

Japanese *-tachi* Plurals*

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0. Introduction

This paper discusses the Japanese plural marker *-tachi*, which indicates plurality of [+human] nouns, as shown in (1b):

- | | | | | |
|-----|-----|--------------|-----|-------------------------|
| (1) | (a) | otokonoko | (b) | otokonoko- tachi |
| | | boy | | boy- PL |
| | | 'a boy/boys' | | 'boys' |

In (1b), the plural marker *-tachi* is attached to the common noun (CN) *otokonoko* 'boy'.

Japanese bare plural nouns can be interpreted as singular or plural, as illustrated in (2a). On the other hand, the NP marked by *-tachi* is unambiguously interpreted as plural, as shown in (2b).¹:

- | | | |
|-----|-----|--|
| (2) | (a) | Otokonoko- ga asonde- i- ru. |
| | | boy- NOM play- PROG PRES |
| | | 'A boy is/ boys are playing.' (Nakanishi and Tomioka 2004:113) |
| | (b) | Otokonoko- tachi - ga asonde- i- ru. |
| | | boy- PL- NOM play- PROG PRES |
| | | 'Boys are playing.' (Nakanishi and Tomioka 2004:113) |

This paper gives unified accounts of the definiteness-like properties and the non-definiteness-like properties of *-tachi* plurals. Nakanishi and Tomioka's (2004) analysis and Kurafuji's (2004) analysis cannot provide unified accounts of

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¹ Japanese also has the plural suffixes *-ra* and *-domo*. However, in this paper, following Nakanishi and Tomioka (2004), I focus on *-tachi*, since the distribution of *-tachi* is the least restricted and *-tachi* does not evoke any irrelevant pragmatic connotations.

those phenomena. To be specific, I propose: (i) the definiteness-like phenomena discussed by Kawasaki (1989) and Kurafuji (2004) are in fact manifestations of specificity, (ii) *-tachi* NPs are interpreted as specific when operators such as negation, modals, or propositional attitude verbs appear under the scope of the existential quantifier binding a plural-entity variable, adopting an analysis of specificity (Fodor and Sag 1982), (iii) predicates within the denotation of *-tachi* have an extra argument position for situations. Based on these three proposals, I will propose a modification of Nakanishi and Tomioka's (2004) analysis of *-tachi* plurals.

1. Properties of *-tachi* Plurals

In this section, I discuss several properties of *-tachi* plurals.

First of all, as discussed by Kawasaki (1989) and Kurafuji (2004), *CN+tachi* is not understood as being under the scope of negation, as shown in (3) and (4):

- (3) Kono ie- ni kodomo- wa i- mase- n.
 this house- in child- TOP exist- PRES- NEG
 'There is no child in this house.' (Kurafuji 2004:215)
- (4) Kono ie- ni kodomo- **tachi**- wa i- mase- n. (cf. (1))
 this house- in child- TACHI- TOP exist- PRES- NEG
 'The children are not in this house.' (Kurafuji 2004:215)

In (4), the matrix predicate is negated. However, the sentence in (4) presupposes the existence of a particular group of children.

Second, as discussed by Nakanishi and Tomioka (2004), when *CN+tachi* is an argument of an intensional transitive verb, it cannot take narrow scope, as shown in (5) and (6):

- (5) Sono- byooin- wa kangofu- o sagashite- i- ru.
 that- hospital- TOP nurse- ACC look.for- PROG- PRES
 ✓ look-for > nurse(s): 'That hospital is looking for nurses (to hire).'
 ?? nurse(s) > look for: 'There is a group of nurses that hospital is looking for.' (Nakanishi and Tomioka 2004:115)
- (6) Sono- byooin- wa kangofu- **tachi**- o sagashite- i- ru.
 that- hospital- TOP nurse- TACHI- ACC look.for- PROG- PRES
 *? look-for > nurse-TACHI: 'That hospital is looking for nurses (to hire).'
 ✓ nurse-TACHI > look for: 'There is a group of nurses that hospital is looking for.' (Nakanishi and Tomioka 2004:115)

The example in (6) can be uttered when there is a certain group of nurses missing.

