

Overt Marker for Individual Sublimation in Japanese¹

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1. Introduction

In this paper we will deal with an expression NP-*no koto* in Japanese.² Used independently *koto* means 'thing', 'event' 'fact' or 'proposition' and is a so-called "formal noun," i.e. noun with little or no lexical content, and *-no* is a genitive marker. NP-*no koto* can thus be translated literally as 'things, events or facts related to (the referent of) the NP'. Since *koto* is the head of the whole noun phrase, *-no koto* can be used to change the semantic type of the noun phrase it is attached to; it changes a concrete noun phrase into an abstract one. It can thus be added more or less obligatorily to a concrete NP to meet the selectional requirement of verbs that select abstract NPs, e.g. *hanasu* (talk), *soodansuru* (consult), *giron-suru* (discuss), *siru* (know), *giron ni naru/suru* (become/make the topic).

In (1) and (2) *no koto* is obligatorily added to a concrete noun phrase *Taroo* to meet the selectional requirement of the verb *soodansuru*, and *giron-suru* which must take an abstract noun as their object.

- (1) a. *Ziroo-wa Hanako-ni Taroo-o soodansita.
Ziroo-TOP Hanako-DAT Taroo-ACC consulted
'Ziroo consulted with Hanako about Taro.'
- b. Ziroo-wa Hanako-ni Taroo-*no koto*-o soodansita.
Ziroo-TOP Hanako-DAT Taroo-GEN koto-ACC consulted

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² The Romanization used in this paper follows Kunreisiki except for long vowels, which are written by doubling the same vowel. The abbreviations used in the glosses are as follows; NOM: nominative, ACC: accusative, DAT: dative, GEN: genitive, TOP: topic, SFP: sentence final particle, PASS: passive.

- ‘Ziroo consulted with Hanako about Taro.’
- (2) a. *Ziroo-wa Hanako-o gironsita.
 Ziroo-TOP Hanako-ACC discussed
- ‘Ziroo discussed Hanako.’
- b. Ziroo-wa Hanako-no koto-o gironsita.
 Ziroo-TOP Hanako-GEN koto-ACC discussed
- ‘Ziroo discussed Hanako.’

For verbs like *hanasu* (speak), which may be ambiguous between 'speak' and 'speak about' the addition of *no koto* to its complement may serve to raise the type of its complement.

- (3) a. Ziroo-wa Eigo-o hanasita.
 Ziroo-TOP English-ACC spoke
- ‘Ziroo spoke English.’
- b. Ziroo-wa Eigo-no koto-o hanasita
 Ziroo-TOP English- GEN koto-ACC spoke
- ‘Ziroo spoke about English.’

In all the examples above *no koto* adds the meaning of ‘things related to (the referent of) ’ to the nouns it attaches to.

NP-*no koto* in the other usage typically appears in the internal argument position of psychological predicates, e.g. *suki-da* (like), *aisuru* (love), *kirai-da* (hate) etc., and potentially intensional predicates such as *sagasu* (try to find, look for). In this usage, NP-*no koto* freely alternates with NP. We will call this use of *no koto* like (4b) ‘optional *no koto*’ because the predicates select concrete nouns, so that the addition of *no koto* apparently does not make any semantic contribution, and thus appears to be completely optional, as observed as early as in Tokieda (1950).

- (4) a. Taroo-ga Hanako-o aisiteiru.
 Taro-NOM Hanako-ACC love
- ‘Taro loves Hanako.’
- b. Taroo-ga Hanako-no koto-o aisiteiru.
 Taro-NOM Hanako-GEN koto-ACC love
- ‘Taro loves Hanako.’

Predicates that take semantically vacuous *no koto* are psychological predicates: *suki-da* (like), *aisuru* (love), *kirai-da* (hate) etc., and intensional predicates like *sagasu* (try to find), *motomeru* (seek).³

³ Some verbs may select both abstract and concrete nouns, in which case the addition of *no koto* may appear optional but result in a meaning difference. *Wakaru* means ‘understand’ for obligatory *no koto* as in (i) and ‘recognize’ for optional *no koto* as in (b).

- (i) a. Ziroo-ga Hanako-ga wakat-ta.
 Ziroo-NOM Hanako-NOM recognize-PAST

2. Some recent innovations:

It has recently been observed that in colloquial Japanese, the semantically vacuous *no koto* has extended its use to predicates such as *naguru* (hit), *hakobu* (carry), *miru* (see), *mitumeru* (stare at), *mitukeru* (find), which are neither psychological nor intensional. They may usually appear with helping verbs such as *teyaru* (give the benefit of, be determined to), *te simau* (unintentionally do) as in (5)a, with sentence final particles *yo*, *zo* (expressing the will or the determination of the speaker) as in (5)b, or with both as in (5)c. They may appear without those elements as in (5)d.⁴

- (5) a. *Omae-no koto-o nagut-teyaru.*
YOU-GEN koto-ACC hit-be-determined
'(I) will hit you.'
- b. *Omae-no koto-o naguru-zo.*
YOU-GEN koto-ACC hit-SFP
- c. *Omae-no koto-o nagut-teyaru-zo.*
YOU-GEN koto-ACC hit-be-determined-SFP
- d. *Omae-no koto-o naguru.*
YOU-GEN koto-ACC hit

In what follows I will examine the properties of this optional and semantically vacuous *no koto* in some detail and show that *no koto* is indeed semantically vacuous. But I will also show that *no koto* in this usage has the same semantic function as the *no koto* of 'aboutness,' in that it has the same compositional semantics. I will also give a syntactic account of how the construction is licensed and how it is pragmatically motivated.

