

COUNTABLE NOUNS IN JAPANESE*

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1 Introduction

Japanese is a typical *obligatory classifier language* where a classifier is required when a numeral modifies a noun phrase, unlike in languages like English (see Section 3.1 for some exceptions). This is illustrated by (1). Here, the classifier is *-rin*, which is used for counting flowers.

- (1) *ichi*(-rin)-no hana*
one-CL-GEN flower
'one flower'

In the current literature it is standardly considered that what distinguishes obligatory classifier languages from non-classifier languages like English is the semantics of nouns. The idea is that nouns in obligatory classifier languages have denotations that are somehow incompatible with direct modification by counting modifiers like numerals.

In this paper I argue against this view by presenting three pieces of evidence that Japanese has nouns (e.g. *hon* 'book') whose denotations are countable and perfectly compatible with modification by counting modifiers. I call such nouns *countable nouns*. Thus, as far as the denotations of nouns are concerned, Japanese is not so different from non-obligatory classifier languages.

Why are classifiers obligatory in Japanese, then? I propose that the semantics of numerals, rather than the semantics of nouns, is responsible for the obligatory use of classifiers in Japanese. Due to space limitations, I present the details of this proposal in a separate paper (Sudo, in progress), but the basic idea is that numerals in Japanese exclusively denote singular terms, and cannot function as predicates/modifiers on their own. The main function of classifiers is to turn such singular terms into predicates/modifiers.

It should be made clear at this point that it is not my purpose here to make claims about all obligatory classifier languages. Rather, I focus here on one language, Japanese. That said, it is

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certainly expected that the function of classifiers is identical across languages, but at the moment this question is left for future research.

2 The Standard View

Nouns in Japanese exhibit the following three properties, which are commonly observed in obligatory classifier languages (cf. Chierchia 1998a,b).

1. Obligatory use of classifiers when numerals modify noun phrases: As we saw above, (1) is ungrammatical without the classifier *-rin*.
2. Lack of obligatory number marking: The following examples demonstrate that even when denoting more than one flower, the noun *hana* ‘flower’ takes the same form as in (1). And this is generally the case with Japanese nouns.

(2) go-**rin**-no hana
 five-CL-GEN flower
 ‘five flowers’

(3) takusan-no hana
 a.lot-GEN flower
 ‘a lot of flowers’

3. Bare nouns denote kinds: Generally, bare nouns may denote kinds in Japanese. We will not discuss the issue of kind denotations in the present paper.

These and related facts led many scholars to hypothesise that nouns in obligatory classifier languages have denotations that are somehow incompatible with direct modification by numerals (Borer 2005, Bunt 1985, Chierchia 1998a,b, 2010, Krifka 2008, Li 2011, Nemoto 2005, Rothstein 2010, Scontras 2013, 2014, among others). Several caveats are in order.

Firstly, this idea is compatible with but independent from the idea that nouns in obligatory classifier languages do not encode the mass-count distinction in their denotations (Denny, 1986, Lucy, 1992). In fact, many recent studies have raised evidence against this view (Bale and Barner 2009, Inagaki and Barner 2009, Li et al. 2009, Doetjes 2012, among others), and it is by now widely considered that nouns in obligatory classifier languages can be semantically classified into mass and count. We will also see arguments to this effect in Section 3. Thus, I assume here that the denotations of count nouns like *hon* ‘book’, and mass nouns like *ase* ‘sweat’ in Japanese need to be differentiated somehow.

There are two types of analyses of mass nouns that could be used to distinguish the denotations of count and mass nouns in Japanese, while maintaining the idea mentioned above. One type of analysis assumes that mass nouns like *ase* ‘sweat’ have atom-less denotations (cf. Link 1983). Chierchia (2010) puts forward a different type of analysis, where the denotations of mass nouns have atoms but their atomicity is inherently vague, unlike the atoms in the denotations of count nouns (see also Gillon 1992, Chierchia 1998a, Rothstein 2010 for relevant discussion). Evidently both types of accounts have to say something about so-called *object mass nouns* (also known as *fake mass nouns*, *count mass nouns*, etc.) such as *furniture*, and there is still a lot of debate about this issue. Luckily, however, mass nouns, including object mass nouns, are not central to my arguments here, and I simply refrain from making a theoretical choice.

