Nominative-marked Phrases in Japanese Tough Constructions

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Abstract
In this paper we conduct a detailed examination of the tough construction in Japanese with the main focus on some types of nominative case particles ga. They are correlated with the difference not only in the nominative-genitive case alternation but also in the semantic or pragmatic interpretation. Based on these data, we discuss the categories of the nominative case particles and derivations for tough predicates within the framework of Combinatory Categorial Grammar.

1 Introduction
In English, it is well known that infinitival clauses can be used after certain adjectives that express easiness as (1), difficulty as (2) and so on.

(1) a. It is easy to please John.
    b. John is easy to please.

(2) a. It is hard for the students to read this paper.
    b. This paper is hard for the students to read.

Sentences (1a) and (1b) convey the same meaning: John is interpreted as an EXPERIENCER or a recipient of the action of pleasing, regardless of whether it is the object of the verb please in the complement clause as (1a), or it is the subject of the matrix clause with the object of please missing as (1b). From the beginning of transformational grammar, much attention has been paid to the so-called tough construction (1b) and (2b) (Postal, 1971; Chomsky, 1973; among others).

In Japanese, it has often been noted in the literature on transformational generative grammar that sentence (3) below shares syntactic properties with the tough sentences listed in (1b) and (2b).

(3) Gakusei-ni-wa kono zisyo-ga tukai-yasui.
    student-for-TOP this dictionary-NOM use-easy
    ‘This dictionary is easy for students to use.’
    (Inoue, 2004:76)

Different from English, phrase(s) other than the direct object of the main predicate can be marked with nominative case ga in Japanese tough sentences, as we will see below. To account for such a difference, we will argue that there are two types of nominative case marking in Japanese.

The organization of this paper will be as follows: In section 2 and 3, we will observe several types and properties of Japanese tough construction. In section 4 and 5, we will show that there are two types of the nominative case particle ga and their formal analysis. Section 6 will conclude our paper.

2 Tough Construction in Japanese
The tough construction in Japanese is a sentence that involves a main predicate with adjectives such as ya-sui ‘easy’ or nikui ‘hard’, ‘difficult’, or ‘tough’. According to Inoue (1978; 2004), there are four types of tough constructions in Japanese:

1Examples cited from other papers are slightly modified because of lack of space. In (3), for example, tukai-yasui (use-easy) is originally glossed on as tukai-yasu-i (use-easy-PRES) and the PRES(ENT) tense is not relevant to our discussion.
(4) a. Type I (= (3))
   Saikin watasi-wa kooon-de
   recently I-TOP high-pitched notes-in
   utai-nikui.
   sing-hard
   ‘To sing high-pitched notes has recently been hard for me.’ (Inoue, 2004:76)

b. Type II
   ‘It is easy for Masao to send packages from that post office.’ (ibid.:235)

Following Kuroda’s (1987) analysis, we assume that there are two types of tough constructions in Japanese: Type I on the one hand, and Type II, III, and IV, on the other, and throughout this paper we focus on only Type I tough construction.

3 Distribution of the Nominative-marked Phrase(s)

3.1 Nominative-marked Phrase Requirement

As noted by Inoue (1978), a phrase other than the subject in the embedded clause may have the nominative case particle. See the examples (7) and (8).

(7) a.*Kodomo-ni-wa suwari-nikui.
   child-for-TOP sit-hard
   (lit.)*‘For a child is hard to sit.’

   b. Kodomo-ni-wa ano isu-ga
      child-for-TOP that chair-NOM
      suwari-nikui.
      sit-hard
      ‘That chair is hard for a child to sit on.’
      (Inoue, 2004:78)

(8) a.*Sensyu-ni-wa tobi-nikui.
   athlete-for-TOP jump-hard
   (lit.)*‘For athletes are hard to jump.’

   b. Sensyu-ni-wa kono dai-kara-ga
      athlete-for-TOP this spring board-from-NOM
      tobi-nikui.
      jump-hard
      ‘This springboard is hard for athletes to jump from.’
      (ibid.:78)

In (7) and (8), the main predicate is an intransitive verb, and without the phrase with the nominative case particle ga, the sentence is unacceptable.