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- 'Ziroo recognized Hanako.'
- b. *Ziroo-ga Hanako-no koto-ga wakat-ta.*
ZIROO-NOM Hanako-NOM koto-NOM recognize-PAST
'Ziroo understood Hanako.'

What makes the situation more complex is the fact that NP-*no koto* can also be interpreted as the vacuous type, in which case, (i)b can be interpreted as the same as (i)a, i.e. 'recognize.' It is generally the case that if a predicate selects both a concrete object (or an individual) and an abstract object (or properties of an object), NP-*no koto* can have both the 'aboutness' (or obligatory) use and semantically vacuous (or optional) use, when the NP is human.

⁴ There are important papers by Hikada (2003a,b) who conducted a questionnaire on the acceptability of N-*no koto* used with these verbs. She also studied a related construction in Akita dialect, where *no koto* appears as *togo*. See also Sasaki (2004), where a similar phenomenon in Mitukaidoo dialect is discussed.

3. The properties of vacuous *no koto*

In a series of works (Sasaguri (1996a, 1996b, 1998), Kinjo & Sasaguri (1999), Sasaguri et al. (1999)), we have examined the behaviors of NP-*no koto* with semantically vacuous *no koto*, henceforth N-*no koto*_{OP}, and found that it has the following properties.

● **Properties of N-*no koto*_{OP} :**

- A. NP-*no koto*_{OP} can only take the accusative or the nominative case.
- B. NP-*no koto*_{OP} cannot appear in the ‘subject’ position, ‘subject’ in the sense defined below.
- C. NP-*no koto*_{OP} cannot be promoted to the ‘subject’ by passivization.
- D. The NP in NP-*no koto*_{OP} must be referential.

A. Unlike NP-*no koto* of ‘aboutness,’ henceforth NP-*no koto*_{OB}, which can take any case particles, NP-*no koto*_{OP} can only appear in complement positions marked with the nominative case (see (6)) or the accusative case (see (7)).

(6) Watasi-wa Hanako-*no koto-ga* sukida.
I-TOP Hanako-GEN koto-NOM like

‘I like Hanako.’

(7) Watasi-wa Hanako-*no koto-o* sagasiteiru.
I-TOP Hanako-GEN koto-ACC be-trying-to-find

‘I am trying to find Hanako.’

It cannot appear before datives. Thus NP-*no koto* cannot alternate with NP's in dative case. Dative taking verbs such as *au* (meet) cannot take a NP-*no koto*_{OP} as complement (see (8)). With ditransitive verbs such as *syookaisuru* (introduce), only accusative marked complement can alternate with NP-*no koto*_{OP} (see (9)).

(8) a. Tanaka-wa Yamada-*ni* atta.
Tanaka-TOP Yamada-DAT met

‘Tanaka met Yamada.’

b. *Tanaka-wa Yamada-*no koto-ni* atta.
Tanaka-TOP Yamada-GEN koto-DAT met

‘Tanaka met Yamada.’

(9) a. Watasi-wa Tanaka-*ni* Yamada-*o* syookaisita.
I-TOP Tanaka-DAT Yamada-ACC introduced.

‘I introduced Yamada to Tanaka.’

b. Watasi-wa Tanaka-*ni* Yamada-*no koto-o* syookaisita.
I-TOP Tanaka-DAT Yamada-GEN koto-ACC introduced.

‘I introduced Yamada to Tanaka.’

c. *Watasi-wa Tanaka-*no koto-ni* Yamada-*o* syookaisita.
I-TOP Tanaka-GEN koto-DAT Yamada-ACC introduced.

‘I introduced Yamada to Tanaka.’

Notice that this case restriction does not apply to NP-*no koto*_{OB}.

- (10) Tanaka-*no koto-ni* hureta.
Tanaka-GEN koto-DAT refer to

‘I touched upon (topics related to) Tanaka.’

B. N-*no koto*_{OP} cannot appear in the subject position, :

N-*no koto*_{OP} cannot appear in any subject positions, i.e. subjects of transitive sentences (see (11)), subjects of unergative sentences (see (12)) or unaccusative sentences (see (13)).