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The evidence in (3)-(6) suggests that *CN+tachi* refers to a particular group of entities whose existence is presupposed. However, this does not have to be the case, as shown in (7) and (8):

- (7) Kooen- de kodomo- tachi- ga asonde- i- ru.
 park- LOC child- TACHI- NOM play- PROG- PRES
 1. 'Children are playing in the park.'
 2. 'A particular group of children is playing in the park.'
 (Kurafuji 2004:234)
- (8) Kono kooen- de- wa itsumo kodomo- tachi- ga asonde- i- ru.
 this park- LOC- TOP always child- TACHI-NOM play- PROG- PRES
 ✓ always > child-TACHI: 'In this park, there are always children playing.'
 ??? child-TACHI > always: 'A particular group of children is always playing
 in this park.' (Nakanishi and Tomioka 2004:121)

As discussed by Kurafuji (2004), the example in (7) can be a mere description of what the speaker witnessed. The existence of any particular group of children is not presupposed. Example (8) also does not have to refer to a particular group of children whose existence is presupposed. In (8), the reference of the *CN+tachi* varies depending on each situation.

2. Kurafuji (2004): Definite Description Analysis

Drawing on example (4), Kurafuji (2004) argues that *-tachi* plurals are definite descriptions. *CN+tachi* is not understood as being under the scope of negation, as shown in (4). In other words, the sentence in (4) presupposes a particular group of children. Kurafuji considers this phenomenon of the *-tachi* plural to be a definiteness effect. Furthermore, he argues that when the plural morpheme *-tachi* attaches to a common noun (CN), the plural NP is a definite NP.

To be specific, for example, concerning the interpretation of *gakusei-tachi* 'students', Kurafuji provides the semantic interpretation in (9) for it.

- (9) $[\text{gakusei-tachi}] = \sigma x[\text{PL}(\text{student}')(\text{x})]$
- (10) The pluralization function PL is defined as follows:
 A set of atoms: $A = \{a, b, c\}$
 $\text{PL}(A) = \{\{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}\}$ (Kurafuji 2004:221)
- (11) $[\sigma_u \phi]^g$ denotes the greatest element v which satisfies $[\sigma_u \phi]^g \leq v$;
 otherwise, undefined. (Kurafuji 2004:226)

Under Kurafuji's analysis, *-tachi* encodes the meaning of a pluralizer (PL), given in (10), and the meaning of a definite determiner, given in (11). Thus, *CN+tachi* refers to a particular plural entity, as shown in (9).

However, Kurafuji's analysis faces problems with the examples in (7) and (8). The two instances of *CN+tachi* in (7) and (8) do not have to refer to a particular group of children whose existence is presupposed, as discussed by Nakanishi and Tomioka (2004).

3. Nakanishi and Tomioka (2004): Associative Plural Analysis

Nakanishi and Tomioka (2004) also discuss the Japanese plural marker *-tachi*. According to them, when the plural marker *-tachi* attaches to a common noun, the property denoted by the common noun can hold of the majority of the plural entity, but does not have to hold of all the members. In other words, *CN+tachi* denotes a plural entity, and it can include entities which are not in the extension of the common noun. This is shown in (12) and (13):²

(12) Otokonoko-tachi_i- ga kooen-de yakyu- o shi-te i- ta.
 boy- TACHI- NOM park- in baseball- ACC do- be -ing- PST
 'Boys were playing baseball in the park.'

(13) Karera_i- no- uchi futari- wa onnanoko- dat- ta.
 they- GEN- out.of two- ACC girl- COP- PST
 'Two of them were girls.'

The sentence in (13) does not have any contradiction in meaning with the sentence in (12). The plural entity denoted by *otokonoko-tachi* 'boys' in (12) can include two girls in (13).

In order to capture the above property of the plural marker *-tachi*, Nakanishi and Tomioka (2004) propose the denotation in (14) for the plural marker *-tachi*:

(14) [tachi] ∈ D_{<<e,t>,<e,t>} = λP_{<e,t>}. λY_e. |Y|≥2 & P represents Y

(15) represent --- prominence or close association

The term *represent* in (14) is related to prominence, as shown in (15). The semantic representation in (14) means that a property P represents a plural entity Y if the prominent part of Y has the property P denoted by the CN.

