What Differentiates Two Japanese Exhaustive Focus Particles?*

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1 Introduction

There is more than one exhaustive focus (sensitive) particle meaning *only* in Japanese: *dake*, *bakari*, *nomi*, and *sika* (…*nai*), the last one of which is a negative polarity item. This paper studies two of them, *dake* and *bakari*, which are both considered bound morphemes, but not replaceable. Although the distinction between these two has been studied for a long time in the literature, none of the previous analyses are convincing. This paper explains why they behave differently.

In English, it is possible to utter the sentence in (1) in both single and plural event situations in (1a) and (1b). In the former, it was once that Isabelle only hit Nick but no one else, whereas in the latter, the event where Isabelle only hit Nick and no one else happened more than once.

(1) Isabelle only hit $[\text{Nick}]_F$.
   a. single event: 'Isabelle only hit NICK once.'
   b. plural event: 'Isabelle only hit NICK, and it happened more than once.'

When *dake* is suffixed to the object, the sentence can be uttered in both situations, as in (2), as in (1). On the other hand, when *bakari* is suffixed to the object instead, the sentence can only be uttered in the plural event situation, but not in the single event situation.

(2) Mao-wa $[\text{Jun}]_F$-**dake**/-**bakari** tatai-ta.
   Mao-TOP Jun-only/-BAKARI hit-PST
   a. single event: 'Mao only hit JUN once.' (*dake*:√, *bakari*:*)
   b. plural event: 'Mao only hit JUN, and it happened more than once.' (*dake*:√, *bakari*:√)

We argue that *dake* is only composed of the exhaustive operator, whereas *bakari* is composed of the iterative operator along with the exhaustive operator. This means that, even when *bakari* associates with a noun phrase (NP), it pluralizes the event including the NP. The aims of this paper are: (i) to generalize the behavior of *dake* and *bakari*, (ii) to argue that the iterative operator differentiates *dake* and *bakari*, and (iii) to account for how *bakari* suffixing to a noun phrase can derive the reading that only allows the plural event situation.

The structure of this paper is as follows: in section 2, we observe how *dake* and *bakari* behave as per type of noun and verb; in section 3, we discuss two previous analyses of *bakari*; in section 4, we propose a denotation of *bakari*, which is composed of the exhaustive and iterative operators, depending on positions and types of NPs; consequences of this analysis are shown in section 5; and section 6 is the conclusion.

2 Data

2.1 Count Nouns

2.1.1 Nonplural

When a nonplural noun, *sensei* 'teacher,' suffixed with the accusative marker, *-o*, appears in a clause, it could mean both the singular and plural numbers of teachers, and the sentence can be uttered in both the single and plural event situations[1].

*I would like to thank Satoshi Tomioka, Benjamin Bruening, Takao Gunji, Roger Schwarzschild, Karthik Durvasula, Kimiko Nakanishi, Yurie Hara, Yukiko Kambara, members of SySel at the university of Delaware and Generative Lyceum at Kwansei Gakuin University, and the audience of PLC32 for their comments, suggestions and judgments. All errors are mine.

[1]Unlike English, Japanese usually does not depend on a plural marker in order to express pluralities of

(3) Mao-wa [sensei]$_F$-o/-**dake**/-**bakari** seme-ta.
Mao-TOP teacher-ACC/-only/-BAKARI blame-PST
a. 'Mao (only) blamed a TEACHER/TEACHERS once.' (*o*:√, *dake*:√, *bakari*:*)
b. 'Mao (only) blamed a TEACHER/TEACHERS, and it happened more than once.'
(*o*:√, *dake*:√, *bakari*:√)

It does not matter how many teachers Mao blamed, nor how many times Mao blamed teachers in the case of *-o* or *dake* suffixation. The sentence could be uttered in all the situations (3a–b), where Mao could blame any number of teachers any number of times. When *bakari* is suffixed to the same nonplural object, however, the sentence is only uttered in the plural event situation in (3b), but not in (3a), which is a single event situation. This means that *bakari* has a certain restriction on the number of events in order to be used.

2.1.2 Plural

When a plural marker, *-tati* '-s,' suffixes to a noun, *sensei* 'teacher,' the noun only has a plural reading.[2] Consider the example in (4).

