

Interpretations of sense-based minimizers in Japanese and English: Direct and indirect sense-based measurements[★]

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Abstract. The Japanese degree adverb *kasukani* can be combined with a sense-related gradable predicate, such as *amai* ‘sweet’ or *kaoru* ‘smell’, but it cannot usually co-occur with an emotive predicate, such as *odoroi-teiru* ‘surprised’. However, if there is a sense-related expression that is structurally placed at a higher position, *kasukani* can combine with an emotive predicate. Building on the idea of Sawada (2021), I will first show that *kasukani* is mixed content (McCready 2010; Gutzmann 2011) in that it not only denotes a low scalar meaning in the at-issue component, but also implies that the judge (typically the speaker) has measured its degree based on their own senses (e.g., vision, smell, taste, or hearing) at the level of conventional implicature (CI) (e.g., Grice 1975; Potts 2005). I will then argue that the projective property of the CI meaning of *kasukani* allows *kasukani* to be used to measure the degree of emotion through a sense-based expression, such as *mie-ru* ‘look’. I will also compare *kasukani* to English *faintly*, which can be used to measure the degree of emotion directly or measure the degree of emotion indirectly via a sense-based expression and explain the differences between the two by positing different CI components. This study demonstrates that the multidimensional approach to meaning can successfully explain the concord relationship between a sense-based minimizer and sense-related expression.

Keywords: sense-based minimizers · local measurement · global (indirect) measurement · experience · sense · emotion · multidimensionality.

1 Introduction

The Japanese minimizer *kasukani*, which approximately means ‘faintly’, is sense-based in that it measures the degree based on a judge’s (typically the speaker’s) senses of

[★] I am grateful to Daisuke Bekki, Ikumi Imani, Chris Kennedy, Hideki Kishimoto, Kenta Mizutani, David Oshima, Harumi Sawada, Jun Sawada, Koji Sugisaki, Eri Tanaka, and the reviewers of LENLS 18 for their valuable comments and suggestions. Parts of this paper were presented at the seminar at Kwansei Gakuin University and the ICU Linguistics Colloquium, and I also thank the audiences for their valuable discussions. This study is based on work supported by the JSPS KAKENHI Grant (21K00525, 22K00554) and the NINJAL collaborative research project “Evidence-based Theoretical and Typological Linguistics.” All remaining errors are, of course, my own.

taste, vision, smell, or hearing (see also Sawada 2021) as shown in (1) (the examples with *sukoshi* ‘a bit’ are also natural, but as we will see below, *sukoshi* does not have a sense-related restriction):¹

- (1) a. Kono sake-wa {kasukani / sukoshi} amai.
This sake-TOP faintly / a bit sweet
‘This sake is {faintly/a bit} sweet.’ (sense of taste)
- b. Minto-ga {kasukani / sukoshi} kao-ru.
Mint-NOM faintly / a bit smell-Non.PST
‘It smells {faintly/a bit} of mint.’ (sense of smell)
- c. Fujisan-ga {kasukani / sukoshi} mie-ru.
Mt. Fuji-NOM faintly / a bit can.see-Non.PST
‘Mt Fuji is {faintly/a bit} visible.’ (sense of sight)
- d. Oto-ga {kasukani / sukoshi} kikoe-ru.
Sound-NOM faintly / a bit can.hear-Non.PST
‘I can hear the sound faintly/I can hear a little sound.’ (sense of hearing)
- e. Totte-ga mada {kasukani / sukoshi} atatakai.
Handle-NOM still faintly / a bit warm
‘The handle is still {faintly/a bit} warm.’ (sense of touch)

As *kasukani* is sense-based, unlike the regular minimizer *sukoshi* ‘a bit’, *kasukani* cannot combine with non-sense-based adjectives such as *takai* ‘expensive’ or *ookii* ‘big’:

- (2) Kono hon-wa {??kasukani / sukoshi} takai.
This book-TOP faintly / a bit expensive
‘This book is {??faintly/a bit} expensive.’
- (3) Kono T-shatsu-wa {??kasukani / sukoshi} ookii.
This T-shirt-TOP faintly / a bit big
‘This T-shirt is {??faintly/a bit} big.’

One important feature of *kasukani* is that while it cannot directly combine with an emotive predicate (similar to the case of non-sense-based adjectives), as seen in (4a) and (5a), in an embedded context, *kasukani* can combine with an emotive predicate if there is a sense-related expression in a main clause, as in (4b) and (5b):

- (4) a. Hanako-wa {??kasukani / sukoshi} odoroi-ta.
Hanako-TOP faintly / a bit surprise-PST
‘Hanako was {faintly/a bit} surprised.’