Under this analysis, the *-tachi* plural NP in (12), namely *otokonoko-tachi* 'boys', has the denotation given in (16):

(16) [otokonoko-tachi] = λY. |Y|≥2 & boy' represents Y

3.1. (In)definiteness of *-tachi* Plurals

-tachi plurals do not always exhibit a definiteness effect, as shown in (17). In order to account for this phenomenon, Nakanishi and Tomioka (2004:129)

² I owe this example to Ralph Rose.

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provide the semantic denotation in (18) for the *-tachi* NP in (17), namely, *otokonoko-tachi* ‘boys’:

- (17) Otokonoko- tachi- ga asonde- i- ru.
 boy- TACHI- NOM play- PROG- PRES
 ‘Boys are playing.’ (Nakanishi and Tomioka 2004:113)
- (18) $[\text{boy-tachi}] = \lambda P. \exists Y[|Y| \geq 2 \ \& \ \text{boy}' \text{ represents } Y \ \& \ P(Y)]$
 \rightarrow a generalized quantifier of type $\langle\langle e, t \rangle, t \rangle$
- (19) $[\text{boy-tachi}] = \lambda Y. |Y| \geq 2 \ \& \ \text{boy}' \text{ represents } Y \ \langle e, t \rangle$
- (20) $\exists: \langle e, t \rangle \rightarrow \text{GQ} : \exists X = \lambda P \exists y [X(y) \ \& \ P(y)]$
- (21) $[\text{boy-tachi} + \text{be playing}] = \exists Y[|Y| \geq 2 \ \& \ \text{boy}' \text{ represents } Y \ \& \ \text{be-playing}'(Y)]$

As shown in (18), Nakanishi and Tomioka assume the meaning of a generalized quantifier of type $\langle\langle e, t \rangle, t \rangle$ for the denotation of the *-tachi* plural NP. This denotation is yielded when the type-shifting operator \exists given in (20) applies to the meaning of the *CN+tachi* given in (19). This type-shifting operator changes a function of type $\langle e, t \rangle$ to a generalized quantifier of type $\langle\langle e, t \rangle, t \rangle$, as shown in (18) and (19). As a result, the plural NP ‘boy-tachi’ in the example in (17) denotes the set of all properties which hold of a plural entity *Y*. Furthermore, the prominent part of the plural entity *Y* has the property boy’. Thus, the sentence in (17) has the interpretation given in (21).

3.2. No Narrow Scope with Respect to Intensional Verbs

We now turn to the absence of a narrow scope reading of *-tachi* plurals with respect to intensional verbs. This property is illustrated in (23):

- (22) Sono- byooin- wa kangofu- o sagashite- i- ru.
 that- hospital- TOP nurse- ACC look.for- PROG- PRES
 ✓ look-for > nurse(s): ‘That hospital is looking for nurses (to hire).’
 ?? nurse(s) > look for: ‘There is a group of nurses that hospital is looking for.’ (Nakanishi and Tomioka 2004:115)
- (23) Sono- byooin- wa kangofu- **tachi**- o sagashite- i- ru.
 that- hospital- TOP nurse- TACHI- ACC look.for- PROG- PRES
 *? look-for > nurse-TACHI: ‘That hospital is looking for nurses (to hire).’
 ✓ nurse-TACHI > look for: ‘There is a group of nurses that hospital is looking for.’ (Nakanishi and Tomioka 2004:115)

In (23), the *-tachi* plural NP, namely *kangofu-tachi* ‘nurses’, cannot take narrow scope with respect to the intensional verb *sagas* ‘look for’, as shown in the first reading of (23). This contrasts with the bare-noun example in (22).

With regard to this issue, Nakanishi and Tomioka (2004) assume Zimmermann’s (1993) analysis of intensional verbs. Under this assumption, the object narrow scope reading of the verb *sagasu* ‘look for’, given in (24), is possible only if we can make a reasonable connection between the subject *x*’s need and the property which holds of the object argument *y*, namely, finding people/things.

