

Comparison of Japanese and Korean Nominal Coordination Structures*

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1 Introduction

Coordination poses interesting problems in linguistics, particularly in syntax and semantics. For example, when one conjoins more than one nominal with conjunction, how many conjunction elements or operators are necessary? Is one sufficient? Or is it one for every two nominals? Both cases are found in English, but, interestingly, some language requires the same number of conjunction elements as that of nominals, which is called coordinator doubling. Japanese and Korean are particularly informative because they have optional and obligatory doubling. What is more, certain coordinator particles (i.e., those which require obligatory doubling) have multiple functions. For example, a variety of quantifiers are generated when they attach to *wh*-elements, and they can also serve as additive particles. This paper aims to explicate the structures of nominal coordination (including two mechanisms of coordination doubling) in Japanese and Korean, and analyze the differences between the two languages. What is more, the paper will propose unified semantics for polysemous coordination particles following Morita (2002, 2005).

The present paper is organized as follows. Section 1 introduces examples of coordination in Japanese and Korean. Section 2 critically examines two kinds of approach to coordination doubling. Section 3 makes new proposals for the structure of coordination in Japanese and Korean, and explains the differences between the two languages. Section 4 first explains why phrases with *na* in Korean can mean disjunction or conjunction, and then presents how coordination particles semanti-

cally contribute to the generation of a variety of quantifiers. Section 5 concludes the paper.

Let us introduce a few terms for the present discussion. Consider the following coordination structure:

- (1) [DP A] and/or [DP B]

When two nominal phrases are coordinated as in (1), following Haspelmath (2007), I call them coordinands, but more specifically, conjuncts in the case of conjunction, and disjuncts in the case of disjunction. Moreover, *and* and *or* are called coordinators. Terms such as conjunction and disjunction are employed to refer to the whole phrase or the meaning.

In Korean, *hako* or *kwa* is employed to conjoin two nominals as in (2), whereas *(i)na*¹ is used for disjunction as in (3):

- (2) Ken- $\{\overline{\text{hako}}/\overline{\text{kwa}}\}$ Mary-ka kyelhonha.ess.ta. [K]
 -hako/kwa -Nom married
 ‘Ken and Mary got married.’ (collective reading)
 ‘Ken married someone and Mary married someone else.’
 (distributive reading)
- (3) Ken- $\overline{\text{ina}}$ Mary-ka kyelhonha.ess.ta. [K]
 -na -Nom married
 ‘Ken or Mary got married.’

In the case of conjunction with *hako* and *kwa*, both collective and distributive readings are possible. A similar contrast is observed in Japanese as follows:

- (4) Ken- $\{\overline{\text{to}}/\overline{\text{oyobi}}/\overline{\text{katu}}/\overline{\emptyset}\}$ Mary-ga booto-o mochiage.ta. [J]
 - to/oyobi/katu/∅ -Nom boat-Acc lifted
 ‘Ken and Mary lifted a boat together.’ (collective reading)
 ‘Ken lifted a boat and Mary lifted a boat.’ (distributive reading)

As is the case with *kwa/hako* in Korean, conjunctions such as *to*, *oyobi*, *katu*, and even a phonologically null element in Japanese allow both collective and distributive readings as in (4).²

employed to connect more than one coordinand as follows:

(8) Ken-*(to) Mary-*(to) kyelhonha.ess.ta. [K]

- to - to married

*‘Ken married someone and Mary married someone else.’ (***exhaustive**)

‘In addition to someone who got married, Ken and Mary married someone respectively.’ (non-exhaustive)

Neither the first nor the second *to* can be omitted in (8), which is in sharp contrast with another conjunction, *hako*, in Korean (cf. (6)). Moreover, like *mo* in Japanese (cf. (7)), *to* does not have collective readings. As will be discussed next, both *to* in Korean and *mo* in Japanese can be used even when there is only one coordinand, i.e. as an additive particle. Accordingly, the two conjunctions are very similar; however, there is a difference too. That is, Japanese *mo* allows exhaustive and non-exhaustive interpretations as in (7), whereas Korean *to* permits only non-exhaustive interpretations as in (8). For example, (7) can be uttered even when only Ken and Mary lifted a boat, while (8) cannot be uttered when only Ken and Mary married someone; in other words, there must be at least one more person who got married with someone other than Ken or Mary, i.e., non-exhaustive reading.

1.1.2 Disjunction Coordinator Doubling

Next, we turn to disjunction doubling. In Japanese, *ka* allows coordinator doubling, while *matawa* and *mosikuwa* do not as follows:

(9) Ken-ka Mary(-ka)-ga kita. [J]

-ka -ka-Nom came

‘Ken or Mary came.’

(10) Ken-matawa/moshikuwa Mary(-*matawa/*moshikuwa)-ga kita. [J]

-matawa/moshikuwa -matawa/moshikuwa-Nom came

‘Ken or Mary came.’

Another difference between *ka* and other disjunctions is omission of particles as follows:

(11) a. Ken*(-ka) Mary-ka John(-ka)-ga kita. [J]
 -ka -ka -ka-Nom came

b. Ken(-{matawa/moshikuwa}) Mary-{matawa/moshikuwa} John-ga kita. [J]

‘Ken (or) Mary or John came.’

Matawa and *mosikuwa* between nominals can be omitted except the one between the final two disjuncts as *or* in English as in (11)*b*, but *ka*’s between nominals are never omitted as in (11)*a*.

Next, we turn to Korean disjunction. Examine (12):

(12) Ken*(-ina) Mary*(-na) John(*-ina)-ka o.ass.ta. [K]
 -na -na -na-Nom came

‘Ken (or) Mary or John came.’

Na in Korean does not appear after the last disjunct unlike *ka* in Japanese, but the particle between nominals cannot be omitted like *ka*.

1.1.3 Single coordinands

Coming back to Japanese *mo* and Korean *to*, they are notable in that they have another function in addition to coordination. In other words, they also serve as additive particles as follows:⁵

(13) Ken-{to/*hako} o.ass.ta. [K]
 -{to/hako} came

‘Ken also came.’

(14) Ken-{mo/*to} kita. [J]
 -{mo/to} came

‘Ken also came.’

When *to* in Korean and *mo* in Japanese are used with a single coordinand, they mean only ‘also’; however, *hako* in Korean and *to* in Japanese, although they optionally allow coordination doubling, do not have such a function. The single use is limited to Korean *to* and Japanese *mo*, and disjunction does not have such use in either language as follows:

- (15) *Ken-na(-ka) o.ass.ta. [K]
 -or(-Nom) came
 ‘Ken or somebody came.’
- (16) *Ken-ka(-ga) kita. [J]
 -or(-Nom) came
 ‘Ken or somebody came.’

1.1.4 Interaction with WH-elements

Finally, *wh*-elements contribute to a variety of meanings together with some of the coordinators above. First, *wh*-elements with disjunction coordinator *ka* result in existential quantifiers in Japanese as follows:

- (17) *dare* ‘who’ + *ka* → ‘someone’ [J]
nani ‘what’ + *ka* → ‘something’
doko ‘where’ + *ka* → ‘somewhere’
 and so on.

However, *wh*-elements themselves can denote existential quantifiers in Korean as follows:

- (18) *nwukwu* → ‘who’, ‘someone’ [K]
mues → ‘what’, ‘something’
eti → ‘where’, ‘somewhere’
 and so on.

Thus, unlike Japanese, a disjunction coordinator, *na*, is unnecessary to make existential quantifiers in Korean. As a matter of fact, when a *wh*-element is followed by *na*, it means a universal quantifier or an NPI as follows:

- (19) *nwukwu* ‘who’ + *na* → ‘everyone’, ‘anyone’ [K]
mues ‘what’ + *na* → ‘anything’
eti ‘where’ + *na* → ‘everywhere’, ‘anywhere’
 and so on.

