

On the properties of expressivity and counter-expectation in the Japanese minimizer NPI *kakera* ‘piece’

Osamu Sawada*

Abstract. The Japanese expression *kakera* has a literal meaning of ‘piece’. However, when *kakera* is combined with *mo* ‘even’, it can behave as an idiomatic negative polarity item (NPI). The distinctive features of the NPI *kakera* are that it usually co-occur with a property-related positive noun (e.g., *seijitsu-sa* ‘sincerity’) and is used for expressing a feeling of complaint. I argue that unlike the typical minimizer NPIs, the NPI *kakera* has an expressive property in that it not only denotes a minimum degree of an NP, but conventionally implies that high degrees of NP are expected (as a desire), and a judge (typically a speaker) is complaining about the target in question. Previous studies have shown that the meaning of EVEN (explicitly or implicitly) contributes to the creation of the emphatic function of minimizer (e.g., Horn 1989; Chierchia 2013). However, the phenomenon of *kakera* suggests that in addition to EVEN, minimizers can have expectation/attitudinal components that further restrict the situation in which they are used. This study shows that the multidimensional approach (Potts 2005; McCready 2010; Sawada 2010, 2018; Gutzmann 2012) to meaning allows us to capture the item-specific pragmatic properties of minimizers in a systematic fashion.

Keywords. negative polarity item; expressives; complaint; Japanese *kakera*; English *ounce/shred*; conventional implicature

1. Introduction. The Japanese expression *kakera* has a literal meaning of ‘piece’:

- | | | | | |
|-----|----|--|----|---|
| (1) | a. | bisuketto-no kakera
biscuit-GEN piece
‘a piece of a biscuit’ | b. | garasu-no kakera
glass-GEN piece
‘a piece of glass’ |
|-----|----|--|----|---|

Furthermore, the literal *kakera* can also functions as a numeral classifier:

- (2) Mary-wa chokoreeto-o hito-kakera kuchi-ni shi-ta. (*Kakera* as a classifier)
Mary-TOP chocolate-ACC one-CL.piece mouth-to do-PST
‘Mary ate a piece of chocolate.’

However, *kakera* can also be used as an emphatic negative polarity item (NPI):

- (3) Ano seijika-ni-wa {seijitsu-sa-no kakera-mo / sekininkan-no
That politician-to-TOP sincere-NMLZ-GEN piece-even / sense.of.responsibility-GEN
kakera-mo} {nai /*aru}.
piece-even NEG.exist /exist
‘That politician does not have the slightest sense of {sincerity/responsibility}.’

* I am grateful to Kazuhiko Fukushima, Thomas Grano, Richard Harrison, Shun Ihara, Hideki Kishimoto, Harumi Sawada, Jun Sawada, and the reviewers of LSA 2022 for their valuable comments and suggestions. Parts of this paper were presented at Kobe-NINJAL Linguistics Colloquium in March 2022 and I also thank the audience for their helpful discussions and feedback. This study is based on work supported by JSPS KAKENHI Grant (JP18K00531, JP21K00525) and the NINJAL collaborative research project Cross-Linguistic Studies of Japanese Prosody and Grammar. All errors are, of course, my own. Author: Osamu Sawada, Kobe University (sawadao@lit.kobe-u.ac.jp).

Kakera in (3) is idiomatic in that it does not mean “piece” in the physical sense, but rather roughly means a minimum degree of the given noun. The distinctive features of the NPI *kakera* are that it usually combines with a property-related positive abstract noun (here, *seijitsu-sa* ‘sincerity’, *sekininkan* ‘sense of responsibility’), and it is used for expressing a speaker’s complaint. Thus, the NPI *kakera* cannot be used with a negative abstract noun and thus cannot express a speaker’s positive evaluation:

- (4) ??Ano seijika-ni-wa {gouman-sa / musekinin-sa}-no kakera-mo nai.
 That politician-to-TOP arrogant-NMLZ / irresponsible-NMLZ-GEN piece-even NEG.exist
 ‘That politician does not have the slightest sense of {arrogance/irresponsibility}.’

What is the meaning and use of the NPI *kakera*? How can we explain its restricted distribution pattern? What does the nature of the NPI *kakera* imply for the variation of (emphatic) NPIs?

In this paper I will investigate the meaning and use of the NPI *kakera* in Japanese and try to answer these questions. In Section 2-3, I argue that the NPI *kakera* not only denotes a minimum degree of an NP, but conventionally implies that high degrees of NP are expected (as a desire), and the speaker is complaining about the target in question. It will be shown that the conventional implicature (CI)/expressive component of *kakera* properly captures its limited use of the NPI *kakera*. In Section 4, we will look at the distributions of the NPI *kakera* based on corpus data (BCCWJ) and show that although the corpus data basically support the proposed analysis, there are some minor cases where *kakera* is used without the flavor of complaint. I will suggest that in those cases, the notion of expectation is extended from expectation as a hope to an expectation as prediction and it is just used for expressing the speaker’s feeling of unexpectation. Finally, in Section 5 we will compare the Japanese *kakera* to English *ounce/shred* and show that although they are basically in a paraphrase relationship, there is a difference between *kakera* and *ounce/shred*, showing that the latter is neutral with regard to a speaker’s attitude.

This paper clarifies that there is a variation in the function of emphatic NPIs and the presence/absence of CI/expressive component provides an important point of variation for the semantics of minimizers.

2. The basic properties of NPI *kakera*. Let us first consider the basic properties of the NPI *kakera*. To the best of my knowledge there has been no serious research regarding the meaning and use of the NPI *kakera*, but there are some interesting and important descriptions of the meaning and use of *kakera* in several Japanese dictionaries. *Shinmei-kai kokugo jiten, dai happan* (Shinmeikai Japanese Dictionary, 8th edition) describes the NPI *kakera* (in the form of *X-no kakera-mo nai*) as “expressing the complete absence of something desired to be there” with the following example:

- (5) Ryooshin-no kakera-mo nai.
 Conscience-GEN piece-even NEG.exist
 ‘{She/he/they/you} have not a shred of conscience.’