(24) look for (*x*, *y*)

We cannot have the object narrow scope reading in (23). This is because we cannot make a reasonable connection between the hospital’s needs and finding nurses along with non-nurses. In other words, it is difficult to imagine the situation in which the hospital needs nurses, but it is looking for nurses along with non-nurses.

3.3. Other Properties

There are at least two other properties which Nakanishi and Tomioka (2004) do not closely examine.

First of all, Nakanishi and Tomioka (2004) do not discuss the fact illustrated in (25). In (25), *CN+tachi* is not understood as being under the scope of negation, in contrast to (26):

(25) Kono ie- ni kodomo- tachi- wa i- mase- n.
 this house- in child- TACHI- TOP exist- PRES- NEG
 ‘The children are not in this house.’ (Kurafuji 2004:215)

(26) Kono ie- ni kodomo- wa i- mase- n.
 this house- in child- TOP exist- PRES- NEG
 ‘There is no child in this house.’ (Kurafuji 2004:215)

In order to account for the phenomenon in (25), Nakanishi and Tomioka cannot utilize their analysis of the absence of the narrow scope reading of the *-tachi* plural in the intensional-verb construction. This is because their analysis of the intensional-verb construction crucially depends on Zimmermann’s (1993) analysis of intensional verbs.

Second, Nakanishi and Tomioka (2004) provide the example in (27) to point out the problems for Kurafuji’s analysis of the plural morpheme *-tachi*.

(27) Kono kooen- de- wa itsumo kodomo-tachi- ga asonde-i- ru.
 this park- LOC- TOP always child- TACHI- NOM play- PROG-PRES
 ✓ always > child-TACHI: ‘In this park, there are always children playing.’

??? child-TACHI > always: ‘A particular group of children is always playing in this park.’ (Nakanishi and Tomioka 2004:234)

In (27), the reference of the *CN+tachi* varies depending on each situation. However, Nakanishi and Tomioka do not discuss how their analysis of *-tachi* plurals accounts for the interpretation of the *-tachi* plural in (27).

3.4. Toward a Unified Analysis of Definiteness-like Phenomena

Nakanishi and Tomioka’s (2004) analysis of *-tachi* plurals accounts for the fact that the plural entity denoted by *CN+tachi* can include entities which are not in the extension of the common noun, as shown in (12) and (13). However, it fails to give a unified account of the definiteness-like properties shown in (4) and (6) and the non-definiteness-like properties shown in (7) and (8). This paper proposes a unified account of those phenomena.

4. Proposal

This paper modifies Nakanishi and Tomioka’s (2004) analysis of *-tachi* plurals and proposes the denotation in (28) for *-tachi*:

(28) $\lambda P \exists Y \exists X [P(s_1)(X) \ \& \ Q(s_1)(Y) \ \& \ X \geq Y \ \& \ |Y| \geq 2 \ \& \ R(s_2)(Y)]$ (P: the property denoted by a CN, R: the denotation of the matrix predicate)

In (28), *Y* represents plural entities. *P*, *Q*, and *R* represent properties which hold of *X* or *Y* in a situation *s₁* or *s₂*. *P* corresponds to the property denoted by the common noun, and *R* corresponds to the matrix predicate. *Q* corresponds to the property which holds of a plural entity *Y* interpreted as an argument of the matrix predicate *R*. The value for *Q* is determined based on the event *s₁* by the context.

My analysis proposes two modifications of Nakanishi and Tomioka’s analysis. First, in the above semantic representation in (28), *R*, which corresponds to the matrix predicate, is within the scope of the existential quantifier binding *Y*. Under this proposal, *-tachi* plural NPs are interpreted as specific when operators such as negation, modals, or propositional attitude verbs appear within *R* under the scope of the existential quantifier binding a plural-entity variable *Y*.