In order to account for the contrast shown above, Inoue (1978) made a generalization as cited in (9):

(9) If the complement predicate is not transitive, the complement sentence has at least one more NP or PP besides the subject. (Inoue, 1978:123)

Put in a different way, the requirement for Type I tough construction is that the phrase other than the subject must bear the nominative case particle ga.
3.2 A Nominative-marked Adjunct NP

Takezawa (1987) notes that in Type I tough construction, a phrase other than the argument of the main predicate can bear the nominative case particle. See the examples (10) and (11).

(10) Kooitta ziko-ga  higaisya-nitotte this kind of accident-NOM injured party-for
bakudaina amount of songaibaisyo-o enormous compensation-ACC
seikyuusi-yasui. claim-easy
(lit.) ‘This kind of accident is easy (for the injured party) to claim an enormous amount of compensation.’ (Takezawa 1987:210)

(11) Kotosi gakusei-nitotte-wa this year students-for-TOP
gengogaku-ga linguistics-NOM
ii sigoto-o mituke-nikui rasii. good job-ACC find-difficult seem
(lit.) ‘It seems that this year, linguistics is difficult (for students) to find a good job.’ (ibid.)

In (10), for example, *kooitta ziko* ‘this kind of accident’ is not an argument of the main predicate *seikyuusuru* ‘claim’. It is worth noting that *kooitta ziko* is marked with the nominative case particle only and does not bear any postpositions.

3.3 Multiple Nominative-marked Phrases

Kuroda (1987) notes that in Type I tough construction, more than one nominative case-marked phrase can cooccur in the sentence, as shown in (12) below:

(12) a. Kodomotati-nitotte-wa children-for-TOP
kono kaizyoo-de-wa bairorin-(de)-ga this hall-in-TOP violin-on-NOM
sonata-ga hiki-yasui. sonata-NOM play-easy

b. Kodomotati-nitotte-wa children-for-TOP
kono kaizyoo-de bairorin-de this hall-in violin-on
sonata-ga hiki-yasui. sonata-NOM play-easy

c. Kodomotati-nitotte-wa children-for-TOP
kono kaizyoo-de-wa bairorin-(de)-ga this hall-in-TOP violin-on-NOM
sonata-ga hiki-yasui. sonata-NOM play-easy

d. Kodomotati-nitotte-wa children-for-TOP
kono kaizyoo-(de)-ga bairorin-de this hall-in-NOM violin-on
sonata-ga hiki-yasui. sonata-NOM play-easy

e. Kodomotati-nitotte-wa children-for-TOP
kono kaizyoo-(de)-ga bairorin-(de)-ga this hall-in-NOM violin-on-NOM
sonata-ga hiki-yasui. sonata-NOM play-easy

‘It is easy for children to play sonatas on violins in this hall.’ (Kuroda 1987:248)

In (12), there are three phrases, *kono kaizyoo-(de-wa)* ‘in this hall’, *bairorin-(de)* ‘on violin’ and *sonata* ‘sonata’, that can bear the nominative case particle. Only *sonata* is a direct object of the main predicate *hiku* ‘play’, and the other two phrases *kaizyoo-(de-wa)* and *bairorin-de* are considered as adjuncts.

3.4 Summary

In this section, we have observed that in addition to the direct object of the main predicate, other adjuncts of the Type I tough construction can bear the nominative case particle whether they bear any postpositions or not.

4 Two Types of Nominative Case Particle

In section 3, we have observed that in addition to the direct object of the main predicate, other phrases, such as PPs, can bear the nominative case particle in the Type I tough construction.

The question that arises here is whether the nominative case particle in sentence (3) (repeated as (13a)), which the direct object of the main predicate bears is identical to the particle in sentence (6) (repeated as (13b)), which is assigned to PP.
4.1 Nominative-Genitive Conversion

One of the prominent case alternations in Japanese is nominative-genitive conversion (henceafter NGC), which is also often called ga-no conversion. Such a grammatical process allows optional conversion between the two case particles *ga* and *no*, typically in relative clauses and noun-complement construction (Harada (1971; 1976); See also Miyagawa (1993); Hiraiwa (2001) for more recent discussion.)

Putting technical details aside, the type of evidence we give involves a complex NP with a head noun such as *riyuu* ‘reason’ as exemplified in (14).