In contrast, *wh*-elements need conjunction coordinator *mo* to make universal or NPI interpretations in Japanese as follows:

- (20) *dare* ‘who’ + *mo* → ‘everyone’, ‘anyone’ [J]
nani ‘what’ + *mo* → ‘anything’
doko ‘where’ + *mo* → ‘everywhere’, ‘anywhere’
 and so on.

Interestingly, interaction between a *wh*-element and Korean conjunction *to* is not productive, and only *nwukwu-to* ‘anyone’ is available and it only represents an NPI, not a universal quantifier, unlike *mo* in Japanese (Haspelmath 1997), the reason for which will be discussed in section 4.

To summarize so far, coordinators such as *mo* and *ka* in Japanese and *to* and *na* in Korean present aspects of great interest in that they forbid omission of coordinators between nominals while they allow single conjunction and interaction with *wh*-elements. Nevertheless, there are important discrepancies between Japanese and Korean coordination. To mention a few, why is disjunction doubling disallowed in Korean while it is possible in Japanese? Why does a disjunction coordinator with a *wh*-element make a universal quantifier in Korean instead of a conjunction coordinator as in Japanese? This paper will propose a solution to these questions in a syntactic manner.

2 Previous proposals for coordination doubling

There are several accounts for coordination doubling in the literature, but it is possible to divide them into two camps. The first camp treats one coordinator differently from the other coordinators within the same coordination phrase, which includes Kayne (1994), Chino and Hiraiwa (2014) and Hiraiwa (2014). The second camp regards every coordinator as the same, which includes Szabolcsi (2015) and Jayaseelan (2001, 2008, 2014). I briefly introduce one approach from the first and two approaches from the second camp, and raise a few problems with each approach.

2.1 The first camp: not every coordinator is the same

Kayne (1994), Chino and Hiraiwa (2014), and Hiraiwa (2014) argue that the last

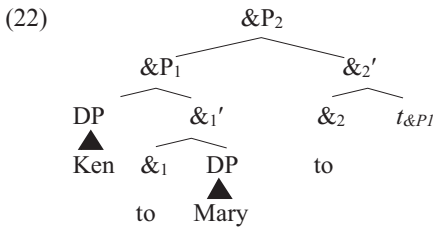
coordinator in coordination doubling behaves distinctly from the other coordinator(s) in the same phrase. Consider the following Japanese conjunction and its (partial) tree diagram, for example:

(21) Ken- $\boxed{\text{to}}$ Mary- $\boxed{\text{to}}$ (-ga tatakatta.) [J]

-to -to-Nom fought

‘Ken and Mary fought with each other.’ (collective)

‘Ken and Mary fought respectively.’ (distributive)

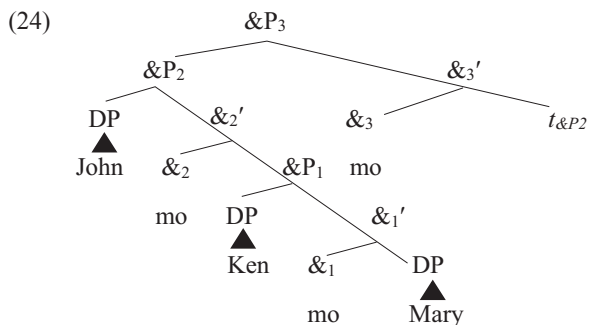


First look at $\&P_1$. They argue that a coordination phrase is universally in the spec-head-complement order as in $\&P_1$ in (22) and *to* serves as $\&^0$. Furthermore, another *to*, $\&_2$, selects $\&P_1$, and its complement, i.e. $\&P_1$, is raised to spec of $\&P_2$. The last coordinator, $\&_2$, is different from $\&_1$ (hence, the former camp) in that it is like a one-place-predicate taking only one argument (whereas $\&_1$ requires two DPs). Accordingly, the last coordinator is close to *both* in *both DP and DP* in English, marking the scope of conjunction. Moreover, spec of $\&P_2$ must be filled, so movement of $\&P_1$ in the complement to its spec takes place in (22).

There are a few problems with this approach. First, it remains to be explained why such internal movement is necessary.⁶ Secondly, the fact that the last and the other coordinators are homophonous is simply accidental in their approach. Furthermore, an empirical problem arises in the case of Japanese *mo* and Korean *to* with more than two conjuncts as follows:

- (23) *John-mo Ken-mo Mary-mo* (tatakatta.) [J]
 -mo -mo -mo (fought)
 ‘John, Ken, and Mary fought respectively.’ (exhaustive & distributive)
 ‘John, Ken, Mary and someone else fought respectively.’
 (non-exhaustive & distributive)

One can propose the following structure for (23) as follows:



The motivation of internal movement remains to be problematic. Moreover, (24) implies subgrouping: ‘John & (Ken & Mary)’. Thus, if all of the three members participate in fighting, the tree diagram would wrongly predict the meaning that John fought with Ken and Mary, but no such interpretation is available in (23) and so is with Korean *to*, because Japanese *mo* and Korean *to* always generate distributive interpretations.

2.2 The second camp: every coordinator is the same

I would like to introduce two approaches from the second camp, according to which every coordinator in doubling is the same element: Szabolcsi (2015) and Jayaseelan (2001, 2008, 2014). Both of them have one ambitious goal in common: to explain the polysemous characters of certain coordinators (see also Gil (1993, 1995, 2001) for this line of research).

Let us start with Szabolcsi (2015), who attributes the doubling phenomenon to semantic/pragmatic factors. She claims that conjunction and disjunction coordinators such as Japanese *mo* and *ka* (which she calls MO and KA as cover

terms for similar coordinators in other languages) invoke surroundings where conjunction or disjunction operators can function, so coordinators themselves are not operators (which are phonologically null). More specifically, she defines *mo* and *ka* as follows:

- (25) a. [DP A]-*mo* ... λx . predicate(x) ...:
Mo is allowed to appear when an immediate context entails ‘predicate(A)’, where A is an individual.
- b. [DP A]-*ka* ... λx . predicate(x) ...:
Ka is allowed to appear when ‘predicate(A)’ entails an immediate context, where A is an individual.

For example, *Ken-mo Mary-mo hasitta* ‘Both Ken and Mary ran’ has two DPs with *mo*. A proposition with the first DP is ‘Ken ran’, and its immediate context must entail the proposition in order for *mo* to appear after *Ken*. Thus, the context would be ‘Ken and somebody ran’. A similar condition applies to the second DP, *Mary*. That is, *mo* after *Mary* requires that its immediate context be ‘Mary and somebody ran’. Since Ken and Mary are coordinated by a null conjunction operator, an immediate context for both DP’s is that Ken and Mary ran. In this way, the two *mo*’s satisfy the condition of (25)a. Moreover, the example also has a non-exhaustive interpretation meaning ‘Ken, Mary and someone else ran’, and this interpretation is also explained (although she did not discuss this interpretation).

In contrast, in *Ken-ka Mary-ka-ga hasitta* ‘Ken or Mary ran’, *ka* of the first DP, i.e. Ken, pragmatically demands that a proposition ‘Ken ran’ must entail its immediate context, which would be ‘Ken or somebody ran’. Similarly, *ka* of the second DP dictates that a proposition ‘Mary ran’ entails its immediate context ‘Mary or somebody ran’. Due to a covert disjunction operator, Ken and Mary are disjoined; hence, ‘Ken or Mary ran’ is composed satisfying the semantic or pragmatic condition of both *ka*’s in (25)b.

