

Numeral Classifiers, Negative Polarity, and Movement to the Nominal Periphery*

Masao Ochi
Osaka University

1. Introduction

Numeral classifiers (henceforth NC) in Japanese are known to appear in at least three syntactic environments: prenominally, postnominally, and floating.

- (1) a. Prenominal Numeral Classifier (NC): [Num-CL-Gen N-Case]
Taro-wa san-ko-no (*kinoo) ringo-o tabeta.
Taro-TOP three-CL-GEN yesterday apple-ACC ate
'Taro ate three apples (yesterday).'
- b. Postnominal NC: [N Num-CL-Case]
Taro-wa ringo (*kinoo) san-ko-o tabeta.
Taro-TOP apple yesterday three-CL-ACC ate
'Taro ate three apples (yesterday).'
- c. Floating NC: [N-Case Num-CL]
Taro-wa ringo-o (kinoo) san-ko tabeta.
Taro-TOP apple-ACC yesterday three-CL ate
'Taro ate three apples (yesterday).'

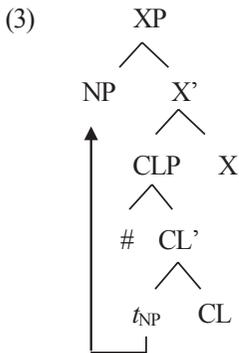
Based on the proposal of Huang and Ochi (2014), I will explore in this paper a particular instantiation of a non-uniform approach to those NC constructions.¹ Let me spell out a few crucial points. First, I assume, following authors such as Saito et al. (2008) and Miyamoto (2009), that the prenominal NC is an NP-level modifier (or an adjunct), as shown in (2).

- (2) NP
 / \
 CLP-no NP

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¹ See Sauerland and Yatsushiro (2004) and Miyamoto (2009) for a non-uniform treatment of the NC constructions in Japanese. See also Shlonsky (2004) for a non-uniform treatment of prenominal and postnominal numerals in Hebrew.

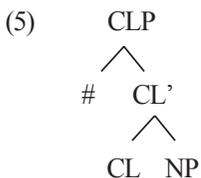
Second, I assume that the postnominal NC has the structure shown below (based on Watanabe (2006)).²



According to Chierchia (1998), noun extensions in languages such as Chinese and Japanese are mass, and those languages make a productive use of classifiers, which combine with mass nouns and create countable units. We might say that the structure in (3) reflects such a viewpoint: The classifier (CL) head combines with a noun (or NP), thereby creating countable units, and then a numeral combines with the combination of a classifier and a noun. Moreover, according to (3), the NP complement of CL undergoes movement and lands in the edge of a nominal domain.³ As a result, we get the order ‘NP-numeral-classifier.’ Let us assume that X in this structure may be occupied by Case (e.g., *-ga* and *-o*) (see Watanabe (2006) analysis). As we will see shortly, X may be occupied by something else as well (i.e., a focus particle).

Before turning to the floating NC, let us briefly consider Chinese. Following Tang (1990) and Cheng and Sybesma (1999), I will assume, without any further discussion, that the NC construction in Chinese instantiates a structure like the one in (5), where the classifier is a head selecting NP as its complement.

- (4) san-ben (*-de) shu
 three-CL book
 ‘three books’



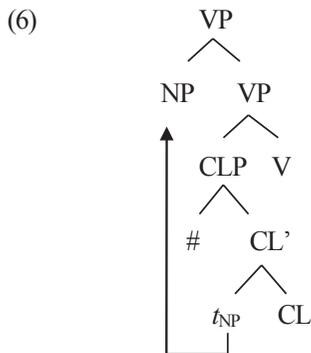
We can see that the NC construction in Chinese (5) and the postnominal NC construction in Japanese shown in

² For Watanabe (2006), a classifier occupies the head of #P and a numeral is in its specifier (he posits no CLP). The choice between the two is immaterial for what follows.

³ Scholars such as Koizumi (1995), Ochi (2009), Bošković (2011), and Shibata (2015) argue that Japanese employs movement of the nominal complement. If such a view is tenable, we could establish some degrees of parallelism between the nominal domain and the verbal domain in this language, as both domains involve the movement of the nominal complement.

(3) essentially share the same structure, except that the latter involves overt movement of NP. This point will become important.

Let us now turn to the floating NC. I assume, following Huang and Ochi (2014), that the postnominal NC and the floating NC share (essentially) the same underlying structure.⁴



The idea is that the NP complement of the CL head always moves in Japanese (but not in Chinese), and the difference between the postnominal NC and the floating NC concerns the syntactic position in which the moved NP occupies.⁵ We obtain the postnominal NC if the moved NP ends up in the edge of a nominal domain. If the moved NP moves further into a verbal domain, we obtain the floating NC. This viewpoint is corroborated by Jenks' (2011) cross-linguistic generalization concerning floating/stranded NC: Only those classifier languages that have (or allow) the Noun-NC order allow NC-float (head-final languages: Burmese, Japanese, and Korean; head-initial languages: Thai, Khmer). To the extent that the stranding view is correct, this has an implication that it is the postnominal NC, and not the prenominal NC, that should be related to the floating NC. Unlike Japanese, Chinese lacks the relevant NP-movement altogether: NP does not move to the edge of the (extended) nominal domain, nor does it move out of the nominal domain.

There is one additional point to consider. If we combine the structures in (2) and (3), we expect that a postnominal quantifier is structurally higher than a prenominal one. This is because the former selects an NP as its complement, and the latter is located inside such an NP. The following sets of data in (7) and (8) confirm this point. First, the data in (7) show that universal quantifiers such as *subete* occur in the same three environments discussed above with respect to numeral classifiers.

- (7) a. Taro-wa subete-no ringo-o tabeta. (prenominal ∀)
 Taro-TOP ∀-no apple-ACC eat-PAST
 'Taro ate all the apples.'

