

Presentation of Nakanishi, Kimiko & Satoshi Tomioka 2004. Japanese plurals are exceptional.
Journal of East Asian Linguistics 13:113–40. (Henceforth N&T)

1 Introduction

Nakanishi and Tomioka propose a semantics for the Japanese pluralizer *tati*. This morpheme, N&T argue, generates a ‘plural of associativity’. When attached to proper nouns, N-*tati* denotes a plural entity ‘represented by’ the entity N, and when attached to common nouns, N-*tati* denotes a property, the set of plural entities ‘represented by’ the property N.

2 Data

Japanese can optionally mark the plural on (human) nouns with the morpheme *tati*:

- (1) a. *Otokonoko-ga asonde-iru*
 boy-NOM play-PROG
 ‘A boy is/The boy is/Boys are/The boys are playing.’
 b. *Otokonoko-tati-ga asonde-iru*
 boy-TATI-NOM play-PROG
 ‘(The) boys are playing.’

Except that *tati* does not behave exactly like the English plural marker:

- (2) *tati* not good with generics:
 a. Italians are cheerful.
 b. *Itariazin-wa yooki-da*
 Italian-TOP cheerful-COP
 ‘Italians are cheerful.’
 (presumably also: ‘Some particular group of Italians are cheerful’, although the authors don’t say)
 c. *Itariazin-tati-wa yooki-da*
 Italian-TATI-TOP cheerful-COP
 ??? ‘Italians are cheerful.’
 ✓ ‘Some particular group of Italians are cheerful.’

- (3) *tati* not good with kind references:
- Female private detectives are rare.
 - Zyosei-tantei(?*-tati)-wa mezurasii*
female-detective-TATI-TOP rare
- (4) Nouns marked with *tati* take obligatory wide scope wrt intensional verbs; English bare plurals take obligatory narrow scope:
- That hospital is looking for nurses.
look-for > nurses, *nurses > look-for
 - Sono byooiin-wa kangohu-o sagasi-teiru*
that hospital-TOP nurse-ACC look for-PROG
look-for > nurses, ??nurses > look-for
 - Sono byooiin-wa kangohu-tati-o sagasi-teiru*
*? look-for > nurses, ✓nurses > look-for
- (5) Nouns marked with *tati* cannot be internal argument of possession verb:
- Mrs. Inoue has children.
 - Inoue-san-ni-wa kodomo-ga aru/iru*
Inoue-Mrs.-DAT-TOP child-NOM exist
'Mrs. Inoue has a child/children' (=Mrs. Inoue is a mother)
 - *?*Inoue-san-ni-wa kodomo-tati-ga aru/iru*

3 Definiteness? No

Initial tempting suggestion: *tati* encodes definiteness as well as plurality. All of the above issues also occur with definites, in English:

- (6)
- The Italians are cheerful (no generic reading)
 - #The female private detectives are rare.
 - That hospital is looking for the nurses (*look for > nurses)
 - Mrs. Inoue has the children (no 'Mrs. Inoue is a mother' reading)

Kurafuji 1999 proposes (adapted from N&T's (13)):

- (7)
- $[[tati]] = \lambda P.\sigma x.PL(P(x))$
 - N-*tati* denotes the greatest plural element in N; undefined if no such element.

This predicts that *tati* is incompatible with numerals. From the above, N-*tati* is of type *e*, while numerals are of type $\langle et, et \rangle$, so combining them would be a type mismatch. And, Kurafuji argues, this is indeed the case:

- (8) ??*San-nin-no gakusei-tati*
 three-CL-GEN student-TATI
 'three students'

But N&T reject this judgement, suggesting that (8) is only 'slightly unnatural', and that even this unnaturalness goes away with a large or vague number:

- (9) ✓ *200-nin-izyoo-no gakusei-tati*
 200-CL-or more-GEN student-TATI
 '200 or more students'

There are also contexts where N-*tati* appears not to possibly be definite:

- (10) Definites shouldn't enter into scope relations, but N-*tati* can:
- a. *Kono kooen-de-wa itumo kodomo-tati-ga asonde-iru*
 this park-LOC-TOP always child-TATI-NOM play-PROG
 'In this park, children are always playing.' (always > children)
 ??? 'In this park, there are some children who are always playing.' (*children > always)
- (11) N-*tati* can combine with *donna* 'what kind of':
- a. *Donna gakusei-tati-ga kita-no?*
 what kind of student-TATI-NOM came-Q
 'What kind of students came?'
 - b. *Majimena gakusei-tati-ga kita.*
 serious student-TATI-NOM came
 'Serious students came.'
 - c. *What kind of the students came?

And, furthermore, one simply can gloss *Otokonoko-tati-ga asonde-iru* as 'boys are playing'; it doesn't have to be 'the boys are playing'.

4 Proposal: *tati* marks a ‘plural of association’

tati can be attached to proper nouns as well as common nouns:

- (12) *Taroo-tati-wa moo kaetta.*
 Taroo-TATI-TOP already went home
 ‘The group of people represented by Taroo already went home.’

Suggestion for the semantics of *tati*:

- (13) a. (proper noun-*tati*)
 $[[tati]] = \lambda x_e. \lambda Y_e. x \leq Y \wedge |Y| \geq 2 \wedge x$ represents Y
 b. (common noun-*tati*)
 $[[tati]] = \lambda P_{\langle e,t \rangle}. \lambda Y_e. |Y| \geq 2 \wedge P$ represents Y
- (14) a. $[[Taroo-tati]] = \lambda Y_e. Taroo \leq Y \wedge |Y| \geq 2 \wedge Taroo$ represents Y
 b. $[[gakusei-tati]] = \lambda Y_e. |Y| \geq 2 \wedge \text{student}'$ represents Y

What does it mean to say that a property ‘represents’ an entity? A property P represents Y if every entity in Y either is a P or has a ‘close relationship’ to a P .

- (15) a. We throw a party. Thirteen students come, two of them bringing (non-student) spouses. Seven professors come, three of them bringing (non-professor) spouses.
 b. *Kyoozyu-tati-wa yoku syabetta-kedo, gakusei-tati-wa otonasi-katta.*
 professor-TATI-TOP a lot talked-but student-TATI-TOP quiet-was
 ‘The professors (and their spouses) talked a lot, but the students (and their spouses) were quiet.’

We might worry that this is a bit vague. N&T’s response is basically that *tati* is vague and context-dependent:

- (16) *Kyoo kooen-de gakusee-tati-no demo-ga atta*
 today park-LOC student-TATI-GEN demo-NOM existed
 ‘Today, there was a demonstration by students [and co.] in the park.’
- (17) a. A speaker would not be inclined to say (16) if they knew that the students only made up 40% of the demonstration.
 b. A speaker might be inclined to say (16) if they didn’t know the proportions, but they knew that the other demonstrators were close political allies of the students.

5 Japanese plurals are exceptional

This sort of plural marking is a different beast from pluralization as we know it. It's *exceptional*. N-*tati* includes in its denotation entities which are not in the semi-lattice one can form from the entities in N.

- (18) a. *Yootienji-dake-ga yuukai s-are-ta*
 kindergarteners-only-NOM kidnap do-PASS-PAST
 'Only (a) kindergartener(s) [no-one else] was/were kidnapped.'
- b. *Yootienji-tati-dake-ga yuukai s-are-ta*
 'Only kindergarteners [but possibly a teacher or two; no elementary school pupils etc., though] were kidnapped.'

N&T argues that this 'vagueness' in the meaning of N-*tati* is supported by the following contrast:

- (19) a. *129-nin-no gakusee(??-tati)-ga miitingu-ni sankasita*
 129-CL-GEN student(-TATI)-NOM meeting-LOC participated
 '129 students [and co.] participated in the meeting.'
- b. *200-nin-izyoo-no gakusee(-tati)-ga miitingu sankasita*
 200-CL-or more-GEN student(-TATI)-NOM meeting-LOC participated
 '200 or more students [and co.] participated in the meeting.'