Secondly, the details of the analyses expounded by the authors cited above differ greatly. In particular, the reason why numerals cannot modify count nouns in obligatory classifier languages are different for different authors. Some regard it to be a purely semantic issue, while others also blame the syntax. What I am challenging here is the claim that the semantics of nouns is at least partly responsible for the obligatory presence of a classifier with a numeral, which encompasses a number of different theoretical possibilities. To save space, I will not delve into each of the theories, but one idea that is worth mentioning here is that nouns in obligatory classifier languages are number-neutral, unlike count nouns in languages like English, and such denotations are universally incompatible with direct modification by numerals (Krifka, 2008, Rothstein, 2010). This nicely dovetails with the fact that object mass nouns like *furniture* cannot be directly modified by numerals, despite the fact that their denotations are no less discrete than the denotations of count nouns like *chair(s)* and *desk(s)*.

More concretely, *furniture* in English has discrete denotations, unlike mass nouns like *sweat* and like count nouns like *chair*, but is number neutral, so its denotation includes pluralities. On the other hand, singular count nouns like *chair* have no pluralities in its denotation. I represent this state of affairs using singular metalanguage predicates like **chair** and **piece.of.furniture**, which are only true of atomic entities, and the Link star *, which closes predicates by \oplus .

- (4) a. $\llbracket \text{chair} \rrbracket = \{x_e \mid \mathbf{chair}(x)\}$
 b. $\llbracket \text{furniture} \rrbracket = \{x_e \mid * \mathbf{piece.of.furniture}(x)\}$

Japanese count nouns are more like *furniture* than *chair*, as they are number-neutral.

- (5) $\llbracket \text{isu} \rrbracket = \{x \mid * \mathbf{chair}(x)\}$

This analogy between nouns in obligatory classifier languages and mass nouns in non-classifier languages like English is especially attractive. In both types of languages, semantically mass nouns like *sweat* and *air* do not have countable denotations, and hence resist direct modification by numerals. Nouns like *hon* ‘book’ in obligatory classifiers share semantic properties with object mass nouns like *furniture* in English, and have denotations that somehow cannot be directly modified by numerals, e.g. due to their number-neutrality. Notice also that the lack of (obligatory) number marking in obligatory classifier languages nicely dovetails with this picture: According to this analysis, nouns in obligatory classifier languages are already plural and cannot be pluralised further.¹

Despite these appealing features, however, I argue that this view is on the wrong track, at least for one obligatory classifier language, Japanese. I raise three sets of data suggesting that Japanese has nouns that have denotations that are as ‘countable’ as their English counterparts, e.g. *hon* ‘book’, in the sense that there is nothing in their semantics that is inherently incompatible with direct modification with numerals (see Watanabe 2006, Cheng and Sybesma 1999, Bale and Barner 2009 for similar views). Here I call such nouns that are semantically compatible with counting modifiers like numerals *countable nouns*, reserving the term *count nouns* for the class of nouns in English and other languages that stands in opposition with *mass nouns*. Unsurprisingly, Japanese also has nouns such as *ase* ‘sweat’ that are simply semantically incompatible with counting. I call such nouns *uncountable nouns*. So the distinction between countable vs. uncountable nouns is a

¹The generalisation that obligatory classifier languages lack obligatory number marking on nouns is called the *Sanches-Greenberg-Slobin generalisation* (Doetjes, 2012:§3). It should be noted here that obligatory classifier languages with *optional* number marking are attested, e.g. Yucatec.

purely semantic one, diagnosed by compatibility with counting modifiers, unlike the distinction between count vs. mass nouns, which is perhaps not totally a matter of semantics, as suggested by the existence of object mass nouns.