¹ Furthermore, *kasukani* can also be used to measure the degree of memory:

- (i) Ano hi-no koto-o {kasukani / sukoshi} oboe-teiru.
That day-GEN thing-ACC faintly / a bit remember-STATE
‘I faintly remember that day./I remember a little bit about that day.’ (sense of memory)

- b. Hanako-wa {kasukani / sukoshi} odoroi-ta hyoujou-o ukabe-ta.
Hanako-TOP faintly / a bit surprise-PST look-ACC express-PST
'Hanako looked {faintly/a bit} surprised.'
- (5) a. Taro-wa sonokoto-de {??kasukani / sukoshi} kanashin-dei-ta.
Taro-TOP that thing-with faintly / a bit sad-STATE-PST
'Taro was {faintly/a bit} sad about that.'
- b. Taro-wa sono koto-de {kasukani / sukoshi} kanashin-deiru-yooni
Taro-TOP that thing-with faintly / a bit sad-STATE-like
mie-ta.
look-PST
'Taro looked {faintly/a bit} sad about that.'

Kasukani in (4b) and (5b) syntactically and semantically modifies an emotive predicate, denoting that the degree of surprise/sadness is slightly greater than zero, but the measurement is made through the speaker's perception (sense of sight). How can we explain the asymmetry in (4) and (5) and the dependency of *kasukani* on a sense-related expression? In this study, building on Sawada's (2021) idea, I will first show that *kasukani* has a non-at-issue component/conventional implicature (CI) that the judge (typically the speaker) has measured degree based on their own senses (e.g., vision, smell, taste, hearing), which is logically independent of "what is said" (Grice 1975; Potts 2005). I will then argue that the projective property of the CI meaning of *kasukani* allows *kasukani* to be used to measure the degree of emotion through a sense-based expression, such as *mie-ru* 'look'. I will also compare *kasukani* to English *faintly*, which can measure the degree of emotion directly or indirectly via sense-based expressions, such as *look*, and explain their differences by positing different non-at-issue CI components.

2 The meaning of Japanese *kasukani* 'faintly'

Let us first consider the meaning and distribution of Japanese *kasukani* 'faintly'.

2.1 The experiential component of *kasukani*

As we observed in the Introduction, the Japanese minimizer *kasukani* 'faintly' is sense-based in that it measures degree based on a judge's (typically the speaker's) sense of taste, vision, smell, or hearing. As Sawada (2021) points out, this implies that if a speaker does not have direct experience via a sense, (s)he cannot use *kasukani*. This is evidenced by the following examples. (6) is natural because the speaker measures the degree of sweetness based on their own senses:

- (6) (Context: The speaker is drinking coffee.)
Kono koohii-wa {kasukani / sukoshi} amai.
This coffee-TOP faintly / a bit sweet
'This coffee is faintly/a bit sweet.'

In contrast, (7) with *kasukani* sounds odd because the speaker has not measured the degree of sweetness of the coffee through their own senses:

- (7) (Context: The speaker is looking at a label. According to the label, on a scale of 1 to 5, the sweetness of the coffee is 1.)

Kono koohii-wa {#kasukani / sukoshi} amai.
 This coffee-TOP faintly / a bit sweet
 ‘This coffee is #faintly/a bit sweet.’

The above discussion suggests that *kasukani* is very similar to predicates of personal taste, which require direct experience (e.g., Pearson 2013; Ninan 2014; Kennedy and Willer 2019; Willer and Kennedy 2020), particularly a sense-related predicate of personal taste, such as *tasty*:

- (8) a. This coffee is tasty.
 b. This sushi is delicious.

For example, Pearson (2013) describes the requirement of direct sensory experience in the predicates of personal taste as follows:

- (9) In order to assert that *x* is *P* for some taste predicate *P*, one typically must have direct sensory experience of the relevant kind on the basis of which to judge whether *x* is *P*. [...] To assert that *shortbread is tasty*, I must have tasted shortbread. If I have good reason to believe that shortbread is tasty, say because a reliable expert has told me so, I might say, *Apparently, shortbread is tasty*, but not, *Shortbread is tasty*. (Pearson2013: 117)

However, note that *kasukani* cannot co-occur with a predicate of personal taste, such as *oishii* ‘delicious’:

- (10) ?? Kono keeki-wa kasukani oishii.
 This cake-TOP faintly delicious
 ‘This cake is faintly delicious.’

We will discuss this point in Section 2.4.

2.2 The barely-component of *kasukani*

Another important feature of *kasukani* is that it is used in situations where the speaker barely recognizes the given degree. *Nihon Kokugo Daijiten* describes that *kasukani* represents the degree of a thing such that it can barely be recognized through the exercise of perception or memory. In other words, the word *kasukani* ‘faintly’ means not only a small degree, but also a degree that is not clear.

