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The nominative/accusative alternation in Japanese and information structure

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Abstract In Japanese, desiderative (and potential) predicates derived from transitive verbs allow their direct object to be marked with the nominative marker *ga*, instead of the expected accusative marker *o*. This article argues that the nominative/accusative alternation in a desiderative construction has an information-structural implication. Nominative-marking on the object indicates its focushood, i.e., that it is either the focus of the utterance or part thereof, whereas accusative-marking has no such information-structural bearing. This claim is motivated by the observation that the direct object of a desiderative predicate resists nominative-marking when it is not adjacent to the predicate ("adjacency effect"). Under our account, the adjacency effect can be regarded as a variety of the garden-path effect, stemming from the discrepancy between the default (expected) locus of the focus and the pragmatic information conveyed by nominative-marking. With three sets of experimental data (from two acceptability judgment experiments with written stimuli and one rating experiment with auditory stimuli), we demonstrate that (i) the adjacency effect is

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real, and (ii) it can be mitigated by prosodic or contextual cues signaling the focushood of the object. The second finding conforms well to our hypothesis that the adjacency effect is a processing-based phenomenon, rather than a reflection of a purely syntactic constraint.

Keywords Nominative/accusative alternation · Desiderative construction · Information structure · Garden-path effect · Japanese

1 Introduction

In Japanese, desiderative and potential predicates derived from transitive verbs allow their direct object to be marked with the nominative marker *ga*, instead of the expected accusative marker *o* (Kuno 1973a, b).[1]

(1) *Desiderative predicates with a nominative/accusative object*
    a. Taro-wa   omoshiro-i   hanashi-{ga/o}   kiki-ta-i
        Taro-*wa*[2]   interesting-Prs story-Nom/Acc   hear-Des-Prs
        soo-da.
        Evid-Cop.Prs
        '(I hear that) Taro wants to hear an interesting story.'
    b. Naomi-wa   utsukushi-i   shashin-{ga/o}   tori-ta-i
        Naomi-*wa*   beautiful-Prs   picture-Nom/Acc take-Des-Prs
        soo-da.
        Evid-Cop.Prs
        '(I hear that) Naomi wants to take a beautiful picture.'

(2) *Potential predicates with a nominative/accusative object*
    a.   Taro-wa   eigo-{ga/o}   hanas-e-ru.
          Taro-*wa*   English-Nom/Acc   speak-Pot-Prs
          'Taro can speak English.'
    b.   Naomi-wa   sakana-{ga/o}   tabe-rare-ru.
          Naomi-*wa*   fish-Nom/Acc   eat-Pot-Prs
          'Naomi can eat fish.'

Semantically, the *o*- and *ga*-versions are largely equivalent. It has been remarked in the literature, however, that the choice between *ga* and *o* affects the scopal relation between multiple scope-bearing elements within the clause (Sano 1985; Harada and Noguchi 1992; Tada 1992; Koizumi 1994, 1995, 1998, 2008; Ura 1996, 1999, 2000; Yatsushiro 1999; Takano 2003; Nomura 2003, 2005a, b; Bobaljik and Wurmbrand 2007; Takahashi 2010), and also that a *ga*-marked object of the

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[1] The abbreviations in the glosses are: Acc = accusative, Com = comitative, Comp = complementizer, Cop = copula, Dat = dative, Des = desiderative, Evid = evidential, Neg = negative, Nom = nominative, Loc = locative, Plt = polite, Pot = potential, Prt = particle, Prs = present, Pst = past.

[2] As will be discussed in Sect. 3, while the particle *wa* is commonly regarded as a topic-marker, some scholars take the view that in many cases it merely indicates groundhood. For the sake of neutrality, we gloss it simply as *wa*, rather than as Top, etc.

potential construction is or tends to be interpreted as a focus (Saito 1982; Takano 2003; Miyagawa 2010).

In this article, we argue that with desiderative predicates, the choice of the particle has a pragmatic effect, and that the use of *ga* signals focushood of the object. This claim is motivated by the observation that the direct object of a desiderative predicate resists nominative-marking when it is not adjacent to the predicate. This phenomenon was, to our knowledge, first pointed out by Tamura (1969) (cited in Kuno 1973b: 54), and was subsequently discussed by Shibatani (1975), who further claims that the more constituents intervene between the direct object and the predicate, the more the acceptability is degraded (see also Sugimoto 1986: 267). The following set of sentences illustrates the phenomenon at issue, which we will refer to as the "adjacency effect".[3]

(3) a. Boku-ga   sushi-ga   tabe-ta-i.
     I-Nom   sushi-Nom   eat-Des-Prs
     'I want to eat sushi.'

   b. ?Boku-ga   sushi-ga   kimi-to   tabe-ta-i.
     I-Nom   sushi-Nom   you-Com   eat-Des-Prs
     'I want to eat sushi with you.'

   c. ??Boku-ga   sushi-ga   kimi-to   issho-ni   tabe-ta-i.
     I-Nom   sushi-Nom   you-Com   together   eat-Des-Prs
     'I want to eat sushi together with you.'

   d. ?*Boku-ga   sushi-ga   kimi-to   issho-ni   sushi-ya-de
     I-Nom   sushi-Nom   you-Com   together   sushi-shop-Loc
     tabe-ta-i.
     eat-Des-Prs
     'I want to eat sushi together with you at a sushi restaurant.'

   e. *Boku-ga   sushi-ga   kimi-to   issho-ni   asoko-ni
     I-Nom   sushi-Nom   you-Com   together   there-Dat
     mie-ru   sushi-ya-de   tabe-ta-i.
     be.seen-Prs   sushi-shop-Loc   eat-Des-Prs
     'I want to eat sushi together with you at the sushi restaurant
     we see over there.'

(Shibatani 1975: 470)

To account for this effect, one might postulate a syntactic constraint along the lines of (4), which requires adjacency between the nominative object and the desiderative predicate.[4]

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[3] The presence of an explicit, first-person subject marked with *ga* might lead to stylistic awkwardness and affect the acceptability of the sentences in (3). Also, there is a reason to believe that a sequence of two nominative-marked co-arguments ([Subj-*ga* Obj-*ga*], as opposed to [Subj-*ga* Obj-*o*] or [Subj-*wa* Obj-*ga*]) is disfavored (fn. 10). We will show below that the adjacency effect is observed with sentences without an explicit nominative subject.

[4] Shibatani (1975) proposes a processing-based account of the adjacency effect. We postpone discussion of it to Sect. 7 to facilitate comparison with our own proposal.

(4) **Adjacency Constraint**: A desiderative predicate allows its argument to be nominative-marked only when the latter immediately precedes it.

This constraint, however, is rather ad hoc and unappealing. It furthermore fails to capture the "fuzziness" of the phenomenon, i.e., the negative correlation between the distance from the predicate to the object and the acceptability.

We instead propose that the adjacency effect results from the difference between the *ga*- and *o*-versions in terms of information-structural specifications, and more specifically from the constraint that the *ga*-marked object must be part of the focus. In Sect. 2, we present experimental data that show that the "adjacency effect" is real, in accordance with Shibatani's claim. In Sect. 3, we elaborate on our hypothesis about the information structural difference between the two versions of desiderative constructions, and discuss how it accounts for the observed adjacency effect.

In Sects. 4 and 5, we present two sets of experimental data, concerned respectively with prosody and the preceding discourse, which support our information-structural account. In Sect. 6, we present cases where the nominative object is part of ground (is not part of the focus), and discuss how it can be reconciled with our proposal. In Sect. 7, we take up another processing-based account suggested by Shibatani (1975), and point out its problems.

In Sect. 8, we compare the desiderative predicate construction and potential predicate construction, and discuss that the potential construction with a nominative object is not information-structurally loaded in the same way as the desiderative construction with a nominative object. In Sect. 9, we address the effect of the choice of the accusative and nominative case particles on the scopal relation between the focus particle *dake* 'only' and the semantic operator encoded within the predicate.

Section 10 presents two possible formal syntactic accounts of the proposed property of the desiderative construction with a nominative object. Section 11 is a conclusion.

2 Acceptability judgment experiment #1

In order to verify the adjacency effect on the nominative object, we conducted an acceptability judgment experiment, where the participants were asked to assess the naturalness of sentences on a written questionnaire, using a five-point scale (1 = unnatural, 2 = somewhat unnatural, 3 = neither unnatural nor natural, 4 = somewhat natural, 5 = very natural). The participants were 16 native speakers of Japanese (female: 5, male: 11, average age: 19.4).