(14) a. Ken-ga/*no kuru.
    Ken-NOM/GEN come
    ‘Ken comes.’

b. Ken-ga/no kuru riyuu
    Ken-NOM/GEN come reason
    ‘the reason why Ken comes’

In embedded clause (14b), but not in main clause (14a), the nominative case particle *ga* is variably substituted for the genitive case particle *no*.

It is worth noting that the NGC does not change any grammatical nor thematic relations. Thus, *Ken-ga* ‘Ken-NOM’ in (14a) and *Ken-no* ‘Ken-GEN’ in (14b) are the subject of each clause.

4.2 Availability of the NGC

With the diagnostics setting above, let us firstly consider the following sentences (15) in order to see how the NGC works in sentences (13).

(15) a. Gakusei-nitotte kono zisyo-ga/*no
    student-for this dictionary-NOM /GEN
    tukai-yasui
    use-easy
    ‘the reason why this dictionary is easy for students to use.’

b. Masao-nitotte sono yuubinkyoku-kara-ga/*no
    Masao-for that post office-from-NOM /GEN
    kozutumi-o okuri-yasui
    package-ACC send-easy
    ‘the reason why that post office is easy for Masao to send packages from.’

As illustrated in (15) above, the nominative case-marked NP *kono zisyo* ‘this dictionary’ in (15a) is the direct object of the main predicate, and the NGC is possible. However, the nominative case particle with the PP *sono yuubinkyoku-kara* ‘from that post office’ in (15b) cannot convert to the genitive case particle. The contrast in (15a) and (15b) shows that there are two kinds of nominative case particles in Japanese in which the NGC is possible in some cases.

With this in mind, let us then consider whether postpositions are sensitive to NGC. In (10a), for example, *kooitta ziko-ga* ‘this kind of accident’ is not an argument of the main predicate *seikyuusuru* ‘claim’, and it also does not bear any postpositions.

One might predict that the nominative case particle in the sentences (10a) and (10b) can be substituted for the genitive case particle via the NGC. However, this prediction is not correct:

(16) a. Kooitta ziko-ga/*no
    this kind of accident-NOM/GEN
    (higaisya-nitotte) bakudaina
    injured party-for enormous
    songaibaisyoo-o amount of compensation-ACC
    seikyuusi-yasui
    claim-easy
    riyuu reason
    ‘the reason why that kind of accident is enormous, and the injured party claims it.’

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2 Miyagawa (1993) points out that there is a scope difference in the application of NGA. In gapless clauses the nominative-marked subject cannot take scope over the head noun, but the genitive-marked subject can take scope over the head noun. For the detailed discussion of this matter, see Miyagawa (1993).
(lit.) 'the reason why this kind of accident is easy (for the injured party) to claim an enormous amount of compensation.'

b. Kotosi (gakusei-nitotte-wa) this year students-for TOP
gengogaku-ga/*no ii sigoto-o linguistics-NOM/*/GEN good job-ACC
mituke-nikui rasi. riyuu find-difficult seem reason
(lit.) 'the reason why this year, linguistics is difficult (for students) to find a good job.'

The unacceptable sentences (16) above suggest that not only the nominative case particle with adjunct PP, but also the nominative case particle with adjunct NP cannot undergo the NGC.

Finally consider how the multiple nominative-marked phrases in sentences like (12) above interact with the NGC.

(17) a.*Kodomotati-nitotte children-for
kono kaizyoo-(de)-no baiorin-(de)-ga this hall-in-NOM violin-on-NOM
sonata-ga hiki-yasui riyuu sonata-NOM play-easy reason

b.*Kodomotati-nitotte children-for
kono kaizyoo-(de)-no baiorin-(de)-no this hall-in-GEN violin-on-GEN
sonata-ga hiki-yasui riyuu sonata-NOM play-easy reason

c.*Kodomotati-nitotte children-for
kono kaizyoo-(de)-no baiorin-(de)-ga this hall-in-GEN violin-on-GEN
sonata-no hiki-yasui riyuu sonata-GEN play-easy reason

d.*Kodomotati-nitotte children-for
kono kaizyoo-(de)-no baiorin-(de)-no this hall-in-GEN violin-on-GEN
sonata-no hiki-yasui riyuu sonata-GEN play-easy reason

