On the Semantics and Pragmatics of *dake* (and *only*)

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1. Introduction

Among various particles that attach to nominal elements in Japanese, *dake* corresponds to some extent to English word *only*. There are various similarities and differences between the behavior of these two expressions, and the comparison of the two leads to interesting observations.[3]

Throughout this paper, we will discuss interactions of *dake* and other particles in Japanese. This will provide us with concrete examples on the basis of which to discuss how we should deal with the interaction between the lexical semantics of these words and general pragmatic phenomena relevant for interpreting the sentences which involve them.[4]

Regarding the use of *only* in English, it has been observed that while *only* can precede prepositions, it cannot in general follow them. For instance, Rooth (1985:p.93) notes:[5]

> If [only John] and [even John] are NPs, we expect them to have the distribution of NPs. But *even* and *only* are marginal or impossible in PP:
>
> [14] a. ?At the party, John spoke to only Mary.
> b. *The children play in only the common.
> c. *The library is closed on only Sunday.
> d. *They joked about even the flood.

There are several exceptions to this generalization. Immediately after the statement quoted above, Rooth (1985:p.94) makes the following remark.

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[3]Quite informally, Japanese is a head final language, and complements and adjuncts, all of which are potentially optional and are formed by placing (possibly multiple) particles after nouns, precede verbal elements of the sentence, in which verbs or adjectives are followed by various aspectual and/or modal expressions.

[4]Since our main interest is in semantics and pragmatics, we will give very limited exposition of the syntactic behavior of *dake*. Also, needless to say, we cannot be exhaustive in our description of the semantics and pragmatics of *dake* and *only*.

[5]Similar examples can be found in Taglicht (1984: pp.70-71, esp. examples [43]-[52].)

Taglicht (1984) points out that what he calls 'scalar' occurrences of *only* are exceptions to the restriction on *only/even* in PP:

[16] a. At the party, John spoke to only ONE person.
b. The children play in only TWO parks.
c. The library is closed on only SOME holidays.

Also, in a footnote to the preceding paragraph, Rooth (1985:p.135 note 1) points out the following kinds of examples, although he does not discuss how to deal with these in his later discussions.

There are other exceptions to the PP restriction:
(i) John opened the safe with only a screwdriver.
(ii) John talks about only the most TRIVIAL subjects.
Note that (i) is not equivalent to (iii).
(iii) John only opened the safe with a screwdriver.

Moreover, for some speakers, dative-case-marking *to* seems to form a regular exception to the generalization. This has sometimes been attributed to the fact that 'dative' *to* functions as a 'case-marker' and hence has no intrinsic semantic contribution.

(1) a. John gave flowers only to Mary.
b. John gave flowers to only Mary.

The following examples show that in Japanese, too, *dake* can both precede and follow *ni*, which marks 'dative' nouns. This, however, turns out to be the rule rather than the exception, in contrast to English.[6]

(2) a. John ga hana o Mary ni dake ageta.
John NOM flower ACC Mary DAT only gave
(John gave flowers only to Mary.)
b. John ga hana o Mary dake ni ageta.
John NOM flower ACC Mary only DAT gave
(John gave flowers to only Mary.)

The relative positioning of *dake* and *ni* does not affect the readings of the two sentences in (2), but such is not always the case. For instance, in sentences such as (3), the relative positioning of *dake* and *de* results in a clear difference in readings.

(3) a. Soko-ni-wa zitensya **de** **dake** ik-eru.
there-LOC-TOP bike INST only go-can
([I] can get there only by bike.)

[6]We will provide Japanese examples with a relatively literal English equivalents, sometimes with paraphrases to make the intended meaning clearer. Those following a '=' are more or less straight-forward paraphrases, whereas those following a '⇒' rephrase the intended meaning. The glosses such as NOMinative, DATive, INSTrument, *etc.* given to various particles are for ease of comprehension only.

b. Soko-ni-wa zitensya **dake de** ik-eru.
there-LOC-TOP bike only INST go-can
([I] can get there by bike alone.)

A similar difference in readings seems to hold in English between the pair of sentences in (4).[7]

(4) a. I can get there only with a bike.
b. I can get there with only a bike.

It might be expected that in these cases the semantic scopes of *dake* in relation to the predicates corresponding to *de* are different because of the relative positionings of the two, and such differences should lead to a difference in interpretation. But when we look at other examples, we notice that what is going on is not that simple, and there seems to be something more to be explained.

Another complication regarding the sentence in (3b) is that there is some 'minimality' associated with "the bike" in comparison to alternative means of "getting there," and something like a 'scalar' interpretation is involved here. Although getting the interpretation for the sentence in (3a) compositionally from the semantics of its components seems to be a relatively straight-forward matter, such is not the case with (3b).

In the discussions that follow, we will give a closer look at these and related phenomena, and address the following questions:

i. How general is the difference in interpretation between the *de-dake* sentences and the *dake-de* sentences observed above? Can we observe similar differences with other particles?

ii. Can this difference be explained merely by a difference in the semantic scopes of *dake* in those sentences and the lexical semantics of *dake*?

iii. Do we have an appropriate explanation for the scalar interpretation that we get for the *dake-de* sentence above? Where does this interpretation come from? From semantics? Or from pragmatics?

2. Interaction of *dake* and other particles

Although giving an exhaustive description of the distributional properties of *dake* is not what we are interested in here, let us see some of the typical properties of the interaction between *dake* and other particles.