An obvious advantage is that her analysis can explain why *mo* appears in the case of additive use, such as *Ken-mo hasitta* ‘Ken too ran’. *Mo* there is properly

licensed if ‘Ken and somebody ran’ is presupposed; therefore, an operator to induce the presupposition (i.e., an additive operator in this case) must be introduced in the sentence.

There are a few problems with Szabolcsi’s analysis, though. First, although she manages to define the proper surrounding for *ka* and *mo* in a uniform way, distinct invisible operators must be assumed for different uses of the same coordinator. For example, a distinct but invisible operator must be posited for DP coordination and additive use of *mo*. There are empirical problems too. As discussed above, Szabolcsi can explain both exhaustive and non-exhaustive readings of *Ken-mo Mary-mo hasitta* ‘Both Ken and Mary ran’, but if the same reasoning applies to *Ken-ka Mary-ka-ga hasitta* ‘Ken or Mary ran’, her analysis would allow an interpretation such as ‘Ken or Mary or someone else ran’ contrary to fact. Moreover, (25)a is also satisfied by conjoining two DP’s with another conjunctive doubling coordinator *to* in Japanese, but it does not have additive use or create quantifiers by combining with *wh*-elements unlike *mo*. Thus, it is necessary to explain why such polysemous characters are found only in obligatory coordinator doubling, which remains inexplicable in her account. Similarly, her explanation does not seem to extend to *wh*-elements with *ka* and *mo* in a simple manner. It is not clear what an immediate context for a *wh*-element is. She speculates that a default operator for *wh*-elements is disjunction; thus, *mo* is needed to invoke a null conjunction operator.⁷ If so, she is proposing a yet another invisible operator in that context. Szabolcsi presents the unique context for *mo* and *ka*. However, if coordinator particles themselves have no meanings and the surrounding for their occurrence cannot be uniquely defined, it is not clear how children can acquire such coordinators.

There is another approach which treats every coordinator as the same: Jayaseelan (2001, 2008, 2014). He claims that coordinators such as *ka* and *mo* are copies of disjunction and conjunction operators, and they must appear at each DP; thus, coordinator doubling is explained. However, in the case of DP coordination, he argues that the original disjunction and conjunction operators are generated at vP,

and will be deleted at the phonological component, so you will not hear them. Nevertheless, there are cases in which the original operators are not deleted; that is, when they are employed as clausal conjuncts including a question particle⁸ or used to make existential and universal quantifiers. Accordingly, the fact that the same particles often appear in coordination, quantifier-formation and clause typing is explained, he argues.

There are a few problems with his approach too. First, it is not clear what causes merging a copy of an operator to each DP, which is argued to explain the homophony between coordinators as a marker and an operator. Another problem is that merging copies of an operator with DP predicts that coordinators as a marker and an operator must be the same morpheme; however, they need not be so in the case of Korean disjunction phrases as will be discussed later. Finally, as is the case in Szabolcsi (2015), he needs to stipulate that the semantic operators in coordination must be invisible (due to deletion).

Although the second camp such as Jayaseelan (2001, 2008, 2014) and Szabolcsi (2014) attempt to unify the multiple uses of *ka* and *mo* in Japanese (and *na* and *to* in Korean) by claiming that each homophonous particle has the same function, they remain unsatisfactory, because such an approach must resort to (invisible) operators elsewhere in order to explain the semantics. Consequently, syntactic and semantic contribution of the particles must be made slight and indirect. However, one may wonder why the use of such insignificant particles is so prevalent crosslinguistically.⁹ Furthermore, it remains to be explained why operators are always invisible in coordination in their accounts.

3 A proposal for the structures of Japanese and Korean coordination

The current section will show that it is wrong to regard that every coordination has the same structure; focused and non-focused coordination structures have a different structure.¹⁰ Since one kind has a different structure from the other kind, several differences arise. Moreover, among focused coordination structures,

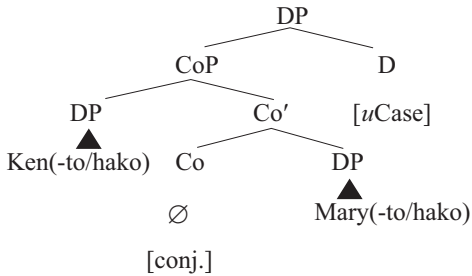
conjunction and disjunction have a different projection. Accordingly, we will show that at least three distinct structures are necessary for coordination in Japanese and Korean.

In the case of conjunction coordination, Japanese has *to* and *mo* and Korean has *hako* and *to*. Japanese *to* and Korean *hako* are similar in that they allow collective readings (cf. (5) and (6)), and do not allow single conjuncts (cf. (13) and (14)). Moreover, they do not merge with *wh*-elements to form quantifiers. In contrast, Japanese *mo* and Korean *to* and *na* are different from Japanese *to* and Korean *hako* respectively in that they always force distributive interpretations (cf. (7) and (8)), function as an additive focus particle, and interact with *wh*-elements to form a variety of quantifiers (cf. (17), (19), and (20)). Hendriks (2004) claims that focused phrases generate only distributive readings, and Hamblin (1973) argues that *wh*-elements themselves represent a set of relevant alternatives, which is a distinctive feature of contrastive focus according to Rooth (1985, 1996). All of these claims point to the fact that coordination structures with Japanese *mo* (and doubling *ka*) and Korean *to* (and *na*) are inherently associated with contrastive focus. Accordingly, I claim that *mo* and doubling *ka* in Japanese and *to* and *na* in Korean form focused coordination phrases, i.e. Focus Phrase (FocP, henceforth). In contrast, Japanese *to* and non-doubling *ka* and Korean *hako* are non-focused coordination phrases, which I call Coordination Phrase (CoP, henceforth). I discuss the structure of non-focused coordination, first.

3.1 Non-focused coordination

For conjunction structures of Japanese *to* and Korean *hako*, on the basis of Kayne (1994), Hiraiwa (2014) and Chino and Hiraiwa (2014), I argue for a head-initial structure as follows:

(26) Japanese and Korean non-focused conjunction



Hiraiwa (2014) and Chino and Hiraiwa (2014) argue that coordination phrases are universally head-initial. Furthermore, I claim that conjunction itself can be phonologically null in Japanese and Korean, and DPs in spec and complement bear null or overt inherent case, *to* in Japanese and *hako* in Korean,¹¹ which is why coordination doubling sometimes surfaces, and because of this, every particle has the same function (i.e. the second camp). As a piece of evidence for not regarding Japanese *to* as Co^0 , it is possible to fill the head position with an overt conjunction while *to* appears after each nominal as follows:

- (27) Ken-to {oyobi|katu} Mary-to-ga kekkonsita. [J]
 -to oyobi/katu -to-Nom married.
 ‘Ken and Mary married.’

The entire CoP receives structural Case, i.e. nominative case *ga* in (27), so I assume that D^0 with a Case feature selects CoP in (26).

Japanese has two kinds of disjunction, focused and non-focused, too, where the distinction is whether *ka* doubles or not. I propose that when *ka* doubles, focused structure arises, but I will discuss focused disjunction in the next section. In this section I will examine non-focused disjunction, that is, when *ka* does not appear after the last disjunct, which I call non-doubling disjunction for the sake of convenience. Examine the following example, first:

- (28) Ken-ka {matawa/moshikuwa} Mary(*-ka)-ga kita. [J]
 -ka matawa/moshikuwa -ka-Nom came
 ‘Ken or Mary came.’