Gakken gendai shin kokugo jiten, dai roppan (Gakuen Contemporary New Japanese Dictionary, 6th edition), on the other hand, describes the meaning of the NPI *kakera* as “not having the slightest tendency of such a mind,” with the following example:

- (6) Seei-no kakera-mo nai.
Sincerity-GEN piece-even NEG.exist
'{She/he/they/you} have no sincerity at all.'

In this paper, I will descriptively define the meaning of the NPI *kakera* as follows:

- (7) The definition of the NPI *kakera* (descriptive): The NPI *kakera* is an expressive minimizer used to express the speaker's complaint that the target does not possess even the slightest bit of the property in question (indicated by NP), even though it is expected to possess a high degree of that property.

One piece of evidence for the idea that the NPI *kakera* can only be used in the context of complaint is that it can naturally co-occur with positive abstract nouns, but not with a negative noun:

- (8) {Kenkyo-sa-no /?? gouman-sa-no} kakera-mo nai gakusei-ga sakin
Modest-NMLZ-GEN / arrogant-NMLZ-GEN piece-even NEG student-NOM recently
fue-ta.
increase-PST
'Recently students without a shred of {humility/arrogance} have increased.'
- (9) Ano hito-ni-wa {yasashi-sa /?? reitan-sa}-no kakera-mo nai.
That person-to-TOP kind-NMLZ / indifferent-NMLZ-GEN piece-even NEG.exist
'That person does not have a single ounce of kindness/indifference.'

If we use a negative noun, the sentence will convey the meaning of praise, rather than complaint. However, the resultant sentences sound odd. For example, the intended reading of (8) with *gouman-sa* 'arrogance' is 'recently students without a shred of arrogance have increased', but it is not natural to express this meaning using *kakera*.

Note that if *kakera* is used as an objective noun, it can combine with an objective noun:

- (10) Bisuketto-no kakera-o tabe-ta.
Biscuit-GEN piece-ACC eat-PST
'I ate a piece of biscuit.'

Thus we need to assume that the NPI *kakera* and the ordinary *kakera* are lexically different.

Notice also that the numeral *hito* 'one' plus the classifier *kakera* can function as a different kind of NPI ("even 1-classifier" NPI):

- (11) a. Taro-wa bisuketto-o hito-kakera-mo tabe-nakat-ta.
Taro-TOP biscuit-ACC 1-CL_{piece}-even eat-NEG-PST
'Taro didn't eat even a single piece of biscuit.'
- b. Taro-wa hito-kakera-no bisuketto-mo tabe-nakat-ta.
Taro-TOP 1-CL_{piece}-GEN biscuit-even eat-NEG-PST
'Taro did not eat even a single piece of biscuit.'

In this case, *hito-kakera* posits a numerical scale and its meaning is quite different from that of the expressive NPI *kakera*.

3. Formal analysis.

3.1. THE SEMANTICS OF THE ORDINARY *kakera* AND THE CLASSIFIER *kakera*. Before going into the analysis of the NPI *kakera*, let us briefly consider the analysis of the literal *kakera*:

- (12) Kore-wa daiyamondo-no kakera-da.
 This-TOP diamond-GEN piece-PRED
 ‘This is a piece of diamond.’

In the literal *kakera*, the noun phrase NP-*no kakera* roughly means ‘a small part of an object indicated by NP’; thus, it cannot combine with a mass noun such as *mizu* ‘water’ (**mizu-no kakera* ‘a piece of water’). One important point regarding the meaning of the literal *kakera* is that it triggers an existential presupposition on the presence of NP. For example, (12) has the presupposition that there is a diamond. This is a presupposition because even if the sentence is embedded under negation or logical operators such as question, it survives:

- (13) Kore-wa daiyamondo-no kakera-de-wa-nai.
 This-TOP diamond-GEN piece-PRED-TOP-NEG
 ‘This is not a piece of diamond.’
 Presupposition: There is a diamond.
- (14) Kore-wa daiyamondo-no kakera-desu-ka?
 This-TOP diamond-GEN piece-PRED.POLITE-Q
 ‘Is this a piece of diamond?’
 Presupposition: There is a diamond.

Thus, I assume that (in addition to the presupposition that x is an object and small) there is also an existential presupposition on the whole part y in the sentence with the literal *kakera*. I will assume that *kakera* has the following denotation:

- (15) $[[kakera_{thing}]] = \lambda P \lambda x \exists y: \text{object}(x) \wedge \text{small}(x) \wedge P(y). x <_{part.of} y$

As we observed in the introduction, *kakera* can also function as a numeral classifier:

- (16) Hito-kakera-no daiyamondo
 1-CL_{piece}-GEN diamond
 ‘a piece of diamond’

As for the meaning of the classifier *kakera*, I will tentatively assume that it has the following denotation:

- (17) $[[kakera_{CL}]] = \lambda n \lambda P \lambda x \exists y: \text{object}(x) \wedge \text{small}(x) \wedge P(y). x <_{part.of} y \wedge \#(x) = n$

Since the purpose of this paper is to consider the meaning and use of the NPI *kakera*, we will not discuss the meaning of the classifier *kakera* in greater depth.