[7] For some speakers, both of the two sentences in (4) can have either of the two readings. The sentence in (i), however, seems to have only the wide scope reading.

(i) I can only get there with a bike.

Even for those who find a relatively clear-cut difference in readings between (4a) and (4b), this seems to be obscured if we make the bike specific, with heavy contrastive stress.

(ii) I can get there only with THIS bike.
(iii) I can get there with only THIS bike.

2.1. Distribution of *dake*

With respect to case-marking particles *ga* and *o*, *dake* can only precede them, as shown in the following examples.[8] When *dake* is attached, the case-marking particles are optional, especially in the spoken language. Although we cannot go into details here, general considerations of the interaction of various types of particles show that this is a result of syntactic or morpho-syntactic properties of case-marking particles on the one hand and those of *dake* on the other.

(5) a. *Tarô **ga** **dake** kita.
Tarô NOM only came
b. Tarô **dake** (**ga**) kita.
Tarô only (NOM) came
(Only Tarô came.)

(6) a. *Sakana **o** **dake** tabeta.
fish ACC only ate
b. Sakana **dake** (**o**) tabeta.
fish only (ACC) ate
([We] ate only fish.)

One major difference between *only* and *dake* is that while *only* must in general precede prepositions, *dake* can either precede or follow other non-case-marking particles, if the two can be put together at all, as the following two examples show.

(7) a. Nihon **e** **dake** hihan ga muker-are-ta.
Japan DIR only criticism NOM was-directed
(Criticisms were directed only toward Japan.)
b. Nihon **dake** **e** hihan ga muker-are-ta.
Japan only DIR criticism NOM was-directed
(Criticisms were directed toward Japan alone.)

(8) a. Kono sake wa kome **kara** **dake** dekiru.
this sake TOP rice SRC only can-be-made
(This sake can be made only from rice.)
b. Kono sake wa kome **dake** **kara** dekiru.
this sake TOP rice only SRC can-be-made
(This sake can be made from rice alone.)

There is no noticeable difference in meaning between the sentences in (7a) and (7b), while (8a) and (8b) have clearly distinct readings.

[8] Here, 'case-marking' is used as a classificatory term among various particles in Japanese. Traditionally, particles in Japanese have been classified into three or four sub-categories based on their cooccurrence properties and their semantic characteristics. In the discussions that follow, however, it will suffice to keep in mind the distinction between 'case-marking' and 'non-case-marking' particles.

Along with other uses for designating 'time' and 'place', the Japanese particle *ni* is sometimes used for marking 'dative' case. However, from syntactic and/or morpho-syntactic point of view, treating *ni* as a case-marking particle on a par with *ga* and *o* is not a good idea. For instance, *ga* and *o* cannot co-occur with the topic-marking particle *wa*, while *ni* can. Also, quantifiers can be floated out of *ga*- or *o*-marked NPs, but cannot out of *ni*-marked phrases, although there are some marginal cases. Since *ni* is not 'case-marking' in these respects, it is natural that *dake* can both precede and follow *ni*, as can be seen from the examples in (2) and (9).

(9) a. Tarô **ni dake** denwa-sita.
Tarô DAT only called
([I] made a phone call only to Tarô.)
b. Tarô **dake ni** denwa-sita.
Tarô only DAT called
([I] made a phone call to only Tarô.)

2.2. Differences in interpretation

In cases where *dake* can both precede and follow other particles, we have to see if there is any difference in the available readings between the two constructions. Here, we will take a closer look at what kinds of difference in interpretation arise under what conditions.

2.2.1. *Dake-ni/ni-dake*

At first glance, it seems as if there is no difference in the available readings between *dake-ni* sentences and *ni-dake* sentences. This is especially true when we look at simple present or past sentences that refer to specific events or situations.

(10) a. Tarô **ni dake** okutta.
Tarô DAT only sent
([I] sent [it] only to Tarô.)
b. Tarô **dake ni** okutta.
Tarô only DAT sent
([I] sent [it] to only Tarô.)

(11) a. Tarô wa zyosi-gakusei **ni dake** eigo o osieteiru.
Tarô TOP female-student DAT only English ACC teaching
(Tarô is teaching English only to female students.)
b. Tarô wa zyosi-gakusei **dake ni** eigo o osieteiru.
Tarô TOP female-student only DAT English ACC teaching
(Tarô is teaching English to female students only.)

The difference in interpretation between the two constructions is not clear in these cases. This might seem comparable to the situation with corresponding English sentences with *only* and dative *to*. Although it might seem plausible to attribute the apparent lack of reading differences between *ni-dake* sentences and *dake-ni* sentences to the lack of 'semantic contribution' of *ni*, we do not think this is the right way to go, on two counts. First, as was mentioned briefly above, from a syntactic/morpho-syntactic point of view, *ni* behaves more like those particles with intrinsic semantic contributions and less like the 'case-marking' particles *ga* or *o*. Second, it is not entirely true that the readings of *dake-ni* and *ni-dake* sentences always coincide.