Concerning the definiteness-like phenomena discussed by Kawasaki (1989) and Kurafuji (2004), I assume that they are in fact manifestations of specificity. Thus, for my proposal given in (28), I adopt an analysis of specificity discussed by Fodor and Sag (1982) and others. Under this analysis, an indefinite NP is interpreted as specific if it has wide scope over an operator, as illustrated in (31).

(29) John must talk to someone.

(30) $M(\exists x T(j, x))$

(31) $\exists x (M(T(j, x)))$ where $T(j, x)$ is “j talks to x.”

When *someone* stands for a specific person in example (29), we have the semantic representation in (31) for the meaning of the example sentence.

What is interesting is that even though Nakanishi and Tomioka (2004) do not consider specificity for the analysis of the meaning of *-tachi*, their analysis of a *-tachi* plural in a mere description is similar to my analysis given in (28).

Concerning a *-tachi* plural in a mere description, such as the example in (32), they propose the following denotation in (33) for the *-tachi* plural NP:

- (32) Otokonoko- tachi- ga asonde- i- ru.
 boy- TACHI- NOM play- PROG- PRES
 ‘Boys are playing.’ (Nakanishi and Tomioka 2004:113)

- (33) $[\text{otokonoko-tachi}] = \lambda P.\exists Y[|Y|\geq 2 \ \& \ \text{boy}' \ \text{represents } Y \ \& \ P(Y)]$

However, they do not consider a possibility to account for the definiteness-like phenomena based on the semantic interpretation in (33).

The second modification of Nakanishi and Tomioka’s analysis is that the predicates *P*, *Q*, *R* in the denotation of *-tachi* have an argument place for a situation. Following Heim (1990) and others, I assume that adverbs of quantification (Q-adverbs) such as *always* quantify over situations.

5. A Unified Account of the Properties of *-tachi* Plurals

My analysis of the Japanese plural marker *-tachi* gives a unified account of the properties of *-tachi* plurals discussed in section 1.

First of all, *CN+tachi* is understood not to be under the scope of negation, as shown in (34). Under my analysis of *-tachi* plurals, the existential quantifier binding *Y* takes scope over negation, as illustrated in (35). This scope relation yields “specificity” of the *CN+tachi*. In other words, in example (34), we have an interpretation in which there exists a particular group of children.

- (34) Kono ie- ni kodomo- tachi- wa i- mase- n.
 this house- in child- TACHI- TOP exist- PRES- NEG
 ‘The children are not in this house.’ (Kurafuji 2004: 215)

- (35) $\exists Y[\exists X[\text{child}'(s_1)(X) \ \& \ Q(s_1)(Y) \ \& \ X \geq Y \ \& \ |Y|\geq 2 \ \& \ \sim\exists s_2[\text{exist_in_the_house}'(s_2)(Y)]]]$

Second, as discussed by Nakanishi and Tomioka (2004), when *CN+tachi* is an argument of an intensional transitive verb, it cannot take narrow scope with respect to the verb, as shown in (36):

- (36) Sono- byooiin- wa kangofu- tachi- o sagashite- i- ru.
 that- hospital- TOP nurse- TACHI- ACC look.for- PROG- PRES
 ‘*? look-for > nurse-TACHI: ‘That hospital is looking for nurses (to hire).’

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✓ nurse-TACHI > look for: ‘There is a group of nurses that hospital is looking for.’ (Nakanishi and Tomioka 2004:115)

(37) $\exists Y[\exists X[\text{nurse}'(s_1)(X) \ \& \ Q(s_1)(Y) \ \& \ X \subseteq Y \ \& \ |Y| \geq 2 \ \& \ \exists s_2[\text{look-for}'(s_2)(\text{that-hospital})(Y)]]]$

Under my analysis of *-tachi* plurals, the existential quantifier binding Y takes scope over the intensional verb ‘look for’, as shown in (37). This scope relation yields “specificity” of *CN+tachi*. In example (36), because of this scope interpretation, we have an interpretation in which there exists a specific group of nurses whom the hospital is looking for.

