Notes on the Syntax and Semantics of Japanese Minimizers*

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1. Introduction

This paper investigates the syntax and semantics of the negative polarity expressions in Japanese that feature *ichi* 'one' and act as minimizers (henceforth, *one*-NPIs). It will be argued below that combining Ochi's (2016) syntactic analysis of *one*-NPIs and Nakanishi's (2019, in prep) semantic analysis of such expressions allows us to explain some interpretive differences among several types of Japanese *one*-NPIs. Our focus is on paradigms like the following:

(1) a. Pre-nominal *one*-NPI [*one*-CL-*no* N-*mo*]
Taro-wa sono hi ip-piki-no inu-mo mi-nakat-ta.
Taro-TOP that day one-CL-gen dog-MO see-neg-PAST
i. 'Taro didn't see any dog that day.' ii 'Taro didn't see any animal that day, even one dog.'

b. Post-nominal *one*-NPI [N *one*-CL]
Taro-wa inu ip'-piki mi-nakat-ta.
Taro-TOP dog one-CL see-neg-PAST
i. *'Taro didn't see any dog that day.' ii. 'Taro didn't see any animal that day, even one dog.'

c. Floating *one*-NPI [N-Case ..... *one*-CL-*mo*]
Taro-wa inu-o ip-piki-mo mi-nakat-ta.
Taro-TOP dog-ACC one-CL-MO see-NEG-PAST
i. 'Taro didn't see any dog that day.' ii. * 'Taro didn't see any animal that day, even one dog.'

As Nakanishi (2019) observes, (1c), which uses the floating *one*-NPI, is strictly about the number of dogs that Taro saw (i.e., none). Conversely, (1b), with the post-nominal *one*-NPI, means something stronger: it is not just that Taro saw no dogs. He saw no animals (or persons) at all. An interesting case is (1a), which features the pre-nominal *one*-NPI. Nakanishi reports that it aligns with (1b): for her, this example necessarily means that Taro didn't see any animals (or persons), including dogs. As reported in Ochi (2016), however, it can in fact mean (1a-i). The following set of examples makes this point clear, with explicit reference to the presence of other animals, cats and mice, in a certain village under discussion.

*The research presented here is financially supported by the Grants-in-Aid for Scientific Research (C) (No. 17K02809 & No. 20K00679), the Ministry of Education, Culture, Sports, Science, and Technology of Japan.

(2) Kono mura-ni-wa takusan-no neko-ya nezumi-ga iru noni, ...
this village-in-TOP many-gen cat-and mouse-NOM exist though
'Although there are many mice and cats in this village, ...'

a. ip-piki-no inu-mo i-nai. (pre-nominal *one*-NPI)
one-CL-GEN dog-MO be-NEG
'there isn't any dog.'

b. #inu ip-piki i-nai. (Post-nominal *one*-NPI)
dog one-CL be-NEG
'there isn't any dog.'

c. inu-ga ip-piki-mo i-nai (Floating *one*-NPI)
dog-NOM one-CL-MO be-NEG
'there isn't any dog.'

Here, there is a clear contrast between (2a) and (2b), indicating that (1a) is ambiguous. I will argue in this paper that the syntax of *one*-NPIs as entertained in Ochi (2016), which is based on Huang and Ochi (2014), allows us to capture such interpretive differences among the three types of *one*-NPIs in Japanese if aided by Nakanishi's (2019, in prep) focus-semantic analysis of *one*-NPIs in Japanese.

2. Syntax of classifiers

Before discussing *one*-NPIs, let us first review Huang and Ochi's (henceforth H&O) (2014) syntactic analysis of numeral classifiers in Japanese. H&O pursue a partially uniform approach to the syntax of numeral classifiers in Japanese. Based on Watanabe (2006), H&O entertain the hypothesis that the post-nominal NC and the floating NC essentially come from the same source where the classifier heads a projection (CLP) and hosts a numeral in its specifier position and NP as its complement as shown in (4a). This NP obligatorily moves. If it moves to the nominal edge, we obtain the post-nominal form (4b). If it moves out of the nominal domain, we get the floating form (4c).

(3) a. Taro-wa san-biki-no inu-o mi-ta.
Taro-TOP three-CL-GEN dog-ACC see-PAST
'Taro saw three dogs.'

b. Taro-wa inu san-biki-o mita.
Taro-TOP dog three-CL-ACC see-PAST
'Taro saw three dogs.'

c. Taro-wa inu-o san-biki mita.
Taro-TOP dog-ACC three-CL see-PAST
'Taro saw three dogs.'

