
Intervention Effects and (Bare) Indeterminates*

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1 Intervention Effects of Indeterminates

In Japanese, indeterminates like *dare* ‘who’ give rise to various interpretations depending on a particle that they appear with, as exemplified in question in (1a) and universal quantification in (1b) (Kuroda 1965, among others).¹

- (1) a. [Dare-ga ki-ta *(**ka**)] wakara-na-i.
 who-Nom come-Past KA know-Neg-Pres
 ‘I don’t know who came.’
- b. [[Dare-ga yon-da] kyaku]*(-**mo**) ki-ta.
 who-Nom invite-Past guest-MO come-Past
 ‘For every person x, the guest(s) that x invited came.’

* We would like to thank Chris Davis, Tomohiro Fujii, Sabine Iatridou, Ikumi Imani, Yusuke Kubota, Shigeru Miyagawa, Osamu Sawada, Satoshi Tomioka, and the audience of the 27th Japanese/Korean Linguistics for their valuable comments and suggestions. This research has been funded by the JSPS Grant-in-Aid for Scientific Research (C) (No. 16K02645), to which the second author is grateful.

¹In addition to (1), indeterminates may be interpreted as an existential quantifier in (i), a negative polarity item in (ii), and a free choice item in (iii).

- (i) Dare*(-**ka**)-ga ki-ta. (ii) Dare*(-**mo**) ko-nakat-ta. (iii) Dare*(-**demo**) kite-ii.
 who-KA-Nom come-Past who-MO come-Neg-Past who-DEMO come-may
 ‘Someone came.’ ‘No one came.’ ‘Anyone can come.’

Name of Edited Volume.

Miriam Butt and Tracy King (eds.).

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Shimoyama (2001, 2006) and Kratzer & Shimoyama (2002) present a Hamblin analysis, while Takahashi (2002) proposes a determiner-raising analysis, of indeterminates. In their Hamblin analysis, indeterminates introduce sets of alternatives that keep expanding until they meet an operator that selects them. In Takahashi's analysis, an indeterminate and a particle (*ka* or *mo*) are base-generated as a unit, and the latter undergoes movement to a surface position.

In both analyses, two important predictions follow: It is expected that indeterminates occur in the scope of *ka* or *mo*, and that they associate with the closest *ka* or *mo*.² The latter is viewed as an intervention effect in (2), where the indeterminate is unable to associate with *ka* or *mo* at a distance due to the presence of an intervening *ka* or *mo*.

(2) * [... [... [... indeterminate ...] ka/mo ...] ka/mo ...]

Example (3) shows that an indeterminate must be c-commanded by *ka* or *mo*, as Harada (1972) originally observed for a *wh*-question (see Takahashi 2002). Example (3) is ungrammatical because the particle *mo* attached to the object *Taro* is unable to associate with the indeterminate within the subject.

(3) * [[Dare-ga yon-da] kyaku]-ga Taro-**mo** home-ta.
 who-Nom invite-Past guest-Nom Taro-MO praise-Past
 'For every person x, the guest(s) that x invited praised Taro.'

The following example from Nishigauchi (1990: 164) shows that an indeterminate obeys locality: (4) lacks the reading in (4a) where *dare* associates with the universal *mo* due to the intervening particle *ka*. The only reading available in (4) is where the indeterminate *dare* associates with *ka*, and *mo* is interpreted as an additive particle.³

(4) Intervention in the universal quantification
 [[[Dare-ga kai-ta **ka**] Mary-ga siritagattei-ru]
 who-Nom wrote-Past KA Mary-Nom know.want-Pres
 tegami]-ni]-**mo** John-ga henzi-o kai-ta.
 letter-Dat-MO John-Nom reply-Acc write-Past

²We say that an indeterminate "associates" with a particle when its interpretation is determined by the particle.

³The additive particle *mo* does not require the presence of indeterminates, as in (i).

(i) [[Taro-ga yon-da] kyaku]-**mo** ki-ta.
 Taro-Nom invite-Past guest-MO come-Past
 '(lit.) Also the guest(s) that Taro invited came.'