3 Countable Nouns in Japanese

I will present three pieces of evidence that Japanese has countable nouns. They all involve counting modifiers that do *not* require classifiers. The logic here is that such counting modifiers are only compatible with countable nouns but require no classifiers, so countable nouns must have denotations that are compatible with counting modifiers. I take these observation to be suggesting that whether a classifier is necessary is dependent on the counting modifier, rather than on the noun, which leads to my claim in Sudo (in progress) that it is the semantics of numerals that requires the presence of classifiers, rather than the semantics of nouns.

3.1 Numerals that do not require classifiers

Firstly, I observe that for certain numerals in Japanese, classifiers are simply optional, at least in a relatively formal speech style. This is exemplified by the song title by the punk rock band, the Blue Hearts:

- (6) sen-no baiorin
1000-GEN violin
'a thousand violins'

One could use a classifier here without changing the meaning, as in (7), where *choo* is a classifier used for certain instruments, guns, plows, hoes, etc. (alternatively *hon* could be used here, which is a classifier for cylinder-shaped objects).

- (7) sen-**choo**-no baiorin
1000-CL-GEN violin
'a thousand violins'

Below are some example sentences containing classifier-less numerals. Here again, classifiers can be optionally added, without changing the meaning.

- (8) a. daitooryoo-wa shichoosha-kara yoserareta **hyaku-no** shitsumon-ni kaitooshita.
president-TOP viewer-from were.sent 100-GEN question-to answer
'The president answered 100 questions viewers asked.'
- b. chikyuu-joo-ni-wa yaku **sen-go-hyaku-no** kazan-ga aru.
earth-on-LOC-TOP about 1000-5-100-GEN volcano-GEN exist
'There are about 1500 volcanos on earth.'

It is not entirely clear to me exactly when classifiers become optional in Japanese, but it seems that classifiers are only optional with large numbers. With numerals like *ichi* 'one' and *go* 'five', the use of a classifier is required, as in (1) and (2). Also, they seem to be more felicitous with approximate numbers like 1000 than with precise numbers like 1362, and with non-human denoting nouns. Further research is called for to verify these tentative generalisations, however.

Putting these details aside, the observation here is that certain numerals do not require classifiers in Japanese. This could be taken as suggesting that it is not the noun that requires a

classifier, but the numeral, because whether it is necessary depends on the numeral rather than on the noun.²

However, admittedly this is not a knockdown argument against the position being challenged here for the following reason. Under any analysis, one needs to say something special about these exceptionally classifier-less numerals, and it is an analytical possibility that they may optionally contain a phonologically null classifier, and therefore can occur without an overt one. This would be compatible with the standard view where it is the nominal semantics that requires classifiers.

3.2 Counting modifiers that are incompatible with classifiers

Our second argument against the idea that Japanese nouns have uncountable denotations comes from counting modifiers that only combine with countable nouns. The restrictions here are reminiscent of the restrictions on *many* and *a few* in English, which are only compatible with count nouns.

Specifically, I observe that the following modifiers are only compatible with countable nouns (This is not meant to be a comprehensive list).

- (9) a. *tasuu* ‘many’
 kinoo-no jiko-de-wa **tasuu**-no sisha-ga deta yooda
 yesterday-GEN accident-LOC-TOP many-GEN fatality-NOM came.out EVID
 ‘It seems that the accident yesterday resulted in many fatalities.’
- b. *shoosuu* ‘a few’
shoosuu-no yuufukuna hito-nomi-ga yuugusareteiru
 a.few-GEN wealthy person-only-GEN be.treated.well
 ‘Only a few wealthy people are treated well.’
- c. *nan-byaku-to-iuu* ‘hundreds’ (lit. ‘what-100-C-say’)
 sono tookoo-ni **nan-byaku-toiuu komento**-ga tsuita.
 that post-TO what-100-say comment-NOM provided
 ‘That post got hundreds of comments.’