Non-doubling disjunction allows another disjunctive element such as *matawa* and *moshikuwa* to co-occur with (intermediary) *ka* as in (28). Moreover, not every disjunct has the same syntactic status, which Johannessen (1996) calls unbalanced coordination, as follows:

- (29) a. John-ka/matawa/mosikuwa} Tanaka-sensei-ga o.kaerini.natta. [J]
 -ka/matawa/moshikuwa -teacher-Nom left.honor
 b. *Tanaka-sensei-ka/matawa/moshikuwa} John-ga o.kaerini.natta. [J]
 ‘John or Mr.Tanaka left.’
- (30) a. Hitori-no shonen-ka/matawa/mosikuwa} shozyo-tati_i-ga zibun-tati_i -no
 one-Gen boy-ka/matawa/moshikuwa girl-pl.-Nom self-pl.-Gen
 e-o kaita. [J]
 painting-Acc drew
 ‘One boy or some girls drew a painting of themselves.’
 b. *Shonen-tati-ka/matawa/mosikuwa} hitori-no shozyo_i-ga zibun-tati_i -no
 boy-pl.-ka/matawa/moshikuwa one-Gen girl-Nom self-pl.-Gen
 e-o kaita. [J]
 painting-Acc drew
 ‘Some boys or one girl drew a painting of themselves.’

In (29), *o*-verb-*naru* expresses subject honorifics, and the contrast there suggests that the verb with the honorific particles regard the final coordinand as grammatical subject of the sentence. Similarly, an anaphor, *zibun-tati*, refers to the plural subject, and as the contrast in (30) indicates, when the last disjunct denotes plural referents ((30)a), *zibun-tati* is properly licensed, whereas when it denotes a singular referent ((30)b), ungrammaticality follows. This fact also supports that disjunction phrases are “unbalanced” or asymmetric and the last disjunct functions as grammatical head of the disjunction phrase. However, conjunction with *to*, *oyobi* or *katu* does not

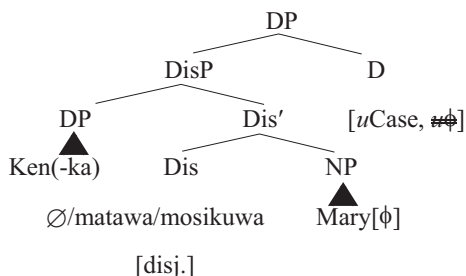
show such an asymmetry as follows:

- (31) a. ??John- $\{\text{to}/\text{oyobi}/\text{katu}\}$; Tanaka-sensei(- to)-ga (Mary-to) o.kaerini.natta. [J]
 -to/oyobi/katu -teacher(-to)-Nom -with left.honor
 ‘John and Mr. Tanaka left (with Mary).’
- b. ??Tanaka-sensei- $\{\text{to}/\text{oyobi}/\text{katu}\}$; John(- to)-ga (Mary-to) o.kaerini.natta. [J]
 ‘Mr. Tanaka and John left (with Mary).’
- c. Tanaka-sensei- $\{\text{to}/\text{oyobi}/\text{katu}\}$; Ogawa-sensei(-to)-ga (Mary-to)
 o.kaerini.natta. [J]
 ‘Mr. Tanaka and Mr. Ogawa left (with Mary).’
- (32) a. Hitori-no shonen- to_j shozyo-tati(- to) $_j$ -ga zibun-tati $_{i+j}$ -no e-o kaita. [J]
 one-Gen boy-to girl-pl.(-to)-Nom self-pl.-Gen painting-Acc drew
 ‘One boy and some girls drew a painting of themselves.’
- b. Shonen-tati- to_j hitori-no shozyo(- to) $_j$ -ga zibun-tati $_{i+j}$ -no e-o kaita. [J]
 boy-pl.-to one-Gen girl(-to)-Nom self-pl.-Gen painting-Acc drew
 ‘Some boys and one girl drew a painting of themselves.’
- c. Hitori-no shonen- to_j hitori-no shozyo(- to) $_j$ -ga zibun-tati $_{i+j}$ -no
 one-Gen boy-to one-Gen girl(-to)-Nom self-pl.-Gen
 e-o kaita. [J]
 painting-Acc drew
 ‘One boy and one girl drew a painting of themselves.’

Contrastively, (31)*a* and *b* show no contrast and both are not perfect, which indicates two nominals together constitute one subject in conjunction. A similar conclusion is reached in (32). These examples indicate that disjunction phrases are unbalanced or asymmetrical between coordinands in contrast to conjunction phrases.

Based on the observations above, I propose the structure of Japanese non-focused (i.e., non-doubling) disjunction as follows:

(33) Japanese non-focused disjunction



I argue that *ka* is an inherent case assigned by Dis(junction)⁰ similarly to *to* in Japanese non-focused conjunction structure, and Dis⁰ is phonologically null, *matawa* or *moshikuwa*. In the case of null Dis⁰, only *ka* is accepted as an inherent case, whereas *matawa* and *moshikuwa* allow either *ka* or a null particle. Thus, *ka* and *matawa/moshikuwa* are compatible ((28)). (Alternatively, *ka* can be regarded as Dis⁰ and an inherent case is null (or *ka* and one *ka* is deleted due to the Obligatory Contour Principle (OCP), which will be introduced later).) To explain the unbalanced nature of disjunction phrases, I propose complement of DisP is NP unlike conjunction. Moreover, DisP is selected by D⁰, which carries an uninterpretable ϕ feature, so it searches for a Goal to value its ϕ feature. I suppose that case-checked DP is invisible to the probing, so D⁰ goes through Agree with NP in the complement, *Mary*, in (33). This is why the last disjunct bears grammatical function as in (29) and (30). Korean does not have non-focused disjunction and always resorts to focused disjunction although it is non-doubling unlike Japanese, the reason for which will be discussed in the next section.

In brief, the structures of non-focused conjunction and disjunction support the second camp, according to which every coordinator particle is the same (i.e., an inherent case), and there is a conjunction or disjunction operator somewhere else. Since their coordinators are simply morphological cases, it follows why they are not multi-functional.

3.2 Focused coordination

I claim that *mo* and doubling *ka* in Japanese and *to* and *na* in Korean project FocP instead of CoP or DisP. This time I discuss disjunction, first.

3.2.1 Focused disjunction

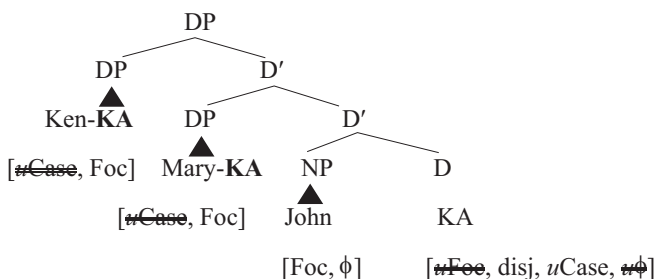
We examine focused Japanese disjunction *ka*, first. As briefly mentioned above, the appearance of *ka* after the final disjunct, which I call disjunction doubling in the case of Japanese, indicates that the structure is focused, which is illustrated in the following pair:

- (34) a. Mary-wa [Ken-ka/matawa/mosikuwa] John] yori se-ga takai. [J]
 -Top -ka/matawa/moshikuwa than height-Nom tall
 ‘Mary is taller than Ken or John.’ (inclusive ‘or’)
- b. Mary-wa [Ken-ka John-ka] yori se-ga takai. [J]
 -Top -ka -ka than height-Nom tall
 ‘Mary is taller than either Ken or John.’ (exclusive ‘or’ only)