⁴ Some studies such as Sauerland and Yatsushiro (2004) and Miyamoto (2009) converge on the idea that prenominal NCs should be treated separately from postnominal NCs and floating NCs.

⁵ I have no specific proposal to make about why this movement is obligatory. As suggested by Daiko Takahashi (p.c.), it might be that a numeral and a classifier need to form a cluster of some sort, but that cannot take place unless NP moves away, as it intervenes between a numeral and a classifier.

- b. Taro-wa ringo-o subete tabe-ta. (floating \forall)
 Taro-TOP apple-ACC \forall eat-PAST

‘Taro ate all of the dumplings.’

- c. Taro-wa ringo subete-o tabe-ta. (postnominal \forall)
 Taro-TOP apple \forall -ACC eat-PAST

‘Taro ate all of the dumplings.’

Crucially, when NC and a universal quantifier co-occur in the same nominal domain, there is a restriction (see Huang and Ochi (2014)): the latter must be postnominal.

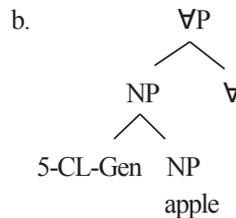
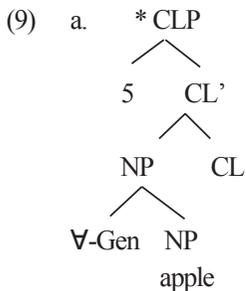
- (8) a. *Taro-wa subete-no ringo go-ko-o tabe-ta.
 Taro-TOP \forall -GEN apple 5-CL-ACC eat-PAST

‘Taro ate all of the 5 apples.’

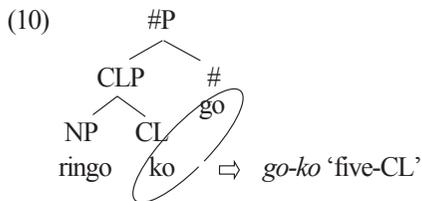
- b. Taro-wa go-ko-no ringo subete-o tabe-ta.
 Taro-TOP 5-CL-GEN apple \forall -ACC eat-PAST

‘Taro ate all of the 5 apples.’

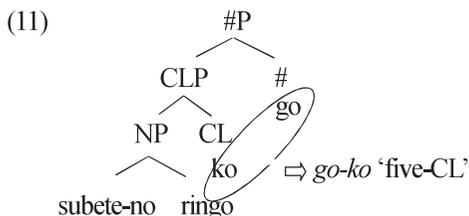
This fact would follow from the hypothesis under discussion if aided by the idea that a strong quantifier is in a higher position than a weak one in the nominal domain (see Borer (2005)). In English, for example, *all* occurs higher than a cardinal expression such as *five*: *all five apples* vs. **five all apples*. (9a) below shows the underlying structure of the nominal expression in (8a). It is illegitimate as the cardinal expression *go* ‘five’ occurs higher than the universal quantifier *subete* in the same nominal domain. The structure in (9b) (for (8b)) does not violate such requirement.



Now, according to the structure in (3), the postnominal NC construction involves obligatory movement: if the relevant movement need not take place, we should get such outputs as **san hon satsu* ‘three book CL.’ But is there evidence for this NP-movement? The question is important in light of the preceding discussion about the contrast in (8). It was suggested above that (8a) is bad because a universal quantifier cannot occur lower than a numeral in the same nominal domain. But this idea can be executed without adopting (9a). One alternative structure for (8a) would be (10). Here, CL selects NP as its complement, and the resulting structure is embedded by Number Phrase.



Although this structure would wrongly yield the word order 'NP-CL-Num,' we could avoid this undesired result by assuming that the linear order between a classifier and a numeral is permuted by some sort of PF rule (e.g., perhaps a classifier is enclitic). Crucially, this line of analysis can maintain our earlier discussion about (8a) without positing NP-movement. As (11) below shows, the universal quantifier *subete* that occurs prenominally is structurally lower than the postnominal numeral.



Furthermore, an analysis that posits the structure in (9a) for (8a) would need an additional assumption to rule out (8a), since the universal quantifier *subete* does not remain in the c-command domain of *go* 'five' after the NP containing *subete* is displaced. Accordingly, it would be necessary to assume that the relevant condition (i.e., a universal quantifier cannot be in the scope of a weak quantifier) applies to the underlying structure, or that it applies after the moved NP is (obligatorily) reconstructed.

Despite such potential drawbacks, I will argue in the next section that we can in fact find some empirical evidence for the structure in (3) for the postnominal NC. The evidence comes from the distribution of the numeral classifiers that exclusively occur in negative contexts. Section 3 will discuss some interpretive differences associated with such negation-oriented numeral classifiers. Section 4 concludes the paper.

2. Numeral classifiers and Negative Polarity

2.1. Data

It is well known that a combination of an indeterminate (such as *dare* 'who' and *nani* 'what') and *-mo* may function as a negative polarity item (NPI) in Japanese.⁶

- (12) *wh*-NPIs
- a. Kinoo dare-mo ko-nakat-ta.
 yesterday who-MO come-Neg-PAST
 'No one came yesterday.'

⁶ See Watanabe (2004) for a view that such items are negative concord items.

- b. Taro-wa kinoo nani-mo kawa-nakat-ta.
 Taro-TOP yesterday what-MO buy-NEG-PAST
 ‘Taro didn’t buy anything yesterday.’

Such *wh*-NPIs may occur with a Case-marked noun (see Aoyagi and Ishii (1994)), which suggests that they may be adjuncts (at least in such cases).

- (13) a. Gakusei-ga kinoo dare-mo ko-nakat-ta.
 student-NOM yesterday who-MO come-NEG-PAST
 ‘No student came yesterday.’
- b. Taro-wa kudamono-o kinoo nani-mo kawa-nakat-ta.
 Taro-TOP fruit-ACC yesterday what-MO buy-NEG-PAST
 ‘Taro didn’t buy any fruit yesterday.’

