin analysis fares better than the free variable analysis in this respect, because it dispenses with any independent statement of such locality principles.26

Furthermore, the Hamblin analysis may also capture the fact that indeterminate phrases should always occur in the scope of the particles *ka or mo.*27 If we want the final denotations of sentences to end up as singleton sets, the alternatives introduced by indeterminates cannot continue to expand forever. The expansion needs to be stopped


26 See Wold (1996) for related discussion in the area of association with focus.

27 This is not entirely accurate. In the forms of the clausal universal construction in (i), *mo* is obligatory in (a), optional in (b), and not allowed in (c). In the comparative construction in (ii), *mo* is optional.

(i) Taro-wa dare-ga {a. denwasi-te *(-mo)/b. denwasi-yooto(-mo)/
Taro-Top who-Nom call-TE-MO call-YOOTO-MO

c. denwasi-yooga(*-mo)) denakatta.
call-YOOGA-MO did.not.answer

'No matter who called, Taro didn't answer.'

(ii) Yuya-wa mikan-o dono kodomo(-ga tabeta)-yori(-mo) takusan tabeta.
Yuya-Top orange-Acc which child(-Nom ate)-than -MO many ate

'Yuya ate more oranges than any child (did).'

---
somewhere along the way. *Ka* and *mo* do that job by selecting Hamblin denotations and returning singletons. If *ka* and *mo* turn out to be the only lexical items that select Hamblin denotations, it is expected that indeterminate phrases that create such denotations always find themselves in the scope of these particles.\(^{28,29}\)

---

\(^{28}\) This means that if we want to derive the dependency between indeterminates and *ka* completely from the Hamblin analysis, we should adopt the view briefly mentioned in footnote 21 that it is *ka*, rather than a question embedding verb, that returns a singleton set.

\(^{29}\) More examination is needed to answer the question of whether *ka* and *mo* always need an indeterminate phrase in their scope, and if so, why. It is the wh-question *ka* and the universal *mo* that require indeterminates in their scope. To derive these *ka* and *mo*'s dependency on indeterminates, one might say that indeterminates are the only lexical items that have non-singleton Hamblin denotations as their ordinary semantic values, and that is why *ka* and *mo* should always find indeterminates in their scope. This way of deriving the dependency has to assume that *ka* and *mo* in uses that do not require the presence of indeterminates (i.e., *ka(dooka)* as a yes-no question particle and *mo* as an additive and conjunctive particle) are different lexical items. This was hinted at for *mo* in footnote 10. However, treating wh-question *ka* and yes-no question *ka(dooka)* completely independent of each other would mean giving up on a potential uniform account for the fact that *ka(dooka)* 'whether'-clauses also create an intervention effect like content wh-islands do. The question of exactly how *kadooka* 'whether'-island effects are derived is left unanswered in this paper. Some preliminary questions are discussed in Shimoyama (2001, pp. 85-92).
5.2 The Island Puzzle and The Pied Piping Analysis

Within the movement analysis, a special mechanism to account for the lack of certain island effects was proposed by Nishigauchi (1990) and has been very influential. Nishigauchi (1990) proposed that the apparent lack of Complex NP and Adjunct island effects in Japanese is due to the fact that these islands count as [+wh] via feature percolation. This makes the whole islands pied-pipe and undergo movement at a covert level where island constraints are at work (his LF). Thus the indeterminate phrases embedded inside these islands never get extracted out of them. Subsequent movement analyses rely on this pied piping mechanism or its variants (Watanabe 1992a,b, von Stechow 1996, Hagstrom 1998, Tanaka 1999 and Richards 2000 among many others).

Given that overt pied piping of complex NPs is observed in Basque and Quechua, for example, it is at least plausible that Japanese employs this option covertly (Ortiz de Urbina 1990, Hermon 1984, Richards 2000). Where can we look for evidence that bears on the question of whether Japanese indeed employs pied piped structure at the covert level of LF? Under the assumption that LF serves as the appropriate input to semantic interpretation, the main source for such evidence must be semantic interpretation.