There is a 'pragmatic conflict' between being so specific about the number of N-*tati* and being vague about the denotation of the noun. (I don't know why...)

6 How it works

So, we have:

- (20) a. $\llbracket \text{Taroo-tati} \rrbracket = \lambda Y_e. \text{Taroo} \leq Y \wedge |Y| \geq 2 \wedge \text{Taroo represents } Y$
 b. $\llbracket \text{gakusei-tati} \rrbracket = \lambda Y_e. |Y| \geq 2 \wedge \text{student}' \text{ represents } Y$

These are $\langle e, t \rangle$ functions, so neither of these can appear in argument position of a VP as is; we'd need to typeshift them with a \exists or ι (in the case of proper names, always ι). But that's OK (Partee 1987). (And we'd presumably have to do this for bare Ns like *gakusee* 'student' anyway.)

Then:

- (21) a. Taroo-tati-ga kaetta 'Taroo and co. went home'
 b. $\llbracket \text{Taroo-tati} \rrbracket = \lambda Y_e. \text{Taroo} \leq Y \wedge |Y| \geq 2 \wedge \text{Taroo represents } Y$
 c. $\iota: \llbracket \text{Taroo-tati} \rrbracket = \iota Y. [\text{Taroo} \leq Y \wedge |Y| \geq 2 \wedge \text{Taroo represents } Y]$
 d. $\llbracket \text{Taroo-tati went home} \rrbracket = \text{went.home}'(\iota Y. [\text{Taroo} \leq Y \wedge |Y| \geq 2 \wedge \text{Taroo represents } Y])$
 e. The unique Y , such that Taroo is a member of Y and the cardinality of Y is two or more and Taroo represents Y , went home.
- (22) a. Otokonoko-tati-ga asonde-iru 'The boys are playing.'
 b. $\llbracket \text{Otokonoko-tati} \rrbracket = \lambda Y_e. |Y| \geq 2 \wedge \text{boy}' \text{ represents } Y$
 c. $\iota: \llbracket \text{Otokonoko-tati} \rrbracket = \iota Y. [|Y| \geq 2 \wedge \text{boy}' \text{ represents } Y]$
 d. $\llbracket \text{Otokonoko-tati are playing} \rrbracket = \text{is.playing}'(\iota Y. [|Y| \geq 2 \wedge \text{boy}' \text{ represents } Y])$
 e. The unique Y , such that Y has cardinality of two or more and **boy'** represents Y (= each Y is a boy or has a close association with a boy), is playing.
- (23) a. Otokonoko-tati-ga asonde-iru 'Boys are playing.'
 b. $\llbracket \text{Otokonoko-tati} \rrbracket = \lambda Y_e. |Y| \geq 2 \wedge \text{boy}' \text{ represents } Y$
 c. $\exists: \llbracket \text{Otokonoko-tati} \rrbracket = \lambda P. \exists Y. |Y| \geq 2 \wedge \text{boy}' \text{ represents } Y \wedge P(Y)$
 d. $\llbracket \text{Otokonoko-tati are playing} \rrbracket = \exists Y. |Y| \geq 2 \wedge \text{boy}' \text{ represents } Y \wedge \text{is.playing}'(Y)$
 e. There is a Y such that the cardinality of Y is two or more and **boy'** represents Y and Y is playing.

N&T suggest that the intuition that there's something 'definite' about N-*tati* (as per Kurafuji's analysis) comes from the most likely prototypical use of plurals of association – trying to refer to a definite group, but not having a good deictic etc. strategy, and so falling back on picking a 'representative' property for the group. It doesn't come from the semantics itself.

7 Solving our mysteries

7.1 Why not generic or with kinds?

- (24) a. *Itariazin-tati-wa yooki-da*
 Italian-TATI-TOP cheerful-COP
 ??? 'Italians are cheerful.'
 b. In general, if x is in a set of people represented by Italians, x is cheerful.