Japanese also allows another type of NPI, which consists of *one*-CL and *-mo*.⁷ Following Nakanishi (in prep.), I will refer to this type of NPIs as *one*-NPIs. Let us first confirm that *one*-CL ordinarily means ‘one.’

- (14) a. Prenominal *one*-CL NP [*one*-CL-*no* N-*Case*]
 Taro-wa sono hi ichi’-wa-no tori-o mi-ta.
 Taro-TOP that day one-CL-GEN bird-ACC see-PAST
 ‘Taro saw one bird that day.’
- b. Postnomial *one*-CL NP [*N one*-CL-*Case*]
 Taro-wa sono hi tori ichi’-wa-o mi-ta.
 Taro-TOP that day bird one-CL-ACC see-PAST
 ‘Taro saw one bird that day.’
- c. Floating *one*-CL [*N-Case* *one*-CL]
 Taro-wa tori-o sono hi ichi’-wa mi-ta.
 Taro-TOP bird-ACC that day one-CL see-PAST
 ‘Taro saw one bird that day.’

Japanese is a pitch-accent language, and the numeral classifier is generally accented, realized as a sequence of a high tone followed by a low tone, as in e.g., *ichi’-wa* ‘one-CL_{BIRD}’ and *hito’-ri* ‘one-CL_{HUMAN}.’ Keeping this point in mind, consider the following examples, which contain *one*-NPIs that occur in the three syntactic

⁷ Here ‘one’ acts as a minimizer. As for *-mo*, I follow Nakanishi (2008) (see also Lahiri (1998) and An (2007b)) and assume that it introduces a scalar presupposition that the proposition being asserted is the least likely among the set of alternative propositions. Given that the proposition with ‘one’ is more likely than other propositions with other numbers (as the latter entail the former), it follows that a combination of ‘one’ and *-mo* (i.e., *one*-NPI) cannot occur in affirmative contexts.

environments under discussion.

- (15) a. Prenominal *one*-NPI [*one*-CL-*no* N-*mo*]
 Taro-wa sono hi {ichi-wa-no/ichi'-wa-no} tori-mo mi-nakat-ta.
 Taro-TOP that day one-CL-GEN bird-MO see-Neg-PAST
 'Taro didn't see any bird that day.' (with unaccented *ichi-wa* 'one-CL')
 'Taro didn't see one bird (as well as something else) that day.' (with accented *ichi'-wa* 'one-CL')⁸
- b. Postnomial *one*-NPI [N *one*-CL]
 Taro-wa sono hi tori {*ichi-wa/ichi'-wa} mi-nakat-ta.
 Taro-TOP that day bird one-CL see-Neg-PAST
 'Taro didn't see anything, even one bird, that day.'
- c. Floating *one*-NPI [N-Case *one*-CL-*mo*]
 Taro-wa tori-o sono hi {ichi-wa-mo/ichi'-wa-mo} mi-nakat-ta.
 Taro-TOP bird-ACC that day one-CL-MO see-Neg-PAST
 'Taro didn't see any bird that day.' (with unaccented *ichi-wa* 'one-CL')
 '(Lit.) Taro didn't see as many as one bird that day.' (with accented *ichi'-wa* 'one-CL')

The postnomial *one*-NPI is unlike the other two in the following two respects. First, while the numeral classifier with 'one' is unaccented when it is part of the prenominal *one*-NPI or the floating *one*-NPI, as shown in (15a) and (15c), this is not the case with the postnomial *one*-NPI, as shown in (15b). The following affirmative sentences are unacceptable if the numeral classifier is unaccented (i.e., the NPI reading is unavailable).

- (16) a. Prenominal *one*-NPI [*one*-CL-*no* N-*mo*]
 Taro-wa sono hi {ichi'-wa-no/*ichi-wa-no} tori-mo mi-ta.
 Taro-TOP that day one-CL-GEN bird-MO see-PAST
 Taro saw one bird (in addition to something else).'
 NOT 'Taro didn't see any bird that day.'
- b. Postnomial *one*-NPI [N *one*-CL(-?*mo*)]
 *Taro-wa sono hi tori {ichi'-wa/ichi-wa} mi-ta.
 Taro-TOP that day bird one-CL see-PAST
 'Taro didn't see any bird that day.'

⁸ With the accented *ichi-wa* 'one-CL', another interpretation may be possible, which would be approximately translated as '(Lit.) Taro didn't see as many as one bird that day.'

- c. Floating *one*-NPI [N-Case *one*-CL-*mo*]
 *Taro-wa tori-o sono hi {ichi'-wa-mo/*ichi-wa-mo} mi-ta.
 Taro-TOP bird-ACC that day one-CL-MO see-PAST
 '(Lit.) Taro saw as many as one bird that day.'
 NOT 'Taro didn't see any bird that day.'

Second, the prenominal *one*-NPI and the floating *one*-NPI must be accompanied by an overt focus marker, *-mo*, but the postnominal *one*-NPI occurs without *-mo*. For example, (17a), which contains a prenominal *one*-NPI, is simply ungrammatical without *-mo*. Similarly, (17b), in which *ip-piki* 'one-CL' appears away from the host noun, does not have an NPI reading in the absence of *-mo*. But the postnominal *one*-NPI does not require the presence of *-mo*, as (17c) shows.

- (17) a. Boku-wa sono hi ip-piki-no ari *(-mo) mi-nakat-ta.
 I-TOP that day one-CL-GEN ant MO see-Neg-PAST
 'I didn't see any ant that day.'
- b. Boku-wa ari-o sono hi ip-piki mi-nakat-ta.
 I-TOP ant-ACC that day one-CL see-Neg-PAST
 'I didn't see one ant that day.'
 NOT 'I didn't see any ant that day.'
- c. Boku-wa sono hi ari ip-pi'ki mi-nakat-ta.
 Taro-TOP that day ant one-CL see-Neg-PAST
 'I didn't see any ant that day.'