The same analysis which just accounted for specificity exhibited by *-tachi* plural NPs also accounts for *-tachi* plurals in a mere description as in (38). Under my analysis, the sentence in (38) has the semantic interpretation in (39). If the variables s_1 and s_2 happen to be assigned the same value in (39) by the context, as shown in (39.1), the sentence asserts that there is a group of children Y in a situation and that they are playing in the park in that situation. This leads to the interpretation of a mere description.

(38) Kooen-de kodomo-tachi-ga asonde-i-ru.
 park-LOC child-TACHI-NOM play-PROG-PRES
 1. ‘Children are playing in the park.’
 2. ‘A particular group of children is playing in the park.’
 (Kurafuji 2004:234)

(39) $\exists Y[\exists X[\text{child}'(s_1)(X) \ \& \ Q(s_1)(Y) \ \& \ X \subseteq Y \ \& \ |Y| \geq 2 \ \& \ \exists s_2[\text{playing_in_the_park}'(s_2)(Y)]]]$
 1. $s_1 = s_2 \rightarrow$ a mere description
 2. $s_1 \neq s_2 \rightarrow$ a specific reading

If the values of s_1 and s_2 are different, as shown in (39.2), the existential quantifier binding Y simply takes scope over the existential quantifier binding s_2 . In this case, the sentence in (38) means there is a group of children in situation s_1 , and this particular group of children were playing in the park in situation s_2 . Thus, *kodomo-tachi* ‘child-TACHI’ is interpreted as specific in (38), as shown in the second reading of this example.

In the case of the Q-adverb construction shown in (40), the *-tachi* plural NP, namely *kodomo-tachi* ‘children’, does not have to refer to a particular group of children whose existence is presupposed. The reference of the *CN+tachi* varies depending on each situation. Under my analysis, the sentence in (40) has the semantic interpretation in (41). In (41), the universal quantifier, namely ‘always’, quantifies over the situation variable s_2 (Heim 1990):³

³ According to Nakanishi and Tomioka (2004), example (40) does not have an interpretation in

- (40) Kono kooen-de- wa itsumo kodomo-tachi- ga asonde- i- ru.
 this park- LOC-TOP always child- TACHI-NOM play- PROG-PRES
 ✓ always > child-TACHI: ‘In this park, there are always children playing.’
 ✓ child-TACHI > always: ‘A particular group of children is always playing
 in this park.’ (Nakanishi and Tomioka 2004:121)
- (41) $\exists Y[\exists X[\text{child}'(s_1)(X) \& \mathbf{Q}(s_1)(Y) \& X \subseteq Y \& |Y| \geq 2 \& \forall s_2[\text{playing_in_the_park}'(s_2)(Y)]]]$
 1. $s_1 = s_2$ for some values of $s_2 \rightarrow$ a mere description
 2. $s_1 \neq s_2$ for all the values of $s_2 \rightarrow$ a specific reading

The value of \mathbf{Q} and the reference of the entity Y possessing the property $\mathbf{Q}(s_i)$ in (41) hinge on a situation s_i . If the value of s_i is different from the value of s_2 for all the values of s_2 , as shown in (41.2), the existential quantifier binding Y simply takes scope over the universal quantifier binding s_2 . Thus, *kodomo-tachi* ‘child-TACHI’ is interpreted as specific, as shown in the second reading of example (40).

If there is at least one value of s_i which is the same as the value of s_2 as shown in (41.1), the existential quantifier binding Y cannot take scope over the universal quantifier binding s_2 . Thus, as shown in the first interpretation of example (40), the reference of the plural entity Y varies depending on each situation s_i .

6. Some Other Phenomena

My analysis of *-tachi* plurals has some consequences. As discussed by Nakanishi and Tomioka (2004), *CN+tachi* behaves differently from English bare plurals. My analysis also gives a unified account of those properties of *CN+tachi*.

6.1. Kind-Taking Predicates

First, an English bare plural is compatible with a kind-taking predicate, whereas *CN+tachi* isn’t, as shown in (42). With regard to kind-taking predicates, I assume that they are not stage-level predicates related to events (Kratzer 1995). Under this assumption, my analysis correctly predicts the phenomenon in (42).

