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The Prenominal Numeral-classifier Sequence in Japanese

Ryota Nakanishi

1. Introduction

The aim of this short paper is to determine what category the numeral-classifier sequence belongs to. Some decades have passed since numeral-classifier sequences in Japanese (hereafter, NC) had started to be widely investigated. Unlike English, where a numeral does not require a classifier to modify a noun, Japanese must make full use of a classifier to support the modification with a numeral. Since it is syntactically different from an English numeral, it is not obvious whether it syntactically belongs to the same category as English or not. If we observe a different behavior of Japanese numeral from an English one, the need to address a question of what category it belongs to immediately arises. Thus a research whose attention is paid to the investigation of NCs is in need. Following this need, we will examine NCs, especially prenominal NCs, paying much attention to their categorial status, and propose that they belong to the same class as adjectives do.

This short paper is organized as follows. In section 2, we review basic facts of Japanese adjectives, which will help us examine the prenominal NCs by comparing them with adjectives. Section 3 addresses a question as to whether the prenominal NC constitutes a relative clause or not, and claims that it should be analyzed not as a relative clause, but as an NP-modifier like an adjective. In section 4, it is shown that some mysterious points under the NC-as-relative-clause analysis are explained. Section 5 gives us an overall conclusion.

2. Types of Adjectives

Before we examine the categorial status of NCs, let us mention the facts of Japanese adjective. In English, predicative adjectives are accompanied by copulas, as in (1).

(1) a. That tree *(is) tall.
b. The students *(are) smart.

The above ungrammaticality in the absence of copulas indicates that all adjectives in English behave in the same way.[1] In contrast to this, some of Japanese adjectives show a different behavior in this

[1] English adjectives can be sometimes used without a copula. The examples in (i) exemplifies a so-called resultative construction, where the adjectives *red* and *naked* are used as secondary predicate, the former modifying the object and the latter the subject. There is also another case where English adjectives are used without copulas as in (ii), which is an instance of a so-called small clause.

respect. Observe the following contrast:

(2) a. Ano zyosee-wa **utukusii** (*da).
that woman-TOP beautiful COP.PRES
'That woman is beautiful.'
b. Sono sakusya-wa **yuumei** *(da).[2]
the author-TOP famous COP.PRES
'The author is famous.'

Based on the above observation, Japanese adjectives can be generally divided into two types. One is such that it should co-occur with a copula, as in (2b).[3] This type of Japanese adjectives is similar to that of English adjectives in this respect. By contrast, the other cannot be used with a copula, as in (2a), where the copula makes the whole sentence ungrammatical. Note that since both types are adjectives, they can modify nouns as English ones do.

(3) a. the tall tree
b. the smart students
(4) **utukusii** zyosee
beautiful woman
'beautiful woman'

What is relevant here is that the former type can be further divided into two types in modification potential. Some adjectives require the copula *na* when they modify nouns, i.e. used attributively, while others the copula *no*. Here, in order to differentiate these two types of adjectives, we call in what follows the adjectives that require the former copula *na*-adjectives and the ones that require the latter copula *no*-adjectives.

(i) a. Mary painted the dog house red.
b. John danced naked.
(ii) Bill considers Susan intelligent.

Here copulas cannot be inserted to support the adjectives in contrast to what we have observed in (1).

[2] In colloquial Japanese, it is not always the case that an adjective should be accompanied by a copula. However, when used as predicative, an adjective sounds the most natural with its presence. For this reason, we put aside such use of adjectives throughout this paper.

[3] This type of adjectives is traditionally called *nominal adjectives* (Teramura 1982, Nishiyama 1999) or *adjectival nominals* (Miyagawa 1987). Also, there is a possibility to analyze them as having another categorial status since they share properties with nouns and verbs as well as adjectives. Despite the differentiations made by these researchers, in this paper, we simply regard them as adjectives because our attention does not lie on what the exact category they are.

