On the Polyfunctionality of Copula Sentences in Japanese*

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This paper sets out the puzzle of the polyfunctionality of copula sentences in Japanese, and proposes a principled solution from the viewpoint of Semantic Incrementality. Some copula sentences have specificational and identity functions, and they display different behaviours in terms of connotation and anaphora. It is proposed that the single item *no* as a pronominal nominaliser captures the two functions uniformly, whereas their distinct properties can be reduced to Semantic Incrementality (i.e. the timing of copying a type-e term). The analyses have interesting implications for some ellipsis constructions.

1. INTRODUCTION

Copula sentences in Japanese and other languages have attracted a number of studies (Imada 2009, Nishiyama 2003, and references therein; see also Declerck 1988 and Moro 2006). This paper is an attempt to contribute to this growing body of research by setting out new data on the polyfunctionality of copula sentences (§2), and proposing a principled solution from the perspective of Semantic Incrementality (§3-5). The analyses have the bonus of accounting for some data on ellipsis constructions in Japanese (§6).

2. PUZZLE

Seraku (to appear) examines a certain type of copula sentences like (1). The predicate *nai* and the aspectual marker *teiru* form an open clause with a gap φ. This open clause is headed by *no*, which is marked by the topic particle *wa*. The category of *no* is discussed in §4.2.

(1)	[[φ_i	*nai-teiru*]	*no*]-*wa*	*Tom*$_i$	*da.*
	[[	cry-CONT]	NO]-TOP	T.	COP

This copula sentence exhibits various functions: specificational, identity, predicational, and descriptionally-identifying in Declerck's (1988) sense (Seraku 2010). This paper focuses on the specificational and identity functions.

First, suppose the situation (2). Under this situation, the copula sentence (1) will have a **specificational** function; the reading in this function is illustrated in (3).

(2) Situation: Mary is a teacher, giving lots of assignments to her students. One day, her colleague Jim tells Mary that one of her students is crying due to the amount of work. Mary asks who is crying. Then, Jim replies by uttering (1).

(3) 'It is Tom that is crying.' (specificational)

In this reading, the content of *nai-teiru no* does not denote an entity; it denotes some type of variable, "X such that X is crying". The slot X is filled by the content of the pre-copula item *Tom*. This **filling** process is the core idea of specificational functions.

* I'd like to acknowledge insightful suggestions made by David Cram, Ruth Kempson, Jieun Kiaer, Yuji Nishiyama, and the participants of CamLing 2010. The author is responsible for any inadequacies in the paper.

Second, consider the situation (4). Under this situation, the copula sentence (1) will have an **identity** function; the reading in this function is something like (5).

(4) Situation: Mary is a teacher, giving lots of assignments to her students. Tom, one of her students, starts crying on his way home. Mary is walking in the same street, and sees a person crying. She approaches him, and realizes that he is her student, Tom.

(5) 'The person who is crying is the same person as Tom.' (identity)

In this reading, the content of *nait-teiru no* denotes an entity (i.e. a crying person), and the content of the pre-copula item *Tom* also denotes an entity (i.e. Tom); it is asserted that these two entities are equated. Unlike the filling nature of specificational functions, the core idea of identity functions is the **equation** process.

Despite the filling/equation divide, the two functions do look similar, and one might suppose that they are the same. In fact, a number of previous studies held this unitary view (Declerck 1988: 2-3); for a more recent analysis of this sort, see Heycock and Kroch (1999). The overall conclusion drawn in this paper respects the intuition behind this unitary view, but to conclude so just from the above examples can lead us to overlook some important linguistic facts. In what follows, we are going to see some clear asymmetries between the two functions.

First, (1) expresses some kind of connotation under the identity reading, but not under the specificational reading. The type of connotation is context-dependent (Seraku 2010; Yuji Nishiyama p.c.): for instance, if Mary hates a feeble man crying in public, the connotation will be derogatory; if Mary thinks of a crying person to be cute, the connotation will be a familiarity towards the person. The point here is that, though the type of connotation varies across contexts, connotations are found only in the identity reading.

(Table 1) *Properties of the copula sentence (1)*

Function	**Connotation**
specificational	absent
identity	present

Second, as observed in Nishiyama (2003: ch.3) and some others, the identity reading is in a sharp contrast with the specificational reading in terms of anaphora. *Nai-teiru no* in (1) can have an anaphoric relation with the personal pronoun *kare* (= 'he'), as in (6); in this case, only the identity reading is possible. By contrast, if we use the impersonal pronoun *sore* (= 'it'), only the specificational reading is possible, as in (7). Again, we observe another clear asymmetry between the two readings, as summarized in Table 2.

(6) [*Nai-teiru no, kare*]-*wa* *Tom* *da.*
[cry-CONT NO he]-TOP T. COP
*'It is Tom that is crying.' (specificational)
'The person who is crying is the same person as Tom.' (identity)

(7) [*Nai-teiru no, sore*]-*wa* *Tom* *da.*
[cry-CONT NO it]-TOP T. COP
'It is Tom that is crying.' (specificational)
*'The person who is crying is the same person as Tom.' (identity)

(Table 2) *Properties of the copula sentence (1)*

Function	**Connotation**	**Anaphora**
specificational	absent	*sore* (= 'it') / **kare* (= 'he')
identity	present	**sore* (= 'it') / *kare* (= 'he')

Thus, we cannot simply say that the two functions are the same unless we explain away these asymmetries. To the best of my knowledge, the pattern in Table 2 has not been explicitly noted, though some attention has been paid to the data on anaphora (Nishiyama 2003: ch.3).