These truth conditions are not the same as a generalization about Italians. To do that, one should just use unadorned *Itariazin* 'Italian(s)', which bears no 'risk' of containing non-Italians. The logic

is similar for kinds (female private detectives(-???tati) are rare). Kind-references by definition can't admit of 'exceptions'.

7.2 Why no narrow scope with intensional verbs?

- (25) *Sono byooiin-wa kangohu-tati-o sagasi-teiru*
 that hospital-TOP nurse-TATI-ACC look for-PROG
 *? That hospital is looking for nurses (to hire).
 ✓ There is a group of nurses that hospital is looking for.
- (26) \llbracket that hospital is looking for nurse-tati $\rrbracket = \lambda w.$ for all w' such that w' is compatible with what that hospital needs/wants in w , for some Y such that $|Y| \geq 2$ and nurse' represents Y in w' , that hospital finds Y in w' .

The problem with narrow scope is that the narrow scope reading doesn't make sense if one allows exceptions in the extension of *nurse-tati*. Why would a hospital be looking for nurses and a nurse's spouse, for example (to hire)? By contrast, if there's a specific group of nurses (and maybe a nurse's spouse or two) which the hospital is anxious to find, then (25) is a felicitous sentence, as expected.

7.3 Why not with possessive verbs?

Assumption (Partee 1999): nouns in possessive constructions are of type $\langle et, et \rangle$ and possessive verbs are of type $\langle \langle et, et \rangle, t \rangle$:

- (27) Joey has a sister.
- (28) a. \llbracket a sister $\rrbracket = \lambda P.\lambda y.\exists x.x$ is a sister of y and $P(x) = 1$
 b. \llbracket have $\rrbracket = \lambda R_{\langle et, et \rangle}.R(\text{exist}) = 1$ where *exist* is a dummy predicate: $\lambda z.z = z$
 c. \llbracket have a sister $\rrbracket = \lambda y.\exists x.x$ is a sister of y and $\text{exist}(x)$
 d. \llbracket Joey has a sister $\rrbracket = \exists x.x$ is a sister of Joey and $\text{exist}(x) = \exists x.x$ is a sister of Joey

Then:

- (29) *?*Inoue-san-ni-wa kodomo-tati-ga aru/iru*
 Inoue-Mrs.-DAT-TOP children-TATI-NOM exist
 'Mrs. Inoue has a child/children' (= Mrs. Inoue is a mother)
- (30) \llbracket Mrs. Inoue has children-tati $\rrbracket = \exists x.|x| \geq 2 \wedge$ the property of being a child of Mrs. Inoue represents x .

Asserting that there is a plural entity represented by the property of being a child of Mrs. Inoue is an odd way to assert that Mrs. Inoue has children! (The plural entity in question might contain some people who are not Mrs. Inoue's children.) Again, in this sort of construction, there is no reason not to use the bare noun *kodomo* 'child(ren)'.

8 Side note

N&T don't mention this fact, and maybe they don't mention it for a reason, but I'll mention it anyway:

- (31) a. *watasi* 'I'
b. *watasi-tati* 'we'

This can (I think) be handled in exactly the same way as the *Taroo-tati* cases: $\llbracket \text{watasi-tati} \rrbracket =$ that plural x represented by the speaker. However, you'd miss something else:

- (32) (Chinese)
a. *wo* 'I'
b. *wo-men* 'we'

Kurafuji thinks that Chinese *men* and Japanese *tati* are the same, i.e. $\llbracket \text{men/tati} \rrbracket_{\text{Kurafuji}} = \lambda P.\sigma x.PL(P(x))$. N&T want to hold on to a Kurafuji-style analysis for Chinese *men*, but revise *tati*. I'm not sure what one would have to say about *men* in pronouns in Chinese. (I wonder if you could say *Wang-men* in Chinese to mean 'the group represented by Wang'? Preliminary Googling suggests not, but I can't read Chinese.)

9 Conclusion

Suggesting that *tati* has the semantics of a 'plural of association' can account for many of its properties. It also suggests that Japanese does have plurality – but a non-uniform, exceptional plural, different from that of many other languages.