- (42) Zyosei- tantei(*-tachi)- wa mezasarii.
 female- detective(-TACHI)- TOP rare
 ‘Female private detectives are rare.’ (Nakanishi and Tomioka 2004)
- (43) [zyosei-tantei-tachi] (--- <<e, <s, t>>, t>)
 $= \lambda R \exists Y \exists X [\text{female-detective}'(s_1)(X) \& \mathbf{Q}(s_1)(Y) \& X \subseteq Y \& |Y| \geq 2 \& R(s_2)(Y)]$
- (44) [zyosei-tantei] = female-detective (--- <e>)
 (45) [mezasarii] = λx [rare (x)] (--- <e, t>)

which *CN+tachi* quantifies over the quantifier *always*. However, in my judgment, this interpretation is allowed.

It is assumed that the kind-taking predicate *mezurasii* ‘rare’ in (42) is not a stage level predicate. It does not have an argument position for situations, as shown in (45). On the other hand, a *-tachi* plural must take a stage-level predicate *R* as its argument. To be specific, the *-tachi* plural in (42), namely *zyosei-tantei-tachi* ‘female detectives’, has the semantic denotation in (43). This denotation is a function which must take a stage-level predicate as a value for *R*, since the predicate *R* has an argument position for situations, namely, s_2 . Thus, the *-tachi* plural NP in (43) cannot take the kind-taking predicate *mezurasii* in (45) as its argument.

In contrast, Japanese bare NPs are assumed to denote kinds, which are of type $\langle e \rangle$ (Chierchia 1998, Kurafuji 2004, and others), as shown in (44). Therefore, Japanese bare NPs can be an argument of the function denoted by the kind-denoting predicate, as shown in (44) and (45). Thus, Japanese bare NPs are compatible with kind-taking predicates, as shown in (42).

6.2. Possession Verbs

Second, an English bare plural can be the argument of the possession verb *have*, as shown in the English translation of the example in (46). In contrast, *CN+tachi* cannot be the argument of the possession verb *aruiru* ‘to have, to exist’, as shown in (46):

- (46) Inoue- san- ni- wa kodomo- ga/ *kodomo- **tachi**- ga iru.
 Inoue- Mrs.- DAT- TOP child- NOM/ child- TACHI- NOM exist
 ‘Mrs. Inoue has a child/children.’ (Nakanishi and Tomioka 2004:116)

- (47) [kodomo-tachi]
 $= \lambda R \exists Y \exists X [\text{child}'(s_1)(X) \ \& \ Q(s_1)(Y) \ \& \ X \subseteq Y \ \& \ |Y| \geq 2 \ \& \ R(s_2)(Y)]$

- (48) [Mrs. Inoue has] = λx [have’ (i, x)]

My analysis correctly predicts this phenomenon. As discussed by Kratzer (1995), the possession verb does not denote a transitory property of the possessor. Thus, it is considered an individual-level predicate, which does not have an argument position for events, as illustrated in (48). On the other hand, a *-tachi* plural must take a stage-level predicate *R* as its argument, as shown in (47). Therefore, *CN+tachi* is not compatible with the possession verb.

7. Conclusion

This paper gives a unified account of the definiteness-like properties and the non-definiteness-like properties of *-tachi* plurals, which Nakanishi and Tomioka’s (2004) analysis and Kurafuji’s (2004) analysis cannot provide.

In this paper, I assumed that the definiteness-like phenomena discussed by Kawasaki (1989) and Kurafuji (2004) are in fact manifestations of specificity. Following an analysis of specificity (Fodor and Sag 1982), I argued that *-tachi*

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plural NPs are interpreted as specific when operators such as negation, modals, or propositional attitude verbs appear under the scope of the existential quantifier binding a plural-entity variable Y.

Furthermore, with regard to the denotation of *-tachi*, I modified Nakanishi and Tomioka's analysis (2004), based on the above analysis of specificity and on the assumption that predicates within the denotation of *-tachi* have an extra argument position for situations.

This analysis also accounts for a mere description reading of *-tachi* plurals. In addition, it accounts for some differences between English bare plural NPs and Japanese *-tachi* plurals.

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