In sum, while the specificational and identity functions look similar, the one differs from the other in some important respects. This ambivalent situation favours the analysis that captures the two functions uniformly without failing to derive the asymmetries. The rest of the paper explores this line of analysis from the viewpoint of Semantic Incrementality.

3. FRAMEWORK

This section introduces Dynamic Syntax (DS) as a model of Semantic Incrementality. DS is a grammar formalism of Knowledge of Language, which is defined as follows (Cann et al. 2005 and Kempson et al. 2001):

(8) Knowledge of Language is a set of constraints on the growth of semantic structure, which a parser builds up online progressively by parsing a string of words in the order with respect to a particular context.

According to (8), semantic structure is built up **progressively** as the words are processed. This progressive growth of semantic structure is the dynamic nature of language use, and called **Semantic Incrementality**. It is assumed that language-users have tacit knowledge of this dynamic nature of language use; DS explicitly models this knowledge by construing it as a set of constraints on the dynamic nature of language use. In this sense, Knowledge of Language (i.e. competence) is defined with reference to Use of Language (i.e. performance). In general, Use of Language consists of comprehension and production, but this paper only concerns the former; see Cann et al. (2007) and Purver et al. (2006) for the latter.

Knowledge of Language within DS enables a **direct** mapping from words onto its semantic structure. The mapping is direct in the sense that there is no intermediate level of structure, such as syntactic structures. Thus, despite its name Dynamic Syntax, the "syntax" here is nothing over and above a set of constraints explicated in (8).

The growth of semantic structure is driven by combination of the three types of action:

(9) a. General actions run by the DS system
b. Lexical actions run by the parsing of lexical items
c. Pragmatic actions run by pragmatic inference

The third type of action indicates that pragmatic inference intrudes into DS computations. A promising candidate for pragmatic explanation is Relevance Theory (Sperber and Wilson 1995). Thus, DS representations are, in fact, not only semantic but also pragmatic.

For illustration, let's see how the string (10) is progressively mapped onto its semantic structure word-by-word.

(10) *Mary-ga* *nai-teiru.*
M.-NOM cry-CONT
'Mary is crying.'

The initial state is (11), defined as an axiom.[1] "?t" is a requirement that the node should be decorated with type-t content. In this sense, the growth of semantic structure is goal-driven, the goal being to construct type-t content, or an interpretation of a string.

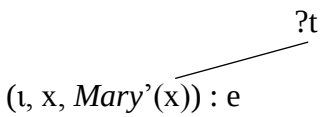
[1] For brevity, the GENERALIZED ADJUNCTION rule, which models embedded phenomena, is disregarded.

(11) Initial state

?t

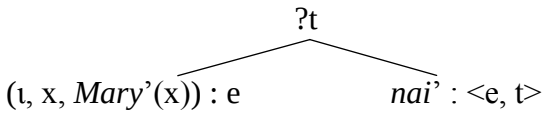
Once the initial state is set out, the parsing starts. The first item is *Mary*. As Japanese allows permutations of arguments, *Mary* may be a subject or an object, etc. So, the node for *Mary* is structurally underspecified and gets fixed later. This fixation is made by the parsing of the case marker *ga*, which fixes the node for *Mary* as a subject. In (12), the subject node consists of two pieces of information. First, (ι, x, *Mary*'(x)) is the content of *Mary*. "ι" is an iota operator that binds the variable "x", which is restricted by *Mary*'. Second, "e" states that the content at this node is of type-e: within DS, every quantified item is treated as a type-e term.

(12) Parsing *Mary-ga*



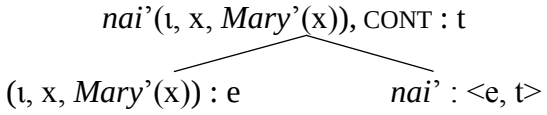
The next item to be parsed is the predicate *nai* (= 'cry'). Japanese being a pro-drop language, a predicate constructs an open proposition with slots for arguments. Thus, the parsing of *nai* updates (12) into (13), where a slot for a subject has been already identified.

(13) Parsing *Mary-ga nai*



Finally, the general action called ELIMINATION composes the content at each daughter node by means of functional application, and the parsing of *teiru* puts aspectual information at the root node. The final state is (14); this structure is well-formed in that no outstanding requirements (i.e. "?") remain (Cann et al. 2007).

(14) Parsing *Mary-ga nai-teiru*



Once a proposition is built up, it is subject to the process EVALUATION: each term stores a record of the proposition by enriching restrictors, and this record-storing results in an E-type interpretation of the term. To take (14) as an example, the proposition *nai*'(ι, x, *Mary*'(x)) is evaluated as *nai*'(a), where "a" is the E-type entity (ι, x, *Mary*'(x)&*nai*'(x)).