When we consider 'modal' versions of the above examples, such as (12)-(13), we notice that things are a little more complicated. There seems to be a slight difference in available readings between the *ni-dake* sentences and *dake-ni* sentences. The judgement is rather subtle, but there seems to be at least some clear difference in preferred readings.[9]

(12) a. Tarô **ni dake** okutta koto ga aru.
Tarô DAT only sent NL NOM exist
([I] have sent [it] only to Tarô. ⇒ I have on some occasion(s) sent it to Tarô, but I have never sent it to anybody else.)

b. Tarô **dake ni** okutta koto ga aru.
Tarô only DAT sent NL NOM exist
([I] have sent [it] to Tarô alone.
⇒ On some occasion(s), I sent it only to Tarô and nobody else, although on other occasion(s) I might have sent it to other people, or
⇒ I have on some occasion(s) sent it to Tarô, but I have never sent it to anybody else.)

(13) a. Tarô wa zyosi-gakusei **ni dake** eigo o osieta
Tarô TOP female-student DAT only English ACC taught
koto ga aru.
NL NOM exist
(Tarô has taught English only to female students.
⇒ Tarô has experienced teaching English to female students, but he hasn't taught English to male students.)

b. Tarô wa zyosi-gakusei **dake ni** eigo o osieta
Tarô TOP female-student only DAT English ACC taught
koto ga aru.
NL NOM exist

[9] In the following example, the symbol NL is intended as a short-hand for 'nominalizer.' Literally, *koto* means 'thing', 'matter', 'fact', *etc.*, but here it means something like 'experience' or 'occasion'.

(Tarô has taught English to female students only.
⇒ Tarô has experienced teaching English to classes that consisted of female students only, or
⇒ Tarô has experienced teaching English to female students,but he hasn't taught English to male students.)

These, along with other examples, show that *dake* is intrinsically ambiguous with respect to its scope in relation to the predicate that other elements in the sentence induce when it immediately follows the noun and precedes other particles, although *dake* can take only wide scope when it follows these other particles.[10]

When the sentence refers to a specific event, however, the difference in the two interpretations is obscured. Take the examples in (10), for instance. In the narrow scope reading, what the sentence means is that the recipient of the sending event consists of a singleton set whose unique member is Tarô, while in the wide scope reading, the sentence means that the sending consisted of a single event, whose unique recipient was Tarô. Although at the level of semantic representation, the two readings will have slightly different forms, the actual truth-conditions come out more or less the same. On the other hand, when there is more than one sending event involved, the difference in the scope of *dake* results in a somewhat clearer difference in the interpretations of the whole sentence.

2.2.2. *Dake-de/de-dake*

Since *de* is not a case-marking particle, *de* and *dake* can combine in any order. However, the combination *de-dake* does not make a reasonable Japanese sentence when the sentence refers to a specific single event.[11]

(14) a. ??Zitensya **de dake** itta.
bike INST only went
([I] got [there] only by bike. = I got there only with a bike.)

b. Zitensya **dake de** itta.
bike only INST went
([I] got [there] by bike alone. = I got there with only a bike.)

The reason for this oddity of the *de-dake* sentence is that since a single event presupposes a single manner, or a single getting-there event presupposes a single means of transportation, attaching *dake* after the *de*-phrase results in

[10]There is a possible exception to this generalization when *dake* interacts with *de*, to which point we come back later.

[11]A similar remark seems to apply to the English equivalents. Note that the same Japanese sentences could be interpreted as referring to 'experience' or 'habitual or recurrence of events.' In these cases, the sentence might make some sense.

pragmatic anomaly.[12]

On the other hand, if the sentence is 'modal', making reference to multiple actual or possible events, the resulting *de-dake* sentences make perfect sense, with a relatively clear difference in readings as opposed to *dake-de* sentences.[13]

(15) a. Zitensya **de** **dake** itta koto ga aru.
bike INST only went NL NOM exist
([I] have been [there] only by bike.
= I have been there only with a bike.)

b. Zitensya **dake** **de** itta koto ga aru.
bike only INST went NL NOM exist
([I] have been [there] by bike alone.
= I have been there with only a bike.)

A further point of interest might be to see how all this interact with scalar readings. The sentence (16a) does not make sense, because if one can buy something when one has 50 yen, one should be able to buy it when one has 51 yen or more. On the other hand, the sentence in (17a) makes sense, because it sometimes happens that a particular vending machine requires that one has particular kinds of coins in order to purchase some merchandise from it.

(16) a. ?? Gozyû-en **de** **dake** ka-eru.
50-yen INST only buy-can
(??[You] can buy [it] only with 25 cents.)

b. Gozyû-en **dake** **de** ka-eru.
50-yen only INST buy-can
([You] can buy [it] with only 25 cents.)

(17) a. Gozyû-en-dama **de** **dake** ka-eru.
50-yen-coin INST only buy-can
([You] can buy [it] only with a quarter.)

b. Gozyû-en-dama **dake** **de** ka-eru.
50-yen-coin only INST buy-can
([You] can buy [it] with only a quarter.)

2.3. Summary

To sum up, we can summarize the relevant phenomena roughly as follows:

[12]We are indebted to Anna Szabolcsi for her comment to our presentation and her presentation at the SALT-92 conference for clarifying our understanding of this particular phenomena.

[13]Szabolcsi (1992) states that "[r]easons, manners, *etc.* are unique per event: those belonging to a multiplicity of events can be collected into a set."

- In Japanese, *dake* can only precede the 'case-marking' particles *ga* and *o*. With other 'non-case-marking' particles such as *ni*, *de*, *e*, *kara*, *dake* and so on, *dake* can both precede and follow them, with some difference in available interpretations.

- With some exceptions, the '*dake* + particle' construction is semantically ambiguous with respect to the scope of *dake*, while in the 'particle + *dake*' construction, it can have only wide scope.