The adjacency condition (adjacent vs. non-adjacent) and the choice between the two case particles (nominative *ga* and accusative *o*) were manipulated in a 2×2 design, yielding a total of four crucial conditions. A stimulus sentence (target item) in the non-adjacent condition involves one intervener between the object and the desiderative predicate; a corresponding stimulus sentence in the adjacent condition

was constructed by moving the intervener to the front of the object. Stimulus sentences in the four conditions are exemplified below.

(5) a. *Adjacent condition*
        Masashi-wa   izakaya-de   yakitori-{i. **ga**/ii. **o**}   tabe-ta-i
        Masashi-*wa*   pub-Loc   yakitori-Nom/Acc   eat-Des-Prs
        soo-da.
        Evid-Cop.Prs
   '(I hear that) Masashi wants to eat yakitori at a pub.'
     b. *Non-adjacent condition*
        Masashi-wa   yakitori-{i. **ga**/ii. **o**}   izakaya-de   tabe-ta-i
        Masashi-*wa*   yakitori-Nom/Acc   pub-Loc   eat-Des-Prs
        soo-da.
        Evid-Cop.Prs
        '*idem*'

We created 64 target items with 16 distinct lexical sets (e.g., {(5a-i), (5a-ii), (5b-i), (5b-ii)}). The 64 items were distributed among four questionnaires, using a Latin Square procedure, so that each questionnaire did not contain multiple target items that are lexically matched. Each participant was assigned one of the four questionnaires. We included 32 filler items in each questionnaire, half of which are assumed to be fully acceptable and the other half of which are assumed to be utterly unacceptable, in order to lead each participant to make the full range of acceptability judgments. In addition, all of the questionnaires started with the same 5 practice items, so that they all consisted of 53 items in total. The order of items within each list was pseudorandomized, in such a way that no two target items were presented successively.

Figure 1 summarizes the results of the experiment, which indicate that the effect of the factor of adjacency is significantly more prominent with the nominative object (average rating score, adjacent: 3.67, non-adjacent: 1.88) than with the accusative object (average rating score, adjacent: 4.42, non-adjacent: 3.92).

To confirm the significance of the effect, we constructed a linear mixed-effects model with the case particles (*ga* or *o*) and the adjacent and non-adjacent conditions as fixed factors, and participants and items as random intercepts. In analyzing the data, each participant's responses were z-score transformed in order to lessen the effects of potential scale bias among the participants (e.g., using only the extreme points 1 or 5, or the intermediate ones 2–4, of the scale) (Schütze and Sprouse 2013). The results revealed a significant decrease in the acceptability of the nominative object in the non-adjacent condition by comparison with the acceptability of the accusative object (the interaction of the factors; $t = -5.528$, $p < .001$). This provides quantitative evidence that the adjacency effect, pointed out by Shibatani (1975) based on introspection, is a robust and experimentally replicable phenomenon.
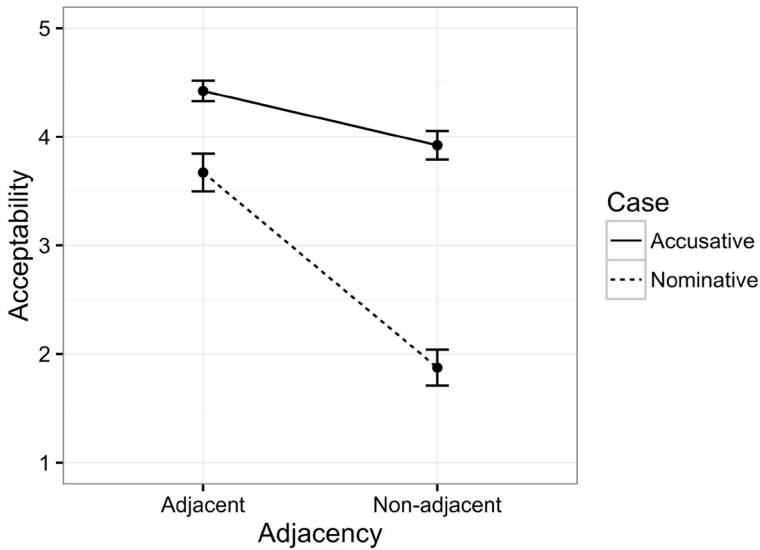
Fig. 1 The results of acceptability judgment experiment #1 (means of the rating scores)

3 An information-structural account

We contend that the choice between nominative- and accusative-marking on the direct object of a desiderative predicate has an information-structural implication, and that the adjacency effect results from the interaction of (i) the information-structural characteristic of the nominative version and (ii) a general heuristic which speakers use when interpreting the focus-ground configuration of perceived utterances. As a preliminary, we will first explain some background assumptions about the theory of information structure.

3.1 Conceptual background

Messages conveyed by individual utterances can be partitioned into informational subcomponents or *pragmatic functions*. In the literature, it has been generally agreed that a single bipartite structure (say, *theme-rheme*) is not fine-grained enough to explain various facts in natural languages, and we need at least two pairs of opposing concepts: *topic-comment* and *ground-focus*. Furthermore, in recent studies, it is commonplace to conflate two oppositions into one tripartite structure, where topic is construed as part of ground (Fig. 2; Lambrecht 1994; Vallduví and Engdahl 1996). We too adopt this view, and postulate five pragmatic functions in a message conveyed by a single utterance, with the working definitions presented in (6).
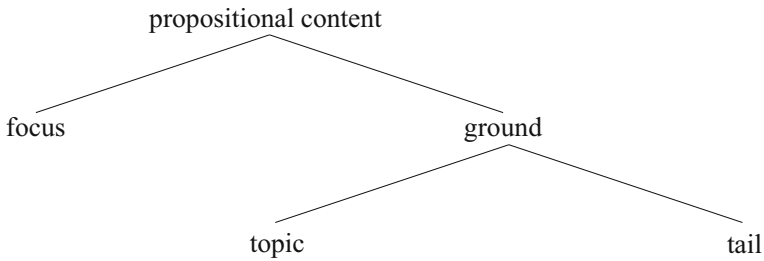
Fig. 2 The tripartite model of pragmatic functions

(6) a. *focus*: informative and newsy material; material that completes an open
         proposition provided by ground and/or the discourse context
     b. *ground*: non-informative and expected material; material that provides an
         open proposition to be completed by focus
     c. *topic*: an entity presented as something the message is 'about;' an entity
         that the hearer is directed to give attention to as the location of
         information update
     d. *tail*: the complement of the topic in the ground (i.e., tail = ground − topic)
     e. *comment*: the complement of the topic in the utterance (i.e., comment =
         tail + focus)

Regarding focus, which is a key notion in the current work, we more specifically
assume the standard theory of Rooth (1985, 1996).

An utterance may consist of focus only, focus-tail, focus-topic, or focus-topic-tail;
it is impossible, on the other hand, for an utterance to consist of ground items only.
That is, an utterance may be topic-less or ground-less, but cannot be all-ground. (7) is
an example of an utterance in English that contains all five pragmatic categories:

(7) (I will meet Prof. Brown at the airport myself.)
     As for [Prof. Smith]$_{\text{TOP}}$, [Ken]$_{\text{FOC}}$ will go pick him up.

(8) a. *focus*: **ken**
     b. *ground*: $\lambda y[\textbf{pick.up}(y, \textbf{smith})]$
     c. *topic*: **smith**
     d. *tail*: $\lambda x[\lambda y[\textbf{pick.up}(y, x)]]$
     e. *comment*: $\lambda x[\textbf{pick.up}(\textbf{ken}, x)]$

3.2 Proposal

We propose that nominative-marking on the direct object of a desiderative predicate
indicates its focushood, i.e., it is either the focus of the utterance or part thereof, and
accusative-marking on the other hand has no such information-structural bearing.

(9) **Focushood Constraint** (tentative version): A *ga*-marked object of a desider-
     ative predicate must be the focus or part thereof.

One way to represent this descriptive generalization in formal-grammatical terms is to postulate that the Japanese desiderative construction has two varieties, one (i.e., the *o*-version) being information-structurally unloaded (neutral) and the other (the *ga*-version) loaded (see Sect. 10.1 for more details). In this sense, the relation between the *o*-version and the *ga*-version is to some extent analogous to the one between the English canonical word order construction on the one hand and the *it*-cleft construction, the focus-fronting construction, etc., on the other (Ward and Birner 2011).

The proposed constraint implies that (11a,b), where subscript G and F respectively indicate groundhood and focushood, are possible information-structural configurations for (10), while (11c) is not.

(10) Watashi-wa   fugu-ga   tsuri-ta-i.
        I-*wa*   pufferfish-Nom   catch-Des-Prs
        'I want to catch a pufferfish.'