- (11) a. Tanaka-ga Yamada-o mituketa.
Tanaka-NOM Yamada-ACC found
‘Tanaka found Yamada.’
b. *Tanaka-*no koto-ga* Yamada-o mituketa.
Tanaka-GEN koto-NOM Yamada-ACC found

‘Tanaka found Yamada.’

- (12) a. Tanaka-ga hasitta.
Tanaka-NOM ran
‘Tanaka ran.’
b. *Tanaka-*no koto-ga* hasitta.
Tanaka-GEN koto-NOM ran

‘Tanaka ran.’

- (13) a. Tanaka-ga taoreta.
Tanaka-NOM fell
‘Tanaka fell.’
b. *Tanaka-*no koto-ga* taoreta.
Tanaka-GEN koto-NOM fell

‘Tanaka fell.’

Notice that in the NP-*no koto*_{OB} can come in the subject positions if the selectional requirement is met. If *taoreta* in (13)b is changed to predicates such as *giron-ni natta* (became the issue), which takes abstract NPs as the subject, the sentence becomes acceptable (see (14)).

- (14) Tanaka-*no koto-ga* giron-ni natta.
Tanaka-GEN koto-NOM became-the-topic

‘(Things about) Tanaka became the issue.’

C. NP-*no koto*_{OP} cannot be promoted to the subject by passivization.

Sasaguri (1996a) observes that N-*no koto*_{OP} cannot be promoted to the subject by passivization.

(15)b, which is the passive counterpart of (15)a, is, therefore, ungrammatical. In contrast, (15)d which is the passive counterpart of (15)c is okay because the object is NP-*no koto*_{OB}.

- (15) a. Yamada-ga Tanaka-*no koto*-o nagut-ta-yo
 Yamada-NOM Tanaka-GEN *koto*-ACC hit-PAST-SFP
 ‘Yamada hit Tanaka.’
- b. *Tanaka-*no koto*-ga Yamada-niyotte nagur-areta-yo.
 Tanaka-GEN *koto*-NOM Yamada-by hit-PASS-PAST-SFP
 ‘Tanaka was hit by Tanaka.’
- c. Taroo-ga Ziroo-*no koto*-o giron-sita.
 Taroo-NOM Ziroo-GEN *koto*-ACC discuss.
 ‘Taroo discussed (things about) Ziroo.’
- d. Ziroo-*no koto*-ga Taroo-niyotte giron-sareta.
 Ziroo-GEN *koto*-NOM Taroo-by be-discussed.
 ‘Things about Ziroo were discussed.’

D. The NP in NP-*no koto*_{OP} must be referential.

Sasaguri (1996a, 1996b) made an observation that the NP in NP-*no koto*_{OP} must be referential. *Mikaketa* (met) can take common nouns as in (16), which means that the speaker saw just any dog. If *no koto* is attached, however, *inu* must be interpreted as referential and specific, i.e. it must refer to a particular dog that the speaker identifies, most probably the dog she is acquainted with. Since *inu* in its bare form cannot easily be interpreted as referential or specific out of context, *inu no koto* sounds odd. To make it more natural, we can either force a specific interpretation by adding *aru* (a certain) as in (17)a, or make it definite by adding demonstratives as in (17)b. Notice that unlike (16)b, *no koto* can be dropped in (17)a,b without any change in meaning, suggesting that it is the NP that has to be referential for *no koto* to be attached.

- (16) a. Watasi-wa inu-o mikake-ta.
 I-TOP dog-ACC see-PAST
 ‘I saw a dog.’
- b. ?Watasi-wa inu-*no koto*-o mikake-ta.
 I-TOP dog-GEN *koto*-ACC see-PAST
 ‘I saw a dog.’
- (17) a. Watasi-wa aru inu-*no koto*-o mikake-ta.
 I-TOP certain dog-GEN *koto* ACC see-PAST
 ‘I saw a certain dog yesterday.’
- b. Watasi-wa kono inu-*no koto*-o mikake-ta-yo.
 I-TOP this dog-GEN *koto*-ACC see-PAST
 ‘I saw this dog.’

The referentiality requirement of NPs in NP-*no koto*_{OP} can also be supported by the observation that

no koto attached to a common noun serves to disambiguate scope ambiguity in intensional context. NP-*o sagasu* (look for/ try to find NP) can be ambiguous between intensional and extensional interpretation. Thus, in (18)a in the intensional reading, *oyome-san* (wife) can mean ‘a candidate for his wife’ and does not presuppose that Taro has a wife, while in the extensional reading, he must have a wife such that he is trying to find her. If *no koto* is added as in (18)b the intensional reading becomes unavailable.

- (18) a. Taroo-wa oyomesan-o sagasiteiru.
 Taro-TOP wife-ACC be-trying-to-find
 ‘Taro is trying to find a girl who can be his wife.’
 ‘Taro is trying to find the person who he married.’
- b. Taroo-wa oyomesan-*no koto*-o sagasiteiru.
 Taro-TOP wife-GEN koto-ACC be-trying-to-find
 ≠‘Taro is trying to find a girl who can be his wife.’
 ‘Taro is trying to find the person who he married.’