(5) a. yuumei-**na** sakusya
famous-NA author
'famous author'

b. eien-**no** ai
eternal-NO love
'eternal love'

Importantly, we assume that *na* and *no* are copulas because they cannot be dropped in (5), which is similar to the fact observed in (2).

Note that that *na* and *no* are indeed copulas suggests that the adjectives in (5) occur in clauses since a copula can be used only at the clausal level. Also, that the examples in (5) can be paraphrased as in (6) leads us to suppose that they actually form relative clauses, which are represented in (7).

(6) a. yuumei dearu sakusya
famous COP.PRES author
'author who is famous'

b. eien dearu ai
worst COP.PRES love
'love that is eternal'

(7) a. [NP [RC yuumei-**na**] sakusya]

b. [NP [RC eien-**no**] ai]

Thus it is possible to assume that *na* and *no* can be both seen as the reduced forms of copulas.

3. The Category of NCs

These said, now let us return to our main topic. In this section, we examine two analyses. One analyzes the prenominal NC as a relative clause while the other does not.

3.1 NC as Relative Clauses

A Japanese NC can modify nouns in three ways: before, after, and separated from nouns, as in (8) (cf. Okutsu 1983, Miyagawa 1989).

(8) a. ***Prenominal NC***
Taroo-wa [**san-satu-no** hon]-o kat-ta.
Taro-TOP three-CL-NO book-ACC buy-PAST
'Taro bought three books'

b. ***Postnominal NC***
Taroo-wa [hon **san-satu**]-o kat-ta.

c. ***Floating NC***
Taro-wa [hon]-o **san-satu** kat-ta.

Notice that as Hiraiwa (2016: 1362) notes, the prenominal NC is two-way ambiguous in its interpretation (See also Kamio 1983). One interpretation, which Hiraiwa calls a numeral interpretation, is such that an NC counts the quantity of the noun to which it attaches. Under this interpretation, the sentence in (8a) means that the quantity of books that Taro bought is three. The other interpretation,

which he calls a property interpretation, describes the property of the noun to which an NC attaches. According to this interpretation, (8a) means that Taro bought a book out of a set which consists of three books.[4] The sentence in (8a) under the latter interpretation is equivalent to the one in (9).

(9) Taroo-wa [**san-satu-setto-no** hon]-o kat-ta.
Taro-TOP three-CL-set-NO book-ACC buy-PAST
'Taro bought a three-volume set,'

Of particular interest here is the fact that the NC in (8a) requires *no* in the prenominal position under both interpretations. This obligatory presence of *no* reminds us of the fact we have mentioned in the previous section that *no* cannot be dropped in (5b). Here, based on this observation, one might suppose that the prenominal NC also forms a relative clause. If this analysis is correct, their structure should be as follows:

(10) a. [NP [RC san-satu-no] hon] (numeral interpretation)
b. [NP [RC san-satu(-setto)-no] hon] (property interpretation)

3.2 NCs as Non-relative Clauses

The previous subsection has shown us an analysis, according to which the prenominal NC constitutes a relative clause. However, this subsection provides some pieces of evidence to the contrary.

Before we examine the analysis suggested in the previous subsection in detail, let us introduce a diagnostic by which we can confirm whether the prenominal NC forms a relative clause. Larson and Takahashi (2007) claims that there is a case where the order between prenominal relative clauses is constrained. More specifically, whether an order between them is constrained depends on the types of relative clauses: individual-level and stage-level.

(11) ***Individual-level Relative Clauses***
a. [[Tabako-o su-u] [sake-o nom-u] hito]-wa Tanaka-san
tobacco-ACC inhale-PRES sake-ACC drink-PRES person-TOP Tanaka-san
des-u.
COP-PRES
'The person who drinks sake who smokes is Miss Tanaka.'

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[4] Since Japanese is a language that lacks a particle and a plural marking, *hon* 'book' in (8a) is ambiguous as to how many books it refers to. Thus the sentence in (8a) can also mean that Taro bought two books out of a set that consists of three books, or that Taro bought three books of a set that consists of three books (this interpretation is equivalent to the numeral interpretation).

b. [[Sake-o nom-u] [tabako-o su-u] hito]-wa Tanaka-san des-u.

