

# PRECISION AND MANNERS OF MEASUREMENT: THE CASE OF JAPANESE MINIMIZERS<sup>\*</sup>

OSAMU SAWADA  
*Mie University*

## 1 Introduction

In Japanese there are multiple lexical items that literally mean ‘a little/ a bit’, as shown in (1):

- (1) a. Kono   sao-wa   {chotto/sukoshi} magat-teiru. (*Absolute gradable predicate*)  
This   rod-TOP   a bit /a bit       bend-STATE  
‘This rod is a bit bent.’
- b. Kono   sao-wa   {chotto/sukoshi} nagai.           (*Relative gradable predicate*)  
This   rod-TOP   a bit /a bit       long  
‘This rod is a bit long.’
- c. Nominomo-dai-ga   {chotto/sukoshi} kaka-tta.           (*Verbal predicate*)  
Drinking-fee-NOM   a bit /a bit       cost-PAST  
‘The drinking fee cost a bit of money.’

In terms of scale structure, both *sukoshi* and *chotto* in (1) have exactly the same scalar property. In (1a) the minimizers modify the ‘absolute’ gradable predicate *magat-teiru* ‘bent’, which posits a minimum standard and denotes that the degree of bentness of the rod is a bit more than the minimum standard. In (1b) they modify the ‘relative’ gradable predicate *nagai* ‘long’, which posits a contextual standard and denotes that the degree of length of the rod is a bit more than the

---

\* I am grateful to Nobu Goto, Thomas Grano, Yurie Hara, Kimiko Nakanishi, Miki Obata, Mamoru Saito, Hiromu Sakai, Harumi Sawada, Jun Sawada, John Stephenson and the audience of Formal Approaches to Japanese Linguistics 6 (2012) for their valuable discussions and comments regarding the content of this paper. Parts of this paper were also presented at the International Workshop on Modality held at Kansai Gaidai in 2012, and I thank the audience for their helpful feedback and discussions. This work is supported by the Japan Society for the Promotion of Science (Grant-in-Aid for Young Scientists (B), No. 23720204). All remaining errors are of course mine.

standard (i.e., it says that the rod is a bit (too) long). In (1c) they modify the gradable verb *kakaru* ‘cost’ and denote that the drinking fee cost a bit of money.

However, interestingly, if a minimizer co-occurs with a measure phrase (MP), an asymmetrical relationship between *sukoshi* and *chotto* arises:

- (2) a. Kono sao-wa 20-do {-chotto/??-sukoshi} magat-teiru.  
 This rod-TOP 20-degree a bit / a bit bend-STATE  
 ‘This rod is bent by a bit more than 20 degrees.’  
 b. Kono ita-wa 1-meetoru {-chotto/??-sukoshi} nagai.  
 This board-TOP 1-meter bit / a bit long  
 ‘This board is longer (than a contextual standard) by a bit more than 1 meter.’  
 c. Nomimono-dai-ga 50-doru {-chotto/??-sukoshi} kaka-tta.  
 Drinking-fee-NOM 50-dollar a bit / a bit cost-PAST  
 ‘The drinking fee cost a bit more than 50 dollars.’

Although *chotto* can directly combine with an MP, *sukoshi* cannot. Notice that this asymmetry evaporates if we insert the conjunction *to* ‘and’:

- (3) a. Kono sao-wa 20-do-to {chotto/sukoshi} magat-teiru.  
 This rod-TOP 20-degree-and a bit /a bit bend-STATE  
 ‘This rod is bent by a bit more than 20 degrees.’ (The expression “20 degrees plus a bit more” can also be possible although it may sound less natural. Thomas Grano, p.c.)  
 b. Kono ita-wa 1-meetoru-to {chotto/sukoshi} nagai.  
 This board-TOP 1-meter-and bit /a bit long  
 ‘This board is longer (than a contextual standard) by a bit more than 1 meter.’  
 c. Nomimono-dai-ga 50-doru-to {chotto/sukoshi} kaka-tta.  
 Drinking-fee-NOM 50-dollar-and a bit /a bit cost-PAST  
 ‘The drinking fee cost a bit more than 50 dollars.’