Kurafuji (1998), one of the few papers that address the issue of optional *no koto*, argues that *no koto* is a definite marker if attached to a common noun and that *no koto* has no semantic contribution if attached to proper nouns or quantified NPs. He gives three arguments for his proposal: non-interaction with other quantifiers, anti-partitivity and counterfactual interpretation. The differences between his analysis and ours are: (i) we take NP, and therefore NP-*no koto*_{OP}, to be referential, while Kurafuji (1998) takes an NP to be a common noun and *no koto* as a definitizer, (ii) we assume that NP-*no koto* can be either definite or specific indefinite, while Kurafuji (1998) claims it cannot be a specific indefinite. The first and third arguments that he cites for his analysis of *no koto* carry over to ours because they are also true with referential noun phrases. The second argument he gives has to do with anti-partitivity. Specific indefinite noun phrases allow partitive interpretation as in (19)a.

- (19) ‘Many people of various occupations have entered the room. And several professors are included in them.’
- a. John-wa kyoozyu-o kirat-tei-ru.
 John-TOP professor-ACC hate
 ‘John hates a professor (but I don’t know who the person is).’
- b. *?John-wa kyoozyu-*no koto*-o kirat-tei-ru.
 John-TOP professor-GEN koto-ACC hate
 ‘John hates a professor (but I don’t know who the person is).’
 (Kurafuji’s (11), somewhat simplified and italics on *no koto* added)

According to Kurafuji (1998: 172), (19)b, in contrast to (19)a, ‘is very marginal in this context, because, it is difficult to link the referent of the object NP to a member of the people who entered the room, suggesting that common nouns + *koto* are not interpreted as specific, which in turn suggests that they are not indefinites.’ His argument is not tenable. Firstly, if *kyozyu* is replaced with *hutari no kyozyu* (two professors), then (19)b can naturally get partitive interpretation, i.e. two professors among the many people. Secondly, NP-*no koto*_{OP} need not be definite, since one can start a discourse by NP-*no koto*_{OP} as in example (17)a, without presupposing prior introduction of the referent, strongly suggesting that it can

be specific indefinite. Thirdly, and most importantly, his analysis cannot account for the distributional asymmetry (A-D) we have observed in section 3.

We will show in the next section how our analysis requiring that NP be referential in NP-*no koto*_{OP} can account for the properties of N-*no koto*_{OP}.

4. *No koto* as property abstraction marker

We have proposed in Sasaguri et al.(1999), based on the idea in Takubo (1989) and the observations made in Sasaguri (1996a,b) given above, that the semantic properties of NP-*no koto* can be explained compositionally from the semantics of NP, *no*, and *koto* for both semantically vacuous and 'aboutness' uses of *no koto*. *No* is a genitive, and *koto* means 'thing, fact or eventuality'. NP-*no koto*, thus, means some or all of the eventualities related in some way to the referent of the NP. If the NP is referential, then, NP-*no koto*, can be equated with the set of properties of the referent of NP, or individual sublimation of the referent of the NP in the sense of Dowty et al. (1981: 220-221), of the same type as a generalized quantifier. For example, *Taroo-no koto* can be the set of properties of Taro, which is equivalent extensionally to Taro, accounting for the optionality of optional *no koto*.

The function of *no koto* that induces individual sublimation can thus be described as follows:

- The function of *no koto* when NP is referential:⁵
No koto takes an NP that refers to a particular individual and changes it into the set of properties of the referent of NP, namely of the type $\langle e, \langle \langle e, t \rangle, t \rangle \rangle$.

It also accounts for the fact that *no koto* disambiguates the ambiguity observed in (16)a. NP must be referential for *no koto* to be attached in this usage, so NP-*no koto*_{OP} must always be specific. In Japanese a bare common noun, or common nouns without *no koto*, can easily be interpreted as referential, that is, it can refer to a specific referent newly introduced into a discourse or a definite referent that are already introduced in the preceding discourse. Since Japanese does not have definite articles, common nouns can be vague in interpretation between referential and non-referential, i.e., it refers to either a definite or a specific individual, or any individual for which the property described by the common noun is true, suggesting that there is a type-shifting operation in Japanese, possibly in the lexicon, that optionally changes common nouns into referential nouns.

While bare common nouns can be ambiguous between referential and non-referential, common noun + *no koto* must be referential because *no koto* attaches only to referential nouns and common nouns must be changed to referential nouns for *no koto*_{OP} to be attached.