Although I have nothing interesting to say about the first point of difference, I will take up the second point at some length in the next section.

2.2. Proposal

Following Nakanishi (in prep.), I would like to pursue the following hypothesis.

- (18) The postnominal *one*-NPI contains a null focus head.

As Nakanishi (in prep.) reports, Korean provides a nice confirmation of this hypothesis. Like Japanese, Korean allows three kinds of *one*-NPIs: prenominal, postnominal, and floating. And all the three types occur with the focus marker *-to*, which, as Nakanishi reports, may optionally be dropped for the postnominal *one*-NPI but not for the other two. The following examples are taken from Nakanishi (in prep.).

- (19) a. Alan-un han-mali-uy kangaci-to po-ci mos ha-ssta.
 Alan-TOP one-CL-GEN dog-TO see-CI not do-PAST
 'Alan didn't see a dog.'

- b. Alan-un kangaci-lul han-mali-to po-ci mos ha-ssta.
 Alan-TOP dog-ACC one-CL-TO see-CI not do-PAST

‘Alan didn’t see a dog.’

- c. Alan-un kangaci han-mali(-to) po-ci mos ha-ssta.
 Alan-TOP dog one-CL(-TO) see-CI not do-PAST

‘Alan didn’t see a dog.’

It thus seems that Korean and Japanese are minimally different: the focus element of the postnominal *one*-NPI is optionally null in Korean while it must be null in Japanese.

In fact, as noted by Nakanishi (in prep.), the postnominal *one*-NPI in Japanese (as well as the other two types) can occur with *-sae*, another focus marker whose meaning is akin to *even*. This is shown in (20c).

- (20) a. Boku-wa sono hi ip-piki-no ari-sae mi-nakat-ta.
 I-TOP that day one-CL-GEN ant-MO see-Neg-PAST

‘I didn’t see even one ant that day.’

- b. Boku-wa ari-o sono hi ip-piki-sae mi-nakat-ta.
 I-TOP ant-ACC that day one-CL-MO see-Neg-PAST

‘I didn’t see even one ant that day.’

- c. Boku-wa sono hi ari ip-piki-sae mi-nakat-ta.
 Taro-TOP that day ant one-CL-MO see-Neg-PAST

‘I didn’t see even one ant that day.’

While this fact may provide some support for the hypothesis in (18), I would like to keep those expressions with *-sae* out of the discussion. For example, *wh*-NPIs are incompatible with *-sae*.

- (21) a. Gakusei-ga kinoo dare-{mo/*sae} ko-nakat-ta.
 student-NOM yesterday who-MO come-NEG-PAST

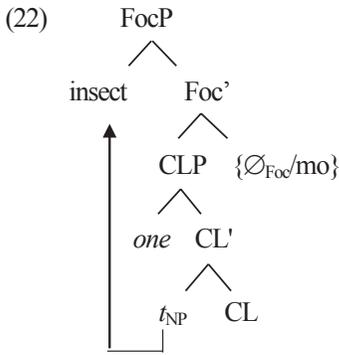
‘No student came yesterday.’

- b. Taro-wa kudamono-o kinoo nani-{mo/*sae} kawa-nakat-ta.
 Taro-TOP fruit-ACC yesterday what-MO buy-NEG-PAST

‘Taro didn’t buy any fruit yesterday.’

I thus assume that the postulated null Foc is a variant of *-mo*, and not of *-sae*.

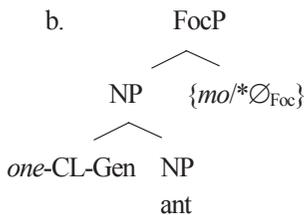
Returning to the main discussion, the postnominal *one*-NPI (e.g., *mushi ip-piki* ‘insect one-CL’) would have the following structure under the current hypothesis.



As we saw earlier in (3), the postnominal classifier construction is obtained when the CL head takes an NP as its complement and a numeral as its specifier. Here, I assume that *one*-NPI is a Focus Phrase (FocP), whose head selects CLP. Furthermore, let us suppose that Foc head may or may not be phonetically null, and that NP moves to the spec of FocP. But once we postulate a null Foc head in the grammar of Japanese, a question immediately arises: why can't this null Foc head occur with the prenominal *one*-NPI or the floating *one*-NPI? In what follows, I would like to argue that the limited distribution of the null focus head need not be stipulated.

Let us first examine the prenominal *one*-NPI. On the assumption that the prenominal NC is an NP-adjunct in the sense of Saito, Lin and Murasugi (2008), the structure of (23a) would be as in (23b). Again, I assume that FocP is projected on top of NP.

- (23) a. ip-piki-no ari-{mo/*∅_{Foc}} (see (17a))
 one-CL-GEN ant-FOC



Unlike in (22), the null Foc head is not licensed in this configuration. In order to explain this difference, let us turn to a well-known restriction on the distribution of null complementizers (null C) in English, which has been extensively discussed by such authors as Stowell (1981), Pesetsky (1992), Bošković (1997), Bošković and Lasnik (2003), and An (2007a). As shown in (24), the null C cannot occur in non-complement (or non-canonical) positions, and this limitation has been analyzed in various manners, e.g., in terms of the ECP (Stowell (1981)), and affixation to a verbal head (Pesetsky (1992), Bošković and Lasnik (2003)).

- (24) a. I believe {that/∅_C} he likes linguistics.
 b. {that/*∅_C} he likes linguistics is widely believed.

Whatever the right analysis of the null C may be, we must take into consideration the fact, noted by Bošković (1997), that the distribution of the null C is rather free when its specifier is filled. For instance, (25b) is fine,

unlike (24b).

- (25) a. I know [what_i ∅_C he likes *t*_i].
 b. [What_i ∅_C he likes *t*_i] is apples.