In this sense, *kasukani* is semantically similar to *bonyari* ‘dimly’.

- (11) Fujisan-ga {kasukani/bonyari} mie-ru.
 Mt. Fuji-NOM faintly/dimly can.see-NON.PST
 ‘Mt. Fuji is faintly/dimly visible.’

However, *kasukani* and *bonyari* ‘dimly’ are not semantically the same. *Kasukani* has a low degree meaning but *bonyari* does not have a low degree meaning.

2.3 The non-at-issue (CI) property of *kasukani*

Let us now consider the status of the meaning of *kasukani*. I argue that *kasukani* induces a conventional implicature (Grice 1975; Potts 2005) that the judge (typically the speaker) measures the degree based on their own senses (e.g., sight, smell, taste, or hearing). More specifically, I assume that *kasukani* ‘faintly’ is mixed content in that it has an at-issue scalar meaning and the CI (McCready 2010; Gutzmann 2011) inside the lexical item (cf. Sawada 2021):

(12) **Descriptive definition of the meaning of *kasukani*:**

In the at-issue component of *kasukani*, *kasukani* denotes that the degree of a target x is slightly greater than zero (= a minimum standard) on the scale of G and that the given degree is barely recognizable in the at-issue component. Simultaneously, *kasukani* conventionally implicates that the judge (typically the speaker) is measuring or has measured the degree based on their own sense of sight, smell, taste, or hearing.

In Gricean pragmatics, CIs are considered a part of the meaning of words, but they are independent of “what is said” (at-issue meaning; e.g., Grice 1975; Potts 2005; McCready 2010; Gutzmann 2011; Sawada 2010, Sawada 2018). Furthermore, it is often assumed that CIs are speaker-oriented by default (Potts 2007).

The experiential component is a CI because it is independent of “what is said” (at-issue meaning). This is supported by a denial test. First, as (13) and (14) show, the low-degree component can be deniable:

- (13) A: Fujisan-ga kasukani mie-ru.
Mt. Fuji-NOM faintly can.see-Non.PST
Mt. Fuji is faintly visible.
CI: I have measured the degree of visibility based on my sense of sight.
B: Iya sore-wa uso-da. Mattaku mie-nai-yo.
No that-TOP false-PRED At all see.can-NEG-Prt
‘No, that is false. I can’t see it at all.’
- (14) A: Kono koohii-wa kasukani amai.
This coffee-TOP faintly sweet
At-issue: The degree of sweetness of this coffee is slightly greater than zero.
CI: I have measured the degree of sweetness based on my sense of taste.
B: Iya sore-wa uso-da. Mattaku amaku-nai-yo.
No that-TOP false-PRED At all sweet-NEG-Prt
‘No, that is false. It is not sweet at all.’

Furthermore, the vague-component is also deniable:

- (15) A: Fujisan-ga kasukani mie-ru.
Mt. Fuji-NOM faintly can.see-Non.PST
Mt. Fuji is faintly visible.
CI: I have measured the degree of visibility based on my sense of sight.

B: Iya, bokuji-ni-wa hakkiri mie-ru-yo.
 Well I-to-TOP clearly see.can-Non.PST-Prt
 ‘Well, I can see it clearly.’

- (16) A: Oto-ga kasukani kikoe-ru.
 Sound-NOM faintly can.hear-Non.PST
 ‘I can hear a sound faintly.’
 CI: I have measured the degree of sound based on my sense of hearing.
- B: Sou? Boku-ni-wa hakkiri kikoe-ru-yo.
 Really I-to-TOP clearly can.hear-Non.PST-Prt
 ‘Really? I can hear it clearly.’

However, it is impossible to reject the experiential meaning by saying, “No, that’s false.”

- (17) A: Kono koohii-wa kasukani amai.
 This coffee-TOP faintly sweet
 At-issue: The degree of sweetness of this coffee is slightly greater than zero.
 CI: I have measured the degree of sweetness based on my sense of taste.
- B: Iya sore-wa uso-da. # Anta-wa mikaku-de kanjite i-nai.
 No that-TOP false-PRED You-TOP taste-with feel be-NEG
 ‘No, that is false. You are not feeling it with your own mouth.’

Further evidence for the assertion that *kasukani* has a CI and is logically independent of “what is said” comes from the fact that the experiential meaning semantically projects even if *kasukani* is embedded under the verb *omou* ‘think’ or the modal *kamoshirenai* ‘may’:

- (18) (Context: The speaker is drinking coffee.)
- a. Kono koohii-wa kasukani amai-to omo-u.
 This coffee-TOP faintly sweet-that think-Non.PST
 ‘I think that this coffee is faintly sweet.’
 (CI: I have measured the degree of sweetness based on my sense of taste.)
- b. Kono koohii-wa kasukani amai-kamoshirenai.
 This coffee-TOP faintly sweet-may
 ‘This coffee may be faintly sweet.’
 (CI: I have measured the degree of sweetness based on my sense of taste.)