3.2. FORMAL ANALYSIS OF NPI *kakera*. Let us now analyze the meaning of the NPI *kakera*. In this paper, I will claim that the NPI *kakera* is mixed content in that it not only denotes a minimum degree but also has the expectational and expressive components as a conventional implicature (CI) (Potts 2005; McCready 2010; Sawada 2010, 2018; Gutzmann 2012). More specifically, I propose that the NPI *kakera* has the following meaning (The left side of \blacklozenge is the at-issue component, and the right side of \blacklozenge is a CI. Superscript a stands for at-issue type and superscript s stands for a shunting type, which is used for calculating a special type of CI-

triggering expressions such as mixed content (McCready 2010). The function MIN selects the minimum degree, and HIGH selects high degrees from the set of degrees):

- (18) $[[kakera_{NPI}]]: \langle \langle d^a, t^a \rangle, d^a \rangle \times \langle \langle d^a, t^a \rangle, t^s \rangle =$
 $\lambda P. \text{MIN}\{d | P(d)\} \blacklozenge \lambda P. \text{expected-to-have}_{desire}(\text{HIGH}\{d' | P(d')\}) \wedge \text{complain-about}(j, \text{the target in question})$

In prose, in the at-issue domain, *kakera* takes *P*, which denotes a set of degrees concerning a particular property, and returns its minimum degree. In the CI domain, *kakera* conventionally implies that high degrees of *P* are expected to hold, and the judge *j* (typically the speaker) is complaining about the target in question.

The idea that the expectation and complaint components of *kakera* are in the CI dimension is supported by the fact that they are independent of “what is said,” and it cannot be challenged by saying, “No, that is false.”

- (19) A: Ano seijika-ni-wa seijitsu-sa-no kakera-mo nai.
 That politician-to-TOP sincere-NMLZ-GEN piece-even NEG.exist
 ‘That politician doesn’t have the slightest sense of sincerity.’ (CI: The speaker expects high degree of sincerity and the speaker is complaining about the current situation.)
 B: Iya, sore-wa uso-da.
 No that-TOP false-PRED
 ‘No, that’s false.’

In this dialogue, Speaker A says “That politician does not have the slightest sense of sincerity” using *kakera* and Speaker B says “No, that’s false”, and here B is only rejecting the at-issue part of Speaker A’s utterance. B is not rejecting Speaker A’s expectation and negative feeling.

Note that the meaning of “complaint” is performative (it can be viewed as a secondary speech act). Thus, the negative *kakera* cannot be used in the situation where the speaker cannot make complaints. For example, the NPI *kakera* cannot be used in a conditional clause or an epistemic modal:¹

- (20) ??Moshi ano seijika-ni seijitsu-sa-no kakera-mo na-kereba, ouen
 By.any.chance that politician-to sincere-NMLZ-GEN piece-even NEG.exist support
 shi-nai.
 do-NEG
 ‘If there is not a single ounce of sincerity in that politician, I will not support him.’

¹ However, if you change *kakera-mo* to *kakere-demo* and use it in a positive conditional clause, then the resultant sentence becomes natural:

- (i) Moshi ano seijika-ni seijitsu-sa-no kakera-demo are-ba, mou sukoshi joukyoo-wa yoku
 By.any.chance that politician-to sincere-NMLZ-GEN piece-demo be-COND more a bit situation-TOP good
 naru-noni.
 become-PRT
 ‘If only that politician had an ounce of integrity, things would be a little better.’

However, in that case, it is perceived as a counterfactual conditional statement and is compatible with the meaning of complaint.

- (21) ??Ano seijika-ni-wa seijitsu-sa-no kakera-mo nai-kamoshirenai.
 That politician-to-TOP sincere-NMLZ-GEN piece-even NEG.exist-may
 ‘That politician may not have a single ounce of sincerity.’

These sentences sound strange because the speaker cannot express a feeling of complaint using a conditional and a modal.

Let us now consider how the meaning of *kakera* is computed compositionally based on the following example:

- (22) Ano seijika-ni-wa seijitsu-sa-no kakera-mo nai.
 That politician-to-TOP sincere-NMLZ-GEN piece-even NEG.exist
 ‘That politician doesn’t have the slightest sense of sincerity.’

As for the meaning of the property noun, I assume that it denotes a set of degrees concerning a particular noun (cf. Francez & Koontz-Garboden 2015). For example, I assume that *seijitusa* ‘sincerity’ has the following denotation:

- (23) [[seijitsu-sa]]: $\langle d^a, t^a \rangle = \lambda d. \text{sincerity}(d)$

Following McCready (2010) I will assume that the meaning of mixed content is computed via a mixed application as in:

- (24)
$$\begin{array}{c} \alpha(\gamma) \blacklozenge \beta(\gamma) : \tau^a \times v^s \\ \swarrow \quad \searrow \\ \alpha \blacklozenge \beta : \langle \sigma^a, \tau^a \rangle \times \langle \sigma^a, v^s \rangle \quad \gamma : \sigma^a \end{array}$$

When the derivation of the CI component of mixed content completes, the following rule applies for the final interpretation of CI part:

- (25) Final interpretation rule: Interpret $\alpha \blacklozenge \beta : \sigma^a \times t^s$ as follows:
 $\alpha : \sigma^a \bullet \beta : t^s$ (Based on McCready 2010)

If *kakera* is combined with *seijitsu-sa* ‘sincerity’ via mixed application, we receive the following meaning (in this paper I assume that the genitive marker *no* has no semantic contribution):

- (26)
$$\begin{array}{c} \text{MIN}\{d \mid \text{sincerity}(d)\} : d^a \\ \bullet \\ \text{expected-to-have}_{\text{desire}}(\text{HIGH}\{d' \mid \text{sincerity}(d')\}) \wedge \\ \text{complain-about}(j, \text{the target in question}) : t^s \\ \swarrow \quad \searrow \\ \begin{array}{cc} \text{seijitsu-sa} : \langle d^a, t^a \rangle & \text{kakera} : \langle \langle d^a, t^a \rangle, d^a \rangle \times \langle \langle d^a, t^a \rangle, t^s \rangle \\ \lambda d. \text{sincerity}(d) & \lambda P. \text{MIN}\{d \mid P(d)\} \blacklozenge \\ & \lambda P. \text{expected-to-have}_{\text{desire}}(\text{HIGH}\{d' \mid P(d')\}) \wedge \\ & \text{complain-about}(j, \text{the target in question}) \end{array} \end{array}$$

Morphologically, *seijitsu-sa-no kakera-mo* is then combined with the scalar particle *mo*, but here, I will assume that *mo* has a universal meaning and it is interpreted at a higher level.