(4) Mao-wa [sensei-*tati*]$_F$-o/-**dake**/-**bakari** seme-ta.
Mao-TOP teacher-PL-ACC/-only/-BAKARI blame-PST
a. 'Mao (only) blamed TEACHERS once.' (*o*:√, *dake*:√, *bakari*:*)
b. 'Mao (only) blamed TEACHERS, and it happened more than once.'
(*o*:√, *dake*:√, *bakari*:√)

The object of (4), *sensei-tati*, only has the plural reading, but not the singular reading. The sentence could be used for both the singular and the plural events. It is naturally predicted that, when focus particles suffix to a plural noun, we have the plural reading in both the singular and plural event situations, which is correct, in the case of *dake*. The event plurality does not matter in this case, where Mao could hit teachers any number of times. However, out of the two situations, *bakari* only allows the plural event situation in (4b), but not the singular event situation in (4a). It follows that, as in the case of (3), the usage of *bakari* requires the event plurality.

2.2 Mass Nouns

We have discussed the case of count nouns so far. Now we will see what happens when the two focus particles suffix to a mass noun, which has no plural/nonplural distinction at all. Consider the example in (5), where the object is a mass noun, *wain* 'wine.'

(5) Jun-wa [wain]$_F$-o/-**dake**/-**bakari** nom-ta.
Jun-TOP wine-ACC/-only/-BAKARI drink-PST
a. 'Jun (only) drank WINE once.' (*o*:√, *dake*:√, *bakari*:*)
b. 'Jun (only) drank WINE, and it happened more than once.'
(*o*:√, *dake*:√, *bakari*:√)

As with count nouns, we have two possible situations with mass nouns, as shown in (5). One is the singular event situation and the other is the plural event situation. When *dake* is suffixed to the mass noun object, the sentence can be uttered in both situations in (5a–b). On the other hand,

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nouns, even though it has a plural marker, *-tati* '-s.' Instead, it uses the singular/nonplural form of nouns to express general plurality, or uses a classifier to express a certain number. Kim (2005) observes that a Korean nonplural noun can be singular or plural like Japanese, and claims that Korean nonplural nouns denote both singularities and pluralities, which we assume in this paper. He claims this for all languages, but not only for Korean and Japanese.

[2]Kim (2005) analyses that plural markers delete atomic individuals from the set and make any singular reading impossible. It follows that, when a plural marker suffixes to an NP, the singular reading disappears.

when *bakari* is suffixed to the same object, the sentence is acceptable only in the situation in (5b). It follows that *dake* has no restriction on the event plurality while *bakari* does.

2.3 Pronouns, R-expressions, and Definite Nouns

Now I will examine if the two focus particles behave differently when they suffix to definite nouns like pronouns and R-expressions. Consider the pronoun case in (6), in which the subject is a pronoun[3].

(6) [Boku]$_F$-wa/-**dake**/-**bakari** itai-me-ni-aw-ta.
1.SG.M-TOP/-only/-BAKARI hurt.meet-PST
a. '(Only) I got hurt once.' (*o*:√, *dake*:√, *bakari*:*)
b. '(Only) I got hurt, and it happened more than once.' (*o*:√, *dake*:√, *bakari*:√)

With *-o* and *dake*, the sentence (6) can be uttered in both the singular and plural event situations. It does not matter how many times the speaker has gotten hurt. However, the example where *bakari* suffixes to the pronoun is only allowed to be uttered in the plural event situation in (6b).

The same effect is observed in cases of R-expressions below:

(7) Mao-wa [Jun]$_F$-o/-**dake**/-**bakari** tatai-ta.
Mao-TOP Jun-ACC/-only/-BAKARI hit-PST
a. 'Mao (only) hit JUN once.' (*o*:√, *dake*:√, *bakari*:*)
b. 'Mao (only) hit JUN, and it happened more than once.' (*o*:√, *dake*:√, *bakari*:√)

With *-o* and *dake* suffixing to the R-expression object, *Jun*, the sentence can be uttered in both the singular and plural event situations, as in (7). In this case, Jun could be hit any number of times. When *bakari* suffixes to the same object, on the other hand, the example can be uttered only in the plural event situation. It is clear that *bakari* has a certain restriction on the event plurality, whereas *dake* does not, even in cases of suffixation to definite nouns.

2.4 Conjoined Noun Phrases

There is a significant fact observed in cases with conjoined noun phrases, as in (8). When the object is a conjoined noun phrase, *Jun to Shun* 'Jun and Shun,' followed by the accusative marker or *dake*, the sentence can be uttered in any one of three situations, as in (8a–c).