For obligatory *no koto*, all we have to assume is that the predicates select eventualities, i.e. they select properties either of an individual or of a property. Thus, in the case of obligatory *no koto*, NP-*no koto*

⁵ The description can be generalized to cases where the NP is not referential. The general function of *no koto* is to abstract properties. If the NP is a common noun or of type $\langle e, t \rangle$, NP-*no koto* can be a set of properties of the properties of the property expressed by the common noun. The type of *no koto*, in such a case, is $\langle \langle e, t \rangle, \langle \langle \langle e, t \rangle, t \rangle, t \rangle \rangle$. The general form of the semantics of *no koto* may be expressed as $\langle \alpha \langle \langle \alpha, t \rangle, t \rangle \rangle$, in the manner similar to the empty operator O in the subject position. This abstraction marker induces individual sublimation when α is of type e. We will ignore intension in this paper because we will only be dealing with individual sublimation cases, where NP is of type e, and the extension is the same in all possible worlds.

may not be specific or definite.

Our account to treat N-*no koto* compositionally can thus explain the differences and the similarities of optional and obligatory *no koto* in a principled manner.

The interpretation of NP-*no koto* can intuitively be illustrated as follows. Suppose we can enumerate all the eventualities that involve the referent of NP, say Taro.

- (20) a. Taro went to a concert yesterday
 b. Ziro met Taro at the concert.
 c. Mariko loves Taro and wants to marry him.
 d.Taro.....
 :
 c. λx . Mariko loves x and wants to marry x.
 d. λxx.....
 n.Taro...

If we replace each occurrence of Taro with a variable x, then we can make a series of open sentences. The x can then be bound by λ -operator to make the open sentences into predicates which are all true of Taro.

- (21) a. λx . x went to a concert yesterday
 b. λx . Ziro met x at the concert.
 :
 n. λxx.....

If we represent the predicates true of x as P, we can represent the set of properties of x as (22)a. Thus semantics of *no koto* can be represented as in (22)b, and that of 'Taro *no koto*' as in (22)c.

- (22) a. $\lambda P.P(x)$
 b. $\lambda x. \lambda P.P(x)$
 c. $\lambda x.[\lambda P.P(x)](|\text{Taroo}|)$
 $=\lambda P.P(\text{taro})$

The meaning of NP-*no koto* for obligatory *no koto* is rather straightforward. For example, *gironsuru* (discuss) can be a relation between (one of) the properties of the referent of an NP and an agent that discusses those properties.

- (23) 'NP1-ga NP2-*no koto*-o gironsuru'

$[[\text{gironsuru}]] ([[\text{NP1}]], \lambda P.P([[\text{NP2}]])$

At first blush, the use of *no koto*_{OP} in psychological predicates appears to be accounted for if *no koto* abstracts the properties of the referent of the NP it is attached to in the same manner as obligatory *no koto*.

- (24) (=4)

- a. Taroo-ga Hanako-o aisiteiru.
Taro-NOM Hanako-ACC love
'Taro loves Hanako.'
- b. Taroo-ga Hanako-no koto-o aisiteiru.
Taro-NOM Hanako-GEN koto-ACC love
'Taro loves Hanako.'

(24)b can naturally be interpreted as 'Taro loves all the properties of Hanako.' Since the extension of *Hanako* and all the properties of Hanako's, i.e. the individual sublimation of Hanako, are the same, the truth conditions of the two sentences are the same in all possible worlds. This approach cannot be adopted because of the four properties of the optional *-no koto* A-D discussed in the previous section, which are not shared with obligatory *no koto*⁶. Thus we need a device that accounts for our assumption that *no koto* abstracts properties of an NP and our observation that NP-*no koto*_{OP} serves as a complement of predicates that subcategorize for an individual rather than properties, at the same time.

5. NP-*no koto*_{OP} as major object

The characterization of NP-*no koto* as of type <<e,t>,t> proposed in section 4 neatly accounts for an NP-*no koto* when it appears as a complement of a predicate that selects properties. But it leads to type mismatch if it appears in the object position of a verb taking an individual. The sentences below are expected to be uninterpretable, contrary to facts.

- (25) a. [Tanaka-ga [Yamada-no koto-o nagut-te yatta]
Tanaka-NOM Yamada-GEN koto-ACC hit-COMP gave
'Tanaka hit Yamada.'
- b. [Tanaka-ga [_{VP} Yamada-no koto-o mita]]
Tanaka-NOM Yamada-GEN koto-ACC saw
'Tanaka saw Yamada.'
- c. [Tanaka-ga [_{VP} oyomesan-no koto-o sagasiteiru]]
Tanaka-NOM wife-GEN koto-ACC be-trying-to-find
'Tanaka is trying to find his wife.'

⁶ For example, we can say (i) but not (ii), which is expected to be acceptable if *aisiteiru* takes abstract objects.

- i) Tanaka-ga itiban minna-ni aisareteiru.
Tanaka-NOM best all-DAT loved
'Tanaka is loved the most by everybody.'
- ii) Tanaka-no koto-ga itiban minna-ni aisareteiru.
Tanaka-GEN koto-NOM best all-DAT loved
'Tanaka is loved the most by everybody.'