As discussed in detail in von Stechow (1996), the LF representations that result from pied-piping are not suitable for deriving the desired semantics (see also Chomsky 1977). An appropriate structure must be the one in which only the indeterminate

\[30\]

Watanabe (2001) attempts to dismiss von Stechow’s (1996) claim that LF pied-piping is reconstructed by proposing the semantics in (ii) for sentence (i), which is claimed to reflect the effect of LF pied-piping.
phrases are displaced but not the entire islands. Within the movement analysis, however, this desired LF structure cannot be derived by simple extraction of indeterminates out of

(i) Kare-wa [dare-ga kaita hon]-o yonde-iru no?
  he-Top who-Nom wrote book-Acc read-Prog Q
  ‘Who x is he reading a book that x wrote?’

(ii) \( \lambda p \exists f \exists x [ \text{person}(x) \land \text{book}(f(x)) \land \text{wrote}(x, f(x)) \land p = \langle \text{reading}(\text{he}, f(x)) \rangle ] \)
  'which f, x, x a person and f(x) a book that x wrote, he is reading f(x)'

Contrary to his claim, however, (ii) incorrectly predicts that 'he is reading War and Peace' is a possible answer to the question, which is exactly what von Stechow's (1996) analysis set out to overcome. Note also that (ii) does not reflect the fact that the function "the question is after" according to Watanabe (2001, p. 223) is already given in the question, namely, \( \lambda x . \text{the book that x wrote} \) (I am assuming for now that f is of type <e,e>, following (ii)). Thus answers like 'he is reading the novel that Mary loves' or 'he is reading the essay that Sue is not fond of' are also incorrectly predicted to be possible answers to the question, as long as the restrictions on f(x) in (ii) are satisfied. Though this second problem can be solved by properly defining the function as in (iii), it still allows for the first type of answers, since f is of type <e,e>.

(iii) \( \lambda p \exists f \exists x [ \text{person}(x) \land f = \lambda y . \text{the book that y wrote} \land p = \langle \text{reading}(\text{he}, f(x)) \rangle ] \)

Perhaps Watanabe's (2001) intention is captured by intensionalizing the function in (iii), i.e., \( f = \langle \lambda y . \text{the book that y wrote} \rangle \) (see Sharvit 1998 on English). It still holds, however, that this type of semantic representation cannot be obtained without extraction of dare 'who' out of the complex NP island, and it therefore undermines the main motivation for pied-piping, that is, to do away with wh-extraction out of islands.
islands, for then the account of wh-island effect would be lost. Thus in his proposal, von Stechow (1996) adopts Nishigauchi’s (1990) pied piping mechanism and only adds a modification to it to the effect that extraction out of islands does indeed take place at the second covert level, where island constraints do not apply, and the rest of the pied piped islands are syntactically reconstructed.

Recall that the Hamblin analysis derives the locality pattern found in Japanese as a consequence of the interpretation system. In the modified pied piping analysis, on the other hand, covert pied piping, which is a key assumption in accounting for the locality pattern, needs to be followed by covert reconstruction of most of the pied piped material. This seems to complicate the grammar unnecessarily and lessen the attractiveness of the simple assumption that Japanese has the same syntactic process of pied piping as Basque and Quechua.\textsuperscript{31} Furthermore, as we will see in section 6, in a theory where covert pied piping takes place, the indeterminates take matrix scope, resulting in wh-island violation, the configuration in (ia), where they take distinct scope, is judged to be worse than (ib).

\texttt{(i) a. \ *} \quad \texttt{[} \text{CP} \ldots \text{CP} \ldots \text{CNP} \ldots \text{indeterminate}_1 \ldots \text{indeterminate}_2 \ldots \text{]} \ldots \text{ka}_2 \ldots \text{ka}_1 \]

\texttt{b. ?? \ [} \text{CP} \ldots \text{CP} \ldots \text{CNP} \ldots \text{indeterminate}_1 \ldots \text{indeterminate}_2 \ldots \text{]} \ldots \text{ka} \ldots \text{ka}_1,2 \]

\texttt{c. \ [} \text{CP} \ldots \text{CP} \ldots \text{CNP} \ldots \text{indeterminate}_1 \ldots \text{indeterminate}_2 \ldots \text{]} \ldots \text{ka}_{1,2} \ldots \text{ka]}