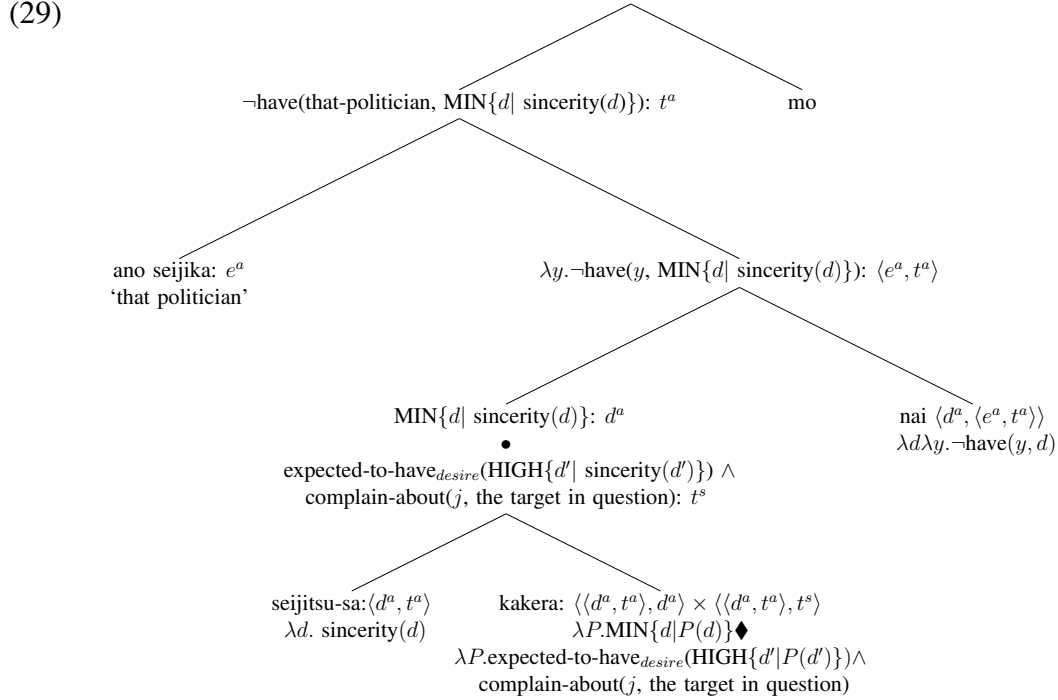
As for the meaning of *nai* ‘not exist’, I assume that it has the following denotation (for the sake of simplicity, I have omitted the information of tense and world):

- (27) [[nai]] = $\lambda d \lambda y. \neg \text{have}(y, d)$

Since *nai* ‘not exist, don’t have’ is an at-issue negative expression (it cannot negate the expressive component), it only takes the at-issue part of *kakera* and the subject *ano seijika* ‘that politician’ as its arguments and returns a proposition that “that politician does not have the minimum degree of sincerity,” as shown in:

$$(28) \quad \neg \text{have}(\text{that politician}, \text{MIN}\{d \mid \text{sincerity}(d)\})$$

Finally, the resultant at-issue negative proposition is combined with the particle *mo* ‘even’. Note that although *mo* morphologically attaches to *kakera*, in the logical structure, it takes a proposition as its argument:²



As for the meaning of the scalar particle *mo*, I assume that it yields the presupposition that the negative proposition is the least likely among the alternatives (Karttunen & Peters 1979):

$$(30) \quad [[\text{mo}]] = \lambda p : \forall q \in C[q \neq p \wedge q >_{\text{likely}} p]. p$$

If *mo* is combined with the negative proposition in (28), we will receive the following presupposition and the at-issue meaning.

$$(31) \quad [[\text{mo}]](\neg \text{have}(\text{that-politician}, \text{MIN}\{d \mid \text{sincerity}(d)\})) = \\ \forall q \in C[q \neq p \wedge q >_{\text{likely}} \neg \text{have}(\text{that-politician}, \text{MIN}\{d \mid \text{sincerity}(d)\})]. \neg \text{have}(\text{that-politician}, \text{MIN}\{d \mid \text{sincerity}(d)\})$$

The question we need to consider is what the contextually determined alternatives are. Considering that *mo* is morphologically attached to *kakera*, it receives focus. I assume that the alternative propositions are the set of all propositions obtained by replacing *kakera* with an alternative of the same type. Specifically, the alternatives of *kakera* will be a set of degrees that are alternatives to the lower-degree at-issue component of *kakera*, as in:³

² The NPI *kakera* always combines with *mo* and it cannot combine with other scalar particles such as *sae* ‘even’.

³ The noun *katamari* ‘mass’ has an idiomatic expression NP-*no katamari*, meaning ‘high degree of NP’ and *katamari*

(32) Alternatives of *kakera* = $\{\lambda P. \text{MID}\{d|P(d)\}, \lambda P. \text{MAX}\{d|P(d)\}\}$

Thus, the alternative propositions in (31) will be as follows:⁴

(33) Alternative propositions: $\{\neg\text{have}(\text{that-politician}, \text{MID}\{d| \text{sincerity}(d)\}), \neg\text{have}(\text{that-politician}, \text{MAX}\{d| \text{sincerity}(d)\})\}$

Ultimately, we have the following three kinds of meanings for sentence (22):

- (34) a. At-issue: That politician does not have the minimum degree of sincerity.
- b. Scalar presupposition by *mo*: That “the politician person does not have the minimum degree of sincerity” is the least likely among the alternatives.
- c. CI of *kakera*: High degrees of sincerity are expected to hold, and the speaker is complaining about the target in question (i.e. the politician).