- If a *dake-ni* sentence refers to a specific event, however, the scope ambiguity may not result in a clear difference in interpretation and the sentence may seem more or less synonymous to the corresponding *ni-dake* sentence. If the sentence makes reference to multiple events, the scope difference results in a subtle difference in preferred readings.

- Since a single event presupposes a single manner, the *de-dake* construction does not make much sense when the sentence refers to a specific event. When the sentence makes reference to multiple events, both the *de-dake* and the *dake-de* constructions make sense.

3. Some explanations for the differences in interpretation

3.1. Semantic scopes of *dake*

In the previous section, we saw that the clear-cut differences in available readings between *de-dake* sentences and *dake-de* sentences are exceptions rather than the rule. In this section, we will focus on how this should be explained in terms of the interaction between semantics and pragmatics of Japanese.

3.1.1. Wide scope, narrow scope, and a 'blocked' case

First, consider the difference in available interpretations with respect to the semantic scope of *dake*. Simplifying somewhat, we saw in the previous section that most sentences with the '*dake* + particle' construction are ambiguous with respect to the semantic scope of *dake*, whereas in sentences with the 'particle + *dake*' construction, *dake* takes only wide scope. It seems appropriate to treat this phenomena as a kind of 'quantifying in' effect of the 'noun + *dake*' construction, just as in the case of quantified NPs in English.

In English, it has been observed that 'only + NP' is sometimes ambiguous in its semantic scope (Taglicht (1984)). For example, there are two readings for (18b): what we are required is to only study physics, or we are only required to study physics. But (18a) has only the former reading. This means that whereas in (18b) *only* can take its scope either over the whole sentence or over the subordinate clause, in (18a) it can only take the narrower scope.

(18) a. We are required to only study physics.
(= What we are required is to only study physics.)

b. We are required to study only physics.
(= We are only required to study physics, or
= What we are required is to only study physics.)

The Japanese ambiguous sentences with the '*dake* + particle' construction can be treated in a similar way.

(19) a. Tarô **ni dake** denwa deki-ta
Tarô to only call can-PAST
(I was able to call only Tarô.
= I was able to call Tarô, and I couldn't call any other person.)
b. Tarô **dake ni** denwa deki-ta
Tarô only to call can-PAST
(I was able to call only Tarô.
= I was able to call Tarô without calling anyone else, or
= I was able to call Tarô, and I couldn't call any other person.)

Here, *dake* takes only sentential scope for (19a), but it can take either sentential scope or narrower scope for (19b). Although the suggested correspondences between English and Japanese are not exact, a comparable explanation for 'quantifying in' effect seems also possible for these Japanese sentences.

On the other hand, for sentences with *dake-de*, there are certain cases where this ambiguity disappears. Our examples in (3) represent exactly the case in question. These are the typical sentences where we can see a clear difference in their interpretations, *i.e.*, (3a) has only the wide scope reading of *dake*, and (3b) seems to have only the narrow scope reading. Namely, in contrast to the previous examples where the 'noun + *dake*' construction has ambiguous scopes, in sentences such as (3b), a wide scope reading of *dake* is somehow 'blocked.'

3.1.2. Interaction between *de*-phrases and 'possible' predicates

When we look at the 'blocked' cases more closely, we notice that we always have *de*-phrases along with some predicate that expresses 'possibility' or 'capability.' Thus it is reasonable to suspect that these 'blocked' cases arise through interactions of 'possible' predicates, *de*-phrases and the semantic scopes of *dake*.

First, let us concentrate on the interaction between *de*-phrases and 'possible' predicates. Consider the sentence in (20) and its interpretations.

(20) Soko-ni-wa zitensya **de** ik-**eru**.
there-LOC-TOP bike INST go-can
([I] can get there by bike.)

There are at least two conceivable interpretations, which can be stated in prose roughly as in (21).

(21) a. It is possible that I get there by bike.
b. If I use a bike, I can get there.

This shows that for this kind of sentence, where *de*-phrases and 'possible' predicates interact, we also have in general a conditional interpretation such as (21b).

There has been a conventional view that conditionals in natural language are essentially related to some modal elements in their semantics (*cf.* Lewis (1973)). We can turn things around, and assume that sentences with modal elements in them will have conditional interpretations in appropriate contexts. Following Kratzer's work (Kratzer (1979, 1981)) on modalized conditionals, Stump (1985) showed that English free adjuncts can have a conditional interpretation in conjunction with modal elements in the main clauses. A typical example is shown in (22).

(22) a. Standing on a chair, John can touch the ceiling.
b. If he stands on a chair, John can touch the ceiling.

The sentence in (22a) can be interpreted as (22b), and the semantic content of (22b) is represented as in (23), using Kratzer's formalism.[14]

(23) **can′**(D(cb)(^**John_stands_on_a_chair′**))(^**John_touch_the_ceiling′**)

For a Japanese example such as (20), we can think that a conditional interpretation is obtained in a similar way, assuming that *de*-phrases here can act like free adjuncts in English. If we employ Stump's ideas, we can obtain this interpretation from the semantics of modals without extra assumptions. As circumstantial evidence that we are on the right track, we can point out that in the corresponding examples in English (repeated here in (24)), we have a *with*-phrase corresponding to the *de*-phrase in Japanese, and *with*-phrases in general can act as a free adjuncts, as can be seen in the fact that (24) can be paraphrased as (25).