If the contrast in grammaticality between (ia) and (ib) turns out to be a robust one, it presents an interesting challenge for the proposed analysis. It bears on the question of

\textsuperscript{31} The reviewer claims that the contrast in grammaticality between (ia) and (ib), discussed first in Watanabe (1992a, fn. 9), attributed to Mamoru Saito (p.c.), and taken up more extensively in Richards (2000), is clear evidence that covert pied piping takes place in Japanese. Two indeterminate phrases occur within a complex NP in (i). While in (ib), both of the indeterminates take matrix scope, resulting in wh-island violation, the configuration in (ia), where they take distinct scope, is judged to be worse than (ib).
piping and subsequent reconstruction take place in Japanese, one would have to give up a uniform analysis of the interrogative and universal constructions.

Difficulties in the syntactic side of the mechanism have also been pointed out in, for example, Toyoshima (1996) and von Stechow (1996, fn. 6).32 Most importantly, there has not been a convincing proposal in which the impossibility of pied piping of wh-islands in Japanese follows naturally. For example, according to Richards (2000), in which a modified pied piping mechanism based on Nishigauchi (1990) is spelled out, wh-islands do indeed pied pipe and undergo covert movement, but the resulting LF representation is ruled out "presumably for semantic reasons (Richards 2000, p. 199)". As far as I can see, however, nothing prevents further wh-extraction out of islands and

how yes-no question ka(dooka) ‘whether’-islands should be treated. Note also that the distinct scope reading is not ruled out automatically in the pied piping analysis. As far as I can see, the distinct scope reading would be derived by the modified pied piping analysis due to von Stechow (1996) — unless it is blocked by an independent syntactic principle — by first pied piping the island to the lower scope position, extracting one indeterminate, moving the rest of the island to the matrix scope position, extracting the other indeterminate, and reconstructing the rest of the island.

32 See also Watanabe (1992a) for a summary of general questions about pied-piping, such as parametric differences between Japanese and English with respect to the availability of pied-piping and LF Subjacency constraint.
reconstruction of the rest of the islands in the way proposed by von Stechow (1996), which does result in a semantically interpretable structure.\footnote{The ill-formedness of overtly pied piped wh-islands in Basque (Ortiz de Urbina 1990), which for Richards (2000) is the same phenomenon as the semantic ill-formedness of covertly pied piped wh-islands in Japanese, would have to receive an independent explanation in the analysis pursued in this paper. See also Arregi (2003) for arguments for reconstruction in clausal pied piping in Basque.}

6. One Representative Previous Attempt

As has been shown, an advantage of the proposed Hamblin analysis of indeterminate phrases is that it provides a straightforward uniform analysis of the syntax-semantics mapping of the interrogative and universal constructions, and more strikingly, the locality pattern falls out automatically from the analysis. This is significant progress, given that no previous analysis has been successful in achieving these results without \textit{ad hoc} assumptions.

Below, we will look at one specific analysis due to von Stechow (1996) as a representative example of previous attempts for a uniform analysis. The choice is based on the fact that this is the only existing analysis that explicitly demonstrates how the appropriate semantics of both the interrogative and universal constructions is derived from their structures.

Von Stechow's (1996) uniform analysis builds upon Nishigauchi's (1990) analysis. It extends to the universal construction a common view on wh-questions that
indeterminate phrases undergo covert movement. This movement is sensitive to island constraints. The result is the following uniform structure, repeated from above.

\[(\text{34}) \quad \begin{array}{l}
\text{a. } \left[ \text{CP indeterminate }[[\ldots t \ldots] Q_{iu}] \right] \\
\text{b. } \left[ \text{MoP indeterminate }[[\ldots t \ldots] \forall_{mo}] \right]
\end{array}\]