(12) ***Stage-level Relative Clauses***

a. [[Watasi-ga kinoo at-ta] [sake-o non-dei-ta] hito-wa
I-NOM yesterday meet-PAST sake-ACC drink-PROG-PAST person-Top
Tanaka-san des-u.
Tanaka-san COP-PRES
'The person who was drinking sake who I met yesterday is Miss Tanaka.'

b. [[Sake-o non-dei-ta] [watasi-ga kinoo at-ta] hito]-wa Tanaka-san des-u.

(Larson and Takahashi 2007: 102)

These examples indicate that, when the types of the prenominal relative clauses match, their order can be switched. However, when they does not match, their order is far from free. As the following contrast shows, the individual-level relative clause necessarily follows the stage-level one:

(13) ***Individual-level Relative Clause, Stage-level Relative Clause***

a. [[Watasi-ga kinoo at-ta] [tabako-o su-u] hito]-wa
I-NOM yesterday meet-PAST tobacco-ACC inhale-PRES person-Top
Tanaka-san des-u.
Tanaka-san COP-PRES

b. ?* [[Tabako-o su-u] [watasi-ga kinoo at-ta] hito]-wa Tanaka-san des-u.

(Larson and Takahashi 2007: 102)

Summarizing these data, when two relative clauses modify the same noun, the effect of this constraint should arise if their types do not match.

In order to make use of the above diagnostic, we need to first examine the type of prenominal NC. Firstly, Miyamoto (1996) reports that NCs can function as a predicate when combined with a copula.

(14) Seeto-ga **san-nin** da.
student-NOM three-CL COP.PRES
'Lit. The students are three.' (Miyamoto 1996: 322)

Secondly, Kuno (1973) observes that when a *ga*-marked subject is combined with an individual-level predicate, only an exhaustive reading, not a neutral description reading, arises whereas, when combined with a stage-level one, both readings are available. Consider the followings:

(15) a. ***Individual-level Predicate***

Taroo-ga gakusee da. (exhaustive / *neutral description)

Taro-NOM student COP.PRES

'Taro is a student.'

b. ***Stage-level Predicate***

Taroo-ga byooki da. (exhaustive / neutral description)

Taro-NOM sick COP.PRESS

'Taro is sick' (Kuno 1973: 32)

Thus, for example, (15a) is incompatible with a context where there is only one person, namely Taro, who is a student. In other words, there must be another person who is not a student. By contrast, (15b) can be successfully uttered in a context where there is only one person, namely Taro, who is sick. Thus whether there is another person does not matter.

Given these, now we can examine the type of the prenominal NC. As the data in (16) show, the prenominal NC under a numeral reading allows both readings whereas the one under a property reading only allows an exhaustive reading.

(16) a. ***Numeral Reading***

Hon-ga **san-satu** da. (exhaustive / neutral description)

book-NOM three-CL COP.PRES

'Lit. The books are three.'

b. ***Property Reading***

Hon-ga **san-satu-setto** da. (exhaustive / ??neutral description)

book-NOM three-CL-set COP.PRESS

'Lit. The book is a three-volume set.'

That both readings are available in (16a) means that *san-satu* is a stage-level predicate. By contrast, that only an exhaustive reading is available in (16b), compatible with a context where there is another object, for example a magazine, which is part of a set that does not consist of three volumes, indicates that *san-satu-setto* is an individual-level predicate.