This analysis correctly captures the fact the *kakera* cannot co-occur with a negative noun:

(35) ??Ano seijika-ni-wa gouman-sa-no kakera-mo nai.
 That politician-to-TOP arrogant-NMLZ-GEN piece-even NEG.exist
 ‘There is not an ounce of arrogance in that politician.’

This sentence sounds odd because there is a mismatch between the CI meaning of *kakera* (= complaint) and the meaning of the whole sentence (= praise).

Before closing the analysis, I would like to point out that there is a phenomenon of perspective shifting. We have so far considered examples where the judge of *kakera* is the speaker and the speaker expresses a feeling of complaint, but if *kakera* is embedded under an attitude predicate and the subject of the sentence is a third person, the judge of *kakera* becomes the subject. As we can see in the following dialogue, the person who made a complaint is the subject Taro, rather than the speaker:

- (36) A: Taro-wa ano seijika-ni-wa sekininkan-no kakera-mo
 Taro-TOP that politician-to-TOP sense.of.responsibility-NMLZ-GEN piece-even
 nai-to omo-tteiru.
 NEG.exist-that think-STATE
 ‘Taro thinks that that politician doesn’t have the slightest sense of responsibility.’
 (Taro is complaining about the politician)
- B: Watashi jishin-wa ano seijika-wa kekkou shikkari-shi-teiru-to omou-ga.
 I myself-TOP that politician-TOP pretty solid-do-STATE-that think-though
 ‘I think the politician is pretty solid, though.’

can be construed as a linguistic alternative of the idiomatic (NPI) *kakera*:

- (i) Ano hito-wa seijitsu-sa-no katamari-no.yoona hito-da
 That person-TOP sincere-ity-GEN mass-like person-PRED
 ‘lit. That person is like a mass of sincerity’ (= He is very sincere).’

⁴ Note that in this paper I am not using the alternative semantics in Rooth (1985). In the theory of alternative semantics (Rooth 1985), there are two types of meaning: ordinary semantic value and focus semantic value (alternative semantic value) and the latter is computed recursively in the logical structure just like ordinary compositional semantics. In this paper, I will assume that alternative propositions are made separately outside the derivation. We will discuss this point in the conclusion.

Potts (2005) claims that CIs are always speaker-oriented, but it has been observed that CI expressions including expressives can also have a non-speaker orientation (e.g., Amaral et al. 2007; Potts 2007; Harris & Potts 2009). I consider this also to be true for *kakera*.

4. Corpus study: More on the use of the NPI *kakera*. In the previous section, I have claimed that the NPI *kakera* co-occurs with positive nouns which ultimately triggers a speaker's feeling of complaint when it combines with negation.

In order to check the validity of this claim, I surveyed the types of NP that the NPI *kakera* co-occurs with using BCCWJ (The Balanced Corpus of Contemporary Written Japanese). The data were taken in November 22, 2021. To collect examples, I first searched for *-no kakera-mo* 'GEN piece-even' in a string search. As a result, 125 hits were found. Of the 125 examples, 5 were examples of literal *kakera*:

(37) Concrete nouns occurring with literal *kakera*:

koori 'ice', *kin unmo* 'phlogopite', *hoshi imo* 'dried potato', *hitotsu* 'one', *tsubu* 'grain'

The following is the example with *koori* 'ice'. Note that *mo* in this case serves as an additive particle 'also', not the scalar particle:

(38) *Koori-no kakera-mo orenji-ro-ni somari-masu.*

Ice-GEN piece-also orange.color-to turn-PRED.POLITE

'The pieces of ice also turn orange.' (From BCCWJ)

The remaining 120 cases were NPI *kakera* (non-literal). I classified the types of NPs into the following classes: (A) positive noun, (B) negative noun, (C) others. We found that 95 examples co-occurred with a positive noun, 18 with a negative noun that is not expected to hold, and 7 with others.

(39) (Types of nouns that co-occur with NPI *kakera*)

- a. Positive nouns (A) (95 examples)
- b. Negative nouns (B) (18 examples)
- c. Others (neutral nouns) (C) (7 examples)

This suggests that although the corpus data basically support my claim, there seem to be counter examples as well. Let us examine each type one by one.

As for Class (A) (co-occurrence with a positive noun), various kinds of positive nouns are found. The following is a list of the positive nouns that co-occur with the NPI *kakera*. The number in parentheses indicates the number of times the item appears in the data.

ryooshin ‘conscience’ (3)	yasashisa ‘kindness’ (3)	yuumoa ‘humor’ (3)
hansei ‘reflection’ (3)	omoiyari ‘consideration’ (2)	kinchookan ‘nervousness’ (2)
sensu ‘taste’ (2)	senren ‘sophistication’ (2)	doutoku ‘morality’ (2)
seijitusa ‘sincerity’	okuyukashisa ‘modesty’ (2)	kanjou ‘feeling’ (2)
kyoomi ‘interest’ (2)	shitashimi ‘friendship’ (2)	zaiakukan ‘sense of guilt’ (2)
bi ‘beauty’ (2)	bi-ishiki ‘a sense of beauty’	utsukushisa ‘beauty’
jishin ‘confidence’	ronri ‘logic’	omoshiromi ‘interest’
romanchikku ‘romantic’	roman ‘romance’	shakaisei ‘sociality’
pojitybu shikoo ‘positive thinking’	kanshin ‘interest’	doryoku ‘endeavor’
kouekisei ‘public interest’	aidea ‘idea’	jiseishin ‘self-control’
porishii ‘policy’	ningenrashisa ‘humanity’	ningenmi ‘humanity’
ningensei ‘humanity’	kandaisa ‘good-heartedness’	hihan-seishin ‘criticism’
seei ‘sincerity’	bosei-honnou ‘maternal instinct’	iroke ‘sexiness’
shooki ‘consciousness’	wakasa ‘youth’	kakkoyosa ‘stylishness’
tensai ‘genius’	mirai-shikoo ‘futurism’	nagori ‘farewell’
risupekuto ‘respect’	soukaikan ‘exhilaration’	kizukai ‘concern’
boukenshin ‘adventurous spirit’	jikaku ‘self-consciousness’	puro-ishiki ‘professionalism’
hayasa ‘fastness’	hakuryoku ‘impressiveness’	amasa ‘sweetness’
koi-gokoro ‘feeling of love’	igen ‘dignity’	kisokusei ‘regularity’
shinnen ‘belief’	kooi ‘favor/kind’	kawaige ‘charm’
minshu-shugi ‘democracy’	sharekke ‘humor’	songen ‘dignity’
seizon-to iu jou ‘the feeling of survival’	chisei ‘intelligence’	kitai ‘expectation’
jiishiki ‘self-consciousness’	shinshisa ‘sincerity’	gaman ‘endure’
ai ‘love’	puraido ‘pride’	risei ‘reason’
yoyuu ‘surplus, leeway’	derikashii ‘sensitivity’	