- d. [Taroo-ga [Hanako-*no koto*-ga sukida]
Taro-NOM Hanako-GEN koto-NOM like
'Taro likes Hanako.'
- e. [Taroo-ni [Hanako-*no koto*-ga mieru]
Taro-DAT Hanako-GEN koto-NOM visible
'Taro sees Hanako.'

To get out of this problem we will propose that NP-*no koto* occupies a matrix object position binding a *pro* in the object position, which we assume to be of type e.⁷

- (26) a. [Tanaka-ga [Yamada-*no koto*-o [PRO [[*pro* nagut]-te] yatta]
b. [Tanaka-ga [Yamada-*no koto*-o [PRO [[*pro* mita]] v]
c. [Tanaka-ga [oyomesan-*no koto*-o [PRO [[*pro* sagasiteiru]] v]
d. [Taroo-ga [Hanako-*no koto*-ga [PRO [*pro* sukida] v]
e. [Taroo-ni [Hanako-*no koto*-ga [PRO [*pro* mieru]v]

We thus assume that a string NP-*no koto-o* is a matrix object which is associated with properties expressed in the lower clause, in a way similar to the so-called proleptic or major object analysis of the 'ECM' construction in Japanese as proposed in Hoji (1991,2004) and Takano (2001).⁸

Kuno (1976) derives (27)a from (27)b by first raising *musuko* to the matrix object position, and optionally adding *no koto* as in (27)c, accounting for the ungrammaticality of (27)d. Saito (1983), Takubo (1989), Hoji (1991), and Takano (2001), however, argue that *musuko-no koto-o* be in the base-generated matrix object position, controlling the subject gap in the complement sentence.

- (27) a. [Tanaka-ga *musuko*_i-o [*e*_i baka-da] to omotta.
Tanaka-NOM SON-ACC be-fool that thought.
'Tanaka thought his son to be a fool.'
- b. Tanaka-ga [musuko-ga baka-da] to omotta.
c. Tanaka-ga *musuko-no koto*_i-o [*e*_i baka-da] to omotta.
d. *Tanaka-ga [musuko-*no koto*-ga baka-da] to omotta.

Saito (1983) cites examples like (28)a, where the gap in b is filled by an overt NP, suggesting that there is no movement involved from e.

⁷ We can avoid type mismatch by assuming a quantifier raising (QR) of NP-*no koto* from the object position. We assume that NP-*no koto* does not QR, and will not adopt the QR analysis for the following reasons:

- i) It does not account for the property A-D in (4).
ii) NP-*no koto* does not appear to involve quantifier scope interaction, unless the NP is a quantifier.
iii) NP-*no koto* differs from quantifier phrases in that it does not have a restriction part. If QR is motivated by a set operation on the restriction and the nuclear scope, NP-*no koto* does not need to QR.

⁸ The meaning of 'Tanaka-*no koto*-o nagutte yatta.' will then be something like 'bring it about that Tanaka has the property of being hit.'

- (28) a. Mary-wa John_i-no koto-o [kurasu-de kare_i-ga itiban baka-da] to omotteiru.
 Mary-TOP John-GEN koto-ACC in-class he-NOM most be-fool that think

‘Mary thinks of John that he is the most stupid in the class.’

(based on Saito’s (1983) (30))

- b. Mary-wa John_i-no koto-o [kurasu-de pro_i itiban baka-da] to omotteiru.

We assume with Hoji (1991) and Takano (2001) that the ‘ECM’ construction has the base generated structure similar to is no movement involved from e.

(28), where the IP following ‘John-no koto’ has the ‘aboutness’ relation with it. Our major object analysis of NP-no koto_{OP} can be thought of on a par with theirs, the only difference being that is no movement involved from e.

(28)b happens to have an empty subject gap, while examples in (26) have object gaps.

The major object, or proleptic analysis of NP-no koto_{OP} serve as a device that changes the semantic type of an NP from type e to type <<e,t>,t>, avoiding type mismatch. It can also account for the property A of NP-no koto given in section 3. Major objects in Japanese must be accusative for non-stative matrix verbs and nominative for stative matrix verbs⁹. Since NP-no koto_{OP} must necessarily be in the matrix position in this analysis, it can also give an account of a part of D, namely the fact NP-no koto_{OP} can only have extensional interpretation for potentially intensional predicates such as *sagasu* (seek).¹⁰

⁹ As a nominative marked major object construction, we can count cases like the following.

- (i) Watasi-ni-wa Tanaka-no koto-ga [e baka-da] to omowareta.
 I-DAT-TOP Tanaka-GEN koto-NOM be-fool that be thought
 ‘It seemed to me that Tanaka is a fool.’

We assume that this type of sentence is not a passive counterpart of (27)a, but rather is on a par with sentences with stative predicates taking *ni-ga* case pattern, as suggested, for example, in Takezawa (1986). The NP-no koto-ga in this type of sentences is, therefore, taken to be in the *ga*-marked major object position of the stative predicate *omow-are*.