This section has articulated DS as a model of Semantic Incrementality: a parser builds up the interpretation of a string as each word is parsed left-to-right with respect to a specific context. Couched within this framework, the next section makes some proposals.

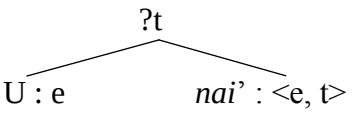
4. PROPOSALS[2]

4.1. Representation of Gap

Let me first clarify the notation of the gap φ (i.e. subject of *nai*) in (1), repeated as (15). The parsing of *nai* creates an open proposition with the meta-variable "U" at a subject node.

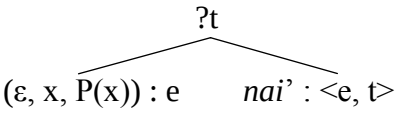
(15) [[φ_i *nai-teiru*] *no*]-*wa* *Tom*$_i$ *da.*
[[cry-CONT] NO]-TOP T. COP

(16) Parsing *Nai*



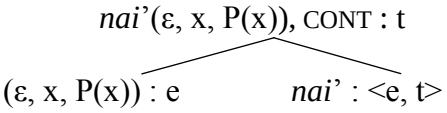
Following Kempson and Kurosawa (2009), Seraku (to appear) argues that a gap is notated as (ε, x, P(x)): "ε" is an existential operator binding the variable "x", and "P" is a maximally abstract restrictor. (ε, x, P(x)) is a proto-term, unless a concrete restrictor is added, like, for instance, (ε, x, P(x)&*man*'(x)). Thus, the semantic structure (16) is updated into (17).

(17) SUBSTITUTION of "U"



Functional application then takes place, and *teiru* puts the aspectual information CONT at the root node, as in (18). Regardless of whether the copula sentence (15) is going to be interpreted as specificational or identity, the parsing of *nai-teiru* yields the structure (18) in both cases.

(18) Parsing *Nai-teiru*



Now that the proposition is built up, it is evaluated, as shown in (19). This evaluation process is crucial in our analysis, as will become clear in due course. "P" being an **abstract** restrictor, (ε, x, P(x)&*nai*'(x)) is identical to (ε, x, *nai*'(x)).

(19) *nai*'(ε, x, P(x)) EVALUATION→ *nai*'(ε, x, P(x)&*nai*'(x))

4.2. Lexical Entry of *No*

The next issue is the category of *no*. Following Cann et al. (2005: 285), Seraku (to appear) regards *no* as a pronominal nominaliser, whose entry is defined as (20).

[2] This section and the next section elaborate and refine the proposals/analyses given in Seraku (to appear).

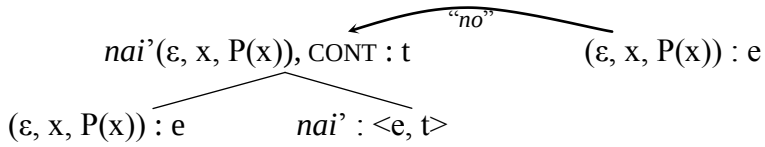
(20) Lexical entry of pronominal nominaliser *no*

IF	Ty(t)	
THEN	IF	Fo(ψ[a])
	THEN	make(<L^{-1}>); go(<L^{-1}>); put(Fo(a), Ty(e))
	ELSE	Abort
ELSE	Abort	

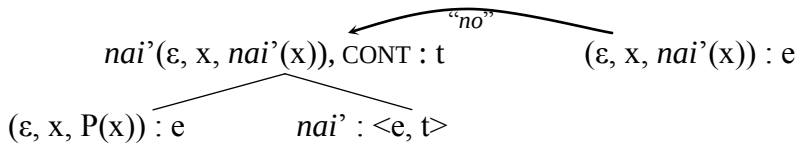
This entry states that if a type-t content has been built up, a parser should perform the three actions: (a) copy a type-e term within the type-t content, (b) create a type-e node linked to the type-t node, and (c) paste the type-e term at the type-e node.

Given this lexical entry, there are two ways the structure (18) can be updated. First, *no* can be parsed **before** the proposition is evaluated, as in (21). Second, *no* can be parsed **after** the proposition is evaluated, as in (22), where (ε, x, P(x)&*nai*'(x)) is notated simply as (ε, x, *nai*'(x)) since they are equivalent (cf. §4.1).

(21) Parsing *Nai-teiru no* (parsing *no* **before** the EVALUATION)



(22) Parsing *Nai-teiru no* (parsing *no* **after** the EVALUATION)



In this way, a type-e term may be copied before or after the EVALUATION. In the former case, the copied item is (ε, x, P(x)); in the latter case, it is (ε, x, *nai*'(x)). I advocate that this flexibility of tree transitions is a source of two different functions and their distinct properties. This idea is formulated in (23), and illustrated in the next section.

(23) The specificational/identity distinction is reducible to Semantic Incrementality, that is, the **timing** of copying a type-e term.