As we saw above, when indeterminate phrases are embedded in islands — other than wh-islands, crucially — whole islands are moved by pied piping, thereby circumventing island violations. The Logical Form of the non-local universal sentence in (35)a, for example, thus looks like (35)b. As in Nishigauchi’s (1990) original proposal, the entire complex NP island has moved to the specifier position of MoP at the first covert level, where island constraints apply. Then at the next covert level, where island constraints do not apply, the indeterminate *dono gakusei-ga* 'which student' has been extracted out of the island, and the rest of the island has been syntactically reconstructed.

\[(\text{35}) \quad \begin{array}{l}
\text{a. } \left[ \text{[Dono gakusei-ga syootaisita] sensei-mo} \right. \odot \text{dotta.} \\
\text{which student-Nom invited teacher-MO danced} \\
\text{'}For every student x, the teacher(s) that x had invited danced.'}
\text{b. } \left[ \text{MoP which student }[[\text{NP the teachers that t had invited]} m0] \right] [\text{VP danced}]
\end{array}\]

To derive from the LF in (35)b the appropriate interpretation of the sentence according to the embedded restrictor view, namely, 'For every student x, the teacher(s) that x had invited danced', at least two stipulations are added.
First, since *mo* first combines with part of its scope, rather than with its restrictor, a non-traditional lexical semantics for the universal quantifier is assumed as in (36).\(^{34}\)

\[(36) \; \text{mo:} \; \lambda P \lambda Q \forall x [Q(x) \to P(x)]\]

Secondly, the first argument of *mo* in (35)b is only a part of its scope, and the VP denotation is the other part of the scope. In order for the denotation of the VP to end up as part of *mo*’s scope, a special mechanism is necessary. Such a mechanism can be crafted, as von Stechow (1996) shows, but it is a technical one, with *ad hoc* assumptions.

Von Stechow (1996) proposes what he calls the "inverse linking mechanism". (37)a is his informal description of the mechanism (p. 92), with minor modifications added so that it fits our example (35). In (37)b, a much simplified LF is provided based on (62) in von Stechow (p. 93).\(^{35}\)

\[(37) \; \text{a.} \; \lambda Q \; \forall \text{[MoP every student } x, \text{ the teachers that } x \text{ had invited } Q] \; \text{(danced)}
\]

\[= \; \text{For every student } x, \text{ the teachers that } x \text{ had invited danced}\]

\[b. \; 2 \; \text{[MoP which student } [1[\text{NP the teachers } t_i \text{ had invited } Q_j]] \text{ mo] } \text{(VP danced)}\]

\(^{34}\) Further, (36) should be generalized so that it accommodates the occurrence of multiple indeterminate phrases in *mo*’s scope, as we saw in sections 2.3 and 4.2.

\(^{35}\) See von Stechow (1996) for details. I do not review all the assumptions made in his analysis here – for example, the non-standard positioning of the binder index 1 in (37)b.
A silent predicate Q of type <e,t> is generated before NP combines with mo, and its index is abstracted over at the point where MoP combines with VP. The effect of this is that the VP denotation, which is the other half of mo's scope, is successfully put into the position where Q is generated.

Silent predicates of this sort have not been attested elsewhere in the Japanese grammar. It must be stipulated that they are only generated as a sister of NP that combines with mo in the universal construction. Furthermore, a stipulation must be added requiring that the property variable be lambda-abstracted at the right point, namely, immediately before VP is encountered. This is necessary in order to assure that the right VP denotation ends up in the position of the silent predicate, rather than, say, some other higher VP denotation in the higher clause.\(^3\)

In summary, the attempt at a uniform analysis based on the extension of the standard LF wh-movement analysis to the universal construction is not successful. In particular, it relies on ad hoc stipulations and technical mechanisms that are not motivated in other parts of the grammar.\(^3\) Recall that the Hamblin analysis, on the other hand, \(^3\)

\(^{36}\) Another possibility is that the structure in (37)b results from VP raising from the position of Q, even though it is not explicitly presented as such in von Stechow (1996). As far as I am aware, this type of VP raising has not been attested in Japanese either.\(^3\)

\(^{37}\) Like von Stechow (1996), Takahashi (2002) adopts the embedded restrictor view of the non-local universal construction, and argues against the unselective binding analysis by Nishigauchi (1990). It is not clear, however, how the assumed interpretation based on the embedded restrictor view is derived from the proposed structure, in which mo has overtly moved away from the position of its restrictor.
hand, derives the apparent wh-island effects, while doing away with the whole mechanism of covert pied-piping of islands, as well as subsequent wh-extraction out of pied-piped islands.