Here I would like to essentially follow An (2007a) and assume the following:

- (26) Either the spec or the head of a clause in a non-canonical position must have a phonetic realization.⁹
- (27) a. [_{CP} ∅ that [_{TP} he likes linguistics]] is widely believed.
 b. *_{CP} ∅ ∅ [_{TP} he likes linguistics]] is widely believed.
 c. [_{CP} what ∅ [_{TP} he likes *t*_i]] is apples.

Although we are dealing with the nominal expressions containing classifiers and not with clauses, let us explore the possibility that the null Foc head postulated above is subject to a requirement similar to the one governing the distribution of the null C in English. Assuming that *one*-NPIs typically occur in a non-complement (e.g., adjunct) position (see section 3), I would like to argue that the null Foc head requires that its spec position be filled.

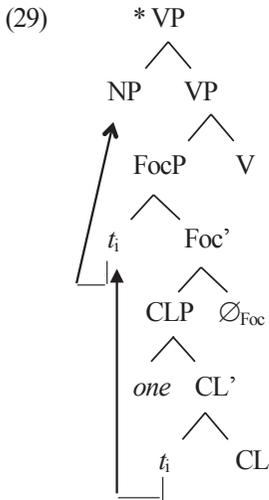
- (28) ∅_{Foc} needs to have its specifier filled by an overt material. No such requirement applies to overt focus markers (e.g., *mo*).

This hypothesis allows us to capture the distinction between the postnominal *one*-NPI (represented in (22)) and the prenominal *one*-NPI shown in (23). As shown in (22), the postnominal *one*-NPI has NP (e.g., *mushi* ‘insect’) in the spec of FocP via movement. By contrast, nothing occupies the spec of FocP in (23). As a result, Foc head cannot be null in this case.¹⁰

Let us now turn to the floating *one*-NPI and consider why the null Foc head cannot occur in that construction (see (17b)). As discussed in section 1, I assume that the floating NC construction and the postnominal NC construction have essentially the same underlying structure, and that they differ with respect to the landing site of the movement of the NP complement of the CL head: we obtain the floating NC when NP moves out of the nominal domain (and into the verbal domain), and the postnominal NC when NP moves no further than the edge of the nominal domain. Under this line of analysis, the floating *one*-NPI would have a structure like the following.

⁹ An’s (2007a) proposal is about the edge of an independently parsed intonational phrase, but I will keep the discussion rather informal here. See An (2007a) for details.

¹⁰ A question remains as to why the null Foc cannot be licensed by being adjacent to a verb (see, for example, (17a)). It could be that *one*-NPIs are always in non-canonical (i.e., adjunct) positions (see Kobuchi-Phillip (2008)). But we will see in the next section that the prenominal *one*-NPI may occupy an argument position. If so, the question is real, and I have no proposal to offer at this point.



Even if we assume that NP moves out of the nominal domain via the spec of FocP, no overt material remains in the spec of FocP. I would like to argue that this is why Foc cannot be null. As An (2007) observes, a CP in a non-canonical position must have some phonetically overt material in its edge: a copy/trace will not suffice for satisfying the condition in (26). In particular, a copy/trace left in the edge of a clause in a non-canonical position does not lead to improvement¹¹

- (30) a. We believe sincerely [_{CP} {that/*∅_C} [_{IP} Natasha likes *t_i*]]?
 b. ?What do you believe sincerely [_{CP} *t_i* that [_{IP} Natasha likes *t_i*]]?
 c. *What_i do you believe sincerely [_{CP} *t_i* ∅_C [_{IP} Natasha likes *t_i*]]?

(30a) is the baseline data that involves no movement through the spec of the embedded CP. Of interest here is the contrast seen between (30b) and (30c). As discussed by Bošković and Lasnik (2003) and An (2007), an example like (30b) is somewhat degraded due to the extraction of a *wh*-phrase out of a displaced clause. Crucially, (30c) is worse, suggesting that the null C is not allowed in this configuration, although its spec position is filled in the course of the derivation.

A condition like (28) can also cover the contrast between *wh*-NPIs vs. *wh-one*-NPIs with respect to the (im)possibility of null Foc. As shown in (31a), the *wh*-NPI must be accompanied by the overt focus particle *-mo*. But the *wh-one*-NPI does not require *-mo*, as we see in (31b).

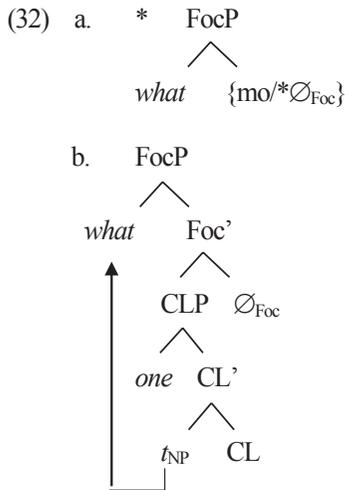
- (31) a. Boku-wa mushi-o nani-*{mo/*∅}* mi-nakat-ta.
 I-TOP insect-ACC what-Foc see-Neg-PAST
 ‘I didn’t see any insect.’

¹¹ Extraction of *wh*-subject seems to pattern differently, as shown in (i) below. See An (2007a) for an analysis of this point.

(i) ?Who do you believe sincerely likes Natasha?

- b. Boku-wa mushi-o nani hito'-tsu-{{??mo/∅}} mi-nakat-ta.
 I-TOP insect-ACC what one-CL-MO see-Neg-PAST
 'I didn't see any insect.'

This contrast receives a natural explanation under our analysis. Let us suppose that the *wh*-NPI is headed by Foc, which selects a nominal *wh*-element (such as *nani* 'what') as its complement, as shown in (32a), we can see that (28) is violated when Foc has no phonetic content. Turning to the *wh*-*one*-NPI in (31b), whose structure is shown in (32b), I suggest that *nani* 'what' selected by CL moves to the spec of FocP, deriving the surface word order *nani hito'-tsu* 'what one-CL' and satisfying (28).