¹⁰ The major object analysis may account for the following additional properties of NP-no koto_{OP}, observed in Hidaka (2003 a,b) and possibly for how it has virtually become the accusative marker for animate objects in Mitukaidoo dialect (see Sasaki (2004)).

- i) NP-no koto_{OP} is more acceptable when the referent of the NP is human. (cf. Hidaka (2003 a,b))

- a. ?Taro-ga sono doa-no koto-o ketobasita.
 Taro-NOM the door-GEN koto-ACC kicked.
 ‘Taro kicked the door.’
- b. Taro-ga watasi-no koto-o ketobasita.
 Taro-NOM I-GEN koto-ACC kicked.

In the next section we will examine how B-D properties of NP-*no koto*_{OP} can be accounted for in our analysis.

6. Subject constraint

In this section we will show how our approach can account for the three properties B-D of optional *no koto*, listed in section 3.

We assume, following the general practice in model theoretic semantics, that the subject position in Japanese, or maybe in language in general, represent a set of properties and predicate position represent a property. We further assume that property can be a recursive notion and it can be e.g. a set of set of properties. We further assume that the type of a name is e , rather than $\langle e, t \rangle, t \rangle$. We argue that there is an empty operator, represented as O , that obligatorily shifts the type of an NP in subject position, which can be characterized as in (29)

(29) $O(\alpha) =_{\text{def}} \lambda P.P(\alpha)$, where P is a variable of type $\langle \alpha, t \rangle$

When the subject is *Taroo*, then, it is type shifted from e to $\langle \langle e, t \rangle, t \rangle$, a set of properties of (the referent of) *Taroo* (see (30)a).

(30) a. *Taroo-ga Tokyo-e itta.*

Taro-NOM Tokyo-to went

'Taro went to Tokyo.

= $O(\|Taroo\|)(\|Tokyo-e itta\|)$

= $\lambda P. [P(\text{taro})](\lambda x. x \text{ went to Tokyo})$

= The set of Taro's properties includes the property of having gone to Tokyo

We can state the constraint as follows.

- **Subject Constraint:**

The semantic type α of an NP in the subject position must obligatorily be type shifted to $\langle \langle \alpha, t \rangle, t \rangle$.

The proposed semantics of *no koto* together with the Subject Constraint can account for the observation that NP-*no koto*_{OP} cannot be the subject for predicates not selecting an abstract subject (see (31)a), explaining at the same time, how the NP-*no koto*_{OB} can appear in subject positions (see (31)b).

(31) a. **Taroo-no koto-ga Tokyo-e itta.*

Taro-GEN koto-NOM Tokyo-to went

'Lit. Taro's properties went to Tokyo.'

'Taro kicked me.'

The NP-*no koto*_{OP} must be in the matrix object position, which is ascribed a property in the lower clause. The matrix v , which may either be explicit as in *te-simau*, *te-yaru* or may be null, imposes empathy on NP-*no koto*_{OP}. The NP-*no koto*_{OP}, thus, is subject to the empathy hierarchy putting human NPs as highest ranked.

= O(||Taroo-no koto||) (||Tookyoo-e itta||)
 = $\lambda Q. [Q (\lambda P. P(\text{taro}))](\lambda x. x \text{ went to Tokyo})$
 ||Tookyoo-e itta|| is not in the domain of O(||Taroo-no koto||)

b. Taroo-no koto-ga giron-ni-natta.
 Taro-GEN koto-NOM topic-to-became

‘Lit. Taroo-no koto became the topic (of discussion).’
 =O(||Taroo-no koto||) (||giron-ni-natta||)
 = $\lambda Q. [(Q (\lambda P. (P(\text{taro})))](\lambda R. R \text{ became the topic})$
 ||giron-ni-natta|| is in the domain of O(||Taroo-no koto||)

The Subject Constraint dictates that the subject position has an empty operator O that raises the type of the subject. It has the effect such that the addition of *no koto* further raises the type of the subject NP. The proper name *Taroo* is of type *e*. The addition of *no koto* to *Taroo* raises its type from *e* to $\langle\langle e,t \rangle, t \rangle$. If *Taroo-no koto* appears in the subject position, the type is raised by O to $\langle\langle\langle\langle e,t \rangle, t \rangle, t \rangle, t \rangle$.¹¹ The Subject Constraint, thus, explains why *Taroo-no koto* cannot appear in the subject position of predicates such as 'Tookyoo-e iku' taking individuals as subject, and why it can be the subject of predicates such as 'be the topic', taking an abstract subject.¹²

¹¹ If O is of type $\langle e, \langle\langle e,t \rangle, t \rangle \rangle$, then O cannot apply because of type mismatch. So the type of O must be $\langle\langle\langle\langle e,t \rangle, t \rangle, t \rangle, t \rangle$.