The CI components of (18) are not within the semantic scope of *omou* ‘think’ or *kamoshirenai* ‘may’.

The fact that the experiential component of *kasukani* cannot be within the semantic scope of a logical operator also supports the idea that it is a CI (non-at-issue). For example, the experiential component does not fall within the semantic scope of a confirmation question:

- (19) Kono sake kasukani amai-yo-ne?
 This sake faintly sweet-Prt-Confirm.Q
 ‘This sake is faintly sweet, right?’ (CI: I have measured the degree of sweetness based on my sense of taste.)

I assume that the experiential component is not a presupposition in the usual sense because it is not taken for granted in the utterance of a sentence. However, I will not go into detail about the difference between a presupposition and a CI; what is important here is that it has the property of non-at-issueness.

Note that although *kasukani* is typically speaker-oriented, the perspective can shift. For example, if it is embedded under an attitude predicate and the subject of the sentence is a third person, the judge of *kasukani* is the subject (i.e., the attitude holder):

- (20) Hanako-wa kono wain-wa kasukani amai-to omo-ttei-ru.
 Hanako-TOP this wine-TOP faintly sweet-that think-STATE-Non.PST
 ‘Hanako thinks that this wine is faintly sweet.’

Furthermore, if *kasukani* co-occurs with a hearsay evidential, such as *rashii* ‘I hear’, then the judge of *kasukani* is someone who reported that the wine is faintly sweet, as shown in:

- (21) Kono wain-wa kasukani amai-rashii.
 This wine-TOP faintly sweet-EVID
 ‘I heard that this wine is faintly sweet.’

Although Potts (2005) claims that CIs are always speaker-oriented, several scholars have claimed that CI expressions, such as expressives, can have a non-speaker orientation (e.g., Amaral et al. 2007; Potts 2007; Harris and Potts 2009). I consider that this also applies to *kasukani*.²

2.4 Formal analysis of *kasukani*

Let us now consider how the meaning of *kasukani* can be analyzed formally using the following example:

- (22) Kono sake-wa kasukani amai.
 This sake-TOP faintly sweet
 ‘This sake is faintly sweet.’

In this study, I will analyze the meaning of sense-based minimizers based on multi-dimensional semantics (Potts 2005) in which both an at-issue meaning and a CI meaning are compositional but are interpreted along different dimensions (i.e., an at-issue dimension and a CI dimension). More specifically, I use the logic of mixed content (McCready 2010; Gutzmann 2012) to analyze the meaning of *kasukani*. In this system, the meaning of mixed content is computed via a mixed application as follows:

² In this study, I do not consider the experiential component of *kasukani* a presupposition. It is the judge’s personal experience (typically a speaker’s experience), not something that is shared between a speaker and a hearer.

(23) Mixed application

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

(Based on McCready 2010)

The at-issue component is to the left of \blacklozenge , and the non-at-issue component/CI is to the right. Superscript a stands for an at-issue type, and superscript s stands for a shunting type, which is used for the semantic interpretation of a CI involving an operation of shunting.³

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

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

Based on the above setup, I propose that *kasukani* has the following meaning (the variable G is an abbreviated variable for a gradable predicate (measure function) of type $\langle d^a, \langle e^a, t^a \rangle \rangle$ and j stands for a judge and “ $\gtrsim \text{STND}_{\text{MIN}, G}$ ” stands for slightly greater than a minimum standard of G):

- (25) $[[\text{kasukani}]] : \langle \langle d^a, \langle e^a, t^a \rangle \rangle, \langle e^a, t^a \rangle \rangle \times \langle \langle d^a, \langle e^a, t^a \rangle \rangle, t^s \rangle =$
 $\lambda G \lambda x. \exists d [d \gtrsim \text{STND}_{\text{MIN}, G} \wedge G(d)(x) \wedge \text{barely-recognizable}(d)] \blacklozenge \lambda G. \text{have-measured}$
 $(j, \text{the degree of } G) \text{ based on } j\text{'s sense of } \{\text{vision (color)/smell/ taste/hearing/touch/}$
 $\text{memory}\}$

In the at-issue dimension, *kasukani* takes a gradable predicate G and an individual x and denotes that there is some degree d such that d is slightly greater than a minimum standard of G and d is barely-recognizable. In the CI component, it takes G and con-

³ The following figure shows the shunting application:

- (i) The shunting application (Based on McCready 2010)

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

The shunting application is different from Potts’ (2005) CI application, where it is resource-sensitive. Potts’s CI application is resource-insensitive, as shown in (ii):

- (ii) CI application (Potts 2005)

$$\begin{array}{c} \beta : \sigma^a \\ \bullet \\ \alpha(\beta) : \tau^c \\ \swarrow \quad \searrow \\ \alpha : \langle \sigma^a, \tau^c \rangle \quad \beta : \sigma^a \end{array}$$

The superscript c represents the CI type, which is used for CI application. Here, the α of $\langle \sigma^a, \tau^c \rangle$ takes a β of type σ^a and returns τ^c . Simultaneously, a β is passed on to the mother node.