2.3. Support for the analysis

Our analysis gains support from ellipsis phenomena involving *one*-NPIs. Let us start our discussion with the observation that the floating NC (33) and the postnominal NC (34) both allow the NP portion to be elided.

- (33) Floating NC
 Bushu-wa [jibun-ni kansuru hon]-o ni-satsu yonda.
 Bush-TOP self-Dat related book-ACC two-CL read

 Obama-wa *e* san-satsu yonda.
 Obama-TOP three-CL read

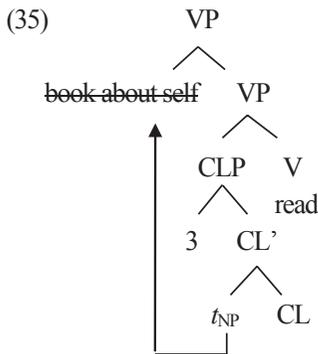
 'Bush read two books about himself. Obama read three *e*.'
e = *jibun-ni kansuru hon* 'book about oneself' (sloppy reading ok)

- (34) Postnominal NC
 Bushu-wa [[jibun-ni kansuru hon] ni-satsu]-o yonda.
 Bush-TOP self-Dat related book two-CL-ACC read

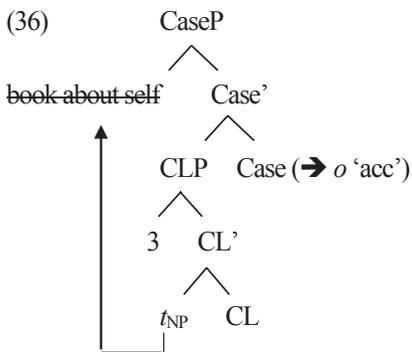
Obama-wa *e* san-satsu-o yonda.
 Obama-TOP three-CL-ACC read

‘Bush read two books about himself. Obama read three *e*.’
e = *jibun-ni kansuru hon* ‘book about oneself’ (sloppy reading ok)

As indicated above, the sloppy identity reading is possible in both cases. Following the literature on this topic (see Takahashi (2008) for a comprehensive review), I assume that (33) and (34) each involve ellipsis of a noun phrase (which is the complement of CL). The floating NC construction in (33) has the structure in (35), where the NP *jibun-ni kansuru hon* ‘the book about oneself’ moves out of the nominal constituent headed by the CL *satsu* and gets elided. (28) is satisfied here because FocP is headed by *-mo*.



As for the postnominal NC construction in (34), I assume (partly in line with Watanabe (2006)) that the entire nominal is headed by the Case head, and NP moves to the spec of CaseP and gets elided. Again, (28) is observed, assuming that the head of CaseP receives pronunciation as *-o* ‘ACC’.



Now, it is interesting to observe that their NPI counterparts do not behave alike. As Kataoka (2009) points out, the floating *one*-NPI allows NP to be elided, but the postnominal *one*-NPI does not.¹²

¹² As will be discussed in the next section, the postnominal *one*-NPI and the floating *one*-NPI yield distinct interpretations. The translations for the two examples given here reflect this point.

(37) a. Floating *one*-NPI

Hanako-wa yubi-o san-bon ugokashita ga,
Hanako-TOP finger-ACC three-CL moved though

Taro-wa (yubi-o) ip-pon-mo ugokas-anai.
Taro-TOP finger-ACC one-CL-MO move-NEG

‘Though Hanako moved three fingers, Taro doesn’t move any finger.’

b. Postnominal *one*-NPI

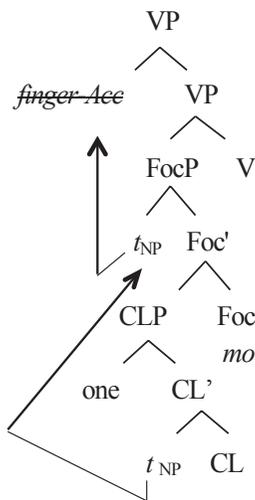
Hanako-wa te-mo ashi-mo yubi-sae ugokashita ga,
Hanako-TOP hand-also leg-also finger-even moved though

Taro-wa *(yubi) ip’-pon ugokas-anai.
Taro-TOP finger one-CL move-NEG

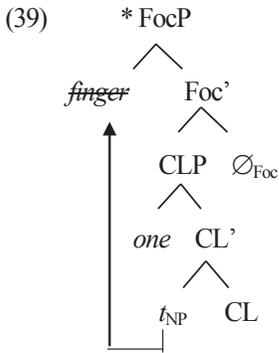
‘Though Hanako moved her hand(s), her leg(s), and even her finger(s), Taro doesn’t move any part of his body, even a finger.’

This contrast follows naturally from our analysis. Let us consider the relevant structure of (37a) first. Just like in (33), the NP complement of CL (i.e., *yubi* ‘finger’ in this case) moves out of the nominal phrase by passing through the spec of FocP before it gets elided. (28) is trivially satisfied because FocP is headed by *-mo*.

(38)



On the other hand, NP cannot be elided in (37b) because of (28). Since the head of FocP is phonetically null, eliding the NP *yubi* ‘finger’ in the spec of FocP leads to a violation of (28), as neither the Foc head nor its specifier has an overt element.



3. Remarks on some interpretive differences among *one*-NPIs

3.1. Data

Under the current hypothesis, the postnominal *one*-NPI and the floating *one*-NPI are essentially derived from the same underlying structure. Although the translations given for the data in the first two sections have not pointed to any interpretive differences among the three *one*-NPI constructions, that is not quite accurate, as discussed by Kataoka (2009) and Nakanishi (in prep.) among others. Let us consider the following examples:

- (40) a. Prenominal *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
 ‘Taro didn’t see any dog that day.’
 ‘Taro didn’t see any animal that day, even one dog.’
- b. Postnominal *one*-NPI [N *one*-CL]
 Taro-wa inu ip-piki mi-nakat-ta.
 Taro-TOP dog one-CL see-Neg-PAST
 NOT JUST ‘Taro didn’t see any dog that day.’
 ‘Taro didn’t see anything 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
 ‘Taro didn’t see any dog that day.’
 NOT ‘Taro didn’t see any animal that day, even one dog.’