Now suppose that a prenominal NC forms a relative clause. Then, armed with these findings and the diagnostic observed in Larson and Takahashi (2007), we can make four predictions: (a) if a prenominal NC under a numeral interpretation co-occurs with an individual-level relative clause, their order is necessarily NC << RC (here "<<" means "precedes"), (b) if a prenominal NC under a numeral interpretation co-occurs with a stage-level relative clause, their order should be either NC << RC or RC << NC, (c) if a prenominal NC under a property interpretation co-occurs with an individual-level

relative clause, their order should be either NC << RC or RC << NC, (d) if a prenominal NC under a property interpretation co-occurs with a stage-level relative clause, their order is obligatorily RC << NC. Keeping these predictions in mind, consider the examples below:

(17) ***Numeral Interpretation, Individual-level Relative Clause***

a. [[San-satu-no] [gakusee-ni kandoo-o ataer-u] hon]-wa dore-mo
three-CL-NO student-to impression-ACC give-PRES book-TOP which-also
kooka des-u.
expensive COP-PRESS.
'Every three books that move students are expensive.'

b. [[Gakusee-ni kandoo-o ataer-u] [san-satu-no] hon]-wa dore-mo kooka des-u.

(18) ***Numeral Interpretation, Stage-level Relative Clause***

a. [[San-satu-no] [Taroo-ga kinoo kat-ta] hon]-wa dore-mo
three-CL-NO Taro-NOM yesterday buy-PAST book-TOP which-also
kooka des-u.
expensive COP-PRES
'Every three books that Taro bought yesterday are expensive.'

b. [[Taroo-ga kinoo kat-ta] [san-satu-no] hon]-wa dore-mo kooka des-u.

(19) ***Property Interpretation, Individual-level Relative Clause***

a. ?? [[San-satu-setto-no] [gakusee-ni kandoo-o ataer-u] hon]-wa kore
three-CL-set-NO student-to impression-ACC give-Pres book-TOP this
des-u.
COP-PRES
'This is the book that is a three-volume set that moves students.'

b. [[Gakusee-ni kandoo-o ataer-u] [san-satu-setto-no] hon]-wa kore des-u.

(20) ***Property Interpretation, Stage-level Relative Clause***

a. ?? [[San-satu-setto-no] [Taroo-ga kinoo kat-ta] hon]-wa kore des-u.
three-CL-set-NO Taro-NOM yesterday buy-PAST book-Top this COP-PRES
'This is the book that is a three-volume set that Taro bought yesterday.'

b. [[Taroo-ga kinoo kat-ta] [san-satu-setto-no] hon]-wa kore des-u.

The acceptability of both examples in (18) confirms the (b)-prediction, suggesting that the prenominal NC is a relative clause. However, the examples in (17), (19) and (20) reveal that the other three predictions are not borne out. The examples in (17) make the (a)-prediction false. The fact that the order can be either way suggests that *san-satu* is an individual-level predicate, but this contradicts our observation in (16a) that *san-satu* is a stage-level predicate. Therefore, the remaining possibility is

that the prenominal NC under a numeral interpretation is not a relative clause. The examples in (19) also denies the (c)-prediction: their order is necessarily fixed. Note that, since *san-satu-setto* is an individual-level predicate as we have seen above, this denial raises the possibility that the prenominal NC does not form a relative clause, which also supports the raised possibility immediately above. Again, the reason why (20a) is unacceptable is unclear if the prenominal NC under a property interpretation constitute a relative clause. All in all, we are led to conclude that prenominal NCs under both readings do not form a relative clause.

4. NCs as NP-modifiers

The previous discussion has led us to conclude that a prenominal NC is not a relative clause. Given this conclusion, however, other unclear points arise as to what category it belongs to and why the orders are fixed in (19) and (20), which is addressed in this section.

Notice that the fixed order is observed without the prenominal NC. Consider the following contrasts, where the individual-predicate *wakai* must follow both the individual- and stage-level relative clauses:

(21) a. Taroo-ga wakai.
Taro-NOM young
'Taro is young.'
(exhaustive / *neutral description)

b. wakai hito
young person
'young person'

(22) ***Individual-level Adjective, Individual-level Relative Clause***

a. ?? [Wakai [tabako-o su-u] hito]-wa Tanaka-san des-u.
young Tobacco-ACC inhale-PRES person-TOP Tanaka-san COP-PRES
'The young person who smokes is Mr. Tanaka.'

b. [[Tabako-o su-u] wakai hito]-wa Tanaka-san des-u.