7. Conclusion

This paper has shown that a Hamblin analysis of Japanese indeterminate phrases makes possible a very simple uniform account of the syntax-semantics mapping of the interrogative and universal constructions. The new analysis involves no movement and thus offers a switch of perspective on the long-standing island puzzle. The lack of Complex NP and Adjunct island effects is expected in this analysis, and the wh-island effect follows directly from the way in which indeterminate phrases are interpreted and associated with particles.

Previous research on indeterminate phrases has primarily focused on those in an interrogative context, and tried to extend their analysis to the universal context. However, as long as the syntax of wh-questions in Japanese is modeled after an overt movement language like English, as has been done standardly, questions about their semantics or syntax-semantics mapping that are specific to Japanese do not arise. This is because one can expect that a plausible analysis of English wh-questions would take care of the Japanese cases. This paper has shown that examining the universal construction, to which there is no direct counterpart in English, provides a new perspective on the nature of association between indeterminate phrases and particles, one that would have been overlooked otherwise.
Many relevant issues were not discussed in the paper. One of them is the cross-categorial nature of the particle *mo*. Though I have focused on cases where *mo* is attached to a nominal element, it can also be attached to PPs and clausal elements including comparative *than*-phrases (Kuroda 1965, Nishigauchi 1990, Shimoyama 1999, 2001). Thus quantification over individuals is just one case of *mo*-quantification, and the semantics of *mo* should be generalized to reflect its cross-categoriality.

One of the many questions left open in this paper is whether the proposed analysis extends to other environments in which indeterminate phrases are found, listed in table (5). Similarly, there is a question as to whether the proposed analysis may extend to languages other than Japanese, given that indeterminate phrases are not uncommon cross-linguistically (Haskelmath 1997). First positive consequences of adopting a Hamblin analysis for free choice indefinites (*irgend*-) in German are presented in Kratzer and Shimoyama (2002) and Kratzer (2006). Needless to say, more cross-linguistic examination is necessary on properties of indeterminate phrases in various environments.

**Appendix: Notes on Bare NP Interpretations in the Universal Construction**

Though the question of how the semantic variability in the interpretation of bare NPs should be captured in general is independent of the main concern of this paper, the occurrence of bare NPs in the non-local universal construction necessarily affects the overall interpretation of the construction. The purpose of this appendix is to briefly illustrate some aspects of the universal construction that are affected by interpretations of bare NPs that were not introduced in the main text.
1. Definite Interpretations and the Definedness of Sets of Alternatives

Definite singular or plural interpretations of bare NPs in the non-local universal construction seem to affect the size of the domain for *mo*. In particular, the set of alternatives that serve as the domain for *mo* can be smaller than what might be expected in those cases. Suppose that there are six students (student 1 - student 6) and that all of them except for student 6 turned in their homework assignments. All five assignments that were turned in got an A. In this scenario, sentence (38), repeated from above, is judged to be true. How does this come about? The set of alternatives denoted by the complex NP in (38) should look like (39).

(38)  [[Dono gakusei-ga teisyutusita] syukudai]-mo yuu-datta.
      which student-Nom submitted homework assignment-MO A-was

      'Every homework assignment that a student had handed in got an A.'

(39)  {ty[homework assignment(y) & submit(y)(student1)], ty[homework assignment(y) & submit(y)(student2)], ........., ty[homework assignment(y) & submit(y)(student6)]}

Assuming that a unique individual that is a homework assignment submitted by some student or other is only defined on a singleton set, the last member of the set in (39), *ty*[homework assignment(y) & submit(y)(student6)], is not defined in the scenario described above. In order for the set of alternatives that serves as a domain for *mo* to be well-defined, we need to look at a smaller set, namely, the set in (39) minus the last member.
It seems that what is involved is accommodation of an existence presupposition that there is a homework assignment that a given student submitted. I simply assume here that this presupposition is coming from whatever is responsible for the definite-like interpretation of the bare NP *syukudai* 'homework assignment', while leaving open the important question of how the definite-like interpretation is derived.\(^{38}\) In particular, I am by no means committed to a view that there is a silent determiner similar to English *the* in Japanese.