e.*Kodomotati-nitotte children-for
kono kaizyoo-(de)-ga baiorin-(de)-no this hall-in-NOM violin-on-GEN
sonata-no hiki-yasui riyuu sonata-GEN play-easy reason

f.*Kodomotati-nitotte children-for
kono kaizyoo-(de)-ga baiorin-(de)-no this hall-in-NOM violin-on-GEN
sonata-ga hiki-yasui riyuu sonata-GEN play-easy reason

g. Kodomotati-nitotte children-for
kono kaizyoo-(de)-ga baiorin-(de)-ga this hall-in-NOM violin-on-NOM
sonata-no hiki-yasui riyuu sonata-GEN play-easy reason

(lit.) 'the reason why sonata is easy for children to play on violin in this hall'

In the acceptable sentence (17g), the NGC is only applied to the direct object of the main predicate. All the unacceptable sentences in (17a-f) show that the PP adjuncts fail to undergo the NGC.

4.3 Summary
We have examined how the NGC can be applied to the Type I tough constructions, and shown that there are two kinds of the nominative case particle in Japanese: the particle with the direct object of the main predicate undergoes the NGC but the particle with the NP/PP adjunct does not.

5 A Formal Analysis
5.1 Combinatory Categorial Grammar
In this section we will seek the answer to two questions within the framework of Combinatory Categorial Grammar (CCG) (Steedman, 1996; 2000):
(i) how can we account for the different behaviors of the two types of nominative case particles?
(ii) how can be the tough constructions dealt with?

In CCG, information about word order and valency is encoded in syntactic categories which are assigned to words. These categories specify the
number of arguments a word can take, as well as the relative position of arguments with respect to the head. They are also paired with a semantic interpretation. For instance, the category of the transitive verb hiku ‘play’ is as follows:

(18) hiku := (S\NP_n)\NP_n : \lambda x \lambda y \text{play'} xy

In addition to standard function application (19a,b) below, CCG allows constituents to combine via a set of combinatory rules, which are stated as schemata over categories (backward composition (19c) and forward type-raising (19d) in the following):

(19) a. \(X/Y : f \quad \Rightarrow \quad X : fa\) \(>)\)
b. \(Y : a \quad \Rightarrow \quad X : fa\) \(<\)
c. \(Y'gX : f \quad \Rightarrow \quad X'Z : x.f(gx)\) \(<B\)
d. \(X : a \quad \Rightarrow \quad T/(T\backslash X) : \lambda f.f[a]\) \(>T\)

The normal-form derivation of ordinary sentences such as (20) mainly requires function application (19a,b). See (21) below.

(20) Ken-ga bairoin-de sonata-o hiku.

‘Ken plays sonata (on violin).’

In (21), Ken ‘Ken’ and sonata ‘sonata’ are type-raised. Type-raising turns argument categories such as NP into functions over the functions that take them as arguments, such as the verbs, into the results of such functions. This operation can be strictly limited to argument categories NP, AP, PP, VP and S. One way to do this is to specify it in the morpho-lexicon, in the categories for proper names, determiners, and the like. Therefore it resembles the traditional operation of case.

PP bairoin-de ‘on violin’ is not an adjunct. Following Steedman (1996), we assume that adjuncts are also subcategorized for by verbs in some sense and that they are the most oblique (and optional) arguments of verbs.

It is worth noting that the category of the verb encodes the missing argument, i.e., PP as a feature, which is passed up through the derivation. Such a feature can be linked with another category by some semantic or pragmatic rules although it is not realized as a PP.

5.2 Tough Predicate

Let us now consider the following example (22) in which the direct object of the main predicate bears the nominative case particle:

(22) (Ken-nitotte-wa) . . . sonata-ga hiki-yasui.

‘Sonata is easy (for Ken) to play.’

The following is the relevant part of the syntactic category (23) and the derivation the construction (24) with a tough adjective yasui ‘easy’:

(23) yasui := (S\NP_n)\((S\backslash NP_n)\backslash NP_o) : \lambda p.\lambda x.\text{easily'}(p.x.\text{one'})

Tough constructions involve syntactic complementation. Namely, the tough adjective yasui exemplified in (23) functions as a word with its own lexical contents, where the constant \(\text{one'}\) represents an arbitrary EXPERIENCER. Thus, the specification of the category is the same as English tough adjectives, except the word order information.