(4) a. [$_{CLP}$ 3 [$_{CL'}$ book CL]]
b. ... [$_{CaseP}$ dog$_i$ [$_{CLP}$ 3 [$_{CL'}$ t_i CL]] -*o*]
c. ... [$_{VP}$ dog-o_i ... [$_{CLP}$ 3 [$_{CL'}$ t_i CL]] saw]

The pre-nominal CL form is different. Following Saito, Lin, and Murasugi (2008) and Miyamoto (2009), H&O assume that it is an adjunct at the NP-level.

(5) [$_{CaseP}$ [$_{NP}$ [*three*-CL]-no [$_{NP}$ dog]] -*o*]

3. *One*-NPIs and association with focus

We now return to *one*-NPIs. Following Nakanishi (2019, in prep.) and Ochi (2016), let us suppose that *one*-NPIs in Japanese contain the focus particle *-mo* whether it is visible or not. Nakanishi (2019, in prep.) identifies the meaning of *-mo* as *even*. Two crucial ingredients of her proposal are Rooth's (1985, 1992) alternative semantics and Karttunen and Peters' (1979) proposal that *even* is a sentential scalar operator that gives rise to a scalar presupposition to the effect that the proposition that it combines with is the least likely among the set of alternatives. Alternatives are generated by substituting the focused element with the element of the same semantic type. Following the standard view, I assume that placement of focus is regulated by c-command in the sense that a focused element must be c-commanded by *even* in overt syntax.

As a brief illustration, let consider (6a), where Hanako is the target of focus. The rough LF representation of this example is (6b). Let us assume for ease of exposition that *even* moves and adjoins to the top of the clause (although details are not important here). It introduces the following scalar presupposition: the proposition 'Taro didn't talk to Hanako' is the least likely among the set of alternatives (e.g., {Taro didn't talk to Hanako, Taro didn't talk to Jiro, Taro didn't talk to Yoshiko, ... }).

(6) a. Taro didn't even talk to [Hanako]$_F$.
b. [even [Taro didn't talk to [Hanako]$_F$]
Assertion: Taro didn't talk to Hanako.

Nakanishi proposes that Japanese *-mo* as *even* can be analyzed in the same fashion.

(7) Taro-wa [Hanako]$_F$-mo sasow-anakat-ta.
Taro-TOP Hanako-MO invite-NEG-PAST
Assertion: Taro didn't invite Hanako.

(7) asserts that Taro didn't invite Hanako. It also gives rise to the scalar presupposition that the proposition 'Taro didn't invite Hanako' is the least likely proposition among the set of alternatives of the form 'Taro

didn't invite x.' In other words, the proposition 'Hanako invited Hanako' is the most likely among the set of alternative propositions (and even that didn't happen). Adopting the overall analysis by Nakanishi (2019, in prep.), let us now consider how focus semantics works with *one*-NPIs in Japanese. The following discussion builds on Nakanishi's work, although there will be departures from her work in several crucial points of the discussion.

Let us start with the pre-nominal *one*-NPI. The sentence (8) asserts that Taro didn't see any bird. As for the scalar presupposition, it has more than one way to form the set of alternatives. Now, suppose with Ochi (2016) that the pre-nominal *one*-NPI has the structure in (9). The focus particle *-mo* heads FocP and takes NP as its complement, and *ichi-wa-no* 'one-CL-GEN' is an adjunct at the NP-level (along the lines of Saito, Lin, and Murasugi (2008) and Miyamoto (2009), and H&O (2014)).

(8) Taro-wa ichi-wa-no tori-mo mi-nakat-ta.
Taro-TOP one-CL-GEN bird-MO see-NEG-PAST
a. 'Taro didn't see any bird.'
b. 'Taro didn't see any animals, including birds.'

(9) [$_{FocP}$ [$_{NP}$ [*one*-CL]-no [$_{NP}$ tori]] mo]

Suppose that the speaker intends (8b). For this case, we can simply adopt the gist of Nakanishi's (2019, in prep.) analysis and say that the focus associate of *-mo* is its NP complement, *ichi-wa-no tori* 'one-CL-GEN bird.' Given that the alternatives are created by replacing the focus associate with the element of the same semantic type, *ichi-wa-no tori* 'one-CL bird' can be replaced by practically any NP, including NPs with numerals, definite NPs, and proper names, as shown in (10c).