(24) I can get there with a bike.

(25) Using a bike, I can get there.

Thus for (20), where a *de*-phrase and a 'possible' predicate interact, we can represent its conditional interpretation as in (26), using Stump's formalization.

(26) **can′**(D(cb)(^**I_use_a_bike′**))(^**I_get_there′**)

[14]What is important here is simply the fact that we have a conditional interpretation for free adjuncts in modal sentences, and so we won't go into the details of this formalization, though some complementary explanations for this are given below. For more details, see Kratzer (1979,1981), Stump (1985).

a. cb (conversational background): a function from world to a set of propositions
b. D: a function from (g:world → set of propositions, p:proposition, w:world) to a set of all consistent subsets of the union of $g(w)$ and p which contain p.
c. **can′**$(A)(B)$ is true iff $\exists s \in A$ s.t. B is compatible with all supersets of s in A.

3.1.3. The effect of the conditional interpretation

The 'blocked' cases of semantic scopes of *dake* can be explained in terms of conditional interpretations available for these sentences. For each of the sentences in (3), we get a conditional interpretation, as shown in (27) respectively, along the lines discussed in the previous section:

(27) a. Soko-ni-wa zitensya o tukatte dake ik-eru.
there-LOC-TOP bike ACC using only go-can
(= Only with a bike, can I get there.)
b. Soko-ni-wa zitensya dake o tukatte ik-eru.
there-LOC-TOP bike only ACC using go-can
(= With only a bike, I can get there.)

The difference between these two sentences should be clear enough, because in (27a), *dake* (or *only*) takes a scope over the whole conditional (wide scope), but in (27b), the scope of *dake* is within the antecedent clause. If we use the simplest form of intensional logic translation of *only* for *dake* such as (28),[15] we can represent these interpretations as in (29).

(28) $\mathbf{only'} = \lambda P(\lambda Q(Q\{P\} \wedge \forall R(Q\{R\} \rightarrow R = P)))$

(29) a. $\mathbf{only'}(\hat{}\mathbf{I\_use\_a\_bike'})\ (\hat{}\lambda P(\mathbf{can'}(\mathrm{D}(\mathrm{cb})(P))(\hat{}\mathbf{I\_get\_there'}))) =$
$\mathbf{can'}(\mathrm{D}(\mathrm{cb})(\hat{}\mathbf{I\_use\_a\_bike'}))\ (\hat{}\mathbf{I\_get\_there'}) \wedge$
$\forall Q[\mathbf{can'}(\mathrm{D}(\mathrm{cb})(Q))\ (\hat{}\mathbf{I\_get\_there'}) \rightarrow \mathrm{Q} = \hat{}\mathbf{I\_use\_a\_bike'}]$
b. $\mathbf{can'}(\mathrm{D}(\mathrm{cb})(\hat{}\mathbf{only'}(\hat{}\mathbf{a\_bike'})\ (\hat{}\lambda x(\mathbf{I\_use\_}x')))(\hat{}\mathbf{I\_get\_there'}) =$
$\mathbf{can'}(\mathrm{D}(\mathrm{cb})(\hat{}(\mathbf{I\_use\_a\_bike'} \wedge \forall x(\mathbf{I\_use\_}x' \rightarrow x = \hat{}\mathbf{a\_bike'})))$
$(\hat{}\mathbf{I\_get\_there'})$

For ease of understanding, let us abbreviate Kratzer's modalized conditional by $\rightarrow_{can}$, which includes all the effects of **can'**, D, cb. Then the above logical form would be as follows:

(30) a. $(\hat{}\mathbf{I\_use\_a\_bike'} \rightarrow_{can} \hat{}\mathbf{I\_get\_there'}) \wedge$
$\forall R((R \rightarrow_{can} \hat{}\mathbf{I\_get\_there'}) \rightarrow R = \hat{}\mathbf{I\_use\_a\_bike'})$
b. $(\hat{}(\mathbf{I\_use\_a\_bike'} \wedge \forall x(\mathbf{I\_use\_}x' \rightarrow x = \hat{}\mathbf{a\_bike'})) \rightarrow_{can} \hat{}\mathbf{I\_get\_there'})$

Intuitively, (30a) represents that the only condition which can bring about my getting there is that I use a bike, whereas (30b) represents that the condition that I use a bike and I don't use anything else can bring about my getting there. These logical forms correctly reflect the difference in interpretation.

Given these analyses of the *de*-phrases in question, the 'blocked' interpretation of *dake-de* sentences such as (3b) can be explained in the following way. First, we have a conditional interpretation for (3b) because there is a *de*-phrase

[15] For detailed discussion of semantics of *only*, see Karttunen and Peters (1979), Rooth (1985), and von Stechow (1989).

and a 'possible' predicate, and the semantics of the 'possible' predicate forces the *de*-phrase to have a conditional interpretation. Second, we interpret *dake* in this conditional interpretation and get something like (29b). Once we get this conditional interpretation, the semantic scope of *dake* would be restricted within the antecedent of the conditional, because the antecedent in a conditional is a scope-island. Thus the wide scope reading of *dake* is 'blocked' by this interpretation.

3.2. The source of the scalar interpretation

As mentioned earlier, sentences with *dake-de* such as (3b), again shown in (31b) below, have a kind of scalar interpretation. The difference in the semantic scopes of *dake* accounts for only part of the difference between the two sentences in (31b). In this section, we will clarify what we mean by the 'scalar' interpretation and investigate where this comes from.