(8) Mao-wa [Jun-to-Shun]$_F$-o/-**dake**/-**bakari** tatai-ta.
Mao-TOP Jun-and-Shun-ACC/-only/-BAKARI hit-PST
a. 'Mao (only) hit both JUN AND SHUN once.' (*o*:√, *dake*:√, *bakari*:*)
b. 'Mao (only) hit both JUN AND SHUN, and it happened more than once.'
(*o*:√, *dake*:√, *bakari*:√)
c. 'Mao hit either Jun or Shun once, and the other more than once.'
(*o*:√, *dake*:√, *bakari*:*)[4]

This means that with *-o* or *dake*, both Jun and Shun could be hit either once or more than once. Or, only one of them could be hit more than once, and the other only once. However, when *bakari* suffixes to the same conjoined object, the sentence could only be uttered in the case that both Jun and Shun were hit more than once, as shown in (8b). That is, a plural event is required for each member of the conjoined noun. The other situations that include a one-time hitting for at least one of the members are not allowed with *bakari*.

2.5 Brief Summary

[3]This example shows that *bakari* requires a plural event when it suffixes to not only the object but also the subject.

[4]One of my informants says it is possible to utter (8) with *bakari* in the situation (8c).

As observed above, *bakari* can only be used in a plural event situation with any type of noun.

2.6 One-time Event Predicates

So far, we have only examined achievement verbs, such as *hit* and *blame*, which allow events to occur more than once. If *bakari* requires events to be plural as we observed above, then, when we have a one-time event verb, like *kill*, the sentence must not be allowed with *bakari*. Consider (9).

(9) Kare-wa [sono hito]$_F$-o/-**dake**/-**bakari** koros-ta.
3.SG.M-TOP the person-ACC/-only/-BAKARI kill-PST
a. 'He (only) killed THE PERSON, once.' (*o*:√, *dake*:√, *bakari*:*)
b. 'He (only) killed THE PERSON, and it happened more than once.'
(*o*:#, *dake*:#, *bakari*:#)

The *kill*ing event cannot apply to a unique animate object more than once. (9) could be uttered only in the singular event situation in our real life with *-o*. The only way to have a plural event reading is to assume that the person who was killed is a game character and can return to life, which makes it possible for him/her to be killed more than once. This is so in the case of *dake* too. Since *bakari* does not allow a single event situation, the game character reading above is the only possible situation with *bakari* in this case.

2.7 VP Association

It must be noted that *bakari* not only associates with noun phrases but also verb phrases (VPs), even though it suffixes to the object, as shown in (10a)[5]. As Aoyagi (1994) and Kotani (2008) observe, (10a) has the same meaning as (10b), where *bakari* suffixes to the VP.

(10) a. Ren-wa [gitaa-**bakari** hiite]$_F$, onna-no-ko-to asob-anakat-ta.
Ren-TOP guitar-BAKARI played girls-with play-NEG-PST
b. Ren-wa [gitaa-o hiite]$_F$-**bakari**-de, onna-no-ko-to asob-anakat-ta.
Ren-TOP guitar-ACC played-BAKARI-CONJ girls-with play-NEG-PST
'Ren only PLAYed the GUITAR, and it happened more than once, but never went out with girls.'

Kotani (2008) argues that focus particles adjoining the VP in syntax take scope over it in semantics, but they are morphologically required to suffix to the object. This is why (10a) means the same as (10b) although the position of *bakari* differs. Since this paper does not cover this issue, see Kotani (2008) for details.

3 Previous Analyses

This section briefly summarizes two main previous analyses on the distinction between *dake* and *bakari*.[6] It has been observed that there is a difference between *dake* and *bakari* since Matsushita (1930), who first observes and notes that, when *bakari* suffixes to a noun phrase in a clause, the clause implies 'often,' 'extremely,' and 'only.' However, none of those previous analyses ever explains why they are different convincingly enough.

3.1 Numata (1986, 1992)

[5] *Dake* shows the same phenomenon as *bakari*. However, when *dake* is suffixed to the VP, the verbal inflection is different from the case of *bakari*, as shown in (i).

(i) Ren-wa [gitaa-o hiku]$_F$-**dake**-de, onna-no-ko-to asob-anakat-ta.
Ren-TOP guitar-ACC play-only-CONJ girls-with play-NEG-PST
'Ren only PLAYed the GUITAR, but never went out with girls.'

[6] There is another paper on *bakari*, Zhang (1997), which argues that *bakari* requires exclusiveness to the same type of elements for its associate in terms of the spatial, temporal, and abstract domains. However, this is not enough to distinguish *bakari* from *-dake* since it cannot explain why *bakari* requires plural events.