In the case of non-doubling disjunction as in (34)a, inclusive ‘or’ is available; that is, Mary can be taller than both Ken and John. However, in the case of doubling as in (34)b, only exclusive ‘or’ is obtained; that is, Mary is taller than one of the two boys. The presence of *either* forces exclusive ‘or’ (Lipták 2001), so *ka* after the last disjunct is similar to *either*. Hendriks (2004) attributes the reason to focus. Similarly, I claim that *ka* after the last disjunct is involved in focus; hence, the focused structure. Accordingly, I propose the following structure for Japanese focused (i.e., doubling) disjunction phrases:

(35) Japanese focused disjunction: *Ken-ka Mary-ka John-ka* ‘Ken, Mary or John’

cf. (11)



D^0 , *ka*, has an uninterpretable focus feature and initiates Agree with DPs in spec and assigns a morphological case (multiply), and as a result, the homophonous *ka* appears after every DP in spec. *Ka* in D^0 also functions as a disjunction operator. Moreover, as is the case with DisP in Japanese, the last disjunct in complement, being NP, does not show morphological case, so *ka* does not appear on the final disjunct. D^0 has an uninterpretable Case feature, so the DP needs to get structural case such as nominative *ga* and accusative *o* after it merges with the rest of the tree. This account supports the first camp, according to which not every coordinator particle is the same in the case of focused coordination. More specifically, one *ka* is D^0 (i.e., the disjunction operator) and the other *ka*'s are morphological case in (35). Furthermore, there is syntactic relation (i.e., Agree) between the two types of *ka*, so morphological affinity is not accidental (although the two kinds of particles are not necessarily homophonous as the next Korean case shows).

Now examine the following example for Korean disjunction, first:

(36) *Mary-ka Ken-ina John(*-ina) pota kuta.* [K]

-Nom -ina -ina than tall

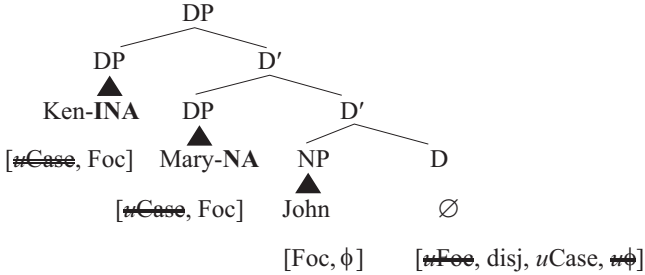
‘Mary is taller than Ken or John.’ (exclusive ‘or’ only)

As argued above, Korean disjunction never expresses coordination doubling. What is more, interestingly, (36) indicates Korean disjunction represents only exclusive ‘or’, which indicates that Korean does not have non-focused disjunction unlike Japanese; that is, it has only focused disjunction. Hence, Korean *na* is analyzed as

follows:

(37) Korean focused disjunction: *Ken-ina Mary-na John* ‘Ken, Mary or John’

cf. (12)



Similarly to the Japanese focused disjunction, head-final DP is projected and D^0 can assign a morphological case, *na*, to every DP after Agree of focus features, which is why *Ken* and *Mary* get *na*, and accounting for why *na* cannot be omitted between disjuncts in Korean (cf. (12)). Moreover, the last disjunct does not manifest any morphological case as before, because it is NP. Since D^0 has an uninterpretable Case feature, the whole DP gets a structural case after it merges with the rest of the tree.

However, there is one important difference between Korean and Japanese focused structures: Disjunctive D^0 is covert in Korean while the corresponding one is overt, i.e. *ka*, in Japanese. Accordingly, *na* does not appear after the last disjunct in Korean (cf. (12)), which indicates that D^0 and case morphology do not need to coincide.

One consequence of the present claim is that we can now explain why Japanese and Korean appear to differ with regard to the formation of existential quantifiers out of *wh*-elements: the disjunction coordinator, *ka*, is employed in Japanese while *wh*-elements themselves can denote existential quantifiers in Korean (cf. (17) and (18)). However, this is no longer a correct generalization if disjunctive D^0 in Korean is a phonologically null element as we have argued above. In other words, it is possible to unify the two phenomena by claiming that existential quantifiers are created out of *wh*-elements with disjunction. Accordingly, Korean and Japanese are not different as far as existential quantifier formation is concerned.

3.2.2 Focused conjunction

Next, we turn to Japanese focused conjunction. Before presenting its syntactic structure, let me point out a few important characteristics of *mo*. First, consider the following example:

- (38) Ken-mo Mary-mo kekkonsita. [J]
 -mo -mo married

‘Ken married someone and Mary married someone else.’

(exhaustive & distributive)

‘In addition to someone who got married, Ken and Mary married someone respectively.’ (non-exhaustive & distributive)

As argued before, Japanese *mo* is always distributive like Korean *to*, but unlike Japanese *to*. Moreover, unlike Japanese *to*, *mo* does not cooccur with *oyobi* or *katu* as follows:

- (39) *Ken-mo {oyobi/katu} Mary-mo kekkonsita.¹² (cf. (27)) [J]
 -mo oyobi/katu -mo married.

‘Ken and Mary married someone.’ (exhaustive & distributive)

This example and the obligatory distributive nature indicate that conjunction structure with *mo* is incompatible with non-focused structure such as (26).

Moreover, unlike *to*, *mo* requires each conjunct to bear a grammatical function. Contrast the following examples with *zibun-tati*, which requires a plural subject as its antecedent. (32)c is repeated below:

- (32) c. Hitori-no shonen-to, hitori-no shozyo(-to)-ga zibun-tati_{i+j}-no
 one-Gen boy-to one-Gen girl(-to)-Nom self-pl.-Gen
 e-o kaita. [J]
 painting-Acc drew

‘One boy and one girl drew a painting of themselves.’

- (40) a. * Hitori-no Shonen-mo shozyo-tati-mo-ga zibun-tati_{ij}-no
 one-Gen boy-mo girl-pl.-mo-Nom self-pl.-Gen
 e-o kaita. [J]
 painting-Acc drew
 ‘One boy and some girls drew a painting of themselves.’
- b. * Shonen-tati-mo hitori-no shozyo-mo-ga zibun-tati_{ij}-no
 boy-pl.-mo one-Gen girl-mo-Nom self-pl.-Gen
 e-o kaita. [J]
 painting-Acc drew
 ‘Some boys and one girl drew a painting of themselves.’

In the case of *to*, the conjunction phrase as a whole, not each conjunct, bears a grammatical function, so (32)*c* is acceptable even though each conjunct is singular. However, *mo* forces each conjunct to be a subject, so (40)*a* and *b* are unacceptable.

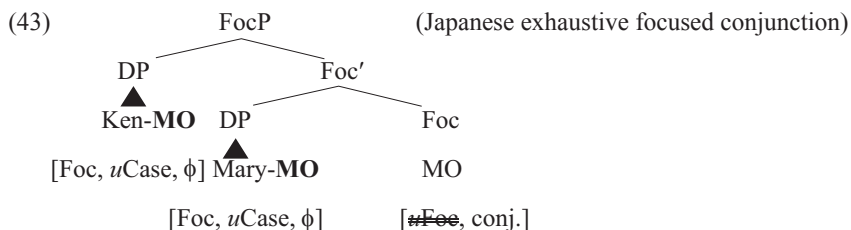
Finally, structural case morphemes are omissible with *mo*, or even if they do, they must precede *mo* as follows:

- (41) a. John-wa Mary-mo Ken-mo atta.
 -Top -mo -mo saw.
- b. John-wa Mary-ni-mo(-[?]ni) Ken-ni-mo(-[?]ni) atta.
 -Top -Dat-mo(-Dat) -Dat-mo(-Dat) saw.
 ‘John saw Mary and Ken.’