Note that if we replace the indeterminate phrase *dono gakusei* 'which student' in (38) with *Taro* and *mo* with *ga* 'Nom', and make it into a simple, non-universal sentence, it is felt to presuppose that there is a homework assignment that Taro had handed in. Thus the issue here is not specific to the universal construction, but is a more general one concerning the interpretation of bare NPs, and is admittedly an intricate and difficult one. Factors such as the size of the modifiers and the choice of main predicates subtly influence the interpretation of bare NPs.

2. Weak Indefinite Interpretation

We have seen above that the definite-like interpretation of bare NPs gives rise to a narrowing of the set of alternatives. One would then expect that non-definite interpretations of bare NPs should correlate with a lack of narrowing of the set of

\(^{38}\) A similar situation arises for sentences like *Whose dog is barking?* under Hamblin's semantics of wh-phrases as sets of alternatives, as brought to my attention by Angelika Kratzer (p.c.). There must be special provisions for undefinedness for these kinds of cases generally.
alternatives. Even though the facts are not as clear as we want them to be, due to the lack of overt definite/indefinite markings in Japanese, the following patterns suggest that there is indeed a correlation between bare NP interpretations and a narrowing of the set of alternatives.

Let's first consider existential sentences with the verb *iru* 'be/exist'. The example in (40) contains a simple pre-nominal modifier, rather than a relative clause. If you hear this sentence out of the blue, the subject DP is most likely to receive indefinite interpretation.

(40) Kono daigaku-ni-wa [New York-syuu syussin-no gakusei]-ga iru.

This university-at-wa New York-state from-Gen student-Nom exist

'There is/are a student/students from New York state at this university.'

If we change *New York-syuu* 'New York state' to the indeterminate *dono/nani syuu* 'which/what state' as in (41), the sentence asserts that there are students from every state at this university.

(41) Kono daigaku-ni-wa [dono/nani syuu syussin-no gakusei]-mo iru.

this university-at-wa which/what-state from-Gen student-MO exist

'For every state x, there is a student/students from x at this university.'

---

39 Given the right context, the subject can be interpreted definitely, for example as 'The student from New York (we talked about before) is at this university.'
The effect of domain narrowing is not observed, indicating that the effect indeed comes from the definite-like interpretation of bare NPs.

Unlike in the sentence with *iru* 'be/exist' in (40), the same subject DP in the following sentence easily allows both definite and indefinite interpretations.

(42)  *[New York-syuu syussin-no gakusei]-ga Texas-no syuuka-o utatta.*

    New York-state from-Gen student-Nom Texas-Gen state.song-Acc sang

    'A student/students/the student(s) from New York sang the Texas state song.'

Correspondingly, example (43) is ambiguous with respect to the interpretation of the bare NP, as indicated in the translation.

(43)  *[Dono/nani syuu syussin-no gakusei]-mo Texas-no syuuka-o utatta.*

    which/what state from-Gen student-MO Texas-Gen state.song-Acc sang

    'For every state x, a student/students/the student(s) from x sang the Texas state song.'

The definite singular or plural interpretation of the bare NP may result in a narrowed domain, so that we only look at those states that were represented by students attending some ceremony, for example. The indefinite singular or plural interpretation of the bare NP, on the other hand, results in the interpretation of the sentence where it is claimed that from every state, there is/are a student/students from that state who sang the Texas state
This interpretation seems easier to obtain when phonological stress is placed on the indeterminate dono/nani syuu 'which/what state'.

The underlined phrase in (i) consists of indeterminate nan 'what' and an appropriate classifier for houses, ken/gen. The set of alternatives for nan 'what' here is a set of natural numbers. As in (41) above, the choice of the main predicate is supposed to induce an indefinite interpretation of sensei 'teacher'. Unlike (41), however, (i) is pragmatically anomalous.