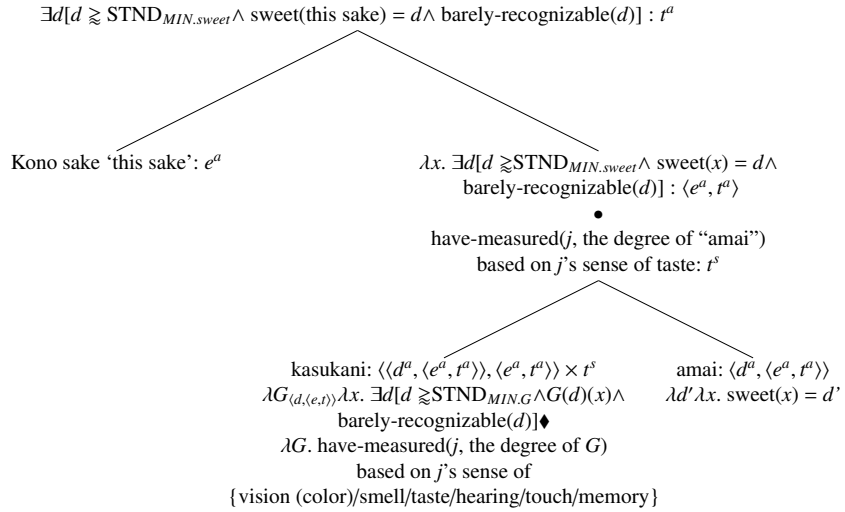
ventionally implies that the judge j (typically the speaker) has measured the degree of G based on their senses of vision, smell, taste, hearing, touch, or memory.⁴

As for the meaning of gradable predicates, I assume that they represent relations between individuals and degrees (e.g., Seuren 1973; Cresswell 1976; von Stechow 1984; Klein 1991; Kennedy and McNally 2005):⁵

$$(26) \quad [[\text{sweet}/\text{amai}]]: \langle d^a, \langle e^a, t^a \rangle \rangle = \lambda d \lambda x. \text{sweet}(x) = d$$

Kasukani and *amai* are combined via mixed application. Note that as the CI component of *kasukani* is complete (i.e., its denotation is of type t^s), *kasukani* takes the argument *amai* only at the at-issue component. Figure (27) shows the logical structure of sentence (22) (the information on tense and world has been omitted for the sake of simplicity):

(27) The logical structure of (22)



One seemingly puzzling point is that *kasukani* cannot co-occur with a gradable predicate, such as *oishii* ‘delicious’ and *urusai* ‘noisy’ despite the fact that they are related to sense (taste/hearing):

⁴ Here, the CI of *kasukani* is taken as information related to the act of how the judge is weighing the degree in question. *Kasukani* is not evaluative in the sense that it does not express the speaker’s attitude toward the degree of the at-issue. Rather, the act of measurement based on the sense and measurement at the at-issue level are taking place simultaneously. This point is different from the mixed content *Kraut*, which denotes German in the at-issue domain and additionally conveys that the speaker has a negative attitude toward German people (McCready 2010; Gutzmann 2011).

⁵ Here, I consider that the unmodified adjective *sweet/amai* is of the same type as the usual gradable adjective, and no judge variable (j) is assumed. In positive adjective sentences, *sweet/amai* is evaluated in relation to the speaker’s minimum standard, and I assume that the standard is introduced by a positive form (pos) or a degree modifier. This is where the judgment is made. In comparative sentences, the unmodified adjective is attached to the comparative morpheme.

- (28) a. ?? Kono keeki-wa kasukani oishii.
 This cake-TOP faintly delicious
 ‘This cake is faintly delicious.’
 b. ?? Kono heya-wa kasukani urusai.
 This room-TOP faintly noisy
 ‘This room is faintly noisy.’ (cf., *Oto-ga kasukani kiko-e-ru* ‘the sound is faintly heard’.)