(31) a. Soko-ni-wa zitensya **de** **dake** ik-eru.
there-LOC-TOP bike INST only go-can
([I] can get there only by bike.)

b. Soko-ni-wa zitensya **dake de** ik-eru.
there-LOC-TOP bike only INST go-can
([I] can get there by bike alone.)

3.2.1. The nature of the scalar interpretation of the *dake-de* sentences

Morita (1971) was the first to discuss reading differences between the two sentences in (31) and paraphrased the interpretations roughly as follows.[16]

(32) a. Bike is the only means by which I can get there, and I can't get there by any other means of transportation.

b. I can get there by bike alone, and the minimally necessary means which enables me to get there is the bike.

He concluded that the expression *dake-de* itself has such a 'minimal requirement' meaning.[17]

Regarding 'necessity' we feel in connection with this sentence, we understand that "anything other than the bike is not necessary for getting there." With this interpretation of a *dake-de* sentence and the common function of *dake* which excludes anything other than the thing mentioned, it might be expected that (31b) implies that "the bike is necessary for getting there,"

[16]Kuno (1983) proposed a slightly different analysis of this and related phenomena. In a paper to be read at COLING-92, we discuss these previous analyses of the related phenomena regarding the use of *dake* in Japanese (Noguchi and Harada (1992)).

[17]His discussion on this subject is published in Japanese, and the terminology he employed based on conventional wordings is somewhat unilluminating.

but this inference turns out to be incorrect, when we think of the intuitive interpretation of the sentence carefully.

What we get as the intuitive interpretation of the sentence in (31b) is rather that "the bike is one of the sufficient means to get there, and is the minimal in some sense among all the sufficient means."[18] We can think of any scale that we might need, but the most likely one is that of ease of getting there. For example, if we are trying to get to a place far from here, then normally the car is easier than the bike, and the plane is easier than the car. Or, if we have to take a narrow road to get there, then the bike might be easier than the car, or walking might be easier than the bike. One can think of any such scales depending on the context.

In sum, what Morita calls the 'minimal requirement' meaning of *dake-de* sentence such as (31b) comprises the two parts of interpretation shown below.

(33) a. Anything other than the thing mentioned (the bike) is not necessary.
b. The thing mentioned (the bike) is minimal in some sense among all the sufficient means.

Where can we get these parts of the interpretation from? Do they come from the semantics of *dake* or do they come from the interaction of *dake* and other factors? As for (33a), things are relatively easy because we saw that for sentences such as (31), we get a conditional interpretation and *dake* takes only narrow scope for (31b). We show those conditional interpretations again below.

(34) a. Soko-ni-wa zitensya o tukatte dake ik-eru.
(= Only with a bike, can I get there.)
b. Soko-ni-wa zitensya dake o tukatte ik-eru.
(= With only a bike, I can get there.)

Usually, the antecedent of a conditional is a sufficient condition of its consequence. So (34b), which is an interpretation of (31b), can be stated as "using a bike and not using anything else is sufficient for getting there." Then it is not so difficult to see that it means "using anything other than a bike is not necessary for getting there," which is exactly the same as (33a). Therefore, we can conclude that the part of interpretation, (33a), is basically contained in the conditional interpretation of (31b).

Then the rest of the 'minimal requirement' meaning, (33b), would be the true scalar interpretation we should examine here. And the question would boil down to: where does this scalar interpretation come from?

[18]What Morita meant exactly by the term 'minimal requirement' is not clear. However, given this interpretation, we cannot take his terminology literally, because the sentence does not mean anything like "the bike is the minimal in some sense among all the necessary means for me to get there."

3.2.2. Is *dake* a scalar particle?

In related discussions about *only* in connection with scalar interpretations, it has been assumed that the so-called focus adverbs are distinguished between (say, ordinary) 'focus particles' and 'scalar particles.' For instance, *also* is an ordinary 'focus particle,' but *even* is a 'scalar particle,' and somehow contains scalar meaning as a part of its lexical semantics. But in the case of *only*, both aspects may be manifest depending on context. Hoeksema and Zwarts (1991:pp.52-53) discuss the following example:

> [4] We are only linguists.
>
> Under the scalar interpretation, one thinks of an ordered set of alternatives for the interpretation of *linguists*, say a set of predicates indicating professional status, such that the property of being a linguist is towards the bottom end of the list and the claim is made that no higher predicate applies to the speaker. Under the non-scalar interpretation, no such ranking is understood, and it is asserted that none of the alternatives applies to the speaker.

Taglicht (1984:p.155) also made a similar distinction. The sentence in (35a), his [112], is ambiguous. He made the distinction between the 'exceptive *only*' and the 'limiting *only*', which corresponds to 'non-scalar' and 'scalar' uses of *only*, respectively. In (35b), his [111], we only have what he calls 'limiting *only*,' and this shows clearly the need to make this kind of distinction.

(35) a. Only yesterday did we have a phone-call from her.
(= At last, we had a phone-call from her yesterday, or
= We had a phone-call from her yesterday and not on other days.)

b. Only yesterday, we had a phone-call from her.
(= As recently as yesterday, we had a phone-call from her.)

These two studies have much in common and they both assume that *only* has two distinct semantic contents; one can roughly be paraphrased as 'no other than (exceptive *only*)' and the other can be paraphrased as 'no more than (limiting *only*)', and they come into play in the interpretation of the whole sentence depending on their contexts.