(11) a. [watashi-wa]$_G$ [fugu-ga]$_F$ [tsuri-ta-i]$_G$
        b. [watashi-wa]$_G$ [fugu-ga]$_F$ [tsuri-ta-i]$_F$
        c. #[watashi-wa]$_G$ [fugu-ga]$_G$ [tsuri-ta-i]$_F$

The variant of (10) with *o*, on the other hand, is compatible with any of the configurations (13a–c).

(12) Watashi-wa   fugu-o   tsuri-ta-i.
        I-*wa*   pufferfish-Acc   catch-Des-Prs
        'I want to catch a pufferfish.'

(13) a. [watashi-wa]$_G$ [fugu-o]$_F$ [tsuri-ta-i]$_G$
        b. [watashi-wa]$_G$ [fugu-o]$_F$ [tsuri-ta-i]$_F$
        c. [watashi-wa]$_G$ [fugu-o]$_G$ [tsuri-ta-i]$_F$

Returning now to the adjacency effect, we suggest that it stems from the clash between the Focushood Constraint and the general heuristic that speakers adopt in order to determine the information-structural configuration of utterances (in the form of writing) that they encounter.

It has long been claimed in the literature—although often solely based on intuitive judgments that are not experimentally controlled—that a complement (argument or adjunct) that is (part of) the focus tends to occur in a position immediately preceding the predicate (Kuno 1978; Kim 1988; Ishihara 2001; Ishii 2001; Erteschik-Shir 2007; Vermeulen 2012). This is, of course, not to deny that a focus complement may precede one or more ground complements within the same clause; but if the described tendency is real (as we believe), a natural corollary would be that speakers take advantage of it to identify the information structural partition of the utterance that they are exposed to, using a heuristic along the lines of:

(14) **"Focus to the Right" Heuristic**
    i. If a non-subject complement is part (or the whole) of the focus, it is likely to occur in a position directly preceding the predicate.
    ii. The more distant a non-subject complement is from the predicate, the less likely that it is part (or the whole) of the focus.

The qualification "non-subject" may not be necessary, but is included in consideration of the possibility that the tendency for a subject to occur toward the left edge of the clause gives rise to another heuristic (the "Subject to the Left" Heuristic, to name it) that cancels out the effect of "Focus to the Right" (F-to-R) Heuristic.

(15a–c) exemplify utterances that conform to the F-to-R Heuristic, and (15d) one that does not (subscript "F/G" indicates that the item may either be a focus or ground item).

(15) a. [pasokon-o]$_G$ [akihabara-de]$_F$ [kat-ta]$_{F/G}$
          personal.computer-Acc   Akihabara-Loc   buy-Pst
          '(I) bought a PC in Akihabara.'
  b. [pasokon-o]$_F$ [kat-ta]$_{F/G}$
          '(I) bought a PC.'
  c. [akihabara-de]$_F$ [kat-ta]$_{F/G}$
          '(I) bought (it) in Akihabara.'
  d. [pasokon-o]$_F$ [akihabara-de]$_G$ [kat-ta]$_{F/G}$
          '(I) bought a PC in Akihabara.'

Note that according to the F-to-R Heuristic as phrased in (14), the configuration in (16) too is to be regarded as marked. It is debatable if this is a desirable consequence. It depends on how common it is for more than one (overt) complement within a clause to be parts of the focus. If it is relatively rare, which we suspect is the case, then it is sensible to consider an utterance like (16) to be marked.

(16) [pasokon-o]$_F$ [akihabara-de]$_F$ [kat-ta]$_{F/G}$

When sentence (17) is (i) presented in the form of speech, and/or (ii) situated in actual discourse contexts, prosodic and contextual cues are likely available which help the addressee (hearer or reader) identify the information-structural partition. With such cues—e.g., if (17) is uttered in reply to "What did you buy {in Akihabara/where}?"—interpreters might easily consider it to have information structural configuration (15d) or (16).

(17) Pasokon-o   Akihabara-de   kat-ta.
      personal.computer-Acc   Akihabara-Loc   buy-Pst
      'I bought a PC in Akihabara.'

When the same sentence is presented in the form of writing and in isolated contexts, on the other hand, interpreters are expected to rely more heavily on the

F-to-R Heuristic. We hypothesize that this is why sentences like (5bi) were judged as relatively unnatural in our experiment.

(18) (= (5bi))

Masashi-wa	yakitori-ga	izakaya-de	tabe-ta-i	soo-da.
Masashi-*wa*	yakitori-Nom	pub-Loc	eat-Des-Prs	Evid-Cop.Prs

'(I hear that) Masashi wants to eat yakitori at a pub.'

The F-to-R Heuristic makes the addressee tentatively infer that, if any of the complements is part of the focus, only the rightmost one, i.e., *izakaya-de*, is. This inference, however, clashes with the Focushood Constraint. We interpret our experimental results to indicate that in this situation interpreters are inclined to stick to their default inference, concluding that something—e.g., the choice of the particle—is wrong with the presented sentence.

As mentioned in Sect. 1, Shibatani (1975) remarks that the adjacency effect becomes stronger as the number of interveners increases. This (putative) gradience is accounted for by (14ii), which amounts to saying that the number of interveners has a positive correlation with the degree of markedness (which leads to the difficulty of processing).

Under this account, the adjacency effect can be regarded as a kind of garden-path effect, which can roughly be defined as difficulty in processing a sentence that invites heuristic inference leading to the wrong conclusion about its structure/interpretation (Bever 1970). Some paradigmatic examples of the garden-path sentence are presented in (19).

(19) a. The horse raced past the barn fell.
      b. He put the candy on the table in his mouth.
      c. While she was mending the sock fell.

To take (19a) as a representative case, the set of heuristics relevant to the difficulty of correctly parsing it will include something along the lines of:

(20) i.   The first word within the clause that can be interpreted as a finite verb is likely to be the main verb (head) of the clause. (*Raced*, therefore, is likely the main verb.)
      ii. *Raced* is likely to be a past or past participial form of the intransitive verb RACE (and not of the transitive verb with the same form).

The garden-path effect can often be mitigated or cancelled out with appropriate prosodic or contextual cues. In the case of (19a), it is easier to process when it is presented in the form of speech, and with suprasegmental features signaling the NP-status of the string "the horse raced past the barn," such as the absence of phrase accents within it; in (21)/(22), square brackets indicate intermediate/intonational phrase boundaries, and L- and L% respectively represent a low phrase accent and a low boundary in accordance with the MAE (mainstream American English) ToBI system (Beckman et al. 2005).

(21) (The "appropriate" pronunciation)
      The horse raced past the barn   fell.
      [[L-]   [L-]L%]

(22) (A "misleading" pronunciation)
      The horse raced past the barn fell.
      [[L-]   […

Also, the processing may be facilitated when (19a) is situated in a discourse context, as illustrated in (23) (Crain and Steedman 1985; Altman and Steedman 1988).

(23) The three horses that were raced across the track finished with good records. On the other hand, the horse raced past the barn fell.

The proposed account of the adjacency effect, thus, leads to the prediction that when utterances like (18) are presented with prosodic or contextual information signaling the focushood of the *ga*-marked object, their acceptability may improve, in a way similar to how the acceptability of (19a) improves with prosodic or contextual information guiding the interpreter to rightly dismiss heuristic inferences. The alternative syntactic account (i.e., (4)), however, does not have such an implication. In Sects. 4 and 5, we will present experimental data that lend support to the proposed account.

3.3 Focushood and *ga*-marking

One question that is naturally raised in connection with the Focushood Constraint is *why* the choice of the particle *ga* has the described information-structural implication. In the literature, it is commonplace to assume that (i) *ga* is a case-marker, and (ii) like other case-marking particles such as accusative *o* and dative *ni*, it does not directly encode pragmatic-functional information. In the following, we illustrate that there is a close link between *ga* and focushood, drawing on discussion in previous studies. First, in unmarked root clauses, *ga*-marking on a subject implies its focushood. Second, *ga* has a use distinct from that as a case marker, which can be characterized as a focus marker. In consideration of these facts, the Focushood Constraint can be taken to be a manifestation of the general "focus-orientation" of *ga*.

3.3.1 Nominative-marked subjects

In Japanese root clauses, a "nominative subject"[5] is often marked by the particle *wa* (in its so-called thematic use), which suppresses the occurrence of *ga*.

(24) a. Naoya-ga   ki-ta.
          Naoya-Nom   come-Pst
          'Naoya came.'
      b. Naoya{*-ga/Ø}-wa   ki-ta.
          Naoya{-Nom/Ø}-*wa*   come-Pst
          '*idem*'

While the particle *wa* is widely regarded as a topic-marker, some scholars take the view that *wa* indicates groundhood or backgroundedness, rather than topichood (e.g., Martin 1975; Makino 1982; Fiengo and McClure 2002).