(23) ***Individual-level Adjective, Stage-level Relative Clause***

a. ?? [Wakai [Taroo-ga kinoo at-ta] hito]-wa Tanaka-san des-u.
young Taro-NOM yesterday meet-PAST person-TOP Tanaka-san COP-PRES
'The young person who smokes is Mr. Tanaka.'

b. [[Taroo-ga kinoo at-ta] wakai hito]-wa Tanaka-san des-u.

Since *wakai* is neither *na*-adjective nor *no*-adjective, as we can see in (21), it does not form a relative clause. The fact that we still observe the fixed order points to the conclusion that there is another constraint that affects the order between a relative clause and an adjective. Although we do not further investigate due to a space limitation what such a constraint is, that constraint is reminiscent of what we have witnessed immediately above, namely the fixed order in (19) and (20). Put differently, we

can suppose that that constraint also restricts their orders. This suggests that a prenominal NC has the same categorial status as adjectives. We tentatively assume that an adjective is an NP-modifier (an adjunct to NP), which leads us to conclude that so is a prenominal NC under a property interpretation. In other words, the size of a prenominal NC is much smaller than that of a relative clause.

Another mysterious point raised in the previous section that the order in (17) is flexible seems not to be explained away with our proposal at first sight. Since, under our proposal, a prenominal NC under a numeral interpretation is not a relative clause but rather an NP-modifier parallel to an adjective, the fact that the orders are not constrained in (17) is likely to be surprising. Nevertheless, this point becomes not surprising but rather it follows if we consider the examples with a stage-level predicate *akai* and relative clauses, as follows:

(22) Kabe-ga akai. (exhaustive / neutral description)
wall-NOM red
'The wall is red.'

(23) ***Stage-level Adjective, Individual-level Relative Clause***
a. [Akai [wakamono-ga yoku ka-u] kutu]-wa kore des-u.
red young.people-NOM often buy-PRES shoe-TOP this COP-PRES
'These are the red shoes that young people often buy.'
b. [[Wakamono-ga yoku ka-u] akai kutu]-wa kore des-u.

(24) ***Stage-level Adjective, Stage-level Relative Clause***
a. [Akai [Taroo-ga kinoo kat-ta] kutu]-wa kore des-u.
red Taro-NOM yesterday buy-PAST shoe-TOP this COP-PRES
'These are the red shoes that Taro bought yesterday.'
b. [[Taroo-ga kinoo kat-ta] akai kutu]-wa kore des-u.

In the case of a stage-level adjective, the order is not constrained so that such an adjective can precede and follow a relative clause. Recall that, in (16a), we have analyzed *san-satu* as a stage-level predicate. If *san-satu* is similar to an adjective in category, as we propose, the observation in (17) naturally follows. Note that this conclusion forces us to assume that the constraint between a prenominal NC under a property interpretation and a relative clause is somehow not operative. At this point, we do not have any clear idea to account for such an estrangement so let us leave it for our future research. Note also that our proposal nicely fits with data in (17).

The last point we need to mention is about what *no* that necessarily follows the prenominal NC is. Since we have adopted the analysis according to which a prenominal NC is an NP-modifier, it should not be a reduced form of a copula. Following Watanabe (2010), we tentatively assume that *no* after the prenominal NC is a linking element, which is phonologically inserted in the nominal domain.

To recap, we have shown in this section that the proposal in the previous section that prenominal NCs under both readings are rather an NP-modifier like an adjective, not forming a relative clause, is strengthened by the facts of the order between adjectives and relative clauses.

5. Concluding Remarks

In this paper, we have proposed that a prenominal NC is an NP-modifier, parallel to an adjective, not a relative clause. In this respect, we have reached similar conclusions by Saito, Lin and Murasugi (2008) and Watanabe (2010). Although these researchers analyze a prenominal NC under a numeral interpretation to a large extent, they pay little attention to the prenominal NC under a property interpretation. Thus, this paper has shed a new light on the prenominal NC.

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