Numata (1986) claims that *bakari* has an exclusive meaning as well as *dake*, although she observes a difference between *bakari* and *dake*, as in (11).

(11) a. Sono toki dooseki-site-ita-no-wa [Jun]$_F$-**dake** dat-ta.
the time sit-together-do-be-NOMINALIZER-TOP Jun-only be-PST
'It was only Jun that was there as a company.'
b.?? Sono toki dooseki-site-ita-no-wa [Jun]$_F$-**bakari** dat-ta.
the time sit-together-do-be-NOMINALIZER-TOP Jun-BAKARI be-PST

Considering the difference observed above, Numata (1992, as cited in Cho, 1997) further analyzes that *bakari* requires plurality of its associate. If *bakari* requires a plural noun as its associating element, as Numata (1992) claims, however, neither one of (5) and (6) should be acceptable with *bakari*. Although the object cannot be in the plural form in them, the sentences are both acceptable. This cannot be explained in her analysis.

3.2 Teramura (1992)

Teramura (1992) claims that *bakari* has a meaning of either 'all' or 'always' in addition to exclusiveness. However, it is not clear when *bakari* means 'all' and when it means 'always.' In addition, if both meanings are allowed in any case, his analysis predicts that (4) with *bakari* must have both meanings in (12).

(12) a. Who Mao blamed (at that time) was <u>all</u> teachers.
b. Who Mao blamed was <u>always</u> teachers.

Then, we must explain in which situation we have which, and how both of them are derived, neither of which has been given yet.

4 Proposal

Adopting Rooth's (1985) analysis of the exhaustive focus particle, *only*, in (13) and Krifka's (1989) idea of the iterativity in (14), I propose that *bakari* is composed of the exhaustive operator, ⟦EXH⟧, and the iterative operator, ⟦ITER⟧, by Generalized Conjunction, and that it makes an NP that it modifies a generalized quantifier that undergoes Quantifier Raising (QR).

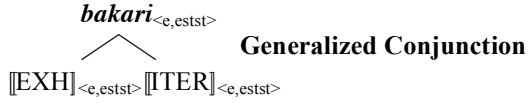
(13) $[\![EXH]\!] = \lambda x \lambda P \forall y[P(y) \rightarrow y=x]$ (Rooth, 1985)
(14) Iterative:
$\forall e,x,R\ [ITER(e,x,R) \leftrightarrow$
$R(e,x) \& \exists e' \exists e'' \exists x'\ [e', e'' \subseteq e \& e' \neq e'' \& x' \subseteq x \& R(e',x') \& R(e'',x')]]$ (Krifka, 1989)

Dake, on the other hand, is composed of only the exhaustive operator. This distinction on the constituents differentiates *dake* and *bakari*, and makes them behave differently, as observed above.

4.1 Subject and Object Association

In the case of the object association, I define the type of the two operators as (15) and (16) respectively, which are combined by means of Generalized Conjunction, as illustrated in (17). The denotation of *bakari* is give in (18).

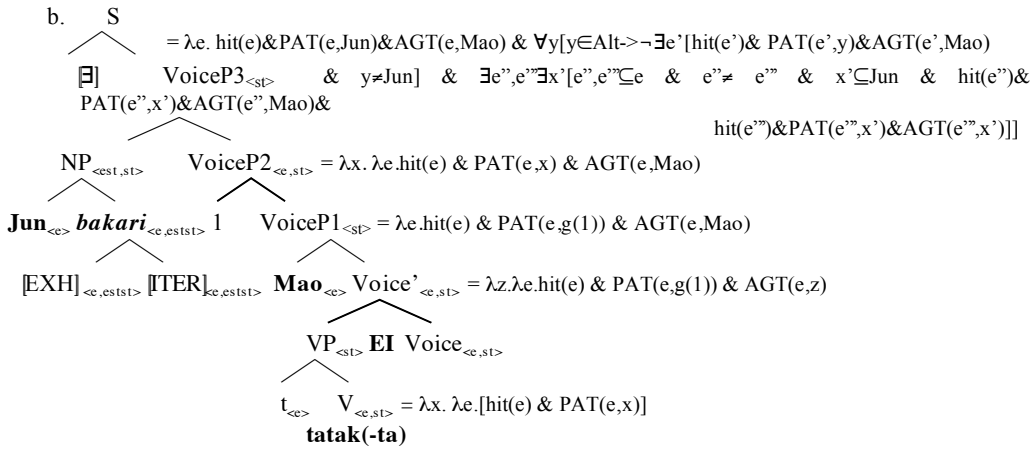
(15) $[\![EXH]\!] \in D_{<e,<est,st>>} = \lambda x.\ \lambda P_{<e,st>}.\lambda e.\ P(e,x) \& \forall y[y \in Alt \rightarrow \neg \exists e'[P(e',y) \& y \neq x]$
(16) $[\![ITER]\!] \in D_{<e,<est,st>>} = \lambda x.\ \lambda P_{<e,st>}.\lambda e.\ P(e,x) \& \exists e'', e''' \exists x'[e'', e''' \subseteq e \& e'' \neq e''' \&$
$x' \subseteq x \& P(e'',x') \& P(e''',x')]$
(17)