In root declarative clauses, a nominative subject in information-structural ground must be marked by *wa*, while the same does not hold for a direct object. Oshima (2009) illustrates this point with question–answer pairs like the following.

(25) Q: Ken-ga   Iriasu-o   yon-da-no-wa   itsu-des-u-ka?
           Ken-Nom   Iliad-Acc   read-Pst-Comp-*wa*   when-Cop.Plt-Prs-Prt
           'When is it that Ken read the *Iliad*?'
      A$_1$: Ken-{a. **#ga**/b. **wa**}   Iriasu-o   [gogatsu-ni]$_{FOC}$ yomi-mashi-ta.
           Ken-{Nom/*wa*}   Iliad-Acc   May-Dat   read-Plt-Pst
           'Ken read the *Iliad* in May.'
      A$_2$: Iriasu-o   Ken-{a. **#ga**/b. **wa**}   [gogatsu-ni]$_{FOC}$ yomi-mashi-ta.
           Iliad-Acc   Ken-{Nom/*wa*}   May-Dat   read-Plt-Pst
           '*idem*'

In the provided context, the versions of the answer where the subject is marked by *ga* are highly awkward, i.e., the subject must be marked by *wa*. The direct object, on the other hand, does not need to be marked by *wa*. The version shown in (26) where both the subject and the direct object are accompanied by *wa* and the former precedes the latter may sound somewhat awkward, but sounds considerably more natural than (25A$_1$a) and (25A$_2$a).[6]

(26) A$_3$:   Iriasu-wa Ken-wa [gogatsu-ni]$_F$ yomi-mashi-ta.
            Iliad-*wa*   Ken-*wa* May-Dat   read-Plt-Pst
            'As for the *Iliad*, Ken read it in May.'

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[5] By "nominative subject," we mean a subject NP that would be accompanied by *ga* if it were accompanied by any case particle; likewise for an "accusative object."

[6] One might suspect that one of the two instances of *wa* in (26) is *wa* in its contrastive, rather than thematic, use. However, if we adopt the assumption that a constituent marked by contrastive *wa* is invariably a focus item (Oshima 2009, forthcoming), then neither instance in (26) can be regarded as contrastive.

Note also that it is possible (and perhaps more natural) to leave out the subject and the direct object altogether in the answer.

(27) A$_4$: [Gogatsu-ni]$_F$ yomi-mashi-ta.
　　　　May-Dat　　　read-Plt-Pst
　　　　'(He) read (it) in May.'

Based on such data, Oshima (2009) claims (i) that when *wa* occurs on a nominative subject, it merely indicates that the subject is part of ground, rather than that it is a topic, and (ii) that when a nominative subject is a ground item, its groundhood must be explicitly coded with *wa* (or some other means). Alternatively, one may posit a generalization along the lines of (28), thereby maintaining the commonly held premise that (thematic) *wa* invariably marks a topic.

(28) In a root declarative clause, an explicitly expressed subject must be either a focus or a topic—that is, it cannot be a "tail" item.

Here, we do not attempt to adjudicate these two accounts. The key point here is that either account has the corollary that *ga* occurring on a subject in a root environment signals not only the subjecthood of the nominal, but also—its presence implying the absence of *wa*—its focushood. *O* occurring on a direct object in a root environment, on the other hand, does not have an analogous implication; from its presence, one cannot infer that the nominal is a focus item, or that it is a ground item.

3.3.2 "Major" subjects

Japanese has a construction, variously called the multiple subject construction (MSC), the major subject construction, the multiple nominative construction, etc., where (i) two (or more) nominative-marked nominals occur in consecutive positions, (ii) the one that follows (all) the other(s) carries the semantic role usually assigned to the subject, such as agent, and (iii) the preceding one(s)—the "major subject(s)"—may carry a wide range of semantic roles such as location (canonically marked by *de* or *ni*), instrument (canonically marked by *de*), or possessor (canonically marked by *no*).

(29) a. Bungakubu-**ni**　　　joshi-gakusei-ga　　　oo-i.
　　　　faculty.of.letters-Dat　female-student-Nom　many-Prs
　　　　'There are many female students in the faculty of letters.'
　　b. Bungakubu-**ga**　　　joshi-gakusei-ga　　　oo-i.
　　　　faculty.of.letters-Nom　female-student-Nom　many-Prs
　　　　'*idem*'

(30) a. Kono　setchakuzai-**de** kawa-ga　　yoku　　　　tsuk-u.
　　　　this　glue-Loc　　　leather-Nom　well　　　　adhere-Prs
　　　　'Leather adheres well with this glue.'

b. Kono   setchakuzai-**ga** kawa-ga   yoku   tsuk-u.
   this   glue-Nom   leather-Nom   well   adhere-Prs
   '*idem*'

<div align="right">(Sugimoto 1986: 248)</div>

(31) a. [Zoo-no   hana]-ga   naga-i.
        elephant-GEN   nose-Nom   long-Prs
        'The trunk of an elephant is long.'

   b. Zoo-ga   [Ø   hana]-ga   naga-i.
      elephant-Nom   nose-Nom   long-Prs
      'The elephant is such that its trunk is long.'

<div align="right">(Sugimoto 1986: 234)</div>

From the semantic viewpoint, therefore, the "major subject" is not a subject in the regular sense and *ga* occurring on it does not serve to encode a grammatical function.

While there remain various open issues regarding the exact semantic/pragmatic properties of the MSC, it is generally agreed that the major subject must be a focus item (Vermeulen 2005, 2012 and references therein). *Ga* occurring on a "major" subject thus can be plausibly regarded as a kind of focus-marker, lending support to our view that there is a close tie between the particle *ga* and focushood.[7]

4 Perception experiment

4.1 Stimuli

As noted in Sect. 3.2, the proposed processing-based account leads to the prediction that the adjacency effect may be mitigated or canceled out when an utterance is presented with phonological cues that facilitate the interpreter's ability to dismiss the F-to-R Heuristic. To test this possibility, we conducted a perception experiment where the participants rated the naturalness of utterances (i) where a locative phrase intervenes between a *ga*- or *o*-marked object and a desiderative predicate and (ii) where either the object or the locative phrase is accompanied by suprasegmental features that indicate its focushood.

In Japanese phonology, it has been widely agreed that the pitch range of a focus item is raised and expanded (focal F0 rise), while that within the post-focal environment is lowered and compressed (post-focal reduction; Pierrehumbert and Beckman 1988; Kubozono 1993; Sugahara 2003; Hwang 2011; Ishihara 2015). Furthermore, these focus-induced prosodic effects are most conspicuously observable with accented, rather than unaccented, lexical items (Ishihara 2011, 2015). In other words, from the perspective of the hearer, the F0 contour serves as a clearer cue of information structure (focus-ground configuration) with accented items than

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[7] The "real" (or "minor") subject of a MSC, on the other hand, is not necessarily part of the focus (Vermeulen 2005; Heycock 2008: 61). How this fact can be reconciled with the general focus-orientation of a *ga*-marked subject in the root environment (Sect. 3.3.1) will be taken up in Sect. 6.

with unaccented items. For this reason, we chose to use phrases of the form [accented word + particle] only in the slots of the object and the locative phrase in all stimuli sentences.

In order to create the auditory stimulus items, we asked a collaborator, a 39-year old female native speaker of Tokyo Japanese, to read aloud sentences (i) that are of form (32), and (ii) that are accompanied by contextual information specifying that either the object or the locative phrase (= the intervener) is a narrow focus. The number of the target items (utterances) is 64, consisting of 16 sets with distinct lexical contents. Each set consists of four items corresponding to the four conditions (*ga* vs. *o*, focus-on-object vs. focus-on-locative). The stimulus items were recorded in a soundproof booth.

(32) Subject (marked by *wa*) ≺ Object ≺ Locative Phrase (Intervener) ≺ Desiderative Predicate

(33Aa,b) and (34Aa,b) exemplify the target items corresponding to the four conditions. The collaborator produced the target item (33Aa) intending it to be a natural response to (33Qa) (which was presented to her orally by the experimenter, as well as in written text), and the target item (33Ab) intending it to be a natural response to (33Qb), and so on and so forth.

