NON-UNIFORM PLURALITY: A CASE STUDY OF JAPANESE PLURALS

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Although bare nouns in Japanese can be interpreted either as singular or plural (e.g., (1a)), the language also has a suffix *-tati*, as in (1b), which marks plurality of animates, especially, human beings (Martin 1975). Since Japanese lacks grammatical marking of (in)definiteness, one would expect that plurals with *-tati* can have meanings typically associated with bare plurals. However, this prediction is not borne out. For instance, C(common) N(noun) +*tati* does not like to be generic, whereas a bare noun can easily be as in (2). Second, unlike a bare noun, CN+*tati* cannot be an internal argument of the possession verb *aru*/*iru* 'to have, to exist', as in (3). Third, when CN+*tati* is an argument of an intentional transitive verb such as *iru* 'to need' and *sagasu* 'to seek', it strongly prefers wide scope, again showing a sharp contrast with a bare noun, as in (4).

Why does CN+*tati* have such properties? One possibility is that *-tati* is analogous to *-men* in Chinese, which is arguably not a plural suffix but a collective suffix and makes CN-*men* refer to a particular collective entity accessible in the utterance context (see Iljic 1994, Cheng and Sybesma 1999). However, such an analysis is problematic since, unlike CN+*men*, CN+*tati* can be used in existential sentences. Another possibility is to follow Chierchia's (1998) idea of economy of projection, which prohibits building up extra structure when less structure can mean the same. The fact that a bare NP has all the interpretations in (2)-(4), prevents the CN+*tati* combination, which presumably involves more structure, from meaning the same as a bare NP. Attractive though it is, this approach is too rigid. It turns out that the impossible readings in (2)-(4) become available when (i) CN+*tati* is modified (as in (5a), (6), (7)) or (ii) there is a clear sense of contrast (as in (5b)). The economy approach cannot capture these effects.

We argue that these puzzling properties of *tati* are due to its non-uniformity, by which we mean that the extension of CN-*tati* can include some entities that do not have the property denoted by the CN. One important aspect of *tati* is that it can be attached to a proper name. For instance, *John-tati* means 'a/the plural entity including John and represented by John.' The semantics of this use of *tati* is given in (8a). We propose that an almost analogous meaning be given to *-tati* when it takes a CN, as shown in (8b). Notice that the semantics in (8b) allows CN-*tati* to have some 'exceptions'. This is confirmed by the example (9). The addition of *dake* 'only' highlights this property of *tati*. The non-uniformity of *-tati* has a variety of semantic effects. Generic sentences are generalizing statements. For instance, (2b) is meant to be a generalization on Italians. However, *Itariajin-tati* can in principle has some non-Italians in its extension, and compared to the bare noun *Itariajin*, which does not allow exceptions, it is rather an uneconomical choice. The internal arguments of verbs like 'have' and 'seek' are arguably property-denoting (cf. Zimmermann 1993). With Zimmermann's semantics of 'seek', shown in (10a), the meaning of (4b) would be (10b). It is easy to see why (10b) is odd. In every wish-world, that hospital finds nurses and possibly some non-nurses. What goes wrong is that there is practically no chance that we can make any connection between the hospital's wish/need and these unspecified non-nurse properties. To sum up, *tati*'s nature of allowing exceptions leads to very unnatural, almost non-sensical assertions under the intended meaning of (2)-(4).

The next question is why modification and contrast help. Modification has a function of 'narrowing down'. In terms of sets, Mod+CN denotes a set smaller than the denotation of CN only (unless the sets for Mod and CN are identical). If CN+*tat*i has exceptions to CN, then as a result of modification, the proportion of the exceptions may become significantly larger. We suggest that, to avoid such a risk, the number of exceptions must be cut down significantly as a precondition for modification of CN-*tati*. Contrast also has the effect of decreasing the number of exceptions. In (5b), 'children' is put in opposition of 'adults'. If the extension of 'child+*tati*' had non-children (=adults) and that of 'adult+*tati*' had non-adults (=children), the sense of contrast would be significantly weakened.