- a. *‘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.’⁴
- b. ‘Also to the letter such that Mary wants to know who wrote it, John wrote a reply.’

We now turn our attention to so-called unconditionals (or concessive conditionals), such as (5). When an indeterminate appears in the unconditional clause, as in (5a), we obtain a universal-like interpretation (cf. Haspelmath & König 1998). In contrast, when there is no indeterminate present, as in (5b), the reading available is analogous to an alternative unconditional in English of the form *whether or not* ...⁵

- (5) a. [Dare-ga ki-te-**mo**] Jiro-wa ki-ni si-na-i.
 who-Nom come-Cond-MO Jiro-Top matter-Dat do-Neg-Pres
 ‘Whoever comes, Jiro wouldn’t care.’
- b. [Taro-ga ki-te-**mo**] Jiro-wa ki-ni si-na-i.
 Taro-Nom come-Cond-MO Jiro-Top matter-Dat do-Neg-Pres
 ‘Whether or not Taro comes, Jiro wouldn’t care.’

On the surface, the configuration in (6) is like the one in (4); the indeterminate is in an embedded question within the unconditional clause, and *mo* appears at a distance.

- (6) Intervention in the unconditional
 [Taro-ga [dare-ga kuru **ka**] kii-te-**mo**]
 Taro-Nom who-Nom come KA ask-Cond-MO
 Jiro-wa ki-ni si-na-i.
 Jiro-Top matter-Dat do-Neg-Pres
 a. *‘Whoever the person x is such that Taro asks whether x comes, Jiro wouldn’t care.’
 b. ‘Whether or not Taro asks who comes, Jiro wouldn’t care.’

(6) lacks the universal-like reading in (6a); rather, it is interpreted as an alternative unconditional, as in (6b). In particular, the indeterminate associates with *ka*, and the unconditional clause is interpreted as if there is no indeterminate, just like in (5b). We might as well conclude then that in both (4) and (6), the association of the indeterminate with *mo* is intervened by *ka*.

However, in our earlier work (Nakanishi & Hiraiwa 2019, and Hiraiwa & Nakanishi 2020), we argued that *mo* in unconditionals like (4) does not

⁴The paraphrase in (4a) is taken from Shimoyama (2006: fn. 9).

⁵(5b) also has the reading that corresponds to *even if* conditional (*even if Taro comes, ...*).

associate with an indeterminate, unlike *mo* in universal quantification, but rather with a covert Q-operator (see section 2). Thus, the intervention effects in (4) and (6) are not completely parallel. However, in both cases, the intervention effect is caused by the same intervening element. We explore both semantic and syntactic approaches to intervention (Shimoyama 2001, 2006, Rawlins 2008, 2013, and Takahashi 2002), and show along the way that they all suffer from some empirical problems. We propose an alternative syntactic analysis, demonstrating that it is capable of explaining various examples of intervention, including novel examples with unconditionals. Crucially, we show that intervention effects can be found even when there is no overt intervening operator such as *ka* or *mo* (contra Shimoyama 2001, 2006) or intervening Q-verb (contra Rawlins 2008, 2013).

2 Semantics of Bare Indeterminates in Unconditionals

It has been generally assumed that indeterminates must co-occur with *ka* or (*de*)*mo*. However, in Nakanishi & Hiraiwa (2019) and Hiraiwa & Nakanishi (2020), we showed that indeterminates can appear “bare” without *ka* or (*de*)*mo* in unconditional clauses. Besides the form with *mo* exemplified in (5) and (6) above, there are other forms of unconditionals, where the overt presence of *ka* or (*de*)*mo* leads to ungrammaticality, as in (7).

- (7) [Dare-ga {ko-yooga/ki-tatte/kuru-nisitate/kuru-nisiro/
 who-Nom come-Subj/come-Cond/come-Cond/come-Subj/
 kuru-niseyo/kuru-nodeare}(-*(**de**)**mo**/***ka**)], Taro-wa yorokob-u.⁶
 come-Subj/come-Subj-(DE)MO/KA Taro-Top please-Pres
 ‘Whoever comes, T will be pleased.’ (Hiraiwa & Nakanishi 2020)

Examples of this kind are also noted by Shimoyama (2006: fn. 27), but they are simply presented as an exception without any explanation.