(33) "*Focus on object*" *condition*
      Q: Anna-wa   nani-{a. ga/b. o}   baa-de   nomi-ta-i-no?
          Anna-*wa*   what-Nom/Acc   bar-at   drink-Des-Prs-Prt
          'What does Anna want to drink at a bar?'
      A: Anna-wa   ramu-{a. **ga**/b. **o**}   baa-de   nomi-ta-i
          Anna-*wa*   rum-Nom/Acc   bar-at   drink-Des-Prs
          soo-da-yo.
          '(I hear that) Anna wants to drink rum at a bar.'

(34) "*Focus on locative*" *condition*
      Q: Anna-wa   ramu-{a. ga/b. o}   doko-de   nomitai-no?
          Anna-*wa*   rum-Nom/Acc   where-at   drink-Des-Prs -Prt
          'Where does Anna want to drink rum?'
      A: Anna-wa   ramu-{a. **ga**/b. **o**} baa-de   nomi-ta-i
          Anna-*wa*   rum-Nom/Acc   bar-at   drink-Des-Prs
          soo-da-yo.
          Evid-Cop.Prs-Prt
          '(I hear that) Anna wants to drink rum at a bar.'

Generally, in configuration (35i), the F0 value of XP is expected to be significantly higher than that of YP, due to the joint effects of (i) focal F0 rise, (ii) post-focal reduction, (iii) global declination (Pierrehumbert 1980; Ladd 1984), and, if XP is accented, (iv) downstep (an F0 lowering effect conditioned by preceding accented items; Pierrehumbert and Beckman 1988; Kubozono 1989). In

configuration (35ii), on the other hand, the relative height of XP with respect to YP (i.e., the F0 value of XP − the F0 value of YP) is much smaller, and is often negative, YP receiving focal F0 rise and not undergoing post-focal reduction.

(35) (XP and YP are nominal or adverbial complements)
    i. $[_S$ … $[XP]_{FOC}$ YP Pred$]$
    ii. $[_S$ … XP $[YP]_{FOC}$ Pred$]$

In our auditory stimuli, the average peak F0 values of the object and the locative phrase in each focus condition contrasted in the expected way; i.e., (i) the focused phrase had a higher peak F0 value than its non-focused counterpart, (ii) the focused object had a significantly higher peak F0 value than the following locative phrase, and (iii) the focused locative phrase had a higher peak F0 value than the preceding object (Table 1).

The 64 recorded target items were distributed among four lists using a Latin Square procedure. Four sets of audio recordings were created, each of which consisted of (i) one of the four lists of the target items (16 items), (ii) 16 fillers, and (iii) three practice items.

4.2 Procedure

Under our hypothesis that *ga*-marking on the object of a desiderative predicate indicates its focushood, it is expected that the acceptability of the nominative object in the non-adjacent position increases when the F0 of the object is higher than that of the intervener, while the acceptability of the accusative object in the non-adjacent condition would not exhibit such a pattern.

To examine if this is indeed the case, we conducted a rating experiment with 36 native speakers of Tokyo Japanese (female: 34, male: 2, average age: 20.3). In the experiment, each participant was assigned one of the four sets of recordings (exemplified by (33Aa,b) and (34Aa,b)), and rated the naturalness of the items in the assigned set, using a five-point scale (1 = unnatural, 2 = somewhat unnatural, 3 = neither unnatural nor natural, 4 = somewhat natural, 5 = very natural). The participants were asked to circle a number from 1 to 5 on an answer sheet, after hearing each recording. Supplementary information regarding the discourse context was not provided.

Each session was structured as in (36), with the intention of preventing the participants from confounding the used case particles. There was a short break between Part 1 and Part 2.

Table 1 The average peak F0 values (Hz) of the object and the locative phrase in the two focus conditions

	Focus on object	Focus on locative
F0 of object	326.44	242.57
F0 of locative	195.92	292.48

(36) i.   Practice (three items; fixed order)
     ii.   Part 1 (eight target items + eight fillers, all with *ga*-marking on object; pseudorandomized)
     iii. Part 2 (eight target items + eight fillers, all with *o*-marking on object; pseudorandomized)

4.3 Results

As summarized in Fig. 3, while the acceptability of the accusative object was almost constant with respect to the prosodically cued focus position (average rating score, focus-on-locative: 3.98, focus-on-object: 3.84), that of the nominative object was considerably higher when its focushood was prosodically encoded (average rating score, focus-on-locative: 2.26, focus-on-object: 2.60).[8]

To confirm the statistical significance of the difference, we constructed a linear mixed-effects model using the z-scores of the data, with the case particles (*ga* vs. *o*) and the focus positions (locative vs. object) as fixed factors and participants and items as random intercepts. The results revealed a significant difference between the ratings of the nominative and accusative objects based on the prosodic contrast (the interaction of the factors; $t = 2.99$, $p < .01$), which supports our hypothesis that prosodic indication of the focushood of the nominative object makes it easier for the interpreter to dismiss the F-to-R Heuristic.

5 Acceptability judgment experiment #2

5.1 Design and procedure

To examine the effect of the preceding discourse context on the acceptability of a non-adjacent nominative object, we conducted another acceptability judgment experiment with 99 native speakers of Japanese (female: 50, male: 41, unknown: 8, average age: 19.88). The design and procedure are largely the same as those of the first judgment experiment discussed in Sect. 2. The participants were asked to rate the acceptability of 53 stimuli sentences, consisting of 16 target items, 5 practice items, and 32 fillers, on the same five-point scale. The difference between this and the first judgment experiment is that each stimulus item is presented in the form of question–answer pair, and the participants were asked to judge the naturalness of the answer sentence *as a reply to the corresponding question sentence*. The target stimuli were of the form presented in (37).

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[8] Although the results show that the acceptability of the accusative/focus-on-object condition was slightly lower than that of the accusative/focus-on-locative condition, the difference was not confirmed to be statistically significant with the linear mixed-effects model where the focus positions (locative vs. object) were treated as a fixed factor and participants and items were treated as random intercepts ($t = -1.26$, $p = .21$). With the corresponding model for the nominative data, the effect of the focus position was confirmed to be statistically significant ($t = 2.95$, $p < .01$).
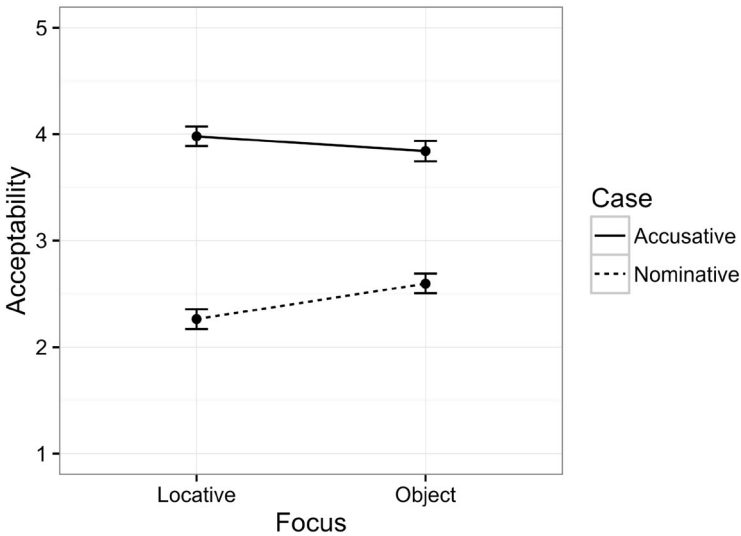
Fig. 3 The results of the perception experiment (means of the rating scores)

(37) Q: X-wa (subject) ≺ Y-de (locative modifier) ≺ Z-ga/o (object) ≺
      Desiderative Predicate
      (Either Y or Z is a wh-word, i.e., the focus.)
   A: X-wa ≺ Z-ga/o ≺ Y-de ≺ Desiderative Predicate
      (The choice of the particle on Z matches that in the Question.)

The two case particles (*ga* vs. *o*) and the place of the focus, i.e., the place of the wh-phrase in the question (the locative phrase vs. the object) were manipulated in a 2 × 2 design, yielding a total of four crucial conditions in the experiment. Note that in the question sentences, the *ga*- or *o*-marked object invariably occurred in a position adjacent to the desiderative predicate, and in the answer sentences, the locative phrase invariably intervened between the *ga*- or *o*-marked object and the desiderative predicate. (38) and (39) illustrate actual instances of the target stimuli.