In (24), functional composition allows the complement verb to be an unboundedly large fragment, accounting for the unbounded character of the dependency involved. Different from English, the subject, or more precisely the nominative-marked phrase of the construction, is merged with the predicate by a semantic or pragmatic relation which we represent as \(\text{about}(ness)\).

The specification of the particle is given below.

(25) -ga := (S/(S\backslash NP_n))\backslash N : \lambda p.\lambda q.\exists x.p.x \land \text{about'}(x, qx)

This analysis accounts for the nominative-marked phrase requirement in Section 3.1 from the semantic or pragmatic viewpoint. The relevant data (7) is repeated with some modifications:

(26) a.\(^a\rho\text{Kodomo-ni-wa}\) [\(^\rho\) suwari-nikui.

\text{child-for-TOP} \text{sit-hard}

(lit.)* ‘For a child is hard to sit.’

b. \([\rho \text{Kodomo-ni-wa}] [^\rho \text{ano isu-ga}]\)

\text{child-for-TOP} \text{that chair-NOM} \text{suwari-nikui.}

\text{sit-hard}

‘That chair is hard for a child to sit on.’
The information conveyed by a sentence is split into new information *theme* (ρ, focus) and information already present in the discourse *rheme* (θ, topic). The sentence-initial *ga*-marked phrase is obligatorily marked with focus if the predicate of a sentence presents a state or a habitual/generic action (Kuno, 1973). (26a) lacks such a phrase of a sentence describing a state, and becomes unacceptable.

### 5.3 Multiple Nominative Construction

In Section 5.2, we discussed the semantics or pragmatics of focus using examples (22) and (26). (22) is a part of the multiple *ga*-marked phrase sentence (12), repeated as (27) with some modifications, which we referred as one of the characters of Type I tough construction in Section 3.3.

(27) *Kono kaizyoo-(de)-ga baiorin-(de)-ga sonata-ga hiki-yasui.

(lit.)'It is this hall that violin is easy to play sonata.'

Another character of the construction shown in Section 3.2 is adjunction. An element other than the argument of the main predicate can bear the case particle, as shown in (10), repeated as (28) with some modifications.

(28) *Kooitta ziko-ga this kind of accident-NOM songaisyou-so ga o seikyuusi-yasui.

CompensationNOM/ACC claim-easy

(lit.)'It is this kind of accident that compensation is easy to claim.'

Japanese has several types of multiple nominative construction that generates more than one *ga*-marked phrase (Tateishi, 1991). We claim that sentences (27) and (28) above are the instances of such a construction.\(^3\)

The following (29) and (30) are the relevant part of the derivation of sentence (27) and the feature specification of another type of case particle, respectively.

(30) *-ga := (S/S) \ N

: \( \lambda p \lambda q \exists x. px \land about'(x, q) \)
Different from the particle (25), (30) introduces an element which is not the argument of the predicate. Successive layers of ga-marked NPs, namely, multiple nominative constructions are derived recursively with the predication function encoded in (30).

6 Concluding Remarks

In this paper, we have proposed two types of nominative case particles in Japanese. They are correlated with the difference not only in the GNC but also in the semantic or pragmatic interpretation. Based on those data, we have shown the specification of the nominative case particles and the derivations for tough predicates within the CCG framework.

This analysis is related to the issue of the licensing of the nominative case particle in Japanese. Saito (1982) argues that the Japanese nominative case is an inherent Case. Takezawa (1987) offers an analysis that the nominative case is assigned by INFL within the GB framework, and extending Takezawa’s analysis, Ura (1996) argues that nominative case is licensed by T under the minimalist assumptions. They all imply that there is only one nominative case licensing condition in Japanese.

Since the NGC behaves in a different way in tough sentences, we claim that there are two (or more) kinds of the nominative case licensing, which constitutes evidence against the former analyses.

In this paper, we only utilized the NGC as the diagnostics of such a case distinction and did not show any formal mechanisms of alternation. The condition of the case alternations, nominative-genitive (ga-no), accusative-nominative (o-ga) and dative-nominative (ni-ga), in Japanese are one of the most intriguing issues in Japanese syntax. We will leave the analyses of the issue for future work.

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