The advantages of our proposal are: 1. *Tati* means the same (modulo semantic types) when it is attached to a name or a CN. 2. It provides an account for the difference between a bare noun and a *tati* plural. 3. It explains the effects of modification and contrast which would otherwise remain totally mysterious. The analysis presented here also has an important implication for the semantics of nouns in general. *-Tati* is a pluralizer (although of a kind quite different from the ordinary pluralizer), which means that the denotation of a Japanese CN is not uniformly mass but can encode semantic countability, contrary to the suggestion made by Chierchia (1998).

(1) a. kodomo ‘child(ren)’ b. kodomo-**tati** ‘children’

(2) a. Itariajin-wa yooki-da.
Italian-top cheerful-be
‘Italians are cheerful.’ generic OK
b. Itariajin-**tati**-wa yooki-da.
Italian-TATI-top cheerful-be
???generic

(3) a. Kita-san-ni-wa kodomo-ga aru/iru.
Kita-Ms.-dat-top child-nom exist
‘Ms. Kita has children.’
b. *Kita-san-ni-wa kodomo-**tati**-ga aru/iru.
child-TATI-nom

(4) a. Sono byooin-wa kangofu-o sagasite-iru.
that hospital-top nurse-acc seek-prog
narrow: ‘That hospital is looking for a nurse/nurses (to hire).’
wide: ‘There is a nurse/are nurses that hospital is looking for.’
b. Sono byooin-wa kangofu-**tati**-o sagasite-iru.
nurse-TATI-acc
[OK for (4a), ?* for (4b)]
[? for (4a), OK for (4b)]

(5) a. Italia-de umare-sodatta Itariajin-**tati**-wa yooki-da.
Italy-in born-raised Italian-TATI-top cheerful-be
‘Italians who were born and raised in Italy are cheerful.’ generic OK
b. Kodomo-**tati**-wa itumo otona-**tati**-no mane-o-suru.
child-TATI-top always adult-TATI-gen imitate
‘Children always imitate adults.’ generic OK

(6) Kita-san-ni-wa muzukasii tosigoro-no kodomo-**tati**-ga iru.
Kita-Ms.-dat-top difficult age-gen child-TATI-nom exist
‘Ms. Kita has teenage kids.’

(7) Sono byooin-wa kodomo-no atukai-ni nareta kangofu-**tati**-o sagasite-iru.
that hospital-top child-gen handling-dat be-used nurse-TATI-acc seek-prog
Narrow OK: ‘That hospital is looking for nurses (to hire) who are used to dealing with kids.’

(8) a. [[**tati**]] (of type <e,<e,st>>) = $\lambda x.\lambda Y.\ \lambda w.\ x \in Y\ \&\ |Y| \geq 1$ & x represents Y in w.
b. [[**tati**]] (of type <<e,st>,<e,st>>) = $\lambda P.\lambda Y.\lambda w.\ |Y| \geq 1$ & P represents Y in w.
c. For any w, $Q \in D_{<e,st>}$, and plural entity X, Q represents X in w only if for most $x \in X$, $Q(x)(w)=1$

(9) Yootienji-(**tati)-**dake-ga yuukai s-are-ta.
kindergartner-TATI-only-nom kidnap do-pass-past
‘Only kindergartners were kidnaped.’
Without *tati*: No non-kindergartners were kidnaped.
With *tati*: The kidnapees possibly include non-kindergartners, such as a couple of teachers.

(10) a. [[**seek**]] = $\lambda P.\ \lambda x.\ \lambda w.$ for all w’ such that it is compatible with x’s wish/needs in w, for some y such that P(y)(w’)=1, x finds y in w’.
b. $\lambda w.$ for all w’ such that it is compatible with that hospital’s wish/needs in w, for some Y such that Y consists mostly of nurses in w’ and possible of some non-nurses in w’, x finds Y in w’.

Partial References

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