In Nakanishi & Hiraiwa (2019) and Hiraiwa & Nakanishi (2020), we presented a Hamblin analysis of Japanese unconditionals based on Rawlins’s (2008, 2013) analysis of English unconditionals such as (8).

- (8) Whatever AI has, he should stay home. (Rawlins 2013: 146)

⁶The verbs in (7) are glossed either as subjunctive or conditional. However, we do not have a strong commitment to the distinction between the two as the task is not straightforward. We simply point out here that a subjunctive form is also used in unconditionals in English.

(i) a. Rain or shine, we’re having our party outside today. = Whether it rains or shines, ...
 b. Come what may, we will go ahead with our plan. = Whatever may happen, ...
 (Quirk et al. 1985: 156, 1101–2)

In essence, under Rawlins's analysis, both unconditional clauses and *if*-clauses are conditionals that provide domain restrictions in a pointwise manner to an operator in the main clause such as a modal (cf. Kratzer 1981, 1986). While *if*-conditional clauses provide a single restriction, unconditional clauses provide a set of restrictions. This is so because an unconditional clause is syntactically interrogative, which means that semantically it denotes a set of propositions (Rawlins 2013: section 3.1).

In a Hamblin semantics, *wh*-items introduce alternative sets of individuals, as in (9a) (Hamblin 1973). Abstracting away from the details, the denotation of the unconditional clause in (8) is a set of propositions of the form 'Al has a cold', 'Al has the flu', etc., as in (9b). In Rawlins's analysis, the unconditional clause is interrogative, hence the Q-operator is syntactically present within the unconditional clause, as in (9c). Rawlins assumes that the Q-operator only lets alternatives through, as in (10).⁷ We will discuss in section 3 whether (10) is an appropriate denotation for the Q-operator.

- (9) a. $\llbracket \text{what} \rrbracket^{w,g} = \llbracket \text{whatever} \rrbracket^{w,g} = \{x \in D_e : \text{non-human}(x)(w)\}$ ⁸
 b. $\llbracket \text{whatever Al has} \rrbracket^{w,g}$
 $= \{p : \exists x[\text{non-human}(x)(w) \ \& \ p = \lambda w'. \text{Al has } x \text{ in } w']\}$
 c. $\llbracket Q \rrbracket^{w,g} (\llbracket \text{whatever Al has} \rrbracket^{w,g}) = (10b)$

(10) $\llbracket Q\alpha \rrbracket^{w,g} = \llbracket \alpha \rrbracket^{w,g}$ (Kratzer & Shimoyama 2002: section 3)

Rawlins further argues that each alternative in (9c) provides a domain restriction to the modal in the main clause. Putting the details aside, the denotation of the entire unconditional construction is provided in (11), where each alternative has a conditional paraphrase.

- (11) $\{ \text{in all the closest worlds where Al has a cold, he stays home,}$
 $\text{in all the closest worlds where Al has the flu, he stays home, ... } \}$

(11) cannot be the final denotation of (8), however, because in Hamblin's system, a declarative sentence must denote a singleton set. Rawlins suggests that a default universal operator in (12) is inserted in the LF of an unconditional, as in (13) (see also Menéndez-Benito 2006). As a result, (8) denotes a singleton whose sole member is the conjunction of the propositions in (11).

(12) $\llbracket \forall \alpha \rrbracket^{w,g} = \{ \lambda w'. \forall p[p \in \llbracket \alpha \rrbracket^{w,g} \rightarrow p(w') = 1] \}$

⁷Rawlins (2013: section 2.4) later modifies the semantics of Q-operator, and claims that the Q-operator introduces two presuppositions (namely, exhaustivity and mutual exclusivity). We put aside these presuppositions as they are not crucial to the main argument of the paper.