(38) a. *Nominative* ga, *focus-on-object*
   A: Masashi-wa   izakaya-de   **nani-ga**   tabe-ta-i-no?
      Masashi-*wa*   pub-Loc   what-Nom   eat-Des-Prs-Prt
      'What does Masashi want to eat at a pub?'
   B: Masashi-wa   yakitori-**ga** izakaya-de   tabe-ta-i
      Masashi-*wa*   yakitori-Nom pub-Loc   eat-Des-Prs
      soo-da-yo.
      Evid-Cop.Prs-Prt
   '(I hear that) Masashi wants to eat yakitori at a pub.'

b. *Nominative* ga*, focus-on-locative*
A: Masashi-wa   **doko-de**   yakitori-ga   tabe-ta-i-no?
Masashi-*wa*   where-Loc   yakitori-Nom   eat-Des-Prs-Prt
'Where does Masashi want to eat yakitori?'
B: Masashi-wa   yakitori-**ga**   izakaya-de   tabe-ta-i
Masashi-*wa*   yakitori-Nom   pub-Loc   eat-Des-Prs
soo-da-yo.
Evid-Cop.Prs-Prt
'(I hear that) Masashi wants to eat yakitori at a pub.'

(39) a. *Accusative* o*, focus-on-object*
A: Masashi-wa   izakaya-de   **nani-o**   tabe-ta-i-no?
Masashi-*wa*   pub-Loc   what-Acc   eat-Des-Prs-Prt
'What does Masashi want to eat at a pub?'
B: Masashi-wa   yakitori-**o**   izakaya-de   tabe-ta-i
Masashi-*wa*   yakitori-Acc   pub-Loc   eat-Des-Prs
soo-da-yo.
Evid-Cop.Prs-Prt
'(I hear that) Masashi wants to eat yakitori at a pub.'
b. *Accusative* o*, focus-on-locative*
A: Masashi-wa   **doko-de**   yakitori-o   tabe-ta-i-no?
Masashi-*wa*   where-Loc   yakitori-Acc   eat-Des-Prs-Prt
'Where does Masashi want to eat yakitori?'
B: Masashi-wa   yakitori-**o**   izakaya-de   tabe-ta-i
Masashi-*wa*   yakitori-Acc   pub-Loc   eat-Des-Prs
soo-da-yo.
Evid-Cop.Prs-Prt
'(I hear that) Masashi wants to eat yakitori at a pub.'

5.2 Results

The results revealed that the acceptability of the *ga*-marked object in the non-adjacent environment is higher when the preceding context, i.e., the question sentence, makes it clear that the object, rather than the intervener, is the focus (Fig. 4; average rating score, focus-on-locative: 2.09, focus-on-object: 2.55). This effect was confirmed by a linear mixed-effects model using the z-scores of the data, with the case particles (*ga* vs. *o*) and the placement of focus (object vs. locative) as fixed factors, and participants and items as random intercepts (the interaction of the factors; $t = 4.657$, $p < .001$).

The finding endorses our proposal that the adjacency effect stems from the information-structural loadedness of (the desiderative predicate construction with) the nominative object. In the case of the *o*-marked object, on the other hand, an
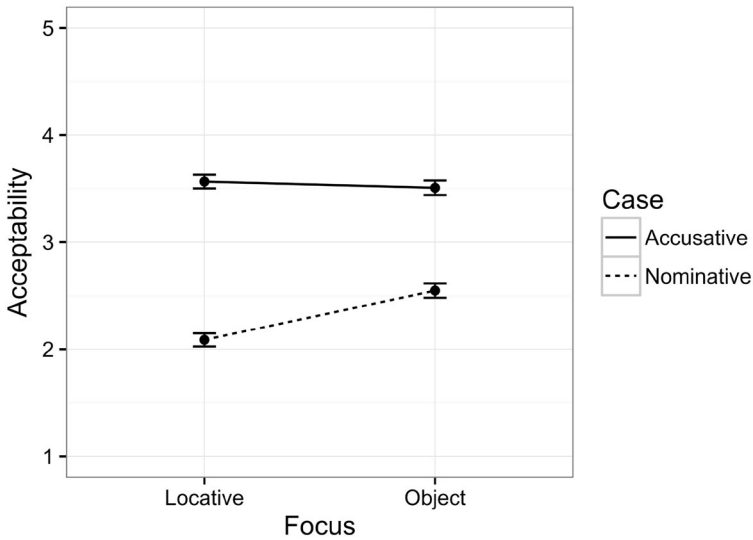
Fig. 4 The results of acceptability judgment experiment #2 (means of the rating scores)

analogous effect was not observed (average rating score, focus-on-locative: 3.57, focus-on-object: 3.51).[9]

6 *Ga*-marked arguments in a post-focal environment

The Focushood Constraint in its current formulation (repeated in (40)) leads to the prediction in (41).

(40) **Focushood Constraint** (tentative version): A *ga*-marked object of a desiderative predicate must be the focus or part thereof.

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[9] A reviewer suggested to us that the experimental results discussed in Sects. 4 and 5 are open to the alternative interpretation that the acceptability of a desiderative construction with a *ga*-marked object increases whenever there is a prosodic or contextual cue signaling the focushood of its object, regardless of whether the object is adjacent to the predicate or not.

It is indeed plausible, for example, that an utterance like (5a-i) is judged as more acceptable/natural when it is accompanied by prosodic features or contextual information that is compatible with the focushood of the object than when it is not.

The interpretation suggested by the reviewer, however, cannot be the whole story, as it does not account for the observations (endorsed by our experiments) (i) that sentence pairs like (5a-i) and (5a-ii) exhibit a significant difference in acceptability when they are presented without additional prosodic or contextual information, and (ii) that there is a contrast between the desiderative constructions with a *ga*-marked and an *o*-marked object as to how they are affected by the factors of adjacency, prosody, and discourse context.

(41) When a desiderative construction with a *ga*-marked object is uttered as a direct answer to a *wh*-question, the object must correspond to (one of) the *wh*-phrase(s).

This prediction is not fully borne out. While (42Q)/(42A), where the *wh*-phrase and the NP corresponding to it intervene between the nominative-marked object and the predicate, sound awkward, (43Q)/(43A), where these items precede the nominative object, appear to be rather natural.

(42) Q: ?Naoya-wa zoo-ga   **doko-de**   mi-ta-i-no?
          Naoya-*wa*   elephant-Nom where-Loc   see-Des-Prs-Prt
          'Where does Naoya want to see an elephant?'
      A: ?Naoya-wa zoo-ga   **Indo-de**   mi-ta-i   soo-da.
          N.-*wa*   elephant-Nom India-Loc   see-Des-Prs   Evid-Cop.Prs
          '(I hear that) Naoya wants to see an elephant in India.'

(43) Q: Naoya-wa **doko-de**   zoo-ga   mi-ta-i-no?
          Naoya-*wa* where-Loc   elephant-Nom see-Des-Prs-Prt
          'Where does Naoya want to see an elephant?'
      A: Naoya-wa **Indo-de**   zoo-ga   mi-ta-i   soo-da.
          N.-*wa*   India-Loc   elephant-Nom see-Des-Prs   Evid-Cop.Prs
          '(I hear that) Naoya wants to see an elephant in India.'

Given that it is natural to interpret *doko-de* and *Indo-de* as the sole focus of (43Q) and (43A) respectively, *prima facie* the acceptability of these sentences contradicts the idea that *ga*-marking has to do with focushood, and favors the syntactically defined Adjacency Constraint. We maintain, however, that it can be reconciled with our proposal.

To illustrate how this is possible, let us observe an analogous phenomenon that involves a nominative subject. As we have seen in Sect. 3.3, there is evidence that in a root environment a *ga*-marked subject must be a focus item. This generalization does not hold, however, when a *ga*-marked subject linearly follows a focus constituent, as in (44) (Kuno 1972: 288–289; Oshima 2009: 412–413).

(44) [**Iriasu-o**]_FOC Ken-ga   yomi-mashi-ta.
       Iliad-Acc   K.-Nom   read-Plt-Pst
       'Ken read the *Iliad*.'

Oshima (2009) argues that the effect of relative word order between the (non-focus) subject and the focus item on *ga*-marking has to do with post-focal reduction. The key difference between (42) and (43) is that the object NP of (43) is, and the one of (42) is not, within the domain of post-focal reduction. This implies that the groundhood of the object NP in (43) is explicitly encoded (by means of prosody), while that of the object NP in (42) is not.

Wa-marking and prosodic reduction may thus be regarded as distinct means to indicate the groundhood of a subject. Oshima proposes that they are (not only distinct but also) *alternative* means of groundhood-marking, and that the following generalization holds:

(45)   When a nominative subject of a root clause is a ground item, its groundhood must be encoded either by *wa*-marking *or by post-focal reduction*.
      (To put it differently: when a nominative subject of a root clause is a ground item, it cannot be marked by *ga unless it occurs within the domain of post-focal reduction*.)