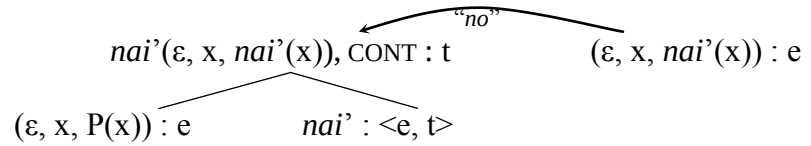
5. ANALYSES

5.1. Identity Function

As proposed in the last section, the parsing of *nai-teiru no* leads to either of the structures (21) or (22), depending on the timing of copying a type-e term. This sub-section argues that the identity function (24) comes from the structure (22), repeated as (25). (As for the structure (21), see the next sub-section.)

(24) [[*Nai-teiru*] *no*]-*wa* *Tom* *da.*
[[cry-CONT] NO]-TOP T. COP
'The person who is crying is the same person as Tom.' (identity)

(25) Parsing *Nai-teiru no* (parsing *no* **after** the EVALUATION)



In (25), (ε, x, *nai*'(x)) denotes an entity that cries. Thus, in the identity reading, some entity is denoted when we parse *no*. This is consistent with the intuition of native speakers that when they process (24) under the identity reading, they feel that they have not denoted anything before they parse *no*, but they have denoted something after they parse *no*.

Two caveats are in order. First, the operator can be strengthened. In (25), the term is a non-unique existential statement; if a context is set out in such a way that a parser can uniquely identify an entity that cries, the existential operator "ε" is strengthened as the iota operator "ι". In this case, the term is updated into (ι, x, *nai*'(x)).

Second, restrictors can be added pragmatically. For instance, if a parser pragmatically infers that what a speaker intends to denote is an entity that cries and is a man, the term will be pragmatically updated into (ε, x, *nai*'(x)&*man*'(x)). This updating is a pragmatic process, and thus the restrictors to be added are context-dependent; in another context, the term may alternatively be updated as, say, (ε, x, *nai*'(x)&*student*'(x)).

The above discussion answers the following questions, raised in §2:

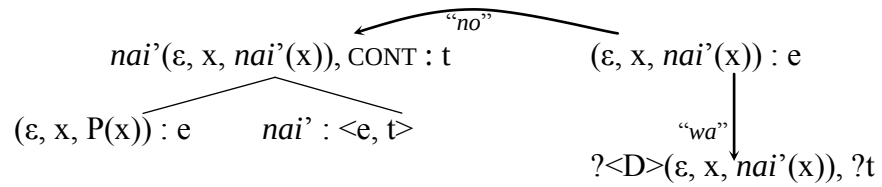
(26) a. Why can we use the personal pronoun *kare* (= 'he'), but not the impersonal pronoun *sore* (= 'it'), in the identity reading?
b. Why does the identity reading express a connotation of some sort?

As for (26a), the term in (25) denotes a human, given that *nai*' (= *cry*') is a human property. Thus, only the personal pronoun *kare* (= 'he') can be used. As for (26b), it is explained pragmatically, if we presume that a pronominal *no* primarily denotes "things" and that if it denotes a human, connotation emerges as a result of pragmatic inference: the denoted human is treated as if s/he were a thing, and, together with some contextual premise, it engenders a certain connotation, like "derogatory" (Seraku to appear). This pragmatic analysis correctly predicts that no connotations are detected in cases like (27), where *no*-headed part denotes a non-human entity, such as (ε, x, *book*'(x)&*kat*'(x)(ι, y, *Tom*'(y))).

(27) [*Tom-ga* *kat-ta* *no*]-*wa* *takakatta*.
[T.-NOM buy-PAST NO]-TOP was.expensive
'The one (e.g. book) which Tom bought was expensive.'

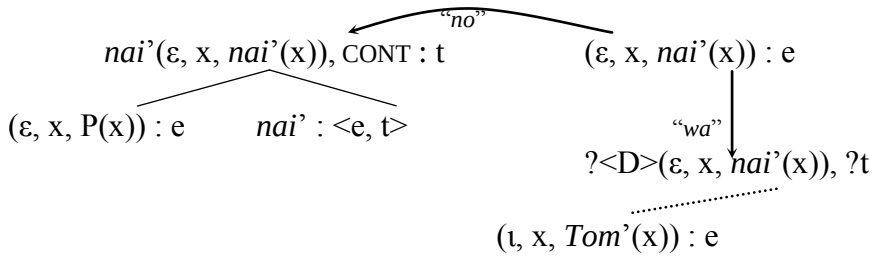
So far, we have parsed *nai-teiru no*. The next item is a topic marker *wa*, which updates (25) into (28); *wa* creates a type-t node, positing the requirement ?<D>(ε, x, *nai*'(x)), which requires that (ε, x, &*nai*'(x)) should be found somewhere below the node (Cann et al. 2005).

(28) Parsing *Nai-teiru no wa*



What comes next is the pre-copula item *Tom*. Since it is not case-marked, the node for *Tom* is structurally underspecified (cf. §3), as indicated by the dotted line in (29).