⁸Rawlins initially presents the compositional analysis of unconditionals without considering the contribution of *-ever*. See Rawlins (2013: section 4.3) for the meaning of *-ever*, where he claims that it introduces an ignorance presupposition.

$$(13) [\forall [[Q [\dots wh- \dots]] [\text{main clause}]]]$$

In Nakanishi & Hiraiwa (2019) and Hiraiwa & Nakanishi (2020), we also showed that an unconditional clause in Japanese is syntactically an interrogative.⁹ Then it is easy to see how Rawlins’s analysis extends to Japanese. Following Shimoyama’s (2001, 2006) Hamblin analysis, we assume that indeterminates denote sets of individuals, as in (14a) (see also Hagstrom 1998). In a Hamblin semantics, most of other lexical items denote singleton sets; for instance, the verb *kuru* ‘come’ (or its subjunctive form *ko-yooga*; cf. footnote 6) denotes a singleton set ‘x comes’, as in (14b). The two are combined by applying functional application in a pointwise manner. As a result, we obtain a set of propositions of the form ‘a comes’, ‘b comes’, etc., as in (14c). Since the unconditional clause is a question, the covert Q-operator takes scope over the clause, as in (14d). Assuming that the denotation of the Q-operator is (10), the denotation of the unconditional clause is the same as (14c).

- (14) a. $\llbracket \text{dare} \rrbracket^{w,g} = \{x \in D_e : \text{human}(x)(w)\}$
 b. $\llbracket \text{ko-yooga} \rrbracket^{w,g} = \{\lambda x \lambda w'. \text{come}(x)(w')\}$
 c. $\llbracket \text{dare-ga ko-yooga} \rrbracket^{w,g}$
 $= \{p : \exists x [\text{human}(x)(w) \ \& \ p = \lambda w'. \text{come}(x)(w')]\}$
 d. $\llbracket Q \rrbracket^{w,g} (\llbracket \text{dare-ga ko-yooga} \rrbracket^{w,g}) = (14c)$

Each proposition in (14d) provides a domain restriction to the main clause modal operator. The entire sentence combines with the universal operator in (12), yielding a singleton that contains the conjunction of the alternatives.

In sum, our previous work showed that the overt presence of *ka* or *(de)mo* is neither a necessary nor a sufficient condition for the use of indeterminates. Furthermore, we argued that indeterminates may associate with a covert operator, hence the existence of “bare” indeterminates.

3 Intervention Effects and Unconditionals

Having introduced our analysis of bare indeterminates in unconditionals, we now turn our attention to intervention effects. In section 3.1, we review Shimoyama’s (2001, 2006) semantic analysis of intervention. Then in section 3.2, we show that Rawlins’s (2008, 2013) analysis of unconditionals requires a departure from Shimoyama’s analysis. In section 3.3, we extend Rawlins’s analysis to novel examples of intervention in unconditionals. Section 3.4

⁹We provided two pieces of evidence for the interrogative view. First, the indeterminate *naze* ‘why’, which is only licensed in a question and under an existential construal, is also licit in unconditionals (see Hiraiwa and Nakanishi 2020 for actual examples). Second, the sentential disjunctive connective *soretomo* ‘or’, which can disjoin questions but not declaratives, can disjoin unconditional clauses (see again Hiraiwa and Nakanishi 2020).

examines Takahashi's (2002) syntactic analysis of intervention. Throughout this section, we show that each analysis has some shortcomings.

3.1 Shimoyama's Analysis of Intervention in Universal Quantification

Let us summarize Shimoyama's (2001, 2006) analysis of intervention in the universal quantification in (4), repeated as (15). The LF is provided in (16).

- (15) [[[[Dare-ga kai-ta **ka**] Mary-ga siritagattei-ru]
 who-Nom wrote-Past KA Mary-Nom know.want-Pres
 tegami]-ni]-**mo** John-ga henzi-o kai-ta.
 letter-Dat-MO John-Nom reply-Acc write-Past
 *'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.' (= (4))

- (16) *[... [... [... indeterminate ...] ka ...] mo ...]

On a Hamblin analysis, intervention effects naturally follow from how the system works. The alternatives introduced by the indeterminate keep expanding until they meet the first relevant operator. Shimoyama (2006) entertains the idea that *ka* and *mo* are the only lexical items that select Hamblin alternatives and return singletons, which predicts that an indeterminate must appear in the scope of *ka* or *mo* and that it must associate with the closest *ka* or *mo*. Her claim is motivated by the long-standing observation that indeterminates must co-occur with *ka* or *mo*.