However, when *ka* coordination manifests structural cases, non-final *ka* follows a structural case while the final *ka* must precede a structural case as follows:

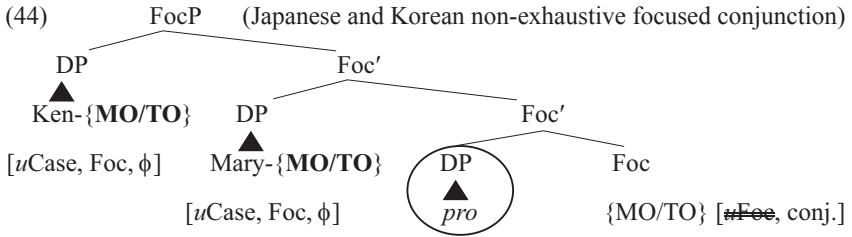
- (42) a. ^{??}John-wa Mary-ka Ken-ka atta.
 -Top -mo -mo saw.
- b. John-wa Mary(-ni)-ka(-^{??}ni) Ken-ka-ni atta.
 -Top (-Dat)-ka(-Dat) -ka-Dat saw.
 ‘John saw either Mary or Ken.’

Based on the observations above, I propose Foc(us) Projection as follows:



In Japanese, conjunctive Foc^0 is *mo*, and it assigns a homophonous morphological case, *mo*, to every DP. However, if so, the form would be **Ken-mo Mary-mo-mo*. I argue that one of the two consecutive *mo*'s will be deleted because of the Obligatory Contour Principle (OCP) (e.g. Yip 1988), which prohibits multiple PF-identical adjacent elements. Hence, *Ken-mo Mary-mo* surfaces. In contrast to *ka* in D^0 (cf. (35)), Foc^0 does not have an uninterpretable Case feature, so no structural case is assigned to FocP ; hence, no structural case follows the final *mo* as in (41)*b*. In addition, every conjunct projects to DP, and we suggest that each DP needs a structural case as well as a morphological case (i.e., *mo*).¹³ Thus, such DP goes through Agree (with T^0 if they are a subject). This is why each coordinand bears a grammatical function in focused conjunction as noted in (40). When a structural case, such as *ni* in (41)*b*, is overtly manifested, it precedes a morphological case. If the order of the two morphemes indicates timing of feature valuation by Agree, it implies that case features are valued before focus features. If correct, FocP first merges with VP, and after each DP in FocP receives a structural case, FocP may move further to activate its uninterpretable focus features, then valuing focus features.

Note that there is one important difference between Japanese *mo* and Korean *to*: Japanese *mo* is compatible with either exhaustive or non-exhaustive interpretations as in (7) while Korean *to* is always non-exhaustive as in (8). (43) is the structure for the exhaustive reading of *mo* in Japanese. In contrast, I propose the non-exhaustive interpretation for Japanese *mo* and Korean *to* as follows:



In (44), the complement of Foc^0 is a null pronoun referring to someone in the discourse. In the current case, it refers to a person who married somebody. Being implicit, it cannot carry a focus or a Case feature. The form would be **Ken-mo Mary-mo-mo* in Japanese or **Ken-to Mary-to-to* in Korean, but the OCP applies. This is how non-exhaustive readings of Japanese *mo* and Korean *to* are explained in the present claim. Moreover, the difference between Japanese *mo* and Korean *to* is now captured in the following manner. That is, a covert pronoun or a focused overt nominal is selected in the complement of Foc^0 in the case of Japanese *mo*, while a zero pronoun must always be selected in the complement in the case of Korean *to*. As a result, exhaustive as well as non-exhaustive interpretations are possible in Japanese *mo*, whereas only non-exhaustive interpretations are allowed in Korean *to*.

It also explains the meaning of ‘also’ in *mo* (and *to*). That is, if there is only one DP in spec of FocP, say Ken, in (44), then the structure conjoins *Ken* and *pro*, so it means ‘Ken and someone else’, which is equivalent to ‘Ken also’. In this way, it is possible to unify the two uses of *mo* (and *to* in Korean), conjunction and additive focus particle.

4 Remaining problems

This section will discuss remaining issues such as conjunctive *na* in Korean and present explicit semantic derivations of quantifier interpretations out of *wh*-elements with focus particles following Morita (2002, 2005) (See also Gill, Harlow, and Tsoulas (2006) and Zimmermann (2009) for a different approach).

4.1 WH+*na* in Korean

Examine the following examples, first:

- (45) John-ina Mary-ka olkesita. (cf. (37)) [K]
 -na -Nom will.come

‘John or Mary will come.’

- (46) Nwukwu-na olkesita. [K]
 who-na will.come

‘Everyone/anyone will come.’

Unlike Japanese (cf. (20)), a disjunction coordinator *na* turns a *wh*-expression into a universal quantifier/NPI (cf. (19)) in Korean. But we already know that *na* in disjunction phrase is simply a morphological case and has no semantic function. Thus, it is natural to expect that *na* employed with *wh*-elements is of a different kind from *na* in disjunction phrases. This prediction is indeed borne out. Consider the following example:

- (47) John-ina Mary*(-na) hasimhaki-nun machankaciita. [K]

Park (2008, adapted)

-NA (-NA) being.stupid-Top same

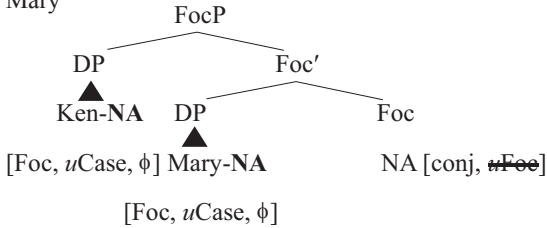
‘John and Mary are the same in their stupidity.’ (exhaustive)

‘John and Mary and possibly others are the same in their stupidity.’

(non-exhaustive)

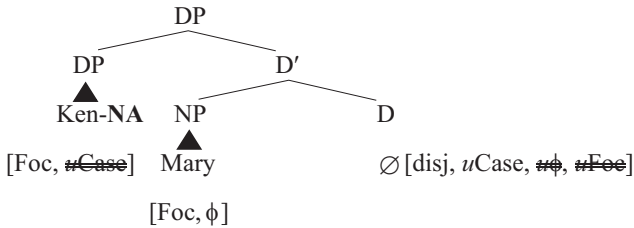
As (47) indicates, when *na* appears after the last coordinand, the coordination phrase must mean conjunction rather than disjunction.¹⁴ Moreover, it is ambiguous between exhaustive and non-exhaustive readings like Japanese *mo* (but unlike Korean *to*). Thus, it is possible for (47) to have two distinct structures exactly like *mo*, but I only present the structure for the exhaustive reading here as follows (refer to (44) and replace *mo* or *to* there with *na* for the non-exhaustive reading):

(48) (Korean conjunctive exhaustive interpretation): *John-ina Mary-na* ‘John and Mary’



In the case of conjunction, Foc^0 is *na* in Korean, and assigns a morphological case, *na*, to every DP. Next, contrast (48) with the disjunctive *na*, which is the following:

(49) (Korean disjunctive interpretation): *John-ina Mary* ‘John or Mary’



A few differences aside, Foc^0 and D^0 with an uninterpretable Foc feature both assign a morphological case, *na*, to DP, which has been the source of confusion for linguists because we thought the particle carried a semantic operator. However, now we know the semantic function lies in Foc^0 or D^0 , and disjunctive D^0 is phonologically null as in (49) whereas conjunctive Foc^0 is overt, i.e., *na*, as in (48) in Korean. Thus, conjunctive and disjunctive construction are clearly distinguished in Korean.