(10) a. Taro-wa [$_{NP}$ ichi-wa-no tori]$_{F}$-mo mi-nakat-ta.
Taro-TOP one-CL-GEN bird-MO see-NEG-PAST
'Taro didn't see even one bird.'
b. [*mo* (as *even*) [Taro didn't see [one bird]$_{F}$]]
c. Alternatives: {Taro didn't see one bird, Taro didn't see two birds, Taro didn't see three birds, ..., Taro didn't see one cat, Taro didn't see two cats, Taro didn't see three cats, ..., Taro didn't see the chipmunk that he often feeds, Taro didn't see Peter Rabbit, ... }

Among the set of alternatives, the proposition 'Taro didn't see one bird' is considered by the speaker to be the least likely. In other words, the proposition 'Taro saw one bird' is considered to be the most likely proposition, and since it is asserted that that proposition is false, the hearer comes to understand that the speaker means that Taro didn't see any animals at all.

When the speaker upon uttering (8) means (8a), he/she has no commitment about whether Taro saw

animals other than birds. In this case, the focus associate of *-mo* is the numeral *ichi* 'one,' and the alternatives have the form 'Taro didn't see x number of bird(s).' This is shown in (11). The proposition 'Taro didn't see one bird' is regarded as the least likely among the set of alternatives. In other words, the proposition 'Taro saw one bird' is the most likely proposition, which can be deduced from entailment relations holding among the alternatives: Taro's having seen one bird is entailed by all the other alternative propositions with the cardinality of two or higher. Since it is asserted that that didn't happen, the hearer comes to understand that the speaker means that Taro didn't see any bird. Crucially, the speaker has no commitment about whether or not Taro saw other animals.

(11) a. Taro-wa [$_{NP}$ [ichi]$_F$-wa-no tori]-mo mi-nakat-ta
Taro-TOP one-CL-GEN bird-MO see-NEG-PAST
b. [*mo* (as *even*) [Taro didn't see [one]$_F$ bird]
c. Alternatives: {Taro didn't see one bird, Taro didn't see two birds, ...}

There is nothing special about this kind of 'ambiguity.' Consider (12). Depending on circumstances, members of the set of alternatives may be of the form 'the teacher didn't praise x' where x may be filled by any objects (typically, any types of art work) (e.g., {the teacher didn't praise Hanako's calligraphy, the teacher didn't praise Jiro's photography, the teacher didn't praise the sculpture at the gate, ... }, or they may be of the form 'the teacher didn't praise x's drawing' (e.g., {the teacher didn't praise Hanako's drawing, the teacher didn't praise Jiro's drawing, ...}, where the head noun *e* 'drawing' is not part of focus semantics.

(12) Sensei-wa [$_{NP}$ Taro-no e]-mo home-nakat-ta.
Teacher-TOP Taro-GEN drawing-MO praise-NEG-PAST
'Taro didn't praise even Taro's drawing.'
a. [*mo* [the teacher didn't praise [Taro's drawing]$_F$]]
b. [*mo* [the teacher didn't praise [Taro]$_F$'s drawing]]

All in all, we can assume that the focus associate of *-mo* is what it c-commands: (i) its sister phrase S or (ii) the subpart(s) of S.

We now turn to the floating *one*-NPI example in (13). Following Watanabe (2006) and H&O (2014), Ochi (2016) postulates the structure of the floating *one*-NPI as shown in (14). Once again, *-mo* heads FocP, but this time, it takes Classifier Phase (CLP) as its complement whose head hosts a numeral in its spec and NP as its complement.

(13) Taro-wa sono hi tori-o ichi-wa-mo mi-nakat-ta.
Taro-TOP that day bird-ACC one-CL-MO see-NEG-PAST
a. 'Taro didn't any bird that day.'
b. *'Taro didn't see anything, even one bird, that day.'