Jacobs (1983) proposed, on the other hand, that the basic semantic content of *only* is that of 'limiting *only*' and the reading of 'exceptive *only*' arises when all of the alternatives have the same ranking in the scale under consideration.

Another approach is conceivable; we can think that the 'limiting' case is derived from the 'exceptive' case via conversational implicature. Thus, there are three approaches to be considered to account for the two uses of *only* in terms of the semantics/pragmatics distinction.

(36) Possible approaches to the semantics/pragmatics of *only*:
   a. the polysemy approach (Taglicht (1984))
      There are 2 distinct *only*s – 'exceptive' and 'limiting.'
   b. the non-polysemy approach (Jacobs (1983))
      There is only one *only* ('limiting *only*') and 'exceptive *only*' is its special case.
   c. the non-polysemy + pragmatics approach
      There is only one *only* ('exceptive *only*') and a scalar interpretation is derived as (conversational) implicature.

In Japanese, too, there seem to be some cases where 'limiting *dake*' is involved, such as the following.

(37) San-nin dake kita.
three-people only came
(Only three [people] came. = No more than three people came.)

(38) San-nin dake de motiageta.
three-people only AGNT lifted
(*lit.* By three [people] alone, it was lifted.
= It was lifted by no more than three people.)

But in these cases where 'numeral + *dake*' is involved, it is not easy to determine whether *dake* itself has the limiting function. Sentences with numerals that do not involve *dake* have 'at most' readings pragmatically, as shown below, and those readings are almost equivalent to 'no more than' readings.[19]

(39) San-nin kita.
three-people came
(Three [people] came. ⇒ At least three, and at most three people came.)

(40) San-nin de motiageta.
three-people AGNT lifted
(*lit.* By three [people], it was lifted.
⇒ It was lifted by at least three, and at most three people.)

Thus in cases which involve *dake* as well as numerals such as (37) and (38), it is not clear whether the 'no more than' readings come from the pragmatics of numerals or the semantic/pragmatic nature of *dake*.

Moreover, we do not find uses of *dake* that correspond to the 'limiting *only*' in English as seen in the examples earlier in this section. Literal translations of these English sentences might look something like this:

(41) Koko-ni iru-no-wa gengo-gakusya dake-da.

[19]As for a numerals themselves, it has been the conventional view that they intrinsically have 'at least' readings, and 'at most' readings are derived pragmatically, say, as a generalized quantity implicature. (See Levinson (1983) and Horn (1989).)

here-LOC be-NL-TOP linguists only-COPULA
(The ones here are only linguists. = There are only linguists here.)

(42) Kinoo (ni) dake kanozyo kara denwa ga atta.
yesterday TIME only her SRC phone-call NOM exist
(Only yesterday, did we have a phone call from her.
= We had a phone call from her only yesterday, and not on other days.)

But for these sentences, we only have the 'exceptive *dake*' reading. To get the same scalar interpretation, we have to use other expressions such as *tadano*, *tan'naru*, *tui*, or *honno*, as shown below.

(43) Wareware wa tadano (tan'naru) gengo-gakusya da.
we TOP simply (merely) linguists COPULA
(= We are simply (merely) linguists.)

(44) Honno (tui) kinoo kanozyo kara denwa ga atta.
just yesterday her SRC phone-call NOM exist
(= Just yesterday, we had a phone-call from her.)

Given these examples, it is difficult to maintain that there are two distinct *dake*s, say an 'exceptive *dake*' and a 'limiting *dake*', even if such might be the case for English *only*.[20]

3.2.3. The status of the scalar interpretation

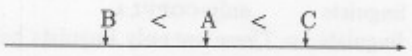
Let us go back to an examination of the scalar interpretation of *dake-de* sentences. Having examined what this scalar interpretation is in 3.2.1, what we should do now is to see how the part of the interpretation (33b) could be obtained for the sentence (31b).

If there is a 'limiting *dake*' as there is a 'limiting *only*' for English,[21] and if this 'limiting *dake*' is involved in this case, then we should expect something like a 'no more than' interpretation. But the scalar interpretation of (31b), especially its part (33b), does not contain a 'no more than' interpretation. As we saw in the beginning of this section, the scalar interpretation of (31b) involves some ordering among various means of transportation, but this does not involve exclusion of 'higher' parts in this ordering.

Rather, what we infer is that something higher than 'the bike', say 'the car', is also a sufficient means, but this couldn't be a necessary means. These inference patterns can be captured as shown below.

[20]Of course we are not claiming that there is only one semantic content for *dake*. To claim that, we have to examine more examples, especially those with the 'numeral + *dake*' construction, but that is beyond the scope of this paper.

[21]We cannot give a definitive answer as to the existence or non-existence of 'limiting *only*', as can be seen from the discussion in 3.2.2.

(45) 

(46) A is necessary $\rightarrow$ $\forall x \leq A(x$ is necessary) $\rightarrow$ B is necessary
A is sufficient $\rightarrow$ $\forall x \geq A(x$ is sufficient) $\rightarrow$ C is sufficient
A is necessary $\rightarrow$ $\forall x < A(x$ isn't sufficient) $\rightarrow$ B isn't sufficient
A is sufficient $\rightarrow$ $\forall x > A(x$ isn't necessary) $\rightarrow$ C isn't necessary

(45) shows certain scale for A, B, and C all of which are some means to get there. Based on this scale, we can infer about their necessity or sufficiency as shown in (46).