(18) $[\![\textbf{bakari}]\!] \in D_{<e,<est,st>>} = \lambda x.\ \lambda P_{<e,st>}.\lambda e.\ P(e,x)\ \&\forall y[y\in Alt \rightarrow \neg\exists e'[P(e',y)\ \&\ y\neq x]\ \&$
$\exists e'',e'''\exists x'[e'',e'''\subseteq e\ \&\ e''\neq e'''\ \&\ x'\subseteq x\ \&\ P(e'',x')\ \&P(e''',x')]$[7]

Given these denotations, we assume the structure of the sentence in (19a) as in (19b). We furthermore assume Kratzer's (1996) Event Identification, as defined in (21), and Heim's (1982) Existential Closure in (22). The truth condition of (19a) is given in (25). It must be noted that the operators consisting of *bakari* make the associated NP a generalized quantifier, which undergoes QR, as illustrated in (19b).

(19) a. Mao-wa Jun-**bakari** tatai-ta.
Mao-TOP Jun-BAKARI hit-PST
'Mao only hit JUN, and it happened more than once.'

b.


(20) $[\![NP]\!] = [\![\textbf{bakari}]\!]([\![\textbf{Jun}]\!])$
$= \lambda P_{<e,st>}.\lambda e.\ P(e,Jun)\ \&\forall y[y\in Alt \rightarrow \neg\exists e'[P(e',y)\ \&\ y\neq Jun]\ \&$
$\exists e'',e'''\exists x'[e'',e'''\subseteq e\ \&\ e''\neq e'''\ \&\ x'\subseteq Jun\ \&\ P(e'',x')\ \&P(e''',x')]$

(21) Event Identification (Kratzer, 1996):
f<e,st> + g<s,t> -> h<e,st> = $\lambda x.\ \lambda e\ f(e,x)\ \&\ g(e)$

(22) Existential Closure (Heim, 1982):
$[\![\exists]\!] = \lambda S_{<st>}.\ \exists e S(e)$

(23) $[\![S]\!] = 1$ iff $[\![\exists]\!]([\![VoiceP3]\!])=1$ iff
$\exists e[hit(e)\&PAT(e,Jun)\&AGT(e,Mao)\ \&\ \forall y[y\in Alt \rightarrow \neg\exists e'[hit(e')\&PAT(e',y)\&$
$AGT(e',Mao)\ \&\ y\neq Jun]\ \&\ \exists e'',e'''\exists x'[e'',e'''\subseteq e\ \&\ e''\neq e'''\ \&\ x'\subseteq Jun\ \&\ hit(e'')\&$
$PAT(e'',x')\&AGT(e'',Mao)\ \&\ hit(e''')\&PAT(e''',x')\&AGT(e''',x')] = 1$

The truth condition in (23) is interpreted as in (24a–d), which is exactly what (19a) means. This means that the analysis accounts for how the iterativity is introduced in the object association cases.

(24) a. There is an event of hitting (e) for which PAT is Jun and AGT is Mao, where

[7]Roger Schwarzschild (p.c.) suggested to me that there should be another possible way to have iterativity only with the exhaustive operator. If I define the exhaustive operator as in (i), existence of subevents of the event (e) is presupposed so that I do not have to have the iterative operator in addition to the exhaustive operator.