(14) ... [$_{VP}$ bird ..... [$_{FocP}$ [$_{CLP}$ one [$_{CL'}$ t_i CL]] *mo*] ... V]

Recall that the focus associate of *-mo* in this type of *one*-NPI construction is restricted to the cardinal *one*, which is a subpart of the CLP complement of *-mo*. The question is why the CLP complement of *-mo* cannot serve as the target of focus in this case. What is crucial here is that the NP portion (e.g., *tori* 'bird') moves out of FocP. Nakanishi (2019: 142) suggests that the displaced NP in the floating *one*-NPI configuration is interpreted as topic. Then, CLP cannot be the target of focus because it contains a copy of *tori* 'bird': it cannot be a topic and (part of) a focus at the same time. As a result, the cardinal *ichi* 'one' is the only choice in this case as the target of focus.[1]

Let us finally turn to the post-nominal *one*-NPI. Recall that this type of *one*-NPI always includes the NP portion of the nominal as part of the focus associate. That is, this construction does not allow focus association to target only the numeral *ichi* 'one' as illustrated in (16).

(15) Taro-wa sono hi tori ichi'-wa mi-nakat-ta.
Taro-TOP that day bird one-CL see-NEG-PAST
a. *Taro didn't see any bird that day.'
b. 'Taro didn't see anything, even one bird, that day.'

(16) *[*mo* (as *even*) [Taro didn't see [one]$_F$ bird]]

Why would that be? Under Ochi's (2016) account adopted in this paper, the post-nominal *one*-NPI has the following structure in which the NP *tori* 'bird' ends up in the specifier of FocP. Again, the nominal-internal movement of NP is postulated by Watanabe (2006) and further elaborated by H&O (2014).

(17) [$_{FocP}$ bird$_i$ [$_{CLP}$ one [$_{CL'}$ t_i CL]] $\varnothing_{Foc}$][2]

This structure allows us to see why *tori* 'bird' is necessarily included in focus. The NP *tori* 'bird' enters into a spec-head relation with the (null) Foc head, which assigns [+ focus] to this NP. This, I suggest, serves as the instruction for the semantic component to include it as part of the focus associate. Now, recall that we

[1] This is in line with Downing's (1996) observation that the floating numeral quantifier always places numeral as the locus of new information.
[2] This null Foc head has a very limited distribution. It does not occur in the prenominal *one*-NPI or the floating *one*-NPI, nor does it occur with other types of NPIs, e.g., *dare-{mo/*$\varnothing_{Foc}$}* 'nobody.' See Ochi (2016) for an analysis of this point.

are assuming that the focus associate of *-mo* is either (i) its sister phrase S or (ii) the subpart(s) of S. Since *tori* 'bird' needs to be focused, choosing only the numeral *ichi* 'one' as the target of focus is excluded in this case. On the other hand, the sister phrase of *-mo*, CLP, is a viable candidate for focus association, since it contains a copy of *tori* 'bird': we get the schematic LF representation in (18a), with the set of alternatives of the form 'Taro didn't see x,' as shown in (18b). We thus have an explanation for why (15) means (15b), not (15a).

(18) a. [*mo* (as *even*) [Taro didn't see [one bird]$_F$]]
b. Alternatives: {Taro didn't see one bird, Taro didn't see two birds, ..., Taro didn't see one mouse, Taro didn't see two mice, ..., Taro didn't see the chipmunk that he often feeds, Taro didn't see Peter Rabbit, ... }

Note that if only the NP part, which establishes the spec-head relation with the Foc head, is the target of focus, we may not quite get the result that we want. For instance, if only *tori* 'bird' were focused in (15), we would get the LF representation shown in (19a), and the members of the set of alternatives would take the form 'Taro didn't see one x,' as (19b) shows. But this alternative set would fail to include various kinds of NPs, such as definite NPs (e.g., the chipmunk that Taro often feeds) and proper names (e.g., Peter Rabbit), since these expressions do not easily occur with the cardinal *one*. If so, we cannot obtain the 'Taro-saw-nothing' reading in (15b).

(19) a. [*mo* (as *even*) [Taro didn't see one [bird]$_F$]]
b. Alternatives: {Taro didn't see one bird, Taro didn't see one mouse, Taro didn't see one cat, ... }

I therefore suggest that the spec-head relation discussed above serves as an instruction for the semantic component to include *tori* 'bird' as part of focus, but it in no way prevents other elements of FocP from being considered as the target of focus. Although a question remains as to why (19) is not a viable candidate, it should be noted that exactly the same issue actually arises in other cases. For example, the example in (8) was analyzed either as (10) or (11). But it should not be analyzed as (20) for the same reason as the one provided above.