The subject in (44) is within the domain of post-focal reduction, and thus the generalization does not exclude the possibility that it is a ground item. In a similar vein, under this generalization, the "real" subject in a multiple subject construction, e.g. *joshi-gakusei-ga* in (46) (= (29b)), may be a ground item if the initial *ga*-phrase is the sole focus of the entire clause (see fn. 7).

(46)   Bungakubu-**ga**   joshi-gakusei-ga   oo-i.
      faculty.of.letters-Nom   female-student-Nom   many-Prs
      'There are many female students in the faculty of letters.'

We propose to amend our Focushood Constraint in an analogous fashion.

(47)   **Focushood Constraint** (final version): When the direct object of a desiderative predicate is a ground item, it cannot be marked by *ga*, unless it occurs within the domain of post-focal reduction.

This version makes correct predictions about the acceptability of (43Q,A).

   Our account with the amended version of the Focushood Constraint leads to the prediction that the acceptability of (48Qa)/(48Aa) should not be degraded in comparison to (48Qb)/(48Ab) (note that in (48Qa)/(48Aa) the amended Focushood Consrtraint is not violated, and, given that the object is a ground item, there is no reason that the F-to-R Heuristic should disfavor the choice of *ga*).

(48)   Q: **Dare-to**   zoo-{a. ga/b. o}   Indo-de   mi-ta-i-no?
            who-Com   elephant-Nom/Acc   India-Loc   see-Des-Prs-Prt
            'With whom do (you) want to see an elephant in India?'

A: **Naoya-to**   zoo-{a. ga/b. o}   Indo-de   mi-ta-i.
    Naoya-Com   elephant-Nom/Acc   India-Loc   see-Des-Prst
    '(I) want to see an elephant in India with Naoya.'

Our judgments are consistent with this prediction.[10]

7 A note on Shibatani's suggestion

Shibatani (1975) suggests that the adjacency effect can be attributed to what he calls
the "perceptual rule" (which might as well be called a "heuristic rule") represented
in (49), according to which every occurrence of a *ga*-phrase is taken to indicate the
beginning of a new clause.

(49) X NP-*ga* Y → X [$_S$ NP-*ga* Y   (adapted from Shibatani 1975: 470)

With a sentence like (50a), this rule leads to the incorrect parsing as in (50b), which
requires the interpreter to temporarily disregard the rule and reanalyze the sentence.

(50) a. Watashi-ga sushi-ga   tabe-ta-i.
          I-Nom   sushi-Nom   eat-Des-Prs
      b. [$_S$ Watashi-ga [$_S$ sushi-ga …

The presence of an intervener after the nominative object delays the required
reanalysis; this, Shibatani suggests, incurs additional processing load and results in
low acceptability of the sentence.

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[10] A reviewer points out that the acceptability of sentences like (iQa)/(iAa) is degraded in comparison to
their variants with *o*.

(i) Q: **Dare-ga**   zoo-{a. ?ga/b. o}   Indo-de   mi-ta-i-no?
         who-Nom   elephant-Nom/Acc   India-Loc   see-Des-Prs-Prt
         'Who wants to see an elephant in India?'
     A: **Naoya-ga**   zoo-{a. ?ga/b. o}   Indo-de   mi-ta-i.
         Naoya-Nom   elephant-Nom/Acc   India-Loc   see-Des-Prs-Prt
         soo-da.
         Evid-Cop.Prs
         '(I hear that) Naoya wants to see an elephant in India.'

According to our judgments, the contrast in acceptability between (iAa)/(iQa) on the one hand and (iAb)/
(iQb) on the other is comparable to the one between (iiAa)/(iiQa) and (iiAb)/(iiQb).

(ii) Q: **Dare-ga**   zoo-{a. ?ga/b. o}   mi-ta-i-no?
          who-Nom   elephant-Acc/Nom   see-Des-Prs-Prt
          'Who wants to see an elephant?'
      A: **Naoya-ga**   zoo-{a. ?ga/b. o}   mi-ta-i   soo-da.
          Naoya-Nom   elephant-Acc/Nom   see-Des-Prs-Prt   Evid-Cop.Prs
          '(I hear that) Naoya wants to see an elephant.'

We suggest that the degraded acceptability of (iQa)/(iQa) is to be attributed to the general preference to
avoid a sequence of two co-arguments marked with *ga* ([Subj-*ga* Obj-*ga*] as opposed to [Subj-*ga* Obj-*o*]
or [Subj-*wa* Obj-*ga*]).

This account, as it is, fails to account for why a sentence like (51), where the position of the *ga*-marked object matches the initial boundary of a clause, still exhibits low acceptability.

(51) ?Sushi-ga   Ginza-de   tabe-ta-i.
     sushi-Nom   Ginza-Loc   eat-Des-Prs
     '(I) want to eat sushi in Ginza.'

This problem may be circumvented if the perceptual rule is amended to something along the lines of: "Every occurrence of a *ga*-phrase is *a subject*." However, under the amended account, as well as under Shibatani's original account, it remains unclear why, as indicated by our experimental results, prosodic and contextual cues regarding the position of the focus may mitigate the adjacency effect. It can thus be concluded that our information-structural account has empirical advantages over Shibatani's account.

8 Comparison with the potential construction

As mentioned in Sect. 1, Japanese has another class of predicates that select for either a nominative or accusative object: potential verbs derived from a transitive verb (see (2)).

In the literature, there have been some remarks to the effect that the nominative object of the potential construction is or tends to be interpreted as a focus (Saito 1982: 29–31; Takano 2003: 792; Miyagawa 2010: 72). This makes it tempting to hypothesize that the proposed focushood constraint applies to nominative objects in general, rather than just to ones in desiderative constructions.

Such a unitary treatment, however, is challenged by the observation that the nominative object of a potential predicate is not subject to the adjacency effect (or at least, the effect is not as conspicuous as for a desiderative predicate). According to our judgments, (52a) and (52b) do not exhibit a contrast in acceptability comparable to the one between (5b-i) and (5b-ii).

(52) Masashi-wa yakitori-{a. **ga**/b. **o**} izakaya-de tabe-rare-ru.
     Masashi-*wa* yakitori-Nom/Acc   pub-Loc   eat-Des-Prs
     'Masashi can eat yakitori in a pub.'

Furthermore, it is easy to find naturally occurring examples of potential constructions with a complement intervening between a nominative object and a predicate, as in (53).

(53) Miyoshino gyoza-ga   Tokyo-de   tabe-rare-mas-u![11]
     Miyoshino dumpling-Nom Tokyo-Loc eat-Pot-Plt-Prs
     '(We/one) can eat Miyoshino dumplings in Tokyo!'

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[11] Collected from: https://twitter.com/miyoshino_spr/status/836785684006371331 (checked on June 12, 2017). (Miyoshino is a restaurant franchise based in Hokkaido.).

It seems fair to conclude that the focus orientation of the nominative object of a potential predicate is at most a mere tendency; we will come back to this matter in Sect. 10.2.

9 The scopal effect

In both desiderative and potential constructions, the choice between *ga* and *o* may lead to a clear, if not categorical, interpretative difference, when the direct object is associated with the exclusive focus particle *dake* 'only.' Specifically, "Obj-dake-ga" tends to outscope, and "Obj-dake-o" tends to be outscoped by, an operator in the predicate (see Sano 1985; Harada and Noguchi 1992; Tada 1992; Koizumi 1994, 1995, 1998, 2008; Ura 1996, 1999, 2000; Yatsushiro 1999; Takano 2003; Nomura 2003, 2005a, b; Bobaljik and Wurmbrand 2007; Takahashi 2010 for relevant discussion).

(54) a. Tomato-dake-ga   tabe-ta-i.
       tomato-only-Nom eat-Des-Prs
       'Only tomato is such that (I) want to eat it.' (ONLY > WANT)
       ??'(I) want it to be the case that I only eat tomato.' (WANT > ONLY)
    b. Tomato-dake-o   tabe-ta-i.
       tomato-only-Acc eat-Des-Prs
       ?'Only tomato is such that I want to eat it.' (ONLY > WANT)
       '(I) want it to be the case that I only eat tomato.' (WANT > ONLY)

(55) a. Taro-wa   gohan-dake-ga   tabe-rare-na-i.
       Taro-*wa*   steamed.rice-only-Nom   eat-Pot-Neg-Prs
       'Only steamed rice is such that Taro cannot eat it.' (ONLY > CANNOT)
       ??'It is not possible for Taro to eat steamed rice only.' (CANNOT > ONLY)
    b. Taro-wa   gohan-dake-o   tabe-rare-na-i.
       Taro-*wa*   steamed.rice-only-Acc   eat-Pot-Prs
       ?'Only steamed rice is such that Taro cannot eat it.' (ONLY > CANNOT)
       'It is not possible for Taro to eat steamed rice only.' (CANNOT > ONLY)

The prominent reading of (54b) implies that the speaker would be unhappy if, say, he has to eat a mozzarella and tomato salad; in contrast, that of (54a) is compatible with a situation where the speaker has a craving for tomato and would be happy to have any dish with a substantial amount of tomato. In a similar vein, the prominent reading of (55b) is, while that of (55a) is not, compatible with a situation where Taro loves such dishes as sushi and bibimbap, but cannot stand eating a bowl of plain steamed rice.