(i) $\lambda x.\ \lambda P_{<e,st>}.\lambda e.\ P(e,x)\ \&\forall y[y\in Alt \rightarrow \forall e'[P(e',y)\ \&\ y\rightarrow x]$

This raises an important question about the usage of *bakari* for a single event being a presupposition failure or just false. Furthermore, if I assume *bakari* is composed of only the exhaustive operator, which is the same as *dake*, I will have a problem in differentiating the behavior of the two focus particles. Given these problems, I assume *bakari* has both the exhaustive and iterative operators in this paper, and leave this problem as one for my future research.

b. if, for all y, which is an alternative member, there is no hitting event (e'), for which PAT is y and AGT is Mao and y is not Jun, and
c. there are events (e", e'") and there is a set of individuals (x') such that e" and e'" are event subsets of e and they are not identical and x' is a subset of Jun, and
d. e" is an event of hitting for which PAT is x' and AGT is Mao, and e'" is an event of hitting for which PAT is x' and AGT is Mao.

Subject association has a similar calculation and result except for the subject attached with *bakari* undergoing QR, instead of the object.

4.2 VP Association

In cases of the VP association, the denotations of the exhaustive, iterative operators and *bakari* are type-shifted as in (25) through (27), respectively.

(25) $[\![EXH]\!] \in D_{<est,est>} = \lambda P_{<est>}.\lambda x.\lambda e.\ P(e,x) \ \&\ \forall P'[P' \in Alt \rightarrow \neg \exists e'[P'(e',x)\ \&\ P' \neq P]]$

(26) $[\![ITER]\!] \in D_{<est,est>} = \lambda P_{<est>}.\lambda x.\lambda e.\ P(e,x) \ \&\ \exists e'',e''' \exists x'[e'',e''' \subseteq e\ \&\ e'' \neq e'''\ \&\ x' \subseteq x\ \&\ P(e'',x')\ \&\ P(e''',x')]$

(27) $[\![\textbf{bakari}]\!] \in D_{<est,est>} = [\![EXH]\!]\ \&\ [\![ITER]\!]$
$= \lambda P_{<est>}.\lambda x.\lambda e.\ P(e)\ \&\ \forall P'[P' \in Alt \rightarrow \neg \exists e'[P'(e',x)\ \&\ P' \neq P]]\ \&$
$\exists e'',e''' \exists x'[e'',e''' \subseteq e\ \&\ e'' \neq e'''\ \&\ x' \subseteq x\ \&\ P(e'',x')\ \&\ P(e''',x')]$

Given the type-shifted denotations, *bakari* does not derive any generalized quantifiers since it does not associate with an NP. It follows that we have no QR in the VP association case. The truth condition of (28) is given in (29).

(28) Mao-wa Jun-**bakari** tatai-ta.
Mao-TOP Jun-BAKARI hit-PST
'Mao only HIT JUN, and it happened more than once.'

(29) $[\![S]\!] = 1$ iff $[\![\exists]\!]([\![VoiceP]\!])=1$ iff
$\exists e.hit(e) \& PAT(e,Jun) \& AGT(e,Mao)\ \&\ \forall P'[P' \in Alt \rightarrow \neg \exists e'[P'(e',Mao)\ \&\ P' \neq P]\ \&$
$e'',e''' \exists x'[e'',e''' \subseteq e\ \&\ e'' \neq e'''\ \&\ x' \subseteq Mao\ \&\ hit(e'') \& PAT(e'',Jun) \& AGT(e'',x')\ \&\ hit(e''') \& PAT(e''',Jun) \& AGT(e''',x') = 1$

The truth condition in (29) is interpreted as in (30a–d), which is exactly what (28) means. This shows that our analysis accounts for how the plural event is introduced into the interpretation in cases of the VP association.

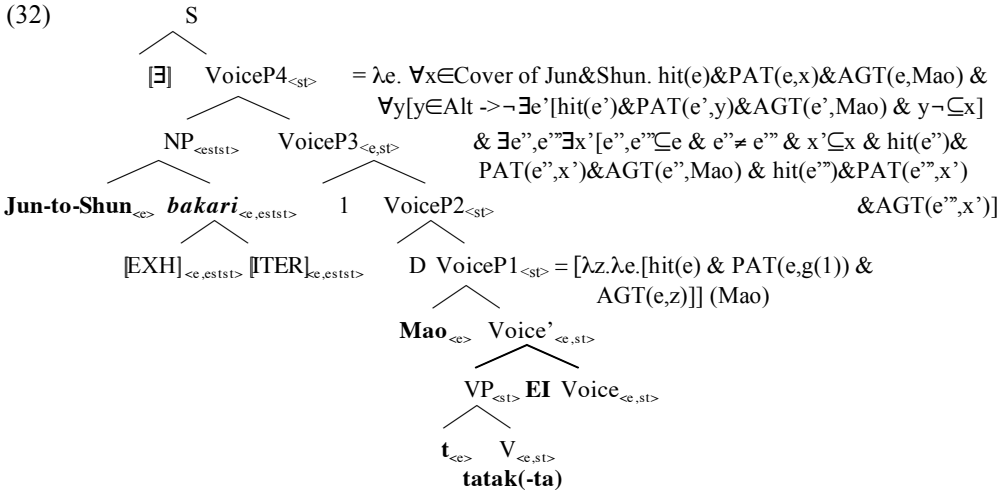
(30) a. There is an event of hitting (e) for which PAT is Jun and AGT is Mao, where
b. if, for all P', which is an alternative member, there is no event (e') for which AGT is Mao and P'≠P, and
c. there are events (e", e'") such that e" and e'" are event subsets of e and they are not identical and x' is a subset of Mao, and
d. e" is an event of hitting for which PAT is Jun and AGT is Mao, and e'" is an event of hitting for which PAT is Jun and AGT is Mao.