(20) Taro-wa [$_{NP}$ ichi-wa-no [tori]$_F$]-mo mi-nakat-ta
Taro-TOP one-CL-GEN bird-MO see-NEG-PAST

To summarize, the syntactic analysis of *one*-NPIs in Japanese discussed in the previous section helps us explain the interpretive differences noted in the previous literature (Nakanishi (2019, in prep.)). The pre-nominal *one*-NPI may assign focus to its complement (one-CL N) or to the numeral *ichi* 'one.' By contrast,

the other two types of *one*-NPIs are restricted in their interpretation. What sets them apart from the pre-nominal *one*-NPI is the existence of the movement of NP that is embedded in the classifier projection. If NP moves out of the nominal domain and gets interpreted as topic (= the floating *one*-NPI), focusing *ichi* 'one' is the only option. If NP ends up in the spec of FocP (= the post-nominal *one*-NPI), focusing only *ichi* 'one' is not an option. Thus, the nominal-internal movement plays a vital role in explaining the otherwise perplexing array of observations about *one*-NPIs and their interpretations.

4. Chinese *one*-NPIs

Our analysis has an implication. Recall that (4a) is assumed by H&O (and Watanabe (2006)) to be the underlying structure for the post-nominal NC construction and the floating NC construction. It is worth noting that the Chinese classifier structure is standardly taken to possess a similar structure. This point is based in part on the fact that the ordinary classifier does not occur with *-de*, which is used to introduce adnominal modifiers (e.g., relative clauses). Following Tang (1990), Cheng and Sybesma (1999), and H&O (2014), let us assume that the NC construction in Chinese has the structure in (22), where the classifier is a head selecting NP as its complement.

(21) san-ben (*-de) shu
three-CL book
'three books'

(22) [$_{CLP}$ # [$_{CL'}$ CL NP]]

Under H&O's partially uniform analysis adopted in this paper, the post-nominal NC and the floating NC in Japanese and the 'pre-nominal' NC in Chinese (there is no post-nominal NC or the floating NC in Chinese) essentially share the same underlying structure. One crucial difference between the two languages is that Chinese does not have the movement of the NP complement of CL, internal to, or out of, the nominal domain. Since I have just argued that this movement of NP is a crucial factor in restricting the interpretation of the post-nominal *one*-NPI and the floating *one*-NPI in Japanese, and since Chinese lacks this movement, we should expect that the Chinese *one*-NPI freely chooses the entire CLP or its subpart(s) as the target of focus. Let me end this paper by noting that this is indeed the case.

Chinese has a minimizer construction that involves a focused and dislocated *one*-CL. This expression consists of the focus particle *lian*, which literally means to 'connect,' and the universal quantificational element *dou*, with *one*-NP appearing between them, as shown in (23a). Shyu (2016) analyzes this type of construction by postulating DouP in a clause-medial position, whose head *dou* takes the *lian*-phrase in its specifier position and NegP as its complement (23b). Note that *lian* is analyzed as a preposition by Shyu, but I will simply label its projection as LianP.

(23) a. Ta (lian) yiju hua dou mei shuo.
he lian one.cl word dou not.have say
'He didn't say even one word.'

b. [Ta [$_{DouP}$ [$_{LianP}$ (lian) yiju hua]$_i$ [$_{Dou'}$ dou [$_{NegP}$ mei shuo e_i]]
he lian one.cl word dou not.have say

According to Shyu (2016: 1380), *lian* is very much like English *even*, functioning as (i) a focus particle that generates a set of propositional alternatives and (ii) a scalar operator that effectively places the asserted proposition at the end of a likelihood scale that is postulated in a given context. And the universal quantifier/maximizer *dou* quantifies over the members in the set of alternatives.

Importantly, *lian* may freely choose its sister or the subpart(s) of its sister as its focus associate. Let us start with the former. The following example of the *lian ... dou* construction from Shyu (2016) gives rise to the scalar presupposition that among the set of alternative propositions of the form 'Lisi didn't eat x,' Lisi's not eating a mouthful of rice is considered to be the least likely. In other words, Lisi's eating a mouthful of rice is considered to be the most likely, and since that proposition is negated, we understand this sentence to mean, 'Lisi didn't eat anything.' So in this case, the focus associate of *lian* is its CLP complement, *yi-kou fan* 'one-CL rice.'