¹² The problem is a bit complicated, because unlike *giron-ni naru* (become the issue), which takes only abstract objects, predicates such as *wadai-ni naru* (become the topic (of conversation)) can take both an individual or an abstract object.

- i) {Taroo-no koto, *Taroo}-ga giron-ni natta.
 Taro-GEN koto, Taro}-NOM became the issue
 '{Lit. The things about Taro, Taro} became the issue.
- ii) {Taroo-no koto, Taroo}-ga wadai-ni natta.
 Taro-GEN koto, Taro}-NOM topic-GOAL become
 '{Lit. The things about Taro, Taro} became the topic.

We assume that *wadai-ni-naru* can select both types of object in a way similar to *wakaru* in footnote 3. We further assume that there is a meaning difference involved depending on the object types. We will treat predicates like *wadai-ni naru* as taking both an abstract object and an individual, the latter meaning something like 'become the object of discussion', which can be a predicate on individuals. If we add *-no taisyo* (the object of) to *giron*(issue, discussion) in (i), then the resultant complex predicate 'giron-no taisyoo-ni naru (become the object of discussion)' can take an individual (possibly, in addition to an abstract object).

- iii) {Taroo-no koto, Taroo}-ga giron-no taisyoo-ni natta.
 Taro-GEN koto, Taro}-NOM issue-GEN object-GOAL become
 '{Lit. The things about Taro, Taro} became the object of discussion.'

We assume that the referential subject of an unaccusative sentence functions as subject at post LF and be subject to the Subject Constraint, either as the result of raising in overt syntax or from the beginning.

The constraint on passivization follows from the Subject Constraint if we adopt the uniform hypothesis in the lines of Kuroda (1979, 1990) and Kitagawa and Kuroda (1992). In (32)a, the passive subject is generated in situ. The subject will then be subject to the Subject Constraint and type shifted, accounting for the anomaly of (32)b.

- (32) a. [Tanaka-ga [[Yamada-ni *pro* nagur]-are]-ta.
 Tanaka-NOM Yamada-DAT hit-PASS-PAST
 ‘Tanaka was hit by Yamada.’
- b. *[Tanaka-*no koto*-ga [[Yamada-ni *pro* nagur]-are]-ta.
 Tanaka-GEN koto-NOM Yamada-DAT hit-PASS-PAST
 ‘Tanaka was hit by Yamada.’

In (33) and (34), *no koto* is attached to a quantifier phrase, which is not of type e in apparent contradiction with our assumption that *no koto*_{OP} is attached to NP of type e.

- (33) John-wa dare -*no koto*-o nagutta no?
 John-TOP who-GEN koto-ACC hit Q
 ‘Who did John hit?’
- (34) John-wa hanbun izyoo-no seito-*no koto*-o rakudai-ni-sita.
 John-TOP half more-than-GEN student-GEN koto-ACC failed
 ‘John failed more than a half of the students.’

We assume that wh-words like *dare* and quantifiers like *hanbun izyoo* are QR-ed leaving a trace *t*, which is of type e. The LF of (34) will be (35).

- (35) [Hanbun izyoo-no seito [John-wa *t*-*no koto*-o [PRO pro rakudai-ni-sita] *v*]

We accordingly revise the constraint on NP in NP-*no koto*_{OP} such that NP be referential, as follows.

- **Constraint on NP in NP-*no koto*_{OP}:**
 NP in NP-*no koto*_{OP} must end up being of type e at LF.

7. Summary

In this paper, we have examined the two uses of *no koto*, which serves to raise the semantic type of the NP it attaches to. One use of *-no koto* is change concrete nouns into abstract nouns, so that its addition is obligatory for concrete nouns in the complement position of predicates selecting abstract nouns. This use is represented as *-no koto*_{OB}. In section 2, we have introduced cases where the type-shift function of *no koto* appears vacuous. The semantically vacuous cases of *no koto* is represented as *-no koto*_{OP}, while We observed in section 3 that NP-*no koto*_{OP} can only take the accusative or the nominative case, cannot appear in the ‘subject’ position, and must be referential, while NP-*no koto*_{OB} does not have such

restrictions. In section 4, we have proposed that *no koto* is a property abstraction marker, and that NP-*no koto*, therefore, is a generalized quantifier constructed compositionally from the meaning of NP, *no*, and *koto*. In section 5, we have proposed a major object analysis of NP-*no koto*_{OP}, which serves to account for the fact that NP-*no koto*_{OP} has both the $\langle\langle e, t \rangle, t \rangle$ properties and e properties, serving as a syntactic type-shifting device, providing at the same time an account as to how *no koto*, a property abstraction marker, effectively functions as an extensionalizing operator for the optional use. In section 6, the subject constraint is proposed to account for the subject restriction for NP-*no koto*_{OP}.

Our analysis to treat NP-*no koto* as the same type as a generalized quantifier can account for all the properties of optional and obligatory *no koto* with the same semantics and enables us to reduce the difference to the selectional properties of the verbs taking NP-*no koto*.

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