(29) Parsing *Nai-teiru no wa Tom*

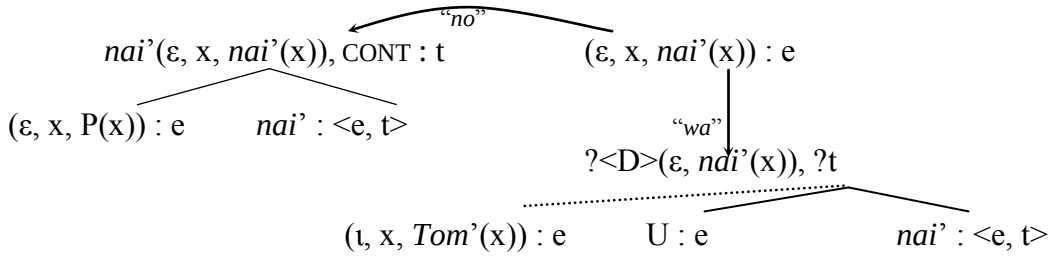


Finally, we process the copula *da*. Purver et al. (2006) propose that *do* in English VP-ellipsis as in (30) decorates a node with a type-<e, t> meta-variable, which licenses the **re-use** of the actions associated with an antecedent predicate, that is, *cry* in (30).[3]

(30) *Tom cried, and Bill did too.*

Based on this insight, I shall maintain that the copula *da* decorates a node with a type-t meta-variable, which licenses the re-use of the actions associated with an accessible type-t item, in this case, *nai-teiru*.[4] Thus, the parsing of *da* turns (29) into (31)[5], where the actions associated with *nai* have been re-run.

(31) Parsing *Nai-teiru no wa Tom da*



As in the parsing of *nai-teiru*, the actions of *teiru* will be re-used once a full proposition is constructed; see (34).

The tree is currently being built up with reference to the term (ε, x, *nai*'(x)), which is marked in bold in (32). Thus, the meta-variable "U" is substituted with this term, and (31) is updated into (32).

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[3] Re-use of actions is formally defined as the general action REGENERATION (Purver et al. 2006: §5).

[4] This account of the copula *da* is similar to Cann's (2006, to appear) and Cann et al.'s (2005: ch.8) account of the copula *be* in English in that both the copula *da* and the copula *be* are analyzed as introducing a meta-variable. In §6, some interesting implications for ellipsis constructions will be drawn from this treatment of the copula *da*.

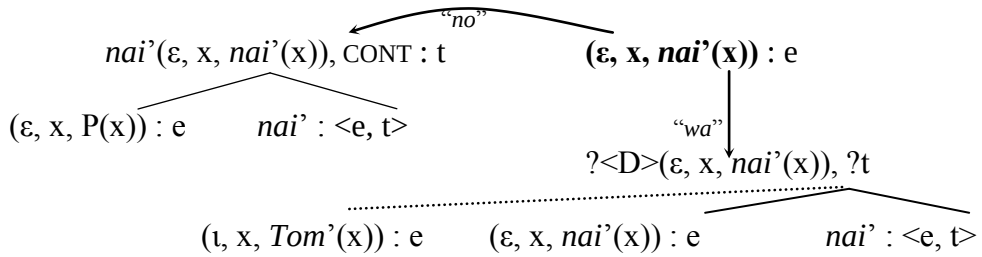
[5] In English VP-ellipsis, a concrete predicate could be explicitly produced instead of *do*, as illustrated in (i). In the case of the cleft (ii), however, the type-t item *nai-teiru* cannot be explicitly uttered instead of *da*.

(i) *Tom cried, and Bill cried too.* (cf. *Tom cried, and Bill did too.*)

(ii) *[*Nai-teiru no*]-*wa Tom nai-teiru*. (cf. *Nai-teiru no wa Tom da*.)
[cry-CONT NO]-TOP T. cry-CONT

I tentatively conjecture that (ii) is unacceptable for the following reason. It has been widely held that a clause part of clefts (i.e. *Nai-teiru*) serves as presupposition whereas a pre-copula item (i.e. *Tom*) serves as focus. Consequently, once the topic marker *wa* is parsed, we can only utter focussed items. That is, *nai-teiru* cannot be uttered because it is not a focussed item. Instead, the "pro-form" of a type-t item, *da*, is uttered.

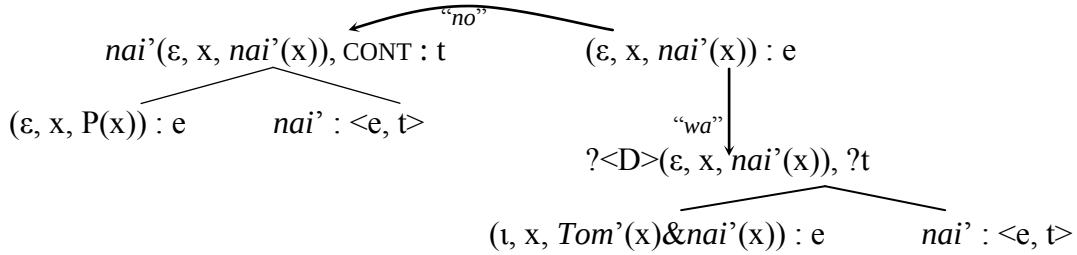
(32) SUBSTITUTION of "U"



This substitution process ensures that the requirement ?<D>(ε, x, *nai*'(x)) is satisfied.

The underspecified node is then unified with the subject node, as illustrated in (33). This is the general action MERGE. It was originally assumed that two formula values cannot be unified at one node (Cann et al. 2005: 65), but Cann et al. (2005: ch.8) and Cann (2006) claim that MERGE is possible if two nodes denote the same entity. Notice that the requirement is still satisfied in (33), since (ι, x, *Tom*'(x)&*nai*'(x)) entails (ε, x, *nai*'(x)).