The present account can also explain why *to* cannot be employed to (productively) make universal quantifiers in Korean. This is because *to* always merges with a zero pronoun first, so it always generates non-exhaustive interpretations. However, non-exhaustiveness and universal interpretations are incompatible concepts, which is why *to* is never used to make universal quantifiers.¹⁵ In contrast, conjunctive *na* can allow exhaustive readings; accordingly, *wh*-elements with *na*

productively make universal quantifiers like Japanese *mo*.¹⁶

4.2 WH as a set of relevant entities and conjunction/disjunction operators (Morita (2002, 2005))

Morita (2002, 2005) shows that the existential interpretations out of *wh*-elements with disjunction and the universal meanings out of *wh*-elements with conjunction are derivable from disjunction and conjunction operators respectively. The two operators are defined as follows:

(50) The disjunction operator:

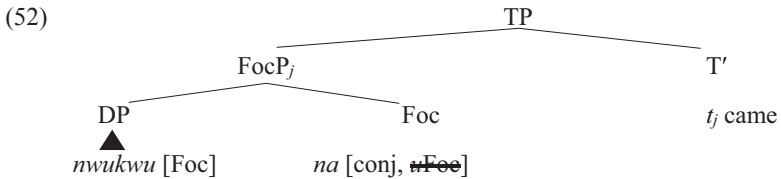
$$\cup x [P(x)](a, b, c, \dots) = P(a) \text{ or } P(b) \text{ or } \dots \text{ where } a, b, c, \dots \text{ are entities.}$$

(51) The conjunction operator:

$$\cap x [P(x)](a, b, c, \dots) = P(a) \wedge P(b) \wedge \dots \text{ where } a, b, c, \dots \text{ are entities.}$$

Moreover, following Hamblin (1973) and Rooth (1985, 1996), a *wh*-element is contrastive focused and hence generates a set of entities. For example, *nwukwu* in Korean and *dare* in Japanese, both meaning ‘who’, denote a set of contextually relevant people. With these tools, it is possible to unify conjunction and universal quantification on one hand and disjunction and existential quantification on the other.

For instance, *nwukwu-na* is composed of ‘who’ and a conjunction coordinator, and the semantics is derived as follows:



DP: *nwukwu*: a set of people, {k, l, m, n}. (There are only four people.)

Foc⁰: $\lambda Q \lambda P [\cap X [P(X)(Q)]]$

FocP: $\lambda P [\cap X [P(X)(k, l, m, n)]]$

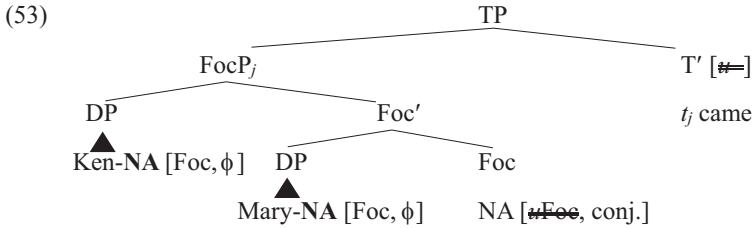
TP: $\cap X [\text{came}(X)(k, l, m, n)]$

= Ken came & Liang came & Mary came & Nancy came. = Everyone came.

Suppose there are only four people in the world, Ken, Liang, Mary, and Nancy. Then *nwukwu* represents a set of the four people. Next, conjunctive Foc⁰ has *na*,

which functions as the conjunction operator in (51), and selects a set. Since *mwukwu* provides a set of people, it functions as an appropriate argument of the operator. The rest is the same as the behavior of a universal quantifier, ‘everyone’; that is, it selects a predicate. In the end, we have ‘Ken came & Liang came & Mary came & Nancy came’, which is equivalent to ‘everyone came’.

It is easy to see that the same operator applies to conjunction. Consider the following derivation to see how the meaning of *Ken-ina Mary-na* is derived using the conjunction operator:



FocP: $\lambda P [\cap X [P(X)(k, m)]]$
 TP: $\cap X [came (X)(k, m)]$
 = Ken came & Mary came.

Foc⁰ takes two DPs, which gives Foc⁰ a set, {Ken, Mary}, and each element is combined with the conjunction operator. As a result, we have ‘Ken came & Mary came’.

5 Conclusion

The present paper has shown that there are two kinds of coordination in Japanese and Korean: focused and non-focused, and each construction can manifest coordination doubling, but they are quite distinct phenomena. Non-focused coordination (such as Japanese *to* and non-doubling *ka* and Korean *hako*) is (probably universally) head-initial as Hiraiwa (2014) and Chino and Hiraiwa (2014) argue, and its optional coordination doubling (which is limited to conjunction in both languages) is due to the fact that a particle on each DP is an inherent case (which is why the numbers of the particles and the conjuncts match). Accordingly,

coordination doubling in non-focused coordination supports the second camp, according to which every coordinator plays the same role.

In contrast, focused coordination with coordinators such as *mo* and doubling *ka* in Japanese and *to* and *na* in Korean is head-final, and Agree of focus features is involved, which assigns each DP a morphological case. Thus, coordination doubling obligatorily surfaces. However, the structures of focused conjunction and disjunction are different. Every conjunct in focused conjunction projects to DP and goes through Agree with Foc^0 . On the other hand, focused disjunction does not employ Foc^0 but D^0 with an uninterpretable Foc feature. D^0 first merges with NP (complement), and then DP (spec), and Agrees with only DP at spec; thus, not every disjunct receives the same disjunction particle because a disjunct in the complement being NP does not Agree, so it has no morphological case. Accordingly, coordination doubling in focused disjunction supports the first camp, which claims that not every particle functions in the same way.

Finally, a few differences and commonalities between Japanese and Korean have been explicated in this paper. Korean does not have non-focused disjunction in contrast to Japanese (non-doubling *ka*), which is why Korean disjunction always represents exclusive ‘or’. Moreover, D^0 in Korean disjunction is covert whereas the one in Japanese is overt (i.e., *ka*); accordingly, the derivations of existential quantifiers in Japanese and Korean are non-distinct: they are composed of *wh*-elements and disjunctive D^0 . Moreover, *A-na B* ‘A or B’ and *A-na B-na* ‘A and B’ are distinguished: the former phrase projects DP with covert D^0 while the latter projects FocP with overt Foc^0 , i.e., *na*.

Japanese *mo* constitutes focused conjunction and is ambiguous between exhaustive and non-exhaustive interpretations. In contrast, Korean *to*, which also functions as an additive particle, only represents non-exhaustive conjunction, whereas Korean *na* can optionally represent exhaustive conjunction, which is why *na* rather than *to* is employed to derive universal quantifiers out of *wh*-elements or induce scalar implicature (cf. footnote 5) as in Japanese (exhaustive) *mo*.

The present paper has shown that coordination phrases have a different structure whether they are focused or not. Moreover, focused conjunction and disjunction phrases differ, so there are at least three types of nominal coordination in Japanese and Korean.

Notes

* The present paper has been developed from a few talks: *Syntax Square*, MIT on the 3rd of October, 2016, and *the 20th Meeting of the International Circle of Korean Linguistics* at the University of Helsinki on the 27th June, 2017. I would like to express my gratitude to the audiences of the two occasions, particularly, Norvin Richards, Colin Davis, Hee-Rahk Chae, Alan Kim, Hankyul Kim and John Whitman. I am also grateful to have beneficial comments from Anna Szabolcsi, Ken Hiraiwa, Daiho Kitaoka, Shigeru Miyagawa, Jim Huang, Mioko Miyama, Ryoichiro Kobayashi, Hiromune Oda, Gillian Ramchand, Sergey Minor, Peter Svenonius, Tarald Taraldsen, Björn Lundquist, and Kaori Takamine while I was in sabbatical in Boston and Tromsø. Many thanks go to Kyumin Kim for grammatical judgment of Korean examples and comments. This study has been supported in part by a Grant-in-Aid for Scientific Research (C) from Japan Society for the Promotion of Science (#15K02486).