(24) Lisi (lian) yi-kou fan dou mei chi.
Lisi lian one-CL rice dou not.have eat
'Lisi didn't eat even one mouthful of rice. ≈ Lisi didn't eat anything.' (Shyu 2016: 1382)

Furthermore, let us consider an example analogous to Japanese (2), where animals other than dog are explicitly stated in the previous utterance. (25) below is acceptable (thanks to Haowen Zheng and Yuchen Zhang for judgments and discussion). In this instance, the focus associate of *lian* 'even' is the numeral *yi* 'one.'

(25) Zai zhe-ge cunzi li, neng kanjian laoshu he mao,
exist this-CL village in can see mouse/mice and cat(s),
dan (lian) yi-zhi gou dou kanbujian.
but lian one-CL dog dou see.not.see.
'In this village, you can see mice and cats, but you can not see (even) one dog.'

To sum up, the *lian ... dou* NPI is 'ambiguous' with respect to focus association. Focus may fall on the entire CLP of the form '*yi*-CL N' or it may fall just on the numeral *yi* 'one.' As mentioned above, this is fully expected under our analysis. Despite sharing the same underlying structure with the post-nominal

one-NPI and the floating *one*-NPI in Japanese, the *one*-NPI in Chinese does not employ any movement of NP. It is thus on a par with the pre-nominal *one*-NPI in Japanese, which, as we saw, also yields ambiguity in terms of the target of focus.

5. Conclusion

Adopting Ochi's (2016) syntactic analysis of *one*-NPIs and Nakanishi's (2019, in prep.) focus semantic analysis, this paper has shown that the interpretive differences observed among three types of *one*-NPIs in Japanese can be accommodated rather naturally under the partially uniform syntactic analysis of H&O (2014). In particular, movement within or out of the minimizer expression plays a vital role in restricting the interpretation of the minimizer expression in one way or the other. To the extent that the current analysis is on the right track, it lends credence to the view expressed by Watanabe (2006) and H&O (2014) that the nominal architecture of classifier languages like Japanese may be more than meets the eye, in the sense that quantificational nominal expressions in this language have rich and articulated layers on top of the NP projection.

References

Cheng, Lisa and Rint Sybesma (1999) "Bare and Not-so-bare Nouns and the Structure of NP," *Linguistic Inquiry* 30, 509-542.

Downing, Pamela (1996) *Numeral Classifier Systems: The Case of Japanese*, Amsterdam: John Benjamins.

Huang, C.-T. James Huang and Masao Ochi (2014) "Remarks on Classifiers and Nominal Structure in East Asian," *Peaches and Plums*, ed. by C.-T. James Huang and Feng-hsi Liu, 53-74, Language and Linguistics Monograph Series, Taipei: Academia Sinica.

Karttunen, Lauri and Stanley Peters (1979) "Conventional Implicature," in Choon-Kyu Oh & David A. Dineen (eds.), *Syntax and Semantics* 11, 1–55. New York: Academic Press.

Miyamoto, Yoichi (2009) "On the Nominal-internal Distributive Interpretation in Japanese," *Journal of East Asian Linguistics* 18: 233–251.

Nakanishi, Kimiko (2019) "Numerals and Negative Polarity Items in Japanese," *Ochanomizu University Studies in Arts and Culture* 16, 129-142.

Nakanishi, Kimiko (in prep.) "Focus, Numerals, and Negative Polarity Items in Japanese," Unpublished ms., Ochanomizu University.

Ochi, Masao (2006) "Numeral Classifiers, Negative Polarity, and Movement to the Nominal Periphery," *Nanzan Linguistics* 11, 35-56.

Rooth, Mats (1992) "A Theory of Focus Interpretation," *Natural Language Semantics* 1, 75-116.

Saito, Mamoru, T.-H. Jonah Lin, and Keiko Murasugi (2008) "N'-Ellipsis and the Structure of Noun Phrases in Chinese and Japanese," *Journal of East Asian Linguistics* 17, 247-271.

Shyu, Shu-ing (2016) "Minimizers and EVEN," *Linguistics* 54(6), 1355–1395.

Tang, Chih-Chen Jane (1990) *Chinese Phrase Structure and the Extended X-Bar Theory*. Ithaca, NY: Cornell University dissertation.

Watanabe, Akira (2006) "Functional Projections of Nominals in Japanese: Syntax of Classifiers," *Natural Language & Linguistic Theory* 24, 241–306.