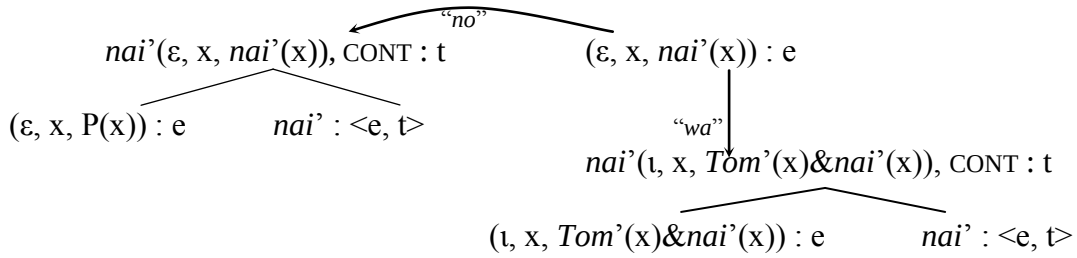
(33) MERGE



This unification process models the identity function. As emphasized in §2, the core idea of identity functions is the **equation** between two entities. In (32), (ι, x, *Tom*'(x)) and (ε, x, *nai*'(x)) denote two entities, and in (33), MERGE equates them by unifying their restrictors.

After functional application, the tree is an appropriate environment for re-using the actions of the aspectual marker *teiru*, which puts CONT at the root node.

(34) Final state



The analysis of the identity reading is summarized in Table 3.

(Table 3) *Analysis of the copula sentence (1)*

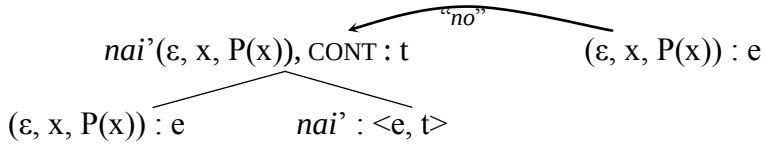
When *no* copies a term?	**Function**	**Properties**
after EVALUATION	identity	- connotation available - **sore/kare*

5.2. Specificational Function

The last sub-section showed that the parsing of *no* after the EVALUATION gave rise to the identity reading. This sub-section demonstrates that if *no* is parsed before the EVALUATION, we will have the specificational reading (35). For ease of reference, the semantic structure, which results from the parsing of *nai-teiru no*, is cited again as (36).

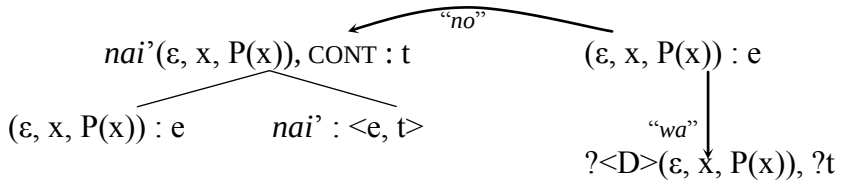
(35) [*Nai-teiru* *no*]-*wa* *Tom* *da.*
[cry-CONT NO]-TOP T. COP
'It is Tom that is crying.' (specificational)

(36) Parsing *Nai-teiru no* (parsing *no* **before** the EVALUATION)



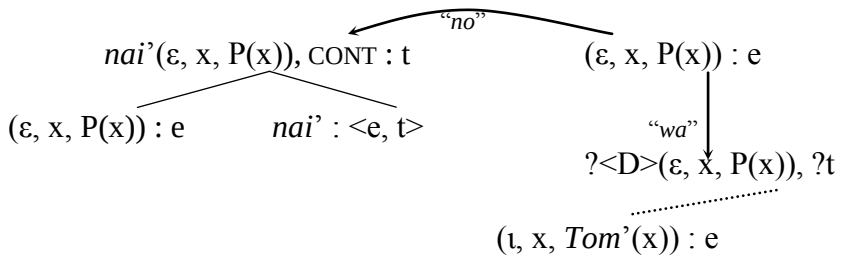
We then parse a topic marker *wa*. According to the standard DS analysis of *wa* (cf. §5.1), (35) is updated into (37), where ?<D>(ε, x, P(x)) is a requirement that (ε, x, P(x)) should be found somewhere below the node.

(37) Parsing *Nai-teiru no wa*



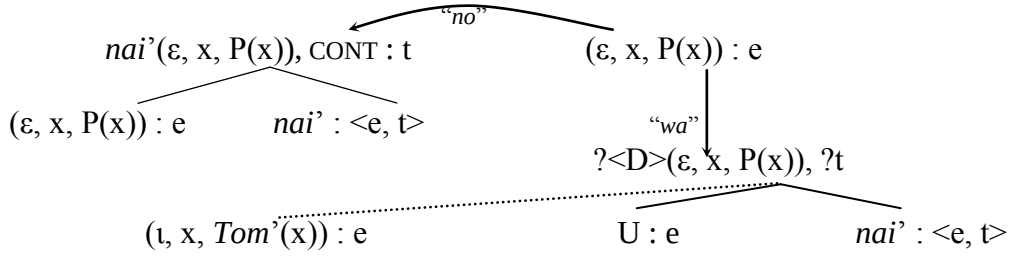
The next item to be parsed is *Tom*. As in the case of the identity function, the node for *Tom* is structurally underspecified.