In Sawada (2021), I claimed that *kasukani* cannot be combined with *oishii* ‘delicious’ or *urusai* ‘noisy’ because these adjectives are relative gradable adjectives that posit a contextual standard (norm) and cannot measure degrees from a minimum point. Whether something is tasty or noisy is determined by a contextually determined norm. Contrariwise, *kasukani* is fine with the adjective *amai* ‘sweet’ or *akai* ‘red’, because they are absolute adjectives that posit a lower-closed scale (minimum degree).⁶

Another seemingly puzzling point regarding the distribution of *kasukani* is that it does not seem to naturally occur in comparatives.⁷ Observe the following examples:

- (29) a. Kono koohii-wa {kasukani / sukoshi} amai.
 This coffee-TOP faintly / a bit sweet
 ‘This coffee is {faintly/a bit} sweet.’
 b. Kono koohii-wa ano koohii-yori-mo {?kasukani / sukoshi} amai.
 This coffee-TOP that coffee-than-*mo* faintly / a bit sweet
 ‘This coffee is faintly sweeter than that coffee.’
 (30) a. Hanabira-ga {kasukani / sukoshi} akai.
 Petal-NOM faintly / a bit red
 ‘The flower petals are {faintly/a bit} red.’
 b. Kono hanabira-wa ano hanabira-yori-mo {?kasukani / sukoshi} akai.
 This petal-TOP that petal-than-*mo* faintly / a bit red
 ‘This petal is faintly redder than that petal.’

In (29b) and (30b) *kasukani/sukoshi* measures the difference between the target and standard degrees and only the sentences with *sukoshi* are natural. The sentences with *kasukani* sound unnatural because in this situation *kasukani* cannot measure degrees from an absolute zero point. *Kasukani* needs to signal that the speaker is aware through their senses that the degree in question is “not zero”, but such an awareness is not possible in the environment of differential comparison. Although, theoretically, the standard

⁶ It seems that the minimum standard of *amai* ‘sweet’ is context-dependent (person-dependent), and is different in nature from the minimum standard of typical absolute gradable predicates, such as English *bent* and Japanese *magat-teiru* ‘bent’. Whether something is sweet is judged based on whether the degree of sweetness exceeds the minimum standard of sweetness, but as people have different senses of taste, the minimum standard is not absolute in a physical sense. It may be that sense-related adjectives belong to a new type of gradable predicate (i.e., possessing the features of both relative and absolute adjectives).

⁷ I thank Kenta Mizutani for the valuable discussion regarding this point.

of comparison can be taken as “derived zero point”, sensuously it is not a zero point. In contrast, as *sukoshi* does not specify that the judge is measuring degrees from a zero point (minimum degree) based on their sense, the standard of comparison can be of any degree.

However, note that in the context where the standard of comparison happens to be a zero point, *kasukani* seems to be usable in comparative sentences:

- (31) a. Higashi-no sora-ga {kasukani / sukoshi} akarui.
East-GEN sky-NOM faintly / a bit bright
‘The sky is faintly bright.’
b. (Context: The sky was completely dark a short time ago.)
Higashi-no sora-ga sakki-yori-mo {kasukani / sukoshi} akarui.
EastGEN sky-NOM before-than-*mo* faintly / a bit bright
‘Lit. The eastern sky is faintly brighter than before.’

It seems to me that both (31a) and (31b) are natural. If we assume a context in which the sky was completely dark a short time ago, then the comparative sentence (also) sounds natural. In this context, the speaker feels that the sky is faintly brighter than before, which is completely dark, and *kasukani* is in effect measuring degrees from a zero point. Thus, a comparative sentence with *kasukani* would be natural. However, this seems to be a special case.

3 Indirect measurement: Measuring the degree of emotion via perception

Let us now consider the case of indirect measurement. As we observed in the Introduction, *kasukani* cannot directly combine with an emotive predicate, but if there is a sense-related expression in the main clause, it can co-occur with an emotive predicate:⁸

- (32) a. Hanako-wa {#kasukani / sukoshi} odoroi-ta.
Hanako-TOP faintly / a bit surprise-PST
‘Hanako was {faintly/a bit} surprised.’
b. Hanako-wa {kasukani / sukoshi} odoroi-ta hyoujou-o ukabe-ta.
Hanako-TOP faintly / a bit surprise-PST look-ACC express-PST
‘Hanako looked {faintly/a bit} surprised.’
(33) a. Taro-wa {#kasukani / sukoshi} kanashin-deiru.
Taro-TOP faintly / a bit sad-STATE
‘Taro is {faintly/a bit} sad.’

⁸ Even if the subject is in the first person, *kasukani* ‘faintly’ cannot modify an emotive predicate:

- (i) Watashi-wa {??kasukani / chotto} {kanashii-desu / odorki-mashi-ta}.
I-TOP faintly / a bit sad-POLITE / surprise-POLITE-PST
‘I am {faintly/a bit} sad./I was {faintly/a bit} surprised.’