To this end, among the two denotations of the Q-operator presented in (17), Shimoyama leans towards (17a), where *ka* returns a singleton set whose sole member is a question denotation (Groenendijk & Stokhof 1984).

- (17) a. $\llbracket Q\alpha \rrbracket^{w,g} = \{\lambda w'. \forall p[p \in \llbracket \alpha \rrbracket^{w,g} \rightarrow [p(w)=1 \leftrightarrow p(w')=1]]\}$
 b. $\llbracket Q\alpha \rrbracket^{w,g} = \llbracket \alpha \rrbracket^{w,g}$ (= (10)) (Kratzer & Shimoyama 2002)

Assuming the denotation in (17a), *ka* in (15) combines with the Hamblin alternatives and returns a singleton. Then there are no alternatives left for *mo* to combine with, hence the lack of the universal reading.¹⁰

However, there are problems with Shimoyama's analysis. For one thing, as clear from the examples of unconditionals, indeterminates can be used without *ka* or *mo*, which shows that the dependency between indeterminates and these particles is not mandatory. For another, as Shimoyama herself

¹⁰Shimoyama (2006: fn. 10, 29) suggests that the universal *mo* is lexically distinct from the additive *mo*. While the former is a Hamblin alternative-selecting function, the latter is not.

points out (2006: fn. 29), it is not empirically true that *ka* and *mo* always require the presence of indeterminates in its scope.

3.2 Rawlins's Analysis of Intervention in Universal Quantification

As shown in section 2, in Rawlins's (2008, 2013) analysis of unconditionals, the denotation of the Q-operator must be the alternative-passing function in (17b). However, under this view, we wrongly predict that in (15), the alternatives introduced by the indeterminate expand until they meet *mo*.

As a possible way out, Rawlins takes up on a possibility that Shimoyama (2006) mentions (fn. 24) and quickly dismisses (fn. 28): It is a question-embedding verb (Q-verb), rather than *ka*, that returns a singleton set. In the configuration in (18), which is like (16) except that the Q-verb is added, it is the Q-verb, not *ka*, that blocks the association with *mo*.

(18) *[... [... [... [... indeterminate ...] *ka*] Q-verb ...] *mo* ...]

Ka, whose denotation is (17b), lets through the alternatives introduced by the indeterminate, but the alternatives are caught by the Q-verb, leaving no alternatives for the universal *mo* to combine with (and thus *mo* is interpreted as the additive particle). In this way, the intervention effect can be explained even if the denotation of the Q-operator is a trivial one in (17b).

3.3 A Hamblin Analysis of Intervention in Unconditionals

We are now ready to revisit the intervention in the unconditional in (6), repeated in (19). The LF of the unconditional clause is given in (20).

(19) Taro-ga [dare-ga kur-u **ka**] {kii-te-**mo** /
Taro-Nom who-Nom come-Pres KA ask-Cond-MO /
ki-kooga} Jiro-wa ki-ni si-na-i.
ask-Subj Jiro-Top matter-Dat do-Neg-Pres
*‘Whoever the person x is such that Taro asks whether x comes, Jiro
wouldn’t care.’ (= (6))

(20) *[... [... [... [... indeterminate ...] *ka*] Q-verb ...] Q]¹¹

Rawlins's semantic analysis is capable of explaining the intervention effect here. Since the unconditional clause is an interrogative, a Q-operator is present at the position that scopes over the entire clause. The association between

¹¹Following Rawlins (2013), we assume that the Q-operator is syntactically a head, and thus the schematic structure here reflects the head parameter.

the indeterminate and this Q-operator is intervened by the Q-verb, not by *ka*. Assuming that *ka* is a trivial function in (17b), it lets through the alternatives introduced by the indeterminate, but the alternatives are caught by the Q-verb, which returns a singleton set.