(38) Parsing *Nai-teiru no wa Tom*



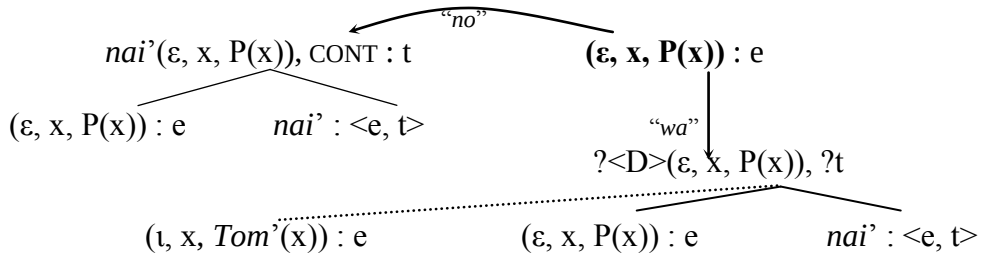
Again, as with the identity function, the copula *da* licenses the re-use of the actions associated with the predicate *nai* (= 'cry'). The lexical actions construct an open proposition with the subject meta-variable "U".

(39) Parsing *Nai-teiru no wa Tom da*



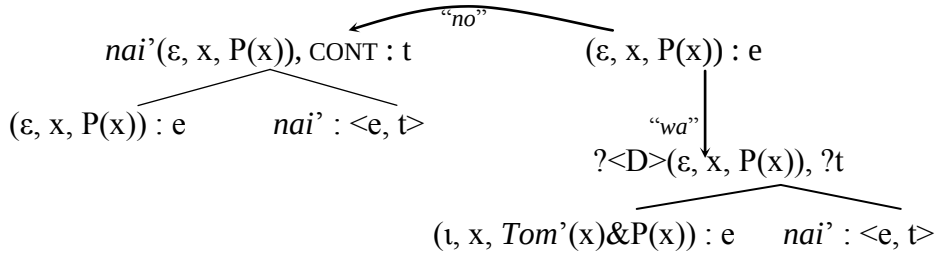
As shown in (40), the tree is being built up with reference to the term (ε, x, P(x)), which is marked in bold. Thus, the meta-variable "U" is substituted with this term.

(40) SUBSTITUTION of "U"



As in the case of the identity function, MERGE resolves the structural underspecification.

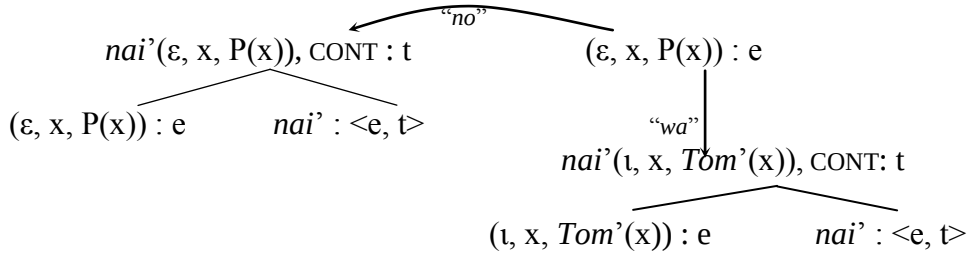
(41) MERGE



This unification process models the specificational function. As stressed in §2, its core idea is the **filling** process. (ι, x, *Tom*'(x)&P(x)) being identical to (ι, x, *Tom*'(x)), the unification process is virtually seen as a filling process of "P" with *Tom*'.

Finally, functional application and the re-use of the actions of *teiru* turn (41) into the final state (42).

(42) Final state



This final state answers the following questions set out in §2:

(43) a. Why are there no connotations in the specificational reading?
b. Why can we use the impersonal pronoun *sore* (= 'it'), but not the personal pronoun *kare* (= 'he'), in the specificational reading?

As for (43a), the term induced by *nai-teiru no*, (ε, x, P(x)) is a proto-term (cf. §4.1), and thus does not denote any human. This is why no connotations emerge, according to the pragmatic analysis in the last sub-section. As for (43b), the personal pronoun *kare* (= 'he') cannot be used, since the term does not denote a human. The reason why the impersonal pronoun *sore* (= 'it') can be used is not completely clear; I assume that *sore* serves as an anaphoric device for denoting the proto-term (ε, x, P(x)).

The upshot is that the identity and specificational functions are dealt with uniformly by the single entry of *no* as a pronominal nominaliser while their differences are the regular result of Semantic Incrementality (i.e. the timing at which a type-e term is copied by *no*).

(Table 4) *Analyses of the copula sentence (1)*

When *no* copies a term?	**Function**	**Properties**
after EVALUATION	identity	- connotation available - **sore*/*kare*
before EVALUATION	specificational	- connotation unavailable - *sore*/**kare*

6. IMPLICATIONS

In Section 5, we assumed that the copula *da* licenses the re-use of the actions of a type-t item. This insight can also shed light on some ellipsis constructions in Japanese.