4.3 Conjoined Noun Phrase Association

I have shown that there is a significant fact demonstrating that the event must be iterative for each constituent of a conjoined noun phrase in (8). Then, we have to consider a mechanism where the iterative operator is distributed to each member of the noun phrase. Following Schwarzschild (1996), I assume that a conjoined noun phrase requires the distributive operator D, which is defined as in (31), and undergoes QR, as illustrated in (32).

(31) $x \in D$ ||D(α)|| iff ∀y[(singularity(y) & $y \in x$) -> $y \in$ ||α||] (Schwarzschild, 1996)

(32)



Since *bakari* associates with a conjoined NP, *Jun to Shun*, it changes the NP into a generalized quantifier, which undergoes QR. The distributive operator D is merged right below the QRed NP. The truth condition is given in (34).

(33) ⟦NP⟧ = ⟦**bakari**⟧ (⟦**Jun and Shun**⟧)
= $\lambda P_{<e,st>}.\lambda e.$ P(e,Jun&Shun) & ∀y[y∈Alt -> ¬∃e'[P(e',y) & y¬⊆Jun&Shun] &
∃e",e'"∃x'[e",e'"⊆e & e"≠ e'" & x'⊆Jun&Shun & P(e",x') &P(e'",x')] [8]

(34) ⟦S⟧ = 1 iff ⟦∃⟧ (⟦VoiceP3⟧)=1 iff
∃e[∀x∈Cover of Jun&Shun. hit(e)&PAT(e,x)&AGT(e,Mao) & ∀y[y∈Alt ->¬∃e'[hit(e')
&PAT(e',y)&AGT(e',Mao) & y¬⊆x] & ∃e",e'"∃x'[e",e'"⊆e & e"≠ e'" & x'⊆x &
hit(e")&PAT(e",x')& AGT(e",Mao) & hit(e'")&PAT(e'",x')&AGT(e'",x')]= 1

The truth condition in (34) is interpreted as in (35a-d), which is exactly what (8) means. This means that the analysis accounts for how the iterativity is introduced in the object association cases.

(35) a. There is an event of hitting (e) for which, for all x, which is a cover of Jun and Shun, PAT is x and AGT is Mao, where[9]
b. if, for all y, which is an alternative member, there is no hitting event (e'), for which PAT is y and y is not a subset of x, and
c. there are events (e", e'") and there's a set of individuals (x') such that e" and e'" are event subsets of e and they are not identical and x' is a subset of x, and
d. e" is an event of hitting for which PAT is x' (and AGT is Mao), and e'" is an event of hitting for which PAT is x' (and AGT is Mao).

5 Consequences

5.1 Predicates

[8] I have used "≠" until the previous section in the denotation of the exhaustive operator saying y is not x. However, since we have more than one member in x, I use "¬⊆" instead of "≠". I have no problem with changing all the "≠" into "¬⊆" since the former entails the latter. Thanks to Satoshi Tomioka (p.c.) for pointing this out to me.

[9] As Satoshi Tomioka and Tatjana Scheffler (p.c.) pointed out to me, there is still a possibility that we happen to have a funny cover which only includes either Jun or Shun. We have to have a certain restriction on cover in order to solve this, and I will leave it as a future problem.

In this section, we will show that the proposed analysis not only derives the correct interpretation in all the cases shown in the previous section, but also makes a correct prediction on types of predicate; that is, predicates that cannot be iterative cannot co-occur with *bakari*. Since *bakari* introduces iterativity to the event, if the predicate cannot be iterative, there must be a conflict in the interpretation. Consider the example in (9). As we observed before, the *kill*ing event cannot apply to a unique animate object more than once, and (9) only allows a specific interpretation like killing a character in a game whenever he starts the game. This is exactly what our analysis predicts with the iterative operator of *bakari*.