- b. Taro-wa {kasukani / sukoshi} kanashin-deiru-yooni mie-ru.
 Taro-TOP faintly / a bit sad-STATE-like look-Non.PST
 ‘Taro looks {faintly/a bit} sad.’

In (32b) and (33b) *kasukani* syntactically and semantically modifies an emotive predicate, denoting that the degree of surprise/sadness is slightly greater than zero, but the measurement is made through the speaker’s perception (sense of sight).⁹

Intuitively, examples (32a) and (33a) with *kasukani* are odd because of the lack of a perception-related expression, whereas (32b) and (33b) appear natural because *kasukani* interacts with *mie-ru* ‘look’ or *ukaberu* ‘express’, which are related to perception.

Note that if we replace the perception verb *mie-ru* ‘look’ into the evidential *yooda*, the sentence sounds less natural:

- (34) Taro-wa (sono koto-de) {??/? kasukani / sukoshi} kanashin-deiru-yooda.
 Taro-TOP that thing-with faintly / a bit sad-STATE-seem
 ‘Taro seems to be {faintly/a bit} sad about that.’
- (35) Hanako-wa (sono koto-de) {??/? kasukani / sukoshi}
 Hanako-TOP that thing-with faintly / a bit
 kanashin-deiru-mitai-da.
 sad-STATE-seem-PRED
 ‘Hanako seems to be {faintly/a bit} sad about that.’

Here *yooda* and *mitai-da* behave as hearsay evidentials and are not construed as sense-related expressions.

The proposed multidimensional approach can successfully capture this. The key point is that although *kasukani* directly modifies an emotive predicate, its CI is interpreted (satisfied) at a root level. In the Potts/McCready system, we can capture this using the parsetree interpretation.

- (36) Parsetree interpretation (McCready 2010; cf. Potts 2005)
 Let \mathcal{T} be a semantic parsetree with the at-issue term $\alpha : \sigma^a$ on its root node, and distinct terms $\beta_1 : t^{[c,s]}$, ..., $\beta_n : t^{[c,s]}$ on nodes in it. Then, the interpretation of \mathcal{T} is the $\langle [[\alpha : \sigma^a]], [[\beta_1 : t^{[c,s]}]], \dots, [[\beta_n : t^{[c,s]}]] \rangle$
 (Based on McCready 2010: 32)

For example, in (33b) the CI component of *kasukani* is embedded (situated below the bullet) as shown in (37), but if we apply this rule, we can see both the at-issue and CI meanings on the root node as shown in (38):

⁹ Note that if we place *kasukani* before the main predicate, the sentences become odd:

- (i) a. ?? Hanako-wa odoroi-ta hyoujou-o kasukani ukabe-ta.
 Hanako-TOP surprise-PST look-ACC faintly express-PST
 ‘Hanako faintly looked surprised.’
- b. ?? Taro-wa kanashin-deiru-yooni kasukani mie-ru.
 Taro-TOP sad-STATE-like faintly look-Non.PST
 ‘Taro faintly looked sad about that.’

(37)



(38) **After parseetree interpretation**

$\langle \text{look}(\exists d[d \gtrsim \text{STND}_{\text{MIN.being.sad}} \wedge \text{being.sad}(\text{Taro}) = d \wedge \text{barely-recognizable}(d)])$
 for $j (=sp): t^a$, have-measured(j , the degree of "kanashin-deiru") based on j 's
 sense of $\{\text{vision/smell/taste/hearing/touch/memory}\}: t^s \rangle$

In this approach, (32b) and (33b) present natural uses of *kasukani* because the sense-related component of *kasukani* is true in these sentences. Contrariwise, *kasukani* in (32a) and (33a) sounds odd because the sentences do not ensure that the CI component of *kasukani* is true.

One might wonder whether *kasukani* can combine with a regular adjective, such as *furui* 'old' (not an emotive adjective), if we add a sense-related expression, such as *mie-ru* 'look'. While such a pattern seems to be theoretically possible, as shown by the following example, it is odd:

- (39) Kono shashin-wa {??kasukani / sukoshi} furuku mie-ru.
 This picture-TOP faintly / a bit old look-Non.PST
 'This picture looks {faintly/a bit} old.'

I consider that this combination is odd because of the scale structure of *furui* 'old'. Just like the example of *oishii* 'delicious' (see Section 2.4), *furui* is a relative adjective

that posits a contextually determined standard, and this conflicts with the restriction of *kasukani* in that it measures degree from a minimum standard.¹⁰

4 English *faintly*

Similarly to Japanese *kasukani*, English *faintly* naturally combines with sense-related adjectives:

- (40) a. This wine is faintly sweet.
b. The ocean is faintly visible.
c. The bell is faintly heard.
d. It smells faintly of mint.