- 1 A vowel [i] is inserted before *na* when the preceding nominal ends with a consonant.
- 2 Apart from *to*, *oyobi* and *katu*, which I will mainly discuss as non-focused conjunction in this paper, there are many more conjunction coordinators in Japanese, such as *ya(ra)*, *ni*, *toka*, *narabini*, and *sosite*. They connect nominals like *to* and *oyobi* as follows:

(i) Ken- $\{\overline{ya(ra)/ni}/\overline{toka}/\overline{narabini}/\overline{sosite}\}$ Mary-ga booto-o mochiage.ta.
 - $\{ya(ra)/ni/toka/narabini/sosite\}$ -Nom boat-Acc lifted
 ‘Ken and Mary lifted a boat.’ (ambiguous)

Among those coordinators, *sosite* is different from the other nominal coordinators in a few respects. First, *futotta syonen* \overline{sosite} *syozyo* ‘fat boy(s) and girl(s)’ does not mean ‘fat boy(s) and fat girl(s)’ unlike the other coordinators. Second, each conjunct can (optionally) carry nominative case unlike the other coordinators as follows:

(ii) Ken-ga (kita) $\{\overline{sosite}^{??}/\overline{oyobi}^{??}/\overline{katu}\}$ Mary-ga kita.
 -Nom (came) *sosite/oyobi/katu* -Nom came
 ‘Ken (came) and Mary came.’

Finally, (ii) also shows that *sosite* is employed to connect clauses. These facts seem to indicate that *sosite* is a clause connector and nominal coordination with *sosite* in (i) is a result of ellipsis. Thus, the present paper does not discuss *sosite*. *Kuliko* in Korean seems

to correspond to *sosite* in Japanese (cf. Yoon and Lee 2005).

- 3 *Kwa/kuliko* in Korean and *oyobi/katu/ya/ni/narabini/sosite* in Japanese do not permit conjunction doubling, but *yara* and *toka* in Japanese optionally allow doubling, but they imply non-exhaustive listing (Kuno 1973).
- 4 Note that when a conjunct represents a plural entity, distributivity does not necessarily extend to the conjunct as follows:

(iii) Syonen-tati-mo syozyo-tati-mo booto-o mochiageta.
 boy-pl.-mo girl-pl.-mo boat-Acc lifted
 ‘The boys and the girls lifted a boat.’

(iii) is distributive in that the boys and the girls did not cooperate in lifting a boat, but it is possible that the boys lifted it together and so did the girls. Thus, distributivity with *mo* applies only across conjuncts, not within a conjunct.

- 5 Japanese *mo* has scalar function too as follows:

(iv) John-wa kinoo hon-o go-satu-mo yonda.
 -Top yesterday book-Acc 5-CL-mo read
 ‘John read as many as five books yesterday.’

In contrast, Korean *to* has no such usage. Instead, *na* is employed, which is discussed in section 4.1.

- 6 Kayne (1994) attributes the internal movement to an ordering constraint. If that is the case, however, the same kind of movement is applied to every phrase in Japanese and Korean, the assumption of which does not have substantial support in Japanese or Korean, so I do not pursue such an approach here.

- 7 To support this speculation, she claims she has never seen cases in which bare *wh*-elements are interpreted as universal quantifiers. However, Japanese has such cases as follows:

(v) [Ken-ga nani-o iou ga] boku-wa kinisinai.
 -Nom what-Acc say though I-Top don’t.mind
 ‘I don’t care whatever Ken says.’

- 8 In Japanese the same particle as disjunction, i.e. *ka*, can be employed as a Yes/No and a WH question particle at the end of a sentence. In contrast, Korean employs a distinct particle from disjunction *na*, i.e. *ci*, for questions. However, as will be argued later, the difference between the two languages is partly explained because *na* is not disjunction in Korean.

- 9 The same criticism applies to Gill, Harlow, and Tsoulas (2006), who discuss why *wh*-

elements with disjunction coordinator *na* make universal quantifiers in Korean by positing an additional covert distributive operator.

10 From a typologist or diachronist's point of view, it is not a novel idea to claim that conjunction structures come from two sources, a comitative and an additive focus particle, (Haspelmath 2007:9). Indeed, *to* in Japanese and *hako* and *kwa* in Korean work as a comitative too, and as will be discussed below, *mo* in Japanese and *to* in Korean function as an additive particle. However, the view that a single language employs both strategies seems to have been largely ignored or missed in the literature.

11 It is instead possible to consider that *oyobi*, *katu* or a null conjunctive head can connect NPs rather than DPs. To illustrate this claim, examine the following examples, first:

(vi) Ken^{??}(-to) {oyobi/katu/∅} Mary^{??}(-to)-ga {kekkonsita/nite-iru}.

(-to) {oyobi/katu/∅} (-to)-Nom {married/similar-is}.

'Ken {married/is similar to} Mary.'

(vi) indicates that at least one *to* is necessary to have symmetric meanings. This may be because DP (i.e., with *to*), not NP (i.e., without *to*), can serve as an argument of a predicate and symmetric predicates require two DPs. If correct, two DPs are necessary in (vi), which is why *to* is necessary. In addition, different syntactic categories cannot be conjoined, so NP and DP cannot be coordinated; thus, if one coordinand bears *to* indicating DP, then the other coordinands are regarded as DP even without *to*. Accordingly, at least one nominal has *to* in order to allow symmetric interpretation. I leave this alternative open.

12 This example is fine as a non-exhaustive reading, which suggests that a distinct structure is derived when *oyobi* or *katu* is present. Because of limited space, I will not discuss such a structure in this paper.

13 The present account assumes that DP in focused conjunction phrases requires a quirky case, because it requires a morphological (e.g. *mo* in Japanese and *to* or (conjunctive) *na* in Korean) as well as a (covert or overt) structural case. Similarly, DP at the spec in focused disjunction phrases requires a quirky case, where a structural case precedes a morphological case.

14 Note that the conjunctive interpretation remains even if the sentence is in the past tense, so it is unlikely that the meaning of conjunction with *na* in Korean arises from a covert generic or distributive operator as observed in English such as "Either Mary or John will do" (see Higginbotham (1991) for details). I would like to thank Hee-Rahk Chae for pointing out this possibility to me.

15 The same argument goes against Shimoyama (2006) too, who claims that *mo* in

universal quantification of WH-*mo* and additive *mo* are different kinds in Japanese, based on examples such as the following:

(vii) Mary-wa [DP [dare-ga kaita] hon]-mo yomimasita ka? [J]

-Top who-Nom wrote book-MO read Q

(I) ‘For which x, Mary also read a book that x wrote?’; (II) ‘ $\forall x$, did Mary read the book that x wrote?’; (III) *‘ $\forall x$, did Mary also read the book that x wrote?’

Mo can turn a wh-element into a universal quantifier (II) or functions as an additive particle (I), but the two operations do not happen simultaneously (III), which is why she argues that universal and additive *mo* are different. However, this fact is naturally explained because non-exhaustiveness implicated by additives and universal quantification are incompatible.

16 This conclusion also accounts for why *na* rather than *to* is employed for scalar function in Korean, as mentioned in footnote 5.

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