All the examples above assert that Taro didn’t see any dog that day. But they cannot always be uttered in the same context. For example, imagine the situation in which Taro didn’t see any dog but he saw some other animals. In that situation, (40a) and (40c) are felicitous but (40b) is not. The latter is felicitous only when Taro didn’t see any animals (or humans) at all. The following set of examples makes this point clear, with explicit

reference to the presence of other animals, mice and cats, in the village under discussion.

- (41) Kono mura-ni-wa takusan-no nezumi-ya neko-ga iru noni, ...
 this village-in-TOP many-GEN mouse-and cat-NOM exist though

‘Although there are many mice and cats in this village, ...’

- a. ip-piki-no inu-mo i-nai. (prenominal *one*-NPI)
 one-CL-GEN dog-MO be-not

‘there isn’t any dog.’

- b. #inu ip-piki i-nai. (Postnominal *one*-NPI)
 dog one-CL be-not

‘there isn’t any dog.’

- c. inu-ga ip-piki-mo i-nai (Floating *one*-NPI)
 dog-NOM one-CL-MO be-not

‘there isn’t any dog.’

Note in passing that Nakanishi (in prep.) reports that the prenominal *one*-NPI as well as the postnominal *one*-NPI is infelicitous in contexts in which Taro saw some other animals. Yet for me and the others that I have consulted, the prenominal *one*-NPI can be used in such contexts. I have nothing to say about this speaker variation. Note also that the prenominal *one*-NPI sounds infelicitous with *-sae* instead of *-mo*.

- (42) Kono mura-ni-wa takusan-no nezumi-ya neko-ga iru noni, ...
 this village-in-TOP many-GEN mouse-and cat-NOM exist though

‘Although there are many mice and cats in this village, ...’

- a. #ip-piki-no inu-sae i-nai. (prenominal *one*-NPI)
 one-CL-GEN dog-SAE be-not

‘there isn’t any dog.’

- b. #inu ip-piki-sae i-nai. (Postnominal *one*-NPI)
 dog one-CL-SAE be-not

‘there isn’t any dog.’

- c. inu-ga ip-piki-sae i-nai (Floating *one*-NPI)
 dog-NOM one-CL-SAE be-not

‘there isn’t any dog.’

This is one respect in which *-mo* and *-sae* do not pattern alike. For the reason that I mentioned earlier, I would like to focus on the distribution of *one*-CL with *-mo* in this paper.

Returning to the main discussion, the observation made above with respect to the distinct interpretations for the three types of *one*-NPIs raises a number of questions. Among other things, the contrast that we see between (41b) and (41c) poses an interesting problem for the analysis entertained in this paper, since the analysis holds that the postnominal *one*-NPI and the floating *one*-NPI have the same underlying structure. Below, I would like to suggest one possible line of analysis for this question.

3.2. (Tentative) Hypothesis

As we saw in (13), *wh*-NPIs may occur with Case-marked arguments with which they are associated. Based on such observations, Aoyagi and Ishii (1994) argue that *wh*-NPIs are adjuncts, and they are associated with an argument that may or may not be overtly realized. Extending Aoyagi and Ishii's viewpoint to *one*-NPIs, let us assume that they act as adjuncts when they are associated with an overt, Case-marked argument. In the following examples, *one*-NPIs occur with a Case-marked argument.

- (43) Sono mori-ni iru mushi-tachi-ga sono hi-wa ...
 that forest be insect-PL-NOM that day-TOP
- a. ip-piki-no ari-mo sugata-o mise-nakat-ta. (prenominal)
 one-CL-GEN ant-MO appearance-ACC show-NEG-PAST
 'Those insects living in that forest didn't show up that day, even one ant.'
- b. ari ip-pi'ki sugata-o mise-nakat-ta. (postnominal)
 ant one-CL appearance-ACC show-NEG-PAST
 'Those insects living in that forest didn't show up that day, even one ant.'
- c. ??ari-ga ip-piki-mo sugata-o mise-nakat-ta. (floating)
 ant-NOM one-CL-MO appearance-ACC show-NEG-PAST
 '(Lit.) Those insects living in that forest, no ant showed up that day.'

Here *one*-NPIs with the noun *ari* 'ant' occur with the nominative subject *mushi-tachi-ga* 'insect-PL-NOM.' And the prenominal *one*-NPI in (43a) as well as the postnominal *one*-NPI in (43b) yields the reading in which no insects, including ants, showed up. This clearly indicates that the prenominal *one*-NPI and the postnominal *one*-NPI may appear as an adjunct. The grammatical status of (43c) is unclear, but importantly, it asserts that no ant showed up without making any assertion about other insects. This is not surprising since *ari* 'ant' is *ga*-marked in this case. I assume that the floating *one*-NPI serves as an adjunct and its 'NP-portion' functions as an argument. To be more accurate, the floating *one*-NPI and the Case-marked argument originate as a unit, and they are separated in the course of derivation.

But the above discussion does not preclude the possibility that the prenominal and postnominal *one*-NPIs occur as arguments when there is no Case-marked argument present (here we set aside the floating *one*-NPI, as it is always associated with some argument). Although this possibility is a little hard to test because *one*-NPIs are not Case-marked, we can check it by placing those NPIs in the complement position of a postposition.

- (44) Boku-wa kinoo kono gakkoo-ni kita bakari na node,
 I-TOP yesterday this school-to came just COP because

‘Because I arrived at this school just yesterday, ...’

- a. hito-ri-no kodomo to-mo mada atte inai.
 one-CL-GEN child with-MO yet meet not

‘I haven’t met with any child yet.’