Table 1. A. Positive nouns that co-occur with NPI *kakera*

The nouns are considered to represent some properties that people are (socially) expected to have.⁵ The following are some of the actual examples observed in the corpus:⁶

- (40) Yatsura-ni-wa mou ryooshin-no kakera-mo noko-cha-i-nai-nda.
They-to-TOP anymore conscience-GEN piece-even left-*tewa*-be-NEG-*noda*
‘They don’t have a shred of conscience left in them anymore.’ (From BCCWJ)
- (41) Sooyuu taido-ni-wa omoi-yari-no kakera-mo kanji-rare-nakat-ta.
Such attitude-to-TOP compassion-GEN piece-even feel-PASS-NEG-PST
‘I didn’t feel an ounce of compassion in that attitude.’ (From BCCWJ)

⁵ Note that *zaiakukan* ‘a feeling of guilt’ itself may not be a positive thing, as it can be viewed as a feeling that people are socially expected to have.

⁶ In the corpus data there were also the examples of a complex positive noun phrase modified by a relative clause:

- (i) Hito-hata agete seikou-shi-ta otoko-toiu kankaku
One-flag raise success-do-PST man-as feeling
‘The feeling of being a successful man who has made a name for himself’ (From BCCWJ)

There was also the example with the demonstrative pronoun, i.e., *so-no kakera* ‘that-GEN piece’, where *sono* refers to the positive complex noun, i.e. the characteristics you call “strong will” or “propulsion”.

- (42) Puraído-no kakera-mo nai.
Pride-GEN piece-even NEG.exist
'They have no sense of pride at all.' (From BCCWJ)

Next, we found the following negative nouns:

jaki 'bad air'	akui 'malice'	tamerai 'hesitation'
reishou 'cold smile'	aseri 'anxiety'	goumansa 'arrogance'
mijimesa 'misery'	ryuuyoo-pposa 'diversion'	fukazume 'deep-set nail'
kumori 'cloudiness'	ikidoori 'anger'	kyoofushin 'fear'
douyoo 'upset'	satsuriku-no nioi 'the smell of slaughter'	kutsuu 'pain'
yamashisa 'roughness'	henmu-tekina jooyaku 'one-sided treaty'	jashin 'evil design'

Table 2. B. The negative nouns that co-occur with NPI *kakera*

The following are some examples of this class:

- (43) Fudan-no gooman-sa-no kakera-mo nai.
Usual-GEN arrogant-NMLZ-GEN piece-even NEG.exist
'There was not a trace of his usual arrogance.' (From BCCWJ)
- (44) Kore-ga kaze tsukai Io-o hidouna bouryaku-no uchini makikonda
This-NOM wind master Io-ACC outrageous plot-GEN inside involved
genkyoo-nano-ka... Kono jaki-no kakera-mo nai goku futsuu-no shoonen-ga?
source-PRED-Q This evil-GEN piece-even NEG.exist just normal-GEN boy-NOM
'Is this the source of wind master Io's involvement in the outrageous plot? This ordinary boy, without a trace of evil in him?' (From BCCWJ)

Finally, as for the neutral nouns, we found that the following examples:

nebarike 'stickiness'	shamu 'Siamese cat'	hoshi 'star'
touga-rashiki mono 'things that look like winter buds'	kesshoo 'crystal'	yuki 'snow'
sono 'that' (= funayoi 'seasickness')		

Table 3. C. The neutral nouns that co-occur with NPI *kakera*

- (45) Nanka poroporo-shite, nebarike-no kakera-mo nai.
Kind.of crumbly-do stickiness-GEN piece-even NEG.exist
'It's kind of crumbly and doesn't have a hint of stickiness.' (From BCCWJ)
- (46) "Tsuki Sekai"-wa izen edagi-dake-de tooga-rashiki mono-no kakera-mo
Moon World-TOP still tree.branch-only-with winter.bud-like thing-GEN piece-even
mi-rare-nai.
see-PASS-NEG
'The "Moon World" still has only branches and trees, and not even a trace of winter buds.'⁷ (From BCCWJ)

⁷ Tsuki Sekai is the name of a cactus.

Discussion: Let us consider the above facts from a linguistic/theoretical perspective. First, most of the nouns that co-occur with *kakera* are positive nouns that represent properties or characteristics that are desirable to have (95 out of 120), and these examples generate speaker dissatisfaction. This is supportive of the proposed analysis. However, although the frequency is low, there were examples where the meaning of dissatisfaction does not arise (Class B and Class C). How can we reconcile this fact with my proposed meaning to encapsulate the NPI *kakera*? I would like to consider that the writers/speakers who produce/accept the examples of Class B and Class C may be extending the use of *kakera* from the expressive use to a mirative use. In other words, for these speakers, the notion of expectation is recognized not only in the sense of hope, but also in the sense of predication. In this paper, I tentatively assume that for those who accept the examples of Class 2 and Class 3, there are two kinds of *kakera*, the expressive NPI *kakera* and the mirative *kakera*:

- (47) $[[kakera_{NPI.EXP}]] = \lambda P. \text{MIN}\{d|P(d)\} \blacklozenge \lambda P. \text{expected-to-have}_{desire}(\text{HIGH}\{d'|P(d')\}) \wedge \text{complain-about}(j, \text{the target in question})$
- (48) $[[kakera_{NPI.MIR}]] = \lambda P. \text{MIN}\{d|P(d)\} \blacklozenge \lambda P. \text{predicted}(\text{HIGH}\{d'|P(d')\}) \wedge \text{feel-unexpected}(j, \text{the current degree})$

With mirative *kakera*, a high degree of *P* is predicted and the judge *j* feels the current degree (which is zero degree) to be unexpected. However, many of my native informants consider the examples of Type B and Type C unnatural, so it is likely that mirative *kakera* has not yet become conventional. A detailed survey using questionnaires will be necessary. I would like to leave this point as an issue for the future .

5. Comparison with English minimizers: *ounce*, *shred*. Finally, let us compare the Japanese *kakera* to English *ounce* and *shred*. Literally speaking, *ounce* means a unit for measuring weight (equal to 28.35 grams) and *shred* means a strip of material:

- (49) a. Generally speaking, every ounce of coal has to be delivered. (Cambridge Dictionary, online)
b. She tore the letter to shreds. (Cambridge Dictionary, online)

However, *ounce* and *shred* also have an idiomatic usage as a minimizer NPI:

- (50) a. That politician doesn't have (even) an {ounce/shred} of sincerity in his body. (positive noun, conveys dissatisfaction)
b. That man doesn't have (even) an {ounce/shred} of integrity in his body.

In this respect, *ounce* and *shred* are very similar to the Japanese NPI *kakera*. However, as the following examples show, *ounce* and *shred* can naturally co-occur with negative abstract nouns and convey praise:⁸

- (51) a. The old man doesn't have an {ounce/shred} of meanness in him. (negative noun, conveying praise)
b. This dog doesn't have an {ounce/shred} of aggression (in his body). (negative noun, conveying praise)

In these cases, there is no sense of criticism (complaint). In this respect they are largely differ-

⁸ I thank a reviewer, Thomas Grano and Richard Harrison for their valuable comments.

ent from Japanese *kakera*. The corresponding Japanese sentences sound unnatural:

- (52) a. ??Ano ojiisan-ni-wa mijime-sa-no kakera-mo nai.
That old man-to-TOP mean-NMLZ-GEN piece-even NEG.exist
'Intended: There is no meanness in that old man.'
b. ??Kono inu-ni-wa kougekisei-no kakera-mo nai.
This dog-to-TOP aggression-GEN piece-even NEG.exist
'Intended: This dog doesn't have an {ounce/shred} of aggression.'

Thus, unlike Japanese *kakera*, English *ounce* and *shred* are neutral with regard to the speaker's attitude and they are not conventionalized as negative attitudinal minimizers.⁹

One interesting point about *shred* is that in the corpus data, we can find many examples in which it co-occurs with the nouns *evidence* and *truth*:

- (53) a. There is not a shred of evidence, not an iota of data, which compels us to believe that. (COCA)
b. There is much evidence to support the former belief and not a shred of evidence to support the latter. (COCA)
c. That's a preposterous idea, not even a shred of truth in that statement. (COCA)

Looking at the first 20 cases in the COCA search results, 12 of the 20 cases co-occurred with *evidence*, and 2 cases co-occurred with *truth*.¹⁰ This tendency is not seen for the Japanese *kakera*. In fact, *kakera* does co-occur naturally with *shooko* 'evidence', *shinjitsusa* 'truth':

- (54) ??{Shooko / shinjitsu}-no kakera-mo nai.
Evidence / truth-GEN piece-even NEG.exist
'There is not a shred of {evidence/truth}.'

Thus, there may be a slight difference between *ounce*, and *shred* as well (at least at a collocational level).

6. Conclusion. In this paper, I investigated the meaning and use of the Japanese NPI *kakera*. The NPI *kakera* is a special NPI in that it is usually used in the context of complaint. I argued that *kakera* is mixed content in that it not only represents a minimal degree of the property-oriented NP in the semantic level, but also conventionally implies that a high degree of the NP is (socially) expected as a desire, and speakers communicate their dissatisfaction with the

⁹ In the Corpus of Contemporary American English (COCA), many of them co-occurred with abstract positive nouns (such as loyalty, decency), and seemed to express the speaker's dissatisfaction. However, some of the examples co-occur with negative nouns (e.g., arrogance), and have a sense of praise:

- (i) a. This woman does not possess an ounce of decency. (positive noun)
b. There is not an ounce of empathy or compassion. (positive noun)
(ii) a. He was so NICE!! always answering nicely!! NOT AN OUNCE OF ARROGANCE in him!! (negative noun)
b. His work ethic is tremendous. There's not an ounce of hate in my blood whatsoever. (negative noun)

¹⁰ I found the following example in the COCA corpus where *ounce* and *shred* co-occur:

- (i) There's not an ounce of validity or shred of truth to the criticism. (COCA)

target. This kind of negative expressivity is not found with typical minimizers such as *any* and *at all* in English or Japanese *mattaku* ‘at all’ and *sukoshi-mo* ‘a bit’. As the following Japanese sentence and its English translation show, typical minimizers are neutral regarding the type of nouns they combine with.

- (55) Ano seijika-no taido-kara-wa {seijitsu-sa / sondai-sa}-ga {mattaku /
That politician-GEN attitude-from-TOP sincere-NMLZ / arrogant-NMLZ-NOM at all /
sukoshi-mo} kanji-rare-nai.
a bit-even feel-PASS-NEG
‘The attitude of that politician does not show any {sincerity/arrogance} at all.’