As the following examples demonstrate, these modifiers are incompatible with uncountable nouns like *ase* ‘sweat’.

- (10) a. #Taro-wa **tasuu**-no ase-o kaita
 Taro-TOP many-GEN sweat-ACC secreted
 (intended) ‘Taro sweated a lot.’
- b. #Taro-wa **nan-byaku-toiuu** ase-o kaita
 Taro-TOP what-100-say sweat-ACC secreted
 (intended) ‘Taro sweated a lot.’

Not all modifiers show this restriction, e.g. *takusan* ‘a lot’ and *tairyoo* ‘a large amount’ are compatible with both countable and uncountable nouns.

²Bale and Coon (2014) make a related observation that only a subset of numerals in Mi’gmaq (Eastern Algonquian) and Chol (Mayan) require classifiers, while the rest are incompatible with them. Based on these observations, they claim that classifiers are necessitated by numerals, rather than by nouns, the very same view that I am arguing for here.

- (11) a. kinoo-no jiko-de-wa **takusan**(-no) sisha-ga deta yooda
 yesterday-GEN accident-LOC-TOP a.lot(-GEN) fatality-NOM came.out EVID
 ‘It seems that the accident yesterday resulted in a lot of fatalities.’
- b. Taro-wa **takusan**(-no) ase-o kaita
 Taro-TOP a.lot(-GEN) sweat-ACC secreted
 ‘Taro sweated a lot.’

Watanabe (2006) makes a related observation about the adnominal *wh*-determiner *dono* ‘which’. As the following examples demonstrate, it is also only compatible with countable nouns.

- (12) a. **dono-ie-mo** totemo furui.
 which-house-MO very old
 ‘Every house is very old.’
- b. **#dono-ase-mo** arainagashita
 which-sweat-MO washed.off
 (intended) ‘(I) washed off all the sweat.’

The most straightforward way of understanding these data, I think, is to assume that these counting modifiers require nouns with countable denotations, just like English *many*.³ If so, Japanese must have countable nouns.

However, here again, the data are not logically inconsistent with the view that nouns in Japanese are uncountable. For instance, one could assume that these modifiers came with unpronounced ‘count classifiers’. Count classifiers are those classifiers that combine with countable nouns, as opposed to measure classifiers (also known as mass classifiers or ‘massifiers’; see Cheng and Sybesma 1999) that show no mass-count sensitivity. If these modifiers contained an unpronounced count classifier, they would be incompatible with mass nouns like *ase* ‘sweat’. This would account for the pattern we saw above.

However, this analysis significantly reduces the conceptual appeal of the idea that the semantics of nouns explains the obligatory presence of classifiers in Japanese, because under this analysis, it is entirely lexically stipulated which counting modifiers require an overt classifier and which ones don’t. In particular, one could in principle define numerals with covert classifiers. Therefore, it would be completely left unexplained why it is numerals and not the ones we saw in this section that require classifiers.

Alternatively, one could concede that there are nouns with countable denotations in Japanese, but insist that they are nonetheless not of the right kind of denotation for numerals to act on and a classifier is still needed (cf. Krifka 2008). This idea, however, is unattractive in that it also undermines the semantic explanation of the obligatory use of classifiers with numerals in Japanese. In this setting, it would be perfectly possible to assign to numerals the kind of meaning that could take countable noun denotations, on a par with the counting modifiers we saw in this section. Thus, again, it would remain as lexical stipulation why numerals differ from these counting modifiers and cannot directly modify countable nouns.

³The data here are in direct conflict with the view mentioned Section 2 that Japanese nouns do not make a mass/count distinction. It also contradicts the idea that the mass/count distinction in obligatory classifier languages like Japanese is encoded only in classifiers (Cheng and Sybesma, 1999, Nemoto, 2005).

3.3 Proportional quantifiers

My third argument is based on the interpretation of proportional quantifiers.⁴ Proportional quantifiers are compatible with both countable and uncountable nouns, but they give rise to different readings depending on the countability of the noun. With countable nouns, they receive what I call *count-based readings*. Consider the following example.