- b. kodomo hito’-ri-to mada atte inai.
 child one-CL-with yet meet not

‘I haven’t met with one (particular) child yet.’

NOT ‘I haven’t met with any child yet.’

As shown in (44a), the prenominal *one*-NPI does occur as an argument of a postposition, in which case *-mo* is attached to the postposition. On the other hand, (44b) does not yield an NPI reading, and *kodomo hito’-ri* ‘child one-CL’ yields the literal reading of ‘one child.’¹³ On the basis of this, I conclude that the postnominal *one*-NPI cannot occur as an argument, which means that it always occurs as an adjunct.

To summarize, the prenominal *one*-NPI occurs as an argument or as an adjunct. When it is an adjunct, it is associated with a Case-marked argument, which may or may not be overtly realized. Postnominal *one*-NPI always occurs as adjunct, and there is a clause-mate argument, overt or covert. As for the floating *one*-NPI, it counts as an adjunct in the sense that the NP-portion of the entire nominal expression serves as an argument. The table below summarizes our discussion up to this point:

(45)

	argument	adjunct
Prenominal <i>one</i> -NPI	✓	✓
Postnominal <i>one</i> -NPI	✓	*
Floating <i>one</i> -NPI	✓ (→ NP)	✓ (→ <i>one</i> -CL)

I believe that the above discussion sheds some light on the question we raised earlier: if the postnominal *one*-NPI and the floating *one*-NPI share the same underlying structure, as assumed throughout this paper, why do they yield distinct interpretations (e.g., (41b) vs. (41b))? The two types of *one*-NPIs have distinct interpretations because they have distinct elements in the relevant argument slot: e.g., (unpronounced) ‘NP’ in the postnominal *one*-NPI construction and the NP-portion of the floating *one*-NPI in the floating *one*-NPI construction. (46) and (47) illustrate this point.

¹³ When we add *-mo* to this example, the sentence seems to yield the ‘also’ reading:

- (i), kodomo hito’-ri-to-mo mada atte inai.
 child one-CL-with-MO yet meet not
 ‘... I haven’t met with one (particular) child (as well as someone else).’

- (46) (NP-ga) [_{adjunct} ari ip-piki- \emptyset_{FOC}] sugata-o mise-nakat-ta. (postnominal)
 ant one-CL-FOC appearance-ACC show-NEG-PAST

‘Nothings/No insect showed up today, even one ant.’

(where ‘NP’ denotes some set of objects that includes ant)

- (47) ari-ga_i [_{adjunct} ip [_{t_i} piki]-mo] sugata-o mise-nakat-ta. (floating)
 ant-NOM one CL-MO appearance-ACC show-NEG-PAST

‘No ant showed up today.’

As for the prenominal *one*-NPI, since we are assuming that it may serve as an argument or as an adjunct, we should expect structural ambiguity, unless there is an overt argument present (in which case the prenominal *one*-NPI is an adjunct). For example, we get the ‘no ant’ reading out of the example in (48) when the nominal with the prenominal *one*-NPI is an argument, as shown in (49a), and the ‘nothing/no insect’ reading when it is an adjunct, as shown in (49b).

- (48) Kyoo-wa ip-piki-no ari-mo sugata-o mise-nakat-ta.
 today-TOP one-CL-GEN ant-MO appearance-ACC show-NEG-PAST

i. ‘No ant showed up today.’

ii. ‘Nothing/No insect showed up today, even one ant’

- (49) a. Ip-piki-no ari-mo sugata-o mise-nakat-ta.
 one-CL-GEN ant-MO appearance-ACC show-NEG-PAST

- b. ~~NP-ga~~ ip-piki-no ari-mo sugata-o mise-nakat-ta.
 one-CL-GEN ant-MO appearance-ACC show-NEG-PAST

(where ‘NP’ denotes some set of objects that includes ants)

While this line of analysis seems to me to be promising, there are many issues that need to be addressed and answered. For example, we saw that the postnominal *one*-NPI does not appear as an argument (see (44b)), but we want to know why its distribution is so limited. Here, I believe that Huang and Ochi’s (2014) discussion of numeral classifiers and specificity is highly relevant. Based in part on Downing (1994), they claim that the postnominal NC tends to yield a specific indefinite reading. For example, the postnominal NC sounds odd when a non-specific reading is forced.

- (50) heikin-suru to, kono byooin-de-wa maishuu
 average-do, this hospital-at-TOP every week

‘On average, every week in this hospital,’

- a. san’-nin-no akanboo-ga umare-teiru.
 three-CL-GEN baby-NOM be born

‘... three babies are born.’

- b. #akanboo san'-nin-ga umare-teiru.
baby three-CL-NOM be born
'... three babies are born.'
- c. akanboo-ga san'-nin umare-teiru.
baby-NOM three-CL be born
'... three babies are born.'

It may not be so surprising then that the postnominal *one*-NPI does not occur as an argument. After all, *one*-NPIs do not give rise to a specific reading, as what is at stake in this case is simply the cardinality of the nominal under discussion (e.g., one ant vs. two or more ants).

4. Conclusion

To summarize, this paper addressed several issues arising from Huang and Ochi's (2014) treatment of adnominal and floating numeral classifiers. In particular, I attempted to provide some empirical evidence for the nominal-internal movement that is claimed to be involved in creating the postnominal numeral classifier construction. Crucial evidence for this movement came from the distribution of NPIs that employ a combination of 'one' and a classifier. Following Nakanishi (in prep.), I argued for the existence of a phonologically null focus element that acts as the head of such an NPI, and the postulated movement of NP plays an important role in licensing this null head. Then, some interpretive differences among the three types of *one*-NPIs were discussed, and I tried to argue that such differences may (at least in part) stem from their distinct syntactic distributions. Many issues remain open, but I must leave the discussion of such issues for another occasion.

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