Because of this intervention effect, the unconditional clause in (19) does not denote a set of alternatives introduced by the indeterminate. Rather, it denotes a set consisting of two propositions, positive and negative propositions (see also Karttunen 1977, Groenendijk & Stokhof 1984). More specifically, the unconditional clause in (19) denotes a set that contains the propositions ‘Taro asks who comes’ and ‘Taro doesn’t ask who comes’. Following the same step as the one discussed in section 2, the truth conditions of (20) are that Jiro wouldn’t mind if Taro asks who comes and Jiro wouldn’t mind if Taro doesn’t ask who comes. This is exactly what (19) expresses (see (6b)).

The current analysis predicts that there should be no intervention effects when a Q-verb is absent. This prediction is borne out: When the Q-verb *kiku* ‘ask’ in (19) is replaced with a regular embedding verb such as *iu* ‘say’, as in (21), we obtain the reading that is unavailable in (19). This is expected under the present analysis; since there is no intervener, the alternatives introduced by the indeterminate associates with the Q-operator, which lets through the alternatives, and each alternative provides a domain restriction to the main clause modal operator.

- (21) [Taro-ga [dare-ga kur-u to] {it-te-**mo** /
Taro-Nom who-Nom come-Pres Comp {say-Cond-MO /
i-ooga}] Jiro-wa ki-ni si-na-i.
say-Subj} Jiro-Top matter-Dat do-Neg-Pres
‘Whoever the person x is such that Taro says that x comes, Jiro
wouldn’t care.’

However, the current analysis faces a serious challenge when confronted with examples such as (22), where the same intervention effect as (19) is observed without any Q-verb.

- (22) [[Dare-ga saisyoni ik-u **ka** toiu] mondai-o Taro-ga
who-Nom first go-Pres KA C question-Acc Taro-Nom
ronzi-yooga], watasi-ni-wa kankee na-i.
discuss-Subj 1Sg-Dat-Top matter Neg-Pres
a. *‘Whoever the person x is such that Taro discusses a question of
whether x will go first, I don’t care.’
b. ‘Whether or not Taro discusses a question of who will go first,
I don’t care.’

Assuming that *ka* in (22) is an alternative-passing function given in (17b), the alternatives introduced by the indeterminate should expand until they meet the Q-operator that scopes over the unconditional clause. This wrongly predicts that (22) has the interpretation in (22a). Rather, the only reading available is (22b), the reading that obtains if *ka* is taken as an intervener.

Example (22) is contrasted with (23), where *ka* as well as a Q-verb is absent. As expected, in (23) the indeterminate associates with the covert Q-operator of the unconditional clause.

- (23) [[Dare-ga saisyoni ik-u toiu] kanoosei-o Taro-ga
 who-Nom first go-Pres C possibility-Acc Taro-Nom
 ronzi-yooga], watasi-ni-wa kankee na-i.
 discuss-Subj 1Sg-Dat-Top matter Neg-Pres
 ‘Whoever the person *x* is such that Taro discusses a possibility that *x* will go first, I don’t care.’

The contrast here suggests that *ka* is an intervener after all.

Taking stock, in section 3.1, we introduced Shimoyama’s idea that *ka* denotes a function in (17a) that returns singletons, and pointed out some problems of this view. Since Shimoyama does not provide any independent argument for (17a), there is no strong reason to believe that the denotation of the Q-operator must be (17a). If Rawlins’s analysis of unconditionals is on the right track, it serves as a piece of evidence for choosing the alternative-passing function in (17b) over (17a). Moreover, our analysis of unconditionals in Japanese provides supporting evidence for (17b). As shown in sections 3.2 and 3.3, if the denotation of the Q-operator is (17b), we need to assume that in examples such as (15) and (19), the true intervener is a Q-verb, not *ka*. However, this analysis is unable to account for example (22), where the intervention effect is observed in the absence of a Q-verb.

In order to keep the Hamblin analysis of unconditionals intact, we maintain Rawlins’s assumption that the Q-operator is alternative-passing, as in (17b). As a way of explaining problematic examples of intervention such as (22), we explore a syntactic analysis of intervention, to which we turn next.

3.4 Takahashi’s Analysis of Intervention in Universal Quantification

Takahashi (2002) claims that a determiner is base-generated in the position where it selects an indeterminate and that it moves to a surface position, namely, to D. The derivation of example (24) is illustrated in (25).