Does such a contrast have to do with the proposed focushood constraint? As will be discussed in Sect. 10.2, it is conceivable that a nominative object occurs in a higher position than an accusative object. If this is the case, then, it is natural to hypothesize that the described scopal effect results from the positional difference between accusative and nominative objects.

10 Syntactic formulations

This section discusses two possible accounts of the proposed property of the desiderative construction with a nominative object in formal syntactic terms.

10.1 A construction-grammatical account

As suggested in Sect. 3, one straightforward way to formulate the effect of the focushood constraint is to posit it as a constructional property specific to a variety of the desiderative construction that selects for a nominative object. Utilizing the AVM (attribute-value matrix) notation of Sign-Based Construction Grammar (Sag et al. 2012),[12] the information-structural constraints applied to the desiderative construction with a nominative object (but not to its sister construction with an accusative object) can be represented as in (56).

(56) *nomobj-desiderative-construct* $\Rightarrow$

$$
\left[
\begin{array}{ll}
\text{HD-DTR|ARG-ST} & \left\langle \text{NP}\left[\text{SYN|CAT|CASE}\quad nom\right], \text{NP}\left[\begin{array}{ll}\text{SYN|CAT|CASE} & nom\\ \text{SEM} & \boxed{1}\\ \text{INFO-ST|FOC} & \boxed{1}\end{array}\right]\right\rangle
\end{array}
\right]
$$

$$\vee$$

$$
\left[
\begin{array}{ll}
\text{HD-DTR|ARG-ST} & \left\langle \text{NP}\left[\text{SYN|CAT|CASE}\quad nom\right], \boxed{2}\,\text{NP}\left[\text{SYN|CAT|CASE}\quad nom\right]\right\rangle\\
\text{DOM} & \boxed{A}\ \text{s.t.}\ \forall\, X\colon X \in \boxed{A}.\ \boxed{2} \prec X \rightarrow X\left[\begin{array}{ll}\text{SEM} & \boxed{3}\\ \text{INFO-ST|GROUND|}\ldots & \boxed{3}\end{array}\right]
\end{array}
\right]
$$

Here, the double arrow represents the relation of "if a linguistic object is of the type specified on the left, it must satisfy the constraints specified on the right." The first disjunct on the right of the double arrow encodes the effect of the first version of the focushood constraint (i.e. (9)), and the second is meant to account for the occurrence of a (non-focus) nominative object in a post-focal environment (which motivates the amendment in (47)). The feature INFO(RMATION)-ST(RUCTURE) is incorporated from Engdahl and Vallduví (1996). The DOM(AIN) feature represents the "word order

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[12] Sign-Based Construction Grammar (SBCG) is a constraint-based syntactic theory which shares much formal apparatus with Head-Driven Phrase Structure Grammar and incorporates some key ideas of (Berkeley) Construction Grammar.

domain" in Reape's ([1994](#), [1996](#)) sense, whose value (a list of signs) specifies the linear (phonological) order of the constituents.[13]

While constraint (56) is posited for a specific construction, the development of such a construction is conceptually motivated by the general pattern in the language such that the particle *ga* tends to indicate focushood (Sect. [3.3](#)).

10.2 A structural account

Another possible strategy is to derive the focushood constraint as an effect of the object's syntactic movement to a position that (i) is associated with focushood, such as Spec-TP,[14] and at the same time (ii) makes assignment of a nominative Case possible (cf. Saito [1982](#): 29–31, Takano [2003](#): 812–823, Miyagawa [2010](#): 71–73).

One challenge for this line of account is the observation that the nominative object of a potential predicate is not subject to the adjacency effect (Sect. [8](#)). If the obligatory focushood of the object and *ga*-marking on it are effects of a single syntactic process, how is it possible for a nominative object of a potential predicate to be a non-focus?

A possible solution is to suppose that there are two distinct processes by which an object is assigned a nominative Case. In the literature, there have been two major hypotheses regarding how *ga*-marking on the object of a potential construction is made possible. One is that a nominative Case is assigned by a potential verb morpheme *-e/-(ra)re* (Tada [1992](#); Yatsushiro [1999](#)); the other is that a nominative Case is assigned by T (Koizumi [1994](#), [1995](#), [1998](#), [2008](#); Ura [1996](#), [1999](#), [2000](#); Nomura [2003](#), [2005a](#), [b](#); Takahashi [2010](#)).

It seems sensible to hypothesize that *both* processes exist, and only the second process, i.e., case assignment by T, has an implication on the information-structural status of the object. The putative tendency for a nominative object of a potential construction to be interpreted as a focus can be attributed to the availability of Case assignment by T; the optionality of its focushood, on the other hand, can be attributed to the availability of nominative Case assignment by the potential verb morpheme. (57) illustrates three ways in which the object of a potential predicate may be assigned a Case.

(57) a. [… [$_{TP}$ [$_{PotP}$ [$_{v*P}$ … [$_{VP}$ **Obj-o V**] v*] Pot] T$_{focus}$] …]
          (accusative case assignment by the verb stem)
      b. [… [$_{TP}$ [$_{PotP}$ **Obj-ga** [$_{v*P}$ … [$_{VP}$ V] v*] **Pot**] T$_{focus}$] …]
          (nominative case assignment by the potential morpheme)
      c. [… [$_{TP}$ **Obj-ga** [$_{PotP}$ [$_{v*P}$ … [$_{VP}$ V] v*] Pot] **T$_{focus}$**] …]
          (nominative case assignment by T)

We further suggest that, unlike the potential morpheme, the desiderative morpheme *-ta* lacks the ability to assign nominative Case, presumably due to its adjectival

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[13] Here is the key for other abbreviated/abbreviative feature names: ARG-ST = ARGUMENT STRUCTURE, CAT = CATEGORY, FOC = FOCUS, DTRS = DAUGHTERS, HD-DTR = HEAD DAUGHTER, SYN = SYNTAX, SEM = SEMANTICS.

[14] Here, following Miyagawa ([2010](#)), we assume that Spec-TP is a focus-related position.

nature. Consequently, in the desiderative construction, nominative Case assignment is possible only via T, and thus entails the focushood of the object.

(58) a. [… [$_{TP}$ [$_{DesP}$ [$_{v*P}$ … [$_{VP}$ **Obj-o   V**] v*] Des] T$_{focus}$] …]
          (accusative case assignment by the verb stem)
     b. [… [$_{TP}$ **Obj-ga**   [$_{DesP}$ [$_{v*P}$ … [$_{VP}$ V] v*] Des] **T$_{focus}$**] …]
          (nominative case assignment by T)

A further issue for the suggested structural account is the occurrence of a non-focus nominative object in a post-focal environment (e.g., the acceptability of (43Q)/(43A)). We leave the question as to how this might be handled for future research.

11 Conclusion

This work addressed the following two questions: (i) what semantic/pragmatic differences might there be between the Japanese desiderative predicate constructions with a nominative object and those with an accusative object? and (ii) why does the acceptability of the desiderative predicate construction with a nominative object degrade when there is an intervening constituent between the object and the predicate (the adjacency effect)?

It was argued that the desiderative predicate construction with a nominative object is information-structurally loaded, in that the object is required to be (part of) the focus of the sentence (the focushood requirement), and that the adjacency effect is a joint result of this information-structural specification and the general heuristic used by Japanese speakers, such that a focused nominal constituent generally occurs in a position adjacent to the predicate (the Focus-to-Right Heuristic). It was further demonstrated, based on two sets of experimental data, that the presence of prosodic or contextual cues regarding the information structure of the sentence may mitigate the adjacency effect. While this finding is highly resonant with our account, it is hard to accommodate within the processing-based account suggested by Shibatani (1975). It was further discussed that, while the nominative object of a potential construction does not exhibit exactly the same information-structural property as that of a desiderative construction, it is plausible that the former, too, has a certain degree of focus-orientation, and that this property is derived from the same process that assigns nominative Case to the object of a desiderative construction.

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