Our analysis also accounts for the fact that *bakari* cannot appear in predicates that refer to a specific time like *at that time*, since any specific time event cannot go along with the iterative property of *bakari*. The contrasted examples in (11) show that our prediction is correct. Since *dake* has no specific restriction with its usage, there is no conflict in (11a) and the sentence is acceptable. However, (11b) has both a specific time expression and *bakari* requiring iterativity, which causes a conflict and makes the sentence unacceptable.

Furthermore, the proposed analysis predicts that *bakari* cannot co-occur with stative verbs, like *understand* or *know*, but it can with non-stative verbs, such as *speak*. This is borne out in (36).

(36) a. [Eigo]$_F$-**dake**/*-**bakari** wakaru hito
English-only/-BAKARI understand person
'person who only understands ENGLISH (*many times)'

b. [Eigo]$_F$-dake/bakari hanasu hito
English-only/-BAKARI speak person
'person who only speaks ENGLISH (many times)'

c. Jun-wa [Mao-ga kekkon si-ta koto]$_F$-**dake**/*-**bakari** sit-te iru.
Jun-TOP Mao-NOM marriage do-PST C-only/-BAKARI know-PST be
'Jun only knows [that Mao got married]$_F$.'

The contrast between *dake* and *bakari* is shown clearly in (36). *Dake* does not have any requirement on the event plurality so that it can co-occur with stative predicates, as in (36a) and (36c). However, *bakari* requires a plural event and cannot co-occur with the predicates that cannot be iterative, since it is impossible to *understand* or *know* more than once after we once *understand* or *know* something, which is shown in (36b) and (36c). It can only co-occur with an event predicate, like *speak*, as in (36b). The discussion above shows that the proposed analysis makes a correct prediction on types of predicates.

5.2 Scope Interaction with Modals

The proposed analysis has another significant consequence. It is well known that there is a scope interaction between the exhaustive focus particle, *dake* 'only,' and a negative particle, *nai* 'not,' in Japanese, as in (37).

(37) Sono kaigi-de-wa nihongo-**dake**/*-**bakari** hanas-**anakat**-ta.
the meeting-at-TOP Japanese-only/-BAKARI speak-NEG-PST
a. 'Japanese is the only language that we did not speak at the meeting.' *dake*/**bakari*>Neg
b. 'It is not the case that I spoke Japanese alone at the meeting.' Neg>*dake*/*bakari*

In (37a), only *dake* takes scope over the negative particle, *nai*. In (37b), *nai*, instead, takes scope over *dake* and *bakari*. *Bakari* cannot take a wide scope, and it only takes a narrow scope for the negative particle. The only possible meaning with *bakari* is (37b), which means that the speaker spoke some other language(s) in addition to Japanese.

This contrast shows that *dake*, which is composed of the exhaustive operator alone, can take scope over the negative particle, but *bakari*, which is composed of the iterative operator along with the exhaustive operator, cannot. Our analysis explains that this is because the negation applies to the sentence and cannot be affected by the iterative operator since the negation cannot be

repeated. It follows that the exhaustive operator and the iterative operator consisting of *bakari* must stay together even in LF. Otherwise, there should be a case in which the exhaustive operator alone can take scope over the negative particle, which takes scope over the iterative operator. However, there is no such case observed with *bakari*. This supports our analysis that *bakari* is composed of the exhaustive and iterative operators, which are conjoined by means of Generalized Conjunction.

6 Conclusion

This paper has observed the distribution of two Japanese exhaustive focus particles, *dake* and *bakari*, and has shown that *bakari* requires a plural event whereas *dake* does not. I have argued that *bakari* is a complex element composed of the exhaustive operator and the iterative operator, which introduces the iterativity to the event. *Dake*, on the other hand, is only composed of the exhaustive operator. I have shown that this analysis correctly predicts that the association must be exhaustive and the event must be iterative in the usage of *bakari*. I have also shown that this analysis makes a correct prediction about predicates that can co-occur with *bakari. Bakari* co-occurs with a predicate that allows the iterative event. In addition, this analysis gives an account for the unambiguity of scope interaction observed between *bakari* and the negative particle. This analysis not only makes a clear distinction between *dake* and *bakari*, but also implies that some focus particles introduce event pluralities.

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