- (24) [[Dare-ga yon-da] kyaku]*(-**mo**) ki-ta.
 who-Nom invite-Past guest-MO come-Past
 ‘For every person x, the guest(s) that x invited came.’ (= (1b))

- (25) [DP ... [NP ... [CP ... indeterminate $t_{mo...}$] NP] D *mo* ...]

Under this determiner-raising analysis, (26) is ungrammatical because the association of the indeterminate in RC₁ with *mo* is intervened by *ka*. The configuration in (27) violates relativized minimality (Rizzi 1990) / Minimal Link Condition (Chomsky 1995).

- (26) *[[RC₂[[RC₁ Dare-o hihan-si-ta] dare-**ka**]-o taiho-si-ta]
 who-Acc criticism-do-Past who-KA-Acc arrest-do-Past
 keikan]-**mo** basse-rare-ta.
 police.man-MO punish-Pass-Past
 ‘(Lit.) Every policeman that arrested someone that criticized a person was punished.’ (Takahashi 2002: 591)

- (27) *[[... [... [CP ... indet $t_{mo...}$] indet-D *ka*] ... D *mo* ...]
 [F] [F] [F]

We argue, however, that the ungrammaticality of (26) is not due to intervention, but due to some syntactic reason. If, as Takahashi assumes, the particle *ka* is in a position that c-commands the indeterminate *dare*, we would expect (26) to be grammatical under the reading where the particle *mo* is interpreted as additive. Contrary to this prediction, (26) is outright ungrammatical.

Example (28) serves as a piece of supporting evidence for our claim. This example is ungrammatical even though there is no intervention involved, which demonstrates that a particle directly attached to a certain indeterminate cannot associate with another indeterminate.

- (28) *[[RC₂[[RC₁ Dare-o hihan-si-ta] dare-**mo**]-o taiho-si-ta]
 who-Acc criticism-do-Past who-MO-Acc arrest-do-Past
 keikan]-ga basse-rare-ta.
 police.man-Nom punish-Pass-Past
 ‘(Lit.) Every policeman that arrested everyone that criticized a person was punished.’

Thus, we conclude that the ungrammaticality of (26) has nothing to do with intervention effects.

Before ending this section, we mention some additional questions raised by the determiner-raising analysis. First, it is not entirely clear whether the

particles *ka* and *mo* are determiners to begin with (see Watanabe 2006, Hiraiwa 2017). Second, as Takahashi himself admits, determiner-raising violates the head movement constraint in the sense that the head movement of *mo* in (25) crosses intermediate heads as well as the CP relative clause boundary, and it is also immune to islands, which is unexpected if D moves.

4 Toward a Proper Understanding of Intervention Effects

We have seen so far that both semantic and syntactic accounts of intervention effects have some problems. In this section, we propose an alternative syntactic account of intervention. Intervention effects in (4)/(15) and (6)/(19) are schematically represented as (29a) and (29b), respectively.

- (29) a. * [... [... [CP ... indeterminate] ... *ka* ...] ... *mo* ...]
 b. * [... [... [CP ... indeterminate] ... *ka* ...] ... Q ...]

We assume that the particles *mo*, *ka*, and its covert counterpart Q share some feature [F], as illustrated in (30).

- (30) *... indeterminate[F] ... X₁[F] ... X₂[F] (X = *ka*, *mo*, Q)

It follows that X₂ cannot associate with the indeterminate in the presence of the intervening X₁, which may be *ka*, *mo*, or Q. This in turn predicts that there are nine logically possible patterns of intervention effects; besides the two in (29), the seven patterns in (31) should be attested. In the following, we show that this prediction is borne out.

- (31) a. * [... [... [CP ... indeterminate] ... *ka* ...] ... *ka* ...]
 b. * [... [... [CP ... indeterminate] ... *mo* ...] ... *mo* ...]
 c. * [... [... [CP ... indeterminate] ... *mo* ...] ... *ka* ...]
 d. * [... [... [CP ... indeterminate] ... *mo* ...] ... Q ...]
 e. * [... [... [CP ... indeterminate] ... Q ...] ... *ka* ...]
 f. * [... [... [CP ... indeterminate] ... Q ...] ... *mo* ...]
 g. * [... [... [CP ... indeterminate] ... Q ...] ... Q ...]