To recapitulate, what we inferred from (31b) is something like "I can get there by anything easier than bike", which is derived from the nature of 'sufficiency' as we depicted in (46). We can also assume that this sufficiency is derived from the conditional interpretation of (31b) because sufficiency and necessity are closely related to the meaning of conditionals. For (31b), "using only a bike" is the antecedent of the conditional, therefore it must be a sufficient condition of the consequence of my getting there. In this sense, we can also infer that "anything higher than the bike is not necessary." This implication is somehow related to the minimality we get for this example.

In (33) we identified two sub-parts of the 'minimal requirement' reading of *dake-de* sentences. The 'necessity' part (33a) is directly associated with the conditional interpretation, and implicatures we get in relation to the necessity-sufficiency scale depicted in (45) come from the conditional interpretation.[22]

In summary, our tentative solution to the scalar interpretation of *dake-de* sentences is as follows. First, *dake* functions 'exceptively', *i.e.*, it excludes use of any other means (of transportation). Then, because of the fact that *de*-phrases can act like free adjuncts in 'possible' contexts, we have conditional interpretation, and finally, this conditional interpretation will make available a kind of scalar interpretation depending on some scale and the inferring pattern on conditionals as shown in (46).

4. Conclusion

In this paper, we discussed the distribution and available readings of sentences involving *dake*, making several claims about how they should be understood in relation to the interaction of semantics and pragmatics in Japanese. After providing a general picture of how *dake* and other particles interact in Japanese, we focused on one particular phenomenon, namely, the interaction of *dake* and *de*, in order to give a concrete example of how we should deal with the interaction between the lexical semantics of these words and general pragmatic phenomena relevant for interpreting the sentences which involve them.

[22]The status of (33b) is still unresolved. Currently, we do not have decisive evidence that shows whether it is obtained from the semantics of *dake* or through pragmatics.

Let us summarize how our discussions answered the questions we raised in section 1.3.

- Answer to question (i):
  The clear-cut differentiation in readings between the *de-dake* sentence (3a) and the *dake-de* sentence (3b) is the exception rather than the norm. In cases where other particles are involved, the '*dake* + particle' sentences are semantically ambiguous with respect to the scope of *dake*, while in the 'particle + *dake*' sentences, *dake* can have only wide scope. Thus, usually, '*dake* + particle' sentences can have readings that 'particle + *dake*' sentences have.

- Answer to question (ii):
  Part of the difference in interpretation between *de-dake* sentences and *dake-de* sentences can be explained semantically through the conditional interpretations available for sentences with *de* phrases and 'possible' predicates. But the scalar interpretation of *dake-de* sentences should be explained in terms of pragmatic inference.

- Answer to question (iii):
  The scalar interpretation of *dake-de* sentences is derived through the inference about their conditional interpretations.

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References

Grice, P.H. (1975) 'Logic and Conversation', in P. Cole and J.L. Morgan, eds., *Syntax and Semantics, Vol.3: Speech Acts*, Academic Press, 41-58.

Hoeksema, J. and Zwarts, F. (1991) 'Some Remarks on Focus Adverbs', *Journal of Semantics* **8**:51-70

Horn, R. (1989) *A Natural History of Negation*, The University of Chicago Press.

Jacobs, J. (1983) *Fokus und Skalen: Zur Syntax und Semantik der Gradpartikeln im Deutschen*, Neimeyer, Tubingen.

Karttunen, L., and Peters, S. (1979) 'Conventional Implicature', in C-K. Oh and D. Dinneen, eds., *Syntax and Semantics, Vol.11*, Academic Press, New York, 1-56.

Kratzer, A. (1979) 'Conditional Necessity and Possibility', in R. Bauerle et al., eds., *Semantics from Different Point of View*, Springer-Verlag, 117-147.

Kratzer, A. (1981) 'Blurred Conditionals', in W. Klein and W. Levelt, eds., *Crossing the Boundaries in Linguistics*, Reidel, Dordrecht, 201-209.

Kuno, S. (1983) *Sin Nihon Bunpô Kenkyuu*, Taisyûkan-syoten.

Levinson, S.C. (1983) *Pragmatics*, Cambridge University Press.

Lewis, D. (1973) *Counterfactuals*, Harvard University Press.

Morita, Y. (1971) 'Dake, Bakari no Yôhô', in *Bulletin of The Institute of Language Teaching*, Vol.10, Waseda University, 1-27.

Noguchi, N. and Harada, Y. (1992) 'Semantic and Pragmatic Interpretations of Japanese Sentences with *DAKE* (*ONLY*)', to appear in the proceedings of COLING-92.

Rooth, M.E. (1985) *Association with Focus*, PhD. Dissertation, University of Massachusetts, Amherst.

von Stechow, A. (1989) 'Focusing and Backgrounding Operators', in *Fachgruppe Sprachwissenschaft der Universitat Konstanz*, Arbeitspapier Nr.6.

Stump, G. (1985) *The Semantic Variability of Absolute Constructions*, Reidel, Dordrecht.

Szabolcsi, Anna (1992) 'Weak Islands and Scope', paper presented at SALT (Semantics and Linguistic Theory), Ohio State University, May 1-3, 1992.

Taglicht, J. (1984) *Message and Emphasis: On focus and scope in English*, Longman.

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