- (13) Taro-wa **hotondo**-no hon-o yonda.
 Taro-TOP most-GEN book-acc read
 ‘Taro read most of the books.’

The only available interpretation of (13) is ‘Taro read most of the books’, and cannot mean ‘Taro read most of the book’ (Sauerland and Yatsushiro, 2004). In particular, it presupposes that there are multiple books, and the truth-conditions are about the number of books that Taro read, rather than the amount of reading he did.⁵ For instance, if there are 10 books, the sentence is typically taken to be true when Taro has read between 7 and 9 of them, regardless of how long these books are. More concretely, (13) is judged true in the situation in (14a) but false in the situation in (14b).

- (14) There are 10 books, Book 1, Book 2, ..., Book 10. Book 1 is 500 pages long, Book 2 is 190 pages long, Book 3 is 100 pages long, and Books 4–10 are 30 pages long each.
- a. **Situation 1** (count-based): Taro read all the short books, namely Books 4–10 (So he only read 210 pages out of 1000 pages).
 - b. **Situation 2** (quantity-based): Taro read Books 1, 2, and 3. (So he read 790 pages out of 1000 pages)

The situation in (14a) makes the sentence true by virtue of the number of books that Taro read, rather than the amount of reading he did. In fact, the amount he read is small in comparison to the amount he hasn’t read. I call this interpretation a count-based interpretation. On the other hand, the situation in (14b) is about the amount of reading Taro did. I call this the quantity-based reading. That the sentence is judged false in this situation shows that only the count-based interpretation is available for (13).

Crucially, with nouns like *mizu* ‘water’, both interpretations become possible. Consider the following sentence.

- (15) Taro-wa **hotondo**-no mizu-o nonda.
 Taro-TOP most-GEN water-ACC drank
 ‘Taro drank most of the water(s).’

This sentence is true in *both* of the following situations, which are parallel to the two situations in (14).

- (16) There are 10 glasses of water, Glass 1, Glass 2, ..., Glass 10. Glass 1 contains 500 ml of water, Glass 2 190 ml, Glass 3 is 100 ml, and Glass 4–10 contain 30 ml each.
- a. **Situation 1** (count-based): Taro drank the water in Glasses 4–10 (So he drank 210 ml out of 1000 ml).

⁴Inagaki and Barner (2009) make essentially the same point using data involving comparatives (based on earlier work by Barner and Snedeker 2005; see also Cheung et al. 2012 for Mandarin Chinese).

⁵Interestingly, the latter interpretation can be expressed in a different word-order, as Sauerland and Yatsushiro (2004) point out. But this is orthogonal to the point I am making here.

- b. **Situation 2** (quantity-based): Taro drank the water in Glasses 1, 2, and 3. (So he drank 790 ml out of 1000 ml)

What is particularly important here is that the sentence is true in the second situation (16b), meaning the quantity-based interpretation is also available. Recall that this interpretation was not possible with *hon* ‘book’. The availability of the count-based reading here can be attributed to the ‘elasticity’ of nouns like *mizu*, i.e. they can function as countable or uncountable nouns in certain contexts. This is a common phenomenon crosslinguistically (Pelletier, 1975, 2012, Cheng et al., 2008, Inagaki and Barner, 2009).

Why is it that the quantity-based interpretation is available with (15), but not with (13)? Since the same counting modifier is used, this difference must be attributed to the nouns. That is, when combined with *hotondo* ‘most’, nouns with countable denotations give rise to count-based interpretations, while nouns with uncountable denotations give rise to quantity-based interpretations.

Thus, this is evidence that nouns like *hon* ‘book’ have countable denotations, unlike *mizu* ‘water’, which supports both countable and uncountable denotations. This is a strong argument, given that proportional quantifiers like *hotondo* ‘most’ are inherently compatible with uncountable denotations, so there is nothing in them that requires countable nouns. Therefore, countability needs to be encoded in the semantics of nouns. This contradicts the view that Japanese nouns are not countable.