Since Bolinger (1972), many important studies have been done on the meaning and distributions of minimizer NPIs and the underlying syntactic, semantic, and pragmatic mechanisms (e.g., Ladusaw 1980; Heim 1984; Horn 1989; Krifka 1995; Giannakidou 1998; Israel 1996; Chierchia 2013, among many others). The minimizer NPIs have an “emphatic” function (e.g., Israel 1996), and it is often assumed that this function comes from the meaning of EVEN (e.g., Chierchia 2013). However, the existence of NPI *kakera* suggests that EVEN is not the only source for expressing the speaker’s attitude, and each NPI can have item-specific emotive functions, such as counter-expectation and negative attitude. This paper suggested that the presence/absence of CI/expressive component provides an important point of variation for the semantics of minimizers and the multidimensional approach can successfully capture the variation in a systematic fashion.

In a future study, detailed investigation will be necessary regarding the variations of expressive minimizer both empirically and theoretically. Empirically, it would be worth comparing the difference between the NPI *kakera* and vulgar minimizers such as *squat* and *shit* (Postal 2004):¹¹

- (56) a. Olmstead doesn’t understand squat about topology. (Postal 2004: 159)
b. He doesn’t know shit about GB. (Postal 2004: 162)

It seems that the vulgar minimizers also convey a speaker’s negative attitude, though unlike the NPI *kakera*, vulgar minimizers are not property-oriented. They do not convey that the expected property is totally absent. There can be variations among attitudinal minimizers.

As for the technical issue, a more detailed investigation on the relationship between alternative semantics and CI will be necessary. In this paper, I used the notion of alternatives in analyzing the scalar meaning of *kakera*, though I intentionally did not use Rooth’s theory of alternative semantics. In Rooth’s theory (e.g., Rooth 1985), alternatives are created at a lexical/local level and the alternatives propagate up the tree. Under this approach, *kakera* will have both its lexical meaning and its alternative:

- (57) a. $[[kakera_{NPI}]] = \lambda P. \text{MIN}\{d|P(d)\} \blacklozenge \lambda P. \text{expected-to-have}_{\text{desire}}(\text{HIGH}\{d'|P(d')\}) \wedge \text{complain-about}(j, \text{the target in question})$
b. $\text{ALT}(kakera) = \{\lambda P. \text{MID}\{d|P(d)\}, \lambda P. \text{MAX}\{d|P(d)\}\}$

The problem here is that *kakera*’s alternatives and the expressive/expectation component of *kakera* are both non-at-issue, but they are quite different and they should be separated. In the

¹¹ Postal (2004) lists the following items for vulgar minimizers: *beans*, *crap*, *dick*, *diddley*, *diddley-poo*, *diddley-squat*, *fuck-all*, *jack*, *jack-shit*, *jack-squat*, *piss-all*, *poo*, *shit*, *shit-all*, *squat*.

present proposal, I assumed that alternatives are created outside the semantic derivation. More detailed discussions are necessary regarding the relationship between CIs and focus-related phenomenon.

References

- Amaral, Patricia, Craige Roberts & Allyn E. Smith. 2007. Review of the logic of conventional implicatures by Chris Potts. *Linguistics and Philosophy* 30(6). 707–749. <https://doi.org/10.1007/s10988-008-9025-2>.
- Bolinger, Dwight. 1972. *Degree words*. Paris: Mouton.
- Chierchia, Gennaro. 2013. *Logic in grammar: Polarity, free choice, and intervention*. Oxford: Oxford University Press.
- Francez, Itamar & Andrew Koontz-Garboden. 2015. Semantic variation and the grammar of property concepts. *Language* 91(3). 533–563. <https://doi.org/10.1353/lan.2015.0047>.
- Giannakidou, Anastasia. 1998. *Polarity sensitivity as (non)veridical dependency*. Amsterdam: John Benjamins.
- Gutzmann, Daniel. 2012. *Use-conditional meaning*. Frankfurt: University of Frankfurt dissertation.
- Harris, Jesse. A. & Christopher Potts. 2009. Perspective-shifting with appositives and expressives. *Linguistics and Philosophy* 32 (6). 523–552. <https://doi.org/10.1007/s10988-010-9070-5>.
- Heim, Irene. 1984. A note on negative polarity and downward entailingness. In *Proceedings of the 14th meeting of the North East Linguistic Society*, 98–107.
- Horn, Laurence R. 1989. *A natural history of negation*. Chicago: University of Chicago Press.
- Israel, Michael. 1996. Polarity sensitivity as lexical semantics. *Linguistics and Philosophy* 19. 619–666. <https://doi.org/10.1007/BF00632710>.
- Karttunen, Lauri & Stanley Peters. 1979. Conventional implicature. In C. K. Oh & D. A. Dinneen (eds.), *Syntax and semantics. vol. 11. presupposition*, 1–56. New York: Academic Press.
- Krifka, Manfred. 1995. The semantics and pragmatics of polarity items. *Linguistic Analysis* 25. 1–49.
- Ladusaw, William. A. 1980. *Polarity sensitivity as inherent scope relations*. New York & London: Garland Publishing.
- McCready, Elin. 2010. Varieties of conventional implicature. *Semantics & Pragmatics* 3(8). 1–57. <https://doi.org/10.3765/sp.3.8>.
- Postal, Paul. M. 2004. *Skeptical linguistic essays*. Oxford: Oxford University Press.
- Potts, Christopher. 2005. *The logic of conventional implicatures*. Oxford: Oxford University Press.
- Potts, Christopher. 2007. The expressive dimension. *Theoretical Linguistics* 33. 165–197. <https://doi.org/10.1515/TL.2007.011>.
- Rooth, Mats. 1985. *Association with focus*. Amherst, MA: University of Massachusetts at Amherst dissertation.
- Sawada, Osamu. 2010. *Pragmatic aspects of scalar modifiers*. Chicago, IL: University of Chicago dissertation.
- Sawada, Osamu. 2018. *Pragmatic aspects of scalar modifiers: The semantics-pragmatics interface*. Oxford: Oxford University Press.