However, as Sawada (2021) observes, *faintly* can combine with emotive predicates in a simple (non-embedded) sentence:¹¹

- (41) a. There is, however, something faintly sad about these recent paintings. (Lexico)
b. The whole thing was faintly ridiculous. (Oxford Learner's Dictionary)
c. I am faintly amused by it. (example from the Internet)

Based on the philosophical view that emotions are a kind of perception (Roberts 2003), I assume that *faintly* has a wider selectional restriction regarding the specification of sense:

- (42) $[[\text{faintly}]] : \langle \langle d^a, \langle e^a, t^a \rangle \rangle, \langle e^a, t^a \rangle \rangle \times \langle \langle d^a, \langle e^a, t^a \rangle \rangle, t^s \rangle =$
 $\lambda G \lambda x. \exists d [d \gtrsim \text{STND}_{\text{MIN.G}} \wedge G(d)(x) \wedge \text{barely-recognizable}(d)] \blacklozenge \lambda G. \text{have-measured}$
 $(j, \text{the degree of } G) \text{ based on } j\text{'s sense of } \{\text{vision (color)/smell/ taste/hearing/touch/}$
 $\text{memory/emotion}\}$

¹⁰ A reviewer provided me with the following example, which does not include a perception verb in the main clause:

- (i) Kono koto-o omoidasu-to {?kasukani / sukoshi} kanashiku na-ru.
 This thing-ACC remember-when faintly / a bit feel.sad become-Non.PST
 ‘When I remember this, I feel {faintly/a bit} sad.’

This sentence seems to be relatively natural because the verb *omoidasu* ‘remember’ is present in the when-clause, which is concerned with memory and experience. However, the sentence may still sound a bit unnatural because it is not clear how the speaker relates the degree of sadness and memory. A more detailed investigation will be necessary to clarify the possible patterns of indirect measurement.

¹¹ *Faintly* basically cannot combine with non-sense/emotion-related adjectives (i.e., #*faintly expensive*, #*faintly tall*).

The examples in (41) are natural because *faintly* can directly measure the degree of emotion through *j*'s sense of emotion (without the aid of another sense-related expression). This is different from Japanese *kasukani*, which does not allow *j* to measure degree through *j*'s sense of emotion.

The proposed analysis can also explain the judge-dependency of (43a) and (43b):

- (43) a. Bill found himself faintly embarrassed. (*faintly* = subject-oriented, direct measurement)
- b. Bill looked faintly amused. (*faintly* = speaker-oriented, indirect measurement)

In (43a), the judge (*j*) of *faintly* corresponds to the subject Bill (not the speaker) and measures degree of embarrassment through his emotion. In this case, the judge cannot be the speaker: The subject Bill directly measures his emotion. Contrariwise, (43b) is a case of indirect measurement. In (43b), the judge of *faintly* is the speaker, who cannot directly measure the degree of amusement. The only possible reading of (43b) is that the judge measures the degree of emotion through their sense of sight. The interpretation in (43b) is similar to that of (32b) and (33b) in Japanese. Therefore, English *faintly* can also measure the degree of emotion through other senses.

5 Conclusion

This study shows that unlike typical minimizers, such as Japanese *sukoshi* and English *a bit*, Japanese *kasukani* and English *faintly* have sense-related experiential components (i.e., they require a judge to measure degrees based on the judge's senses), and their experiential requirements can be satisfied both locally and globally. In the local case, *kasukani/faintly* combines with a gradable predicate *P*, and the experiential component is satisfied in relation to the gradable predicate, which is sense-based (e.g., *This sake is faintly sweet*). In the global case, *kasukani/faintly* combines with a gradable predicate *P* and denotes that the degree of *P* is very small, but its experiential requirement is satisfied based on the predicate, which is placed higher (e.g., *He looks faintly amused*). These points are theoretically significant because they suggest that there can be a mismatch between the at-issue and CI levels in the modification structure. This study presents the ways in which a multidimensional approach can successfully and uniformly capture the local (non-mismatch) and global (mismatch) cases.

This study also clarifies the similarities and differences between a sense-based degree adverb and a predicate of personal taste. Previous studies have argued that predicates of personal taste, such as *tasty*, require direct experience (e.g., Pearson 2013; Ninan 2014; Kennedy and Willer 2020). *Kasukani* and *faintly* are both similar to a predicate of personal taste in that they have an experiential component, but unlike a predicate of personal taste, the experiential component is satisfied via their interaction with other experience-related elements in the sentence, suggesting that they are a type of concord phenomenon.

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