The pattern in (31a) has been widely reported in the literature (Nishigauchi 1990: 30, Watanabe 1992: 263, and Saito 2017: 2, among others).

- (32) ??John-wa [Mary-ga nani-o kat-ta **ka** dooka]
 John-Top Mary-Nom what-Acc buy-Past KA how.KA
 Tom-ni tazune-ta no (desu **ka**)?
 Tom-Dat ask-Past C Cop KA
 ‘What did John ask Tom whether he bought?’
 (Watanabe 1992: 263, slightly modified)

The patterns in (31b) and (31c) are also found in the literature, as in (33) and (34), respectively (Shimoyama 2006: 146–147, for instance).

- (33) [[Dare-ga yon-da kyaku]-**mo** tabe-ta ryoori]-**mo** oisikat-ta.
 who-Nom invite-Past guest-MO eat-Past food-MO tasty-Past
 a. *the reading where the indeterminate associates with the lower *mo* as well as with the upper *mo* (unparaphrasable)
 b. ‘The food that, for every person x, the guest(s) that x had invited ate was also good.’
- (34) [Dare-ga yon-da kyaku]-**mo** ki-masita **ka**?
 who-Nom invite-Past guest-MO come-Past KA
 a. *the reading where the indeterminate associates with *mo* as well as with *ka* (unparaphrasable)
 b. ‘Did for every person x, the guest(s) that x invited come?’

The pattern in (33d) is a case where an indeterminate and *-mo* appear in an unconditional clause, as in (35).

- (35) [[Dare-ga yon-da kyaku]-**mo** ko-yooga] kankee na-i.
 who-Nom invite-Past guest-MO come-Subj matter Neg-Pres
 a. *the reading where the indeterminate associates with *mo* as well as with the covert Q-operator (unparaphrasable)
 b. ‘Whether or not for every person x, the guest(s) that x invited comes, I don’t care.’

The patterns in (31e)–(31g) are the cases where an indeterminate is in an unconditional clause, and another operator appears in a position that c-commands the unconditional clause, as in (36)–(38).

- (36) [Dare-ga ko-yooga] Taro-ni kankee arimas-u **ka**?
 who-Nom come-Subj Taro-Dat matter be-Pres KA
 a. *‘Who is the person x such that whether or not x comes matter to Taro?’
 b. ‘Whoever comes, does it matter to Taro?’
- (37) [[Dare-ga ko-yooga] ki-ni si-na-i] otoko]-**mo** kaet-ta.
 who-Nom come-Subj matter-Dat do-Neg-Pres man-MO leave-Past
 a. *‘For every person y, and for every man x, such that x doesn’t care whether y comes, x left.’
 b. ‘Also the man who doesn’t care whoever comes left.’
- (38) [[Dare-ga ko-yooga] Taro-ga okor-ooga]
 who-Nom come-Subj Taro-Nom get angry-Subj

watasi-ni-wa kankee na-i.
 1Sg-Dat-Top matter Neg-Pres

- a. *‘Whoever the person x is such that Taro gets angry whether or not x comes, I don’t care.’
 b. ‘Whether or not Taro gets angry whoever comes, I don’t care.’

All of these data show that indeterminates are subject to intervention effects and they can be explained by our feature-based minimality.

5 Conclusions

In this paper, we compared semantic and syntactic accounts of intervention effects, primarily basing ourselves on examples with bare indeterminates in unconditionals. We showed that existing semantic and syntactic accounts are not without problems, and proposed an alternative syntactic account. Another contribution here is to establish that intervention effects arise even when there is no overt particle *ka* or *mo*. It follows that the dependency between indeterminates and an overt operator is not compulsory, therefore corroborating our claim in Hiraiwa & Nakanishi (2019) and Nakanishi & Hiraiwa (2020) that the long-standing generalization that indeterminates require the presence of *ka* or *(de)mo* is unwarranted.

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