(i) #Kono daigaku-ni-wa [[ie-o nan-gen motteiru] sensei]-mo iru rasii.
   this university-at-WA house-Acc what-Cl own teacher-MO exist I.hear
   'I hear that for every number n, there is a teacher/teachers who own(s) n houses at this university.'

The pragmatic anomaly is expected. Since the set of natural numbers is infinite, the set of alternatives that serves as the domain for universal quantification also ends up infinite.

Note that the same mo-phrase is perfectly usable in (ii), in which the definite interpretation of sensei 'teacher' supposedly restricts the domain for mo quantification.

(ii) [[ie-o nan-gen motteiru] sensei]-mo zeikin-nituite monku-o itta.
   house-Acc what-Cl own teacher-MO tax-about complaint-Acc said
   'For every number n, the teacher(s) who own(s) n houses complained about the tax.'

Note also that when mo occurs locally as in nan-gen-mo 'what-Cl-MO', the mo-phrase is interpreted as 'many'.
3. Partitive or Strong Indefinite Interpretations

As pointed out by Ohno (1989), 'floated' numeral quantifiers can occur in the non-local universal construction, associated with bare NPs inside the mo-phrase. In (44), for example, hito-ri-wa 'at least one' is associated with gakusei 'student(s)'.

(44) [[Nan-yoobi-ni toogoron-o totteiru] gakusei]-mo hito-ri-wa
what-day.of.week-on syntax-Acc are.taking student-MO one-Cl-WA
paatii-ni kiteita.
party-to had.come

'For every day x of the week, at least one of the students who are taking syntax on x was at the party.'

Let's suppose that three different syntax sections are offered on Wednesday, Thursday and Friday. The sentence can be uttered truthfully if at least one of the students out of each of the three syntax sections had been at the party. One could derive this kind of partitive (or strong indefinite) interpretation by treating the numeral quantifier hito-ri-wa 'at least one' as a kind of VP modifier (Dowty and Brodie 1984, Fukushima 1991, 1993).

Though it may require some help from the context, example (44) seems to allow a partitive interpretation even without the numeral quantifier hito-ri-wa 'at least one'. We might assume a covert counterpart of the numeral quantifier hito-ri-wa 'at least one', or alternatively, we might say that the existential part comes from the verb (see Carlson 1977 and Chierchia 1998). In any case, more research on bare NP interpretations in simple sentences is necessary, independently of the universal construction.
Many other general issues regarding bare NP interpretation in simple sentences need to be left open for future research. One question is how indefinite interpretation should be derived. If the existential quantifier came with the bare NP in general, one would have to say that in the non-local universal construction, the set of alternatives is the set of generalized quantifier type denotations, which is then universally quantified over by \( mo \). For example, the phrase that combines with \( mo \) in (45)a would denote the set in (45)b.

(45) a. \([\text{dono/nani syuu syussin-no gakusei}]\text{-mo}\)

\[ \text{which/what-state from-Gen student-MO} \]

b. \( \{ \lambda P \exists x[\text{student from } y(x) \& P(x)]; \text{state}(y) \} \)

This would be an unattractive option, unless quantification over generalized quantifier type denotations is attested elsewhere.\(^{41}\)

Quantification over generalized quantifier denotations in (45) may be avoided if it turns out that indefinite interpretation of bare NPs in Japanese is best described as

\(^{41}\) Despite the cross-categorial nature of \( mo \), the semantic types of objects that \( mo \) can quantify over should still be restricted. Observation made in Tancredi and Yamashina (2002) that strong quantifiers do not sound good as the head of the relative clause in the non-local universal construction points toward the same conclusion. Note that this kind of restriction is harder to make sense of in the embedded restrictor view.
involving an empty determiner position that is interpreted as a choice function.\textsuperscript{42} Then \textit{mo} in (45)a would quantify over the set of individuals \(\{f(\text{student from } y): \text{state}(y)\}\), rather than the set of generalized quantifier type denotations.

References


\textsuperscript{42} This possibility was brought to my attention by Angelika Kratzer (p.c.). See, for example, Reinhart (1997), Winter (1997), Kratzer (1998), Matthewson (1999) and Kim (2002).