4 Conclusions

To summarise the discussion, I presented three pieces of evidence that Japanese has nouns with countable denotations. These denotations are countable in the sense that counting modifiers can modify them directly without help of classifiers. Although these data might not be logically inconsistent with the view that numerals cannot directly modify nouns in Japanese due to their semantics, they make it conceptually unappealing in that one could no longer attribute the obligatory use of classifiers solely to the semantics of nouns, and need to say that it is partly due to the lexical accident that numerals require a particular kind of countable denotations. Then, the theory cannot exclude a language in which numerals do not require classifiers but other counting modifiers do, but such a language does not seem to be attested.

Then, why is it that classifiers are (generally) obligatory in Japanese? In Sudo (in progress), I claim that it is the semantics of numerals that demand the presence of a classifier. More specifically, I propose that numerals in Japanese exclusively denote singular terms and cannot function as predicates or modifiers on their own. The role of classifiers is, then, to turn such singular terms into predicates/modifiers.

Support for this comes from the observation that Japanese numerals without classifiers simply cannot function as predicates, unlike the modifiers that do not require classifiers which we saw above, including large numerals, as demonstrated below. Notice also that in order for numerals to function as predicates, a classifier is needed.

- (17) a. *gakkai-kaisai-ni hitsuyoona gakusee-wa juu-go*(-nin)-da.*
 conference-hosting-DAT necessary student-TOP 10-5*(-CL)-COP
 (lit.) ‘The students necessary for hosting a conference is fifteen.’

- b. okyakusan-wa yo*(-nin)-da.
 guest-TOP 4(-CL)-COP
 ‘The guests are four.’
- (18) a. kono-uchi koremade fusei-akusesu-no higai-o uketa akaunto-wa
 this-among so.far unauthorised-access-GEN damage-ACC received account-TOP
yaku sen-go-hyaku-da.
 about 1000-5-100-COP
 ‘Among these, so far, about 1500 accounts have had unauthorised access.’
- b. heburai-go-o hanas-eru nihon-jin-wa goku **shoosuu-da**
 Hebrew-language-ACC speak-can Japanese-person-TOP extremely few-COP
 ‘Japanese people who speak Hebrew are very rare.’
- c. hontoo-no koto-o shir-anai hito-ga **hotondo-da.**
 truth-GEN thing-ACC know-NEG person-NOM most-COP
 ‘People who don’t know the truth are the majority.’

To be more precise, I assume that numerals in Japanese denote numbers, which are singular terms of type n . Being singular terms, they cannot function as predicates or modifiers, while they can appear in identificational sentences like the following.

- (19) a. gakkai-kaisai-ni hitsuyoona gakusee-no kazu-wa juu-go-da.
 conference-hosting-DAT necessary student-GEN number-TOP 10-5-COP
 ‘The number of students necessary to host a conference is fifteen.’
- b. ni-tasu-ni-wa yon-da.
 2-plus-2-TOP 4-COP
 ‘Two plus two is four.’

I propose that classifiers take type- n arguments and create a predicate of type $\langle e, t \rangle$. For instance, the classifier *-rin* for flowers can be analysed as follows. I here analyse the sortal restriction of the classifier as a presupposition (but see McCready 2009 for a view that the sortal restrictions of classifiers are conventional implicatures). $y \sqsubseteq x$ means y is equal to or part of x (with respect to \oplus).

$$(20) \llbracket \text{-rin} \rrbracket = \lambda n. \lambda x: * \mathbf{flower}(x). |\{y \sqsubseteq x \mid \mathbf{flower}(y)\}| = n$$

Since a numeral + classifier denotes a function of type $\langle e, t \rangle$, it can serve as a predicate. Also, assuming that functions of type $\langle e, t \rangle$ can be turned into an intersective modifier either via a special compositional rule (e.g. Predicate Modification) or a general type-shifting, we can account for pre-nominal modifier uses without further ado.

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