Let's start with Stripping (Fukaya 2007 and references therein). A case in point is (44B), which is two-way ambiguous, as indicated in (45).

(44) A: *Tom-ga* *Mary-o* *sonkeeshi-teiru.*
T.-NOM M.-ACC respect-CONT
'Tom respects Mary.'

B: *Jim-mo* *da.*
J.-too COP
'Jim, too.'

(45) a. 'Jim also respects Mary.'
b. 'Tom also respects Jim.'

The parsing of *da* licences the re-use of the actions of *sonkeeshi* (= 'respect'), which builds up an open proposition. If the node for *Jim* is merged with the subject node, the reading (45a) arises; if it is merged with the object node, the reading (45b) arises.

This analysis can be extended to (at least some cases of) Gapping and Sluicing. An example of Gapping is given in (46B).

(46) A: *Tom-ga* *Mary-o* *sonkeeshi-teiru.*
T.-NOM M.-ACC respect-CONT
'Tom respects Mary.'

B: *Iya,* *Jim-ga* *Nancy-o* *da.*
no J.-NOM N.-ACC COP
'No, Jim respects Nancy.'

In (46B), the copula *da* licenses the re-use of the actions of *sonkeeshi* (= 'respect'), creating an open proposition. Then, the node for *Jim* is merged with the subject node, and the node for *Nancy* is merged with the object node.[6]

Finally, let's turn to Sluicing (Takahashi 1994 and subsequent works).

(47)	*Boku-wa*	*kinoo*	*dareka-ni*	*tegami-o*	*oku-tta*	*ga*
	I.-TOP	yesterday	someone-DAT	letter-ACC	send-PAST	but
	dare-ni	*(da)*	*ka*	*oboete-nai.*		
	who-DAT	COP	Q	remember-NEG		

'I sent a letter to someone yesterday, but I don't remember to whom I sent it.'

In (47), the copula *da* licenses the re-use of the actions of *oku* (= 'send'), which builds up an open proposition. The subject meta-variable is pragmatically substituted as the speaker, and the object node is merged with the node for *dare* (= 'who'). The problem, however, is that the copula *da* is optional in Sluicing, as shown by the bracket in (47). Then, our analyses are only applicable to the case of Sluicing with the copula *da*. The treatment of Sluicing without the copula is left for future work.

Space prevents us from addressing intriguing properties of the constructions surveyed, such as the island-(in)sensitivity of Stripping and Sluicing (Fukaya 2007). Still, I hope to have made a preliminary justification for the more general applicability of our analyses to ellipsis constructions in Japanese.

7. CONCLUSIONS

This paper has set out the puzzle of the polyfunctionality of copula sentences in Japanese, and proposed the integrated analyses of the specificational and identity functions on the basis of the single item *no* as a pronominal nominaliser, which reduces the differences between two functions to the general property of language use, Semantic Incrementality (i.e. the timing of copying a type-e term). The analyses are corroborated by their applicability elsewhere to some ellipsis constructions.

Before closing, let me consider a potential alternative account and defend our analyses against it. In Japanese, the particle *no* has various usages; in addition to a pronominal usage in (48), *no* has a complementiser usage in (49).

(48)	*Tom-wa*	[*akai*	*no*]-*o*	*tabeta.*	
	T.-TOP	[red	NO]-ACC	ate	

'Tom ate a/the red one.'

(49)	*Tom-wa*	[[*Mary-ga*	*kawaii*]	*no*]-*o*	*shitteiru.*	
	T.-TOP	[[M.-NOM	cute]	NO]-ACC	know	

'Tom knows that Mary is cute.'

We may then come up with the following alternative. First, we could argue that *no* in (1) is a complementiser under the specificational reading. Then, *nai-teiru no* in (1) does not denote any human. Thus, the personal pronoun *kare* (= 'he') cannot be used, and no connotations arise due to the pragmatic analysis. Second, we could also argue that *no* in (1) is a pronominal

[6] This paper sets aside the following type of Gapping.

(i) *John-ga Bill-nituite, sosite Mary-ga Susan-nituite hanashita.*
J.-NOM B.-about and M.-NOM S.-about talked
'John talked about Bill and Mary about Susan.' (Abe and Hoshi 1997: 109, my modification)

under the identity reading. Thus, *no* denotes a human in some contexts, in which case we find some connotation and the personal pronoun *kare* (= 'he') can be used.

This type of analysis may be dubbed as an **ambiguity** account in that it resorts to the ambiguity of *no*. The ambiguity account is fine, to the limited extent that the data is accounted for. Our analyses, however, are to be preferred in the sense that they are crucially based on an independently motivated property of language use, Semantic Incrementality, making such an ambiguity an epiphenomenon.

One may object that the ambiguity of *no* is also independently motivated by (48) and (49), but these examples do not necessarily constitute adequate evidence. Seraku (to appear) points out that our single entry of *no* can model both pronominal and complementiser uses if we introduce event-variables of type-e (Gregoromichelaki to appear) into DS structures.

Overall, then, the Semantic Incrementality perspective provides us with a novel and promising way of approaching the issues raised by copula sentences in Japanese.

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