Why is there an asymmetry in (2)? Where does it come from? Why is it that *sukoshi* can be used in a conjunctive environment like (3)? What do the variations in the use of the Japanese minimizers theoretically mean? In this paper I will investigate the meaning/use of the Japanese minimizers and try to answer these questions.<sup>1</sup>

<sup>1</sup> Similarly to *chotto*, the minimizer *syoosyoo* ‘a bit’ can also co-occur with an MP in both types of complex environment:

- (i) 50-doru shooshoo (ii) 50-doru-to shooshoo  
 50-dollar a bit 50-dollar-and a bit  
 ‘a bit more than 50 dollars’ ‘a bit more than 50 dollars’

Note that there are also minimizers like *yaya* ‘a bit’, *wazukani* ‘slightly’, and *tashyoo* ‘a bit’:

- (iii) Kono sao-wa {yaya/wazukani/tashoo} magat-teiru.  
 This rod-TOP a bit / slightly / a bit bent-STATE  
 ‘This rod is a bit/slightly bent.’

However, these minimizers cannot co-occur with an MP:

- (iv) \*50-do {yaya/wazukani/tashoo} (v) \* 50-do-to {yaya/wazukani/tashoo}  
 50-degree a bit / slightly /a bit 50-degree-and a bit /slightly /a bit  
 ‘Intended. A bit more than 50 degrees.’ ‘Intended. A bit more than 50 degrees.’

In this paper we will only focus on the meaning and use of *sukoshi* and *chotto*.

In considering these questions, I will first argue that there is a difference in meaning between *sukoshi* and *chotto* at the level of conventional implicature (CI). It will be argued that *sukoshi* conventionally implicates that the speaker's manner of measurement is precise, while *chotto* conventionally implicates that the speaker's manner of measurement is imprecise.

I will then claim that this distinction can naturally explain why *sukoshi* cannot appear in a complex numerical environment like (2), while *chotto* can. (2) with *sukoshi* is odd because although *sukoshi* signals that the speaker's manner of measurement is precise, if *sukoshi* combines with an MP, the measurement as a whole becomes imprecise. If the speaker wished his/her manner of measurement to be precise, he/she could have used a more precise alternative expression with an MP (e.g. *23.2 degrees*) because the speaker is already using an MP. However, the speaker didn't take such a strategy. This results in a violation of the Maxim of Quantity, 'Make your contribution as informative as required.' On the other hand, *chotto* can naturally combine with an MP because *chotto*'s imprecise implicature is consistent with the imprecise interpretation of the whole scalar meaning.

The puzzle is that *sukoshi* can co-occur with an MP in the 'conjunctive' complex environment. I will argue that in this environment, *sukoshi* and an MP are construed as separate scalar terms, and the complex expression as a whole is not considered to be a single scalar term. This avoids the semantic conflict between *sukoshi*'s precise implicature and the imprecise meaning of the complex scalar expression (as a whole).

Our analyses have a number of theoretical implications for the theory of the semantics/pragmatics interface. First, the fact that *sukoshi* is sensitive to modification structure (i.e. affixation and coordination) suggests that the Quantity Principle (and possibly also the Maxim of Manner) can apply to an at-meaning and a CI meaning simultaneously if they are part of the 'same' expression. This suggests that there is an interaction between the at-issue meaning and the CI at a pragmatic level despite the fact that they are compositionally and dimensionally independent of each other. Second, the phenomenon of Japanese minimizers suggests that the notion of precision is relevant not only for the interpretation of scalar expressions themselves (e.g. *all*, *approximately*, etc.; Lasersohn 1999, Sauerland and Stateva 2011); it can also be used at the level of CI. That is, the concept of precision is cross-dimensional.

This paper provides new perspectives for the relationship between at-issue meaning and non-at-issue meaning.

## 2 The Semantic Status of Manners of Measurement

Before considering the meaning and use of minimizers in a complex environment (that contains a measure phrase (MP)), let us first consider the meaning of *sukoshi* and *chotto* in a simple sentence. In the introduction we assumed that in (1) there is no difference between *sukoshi* and *chotto* in terms of the acceptability. However, if we closely look at their meanings, we see that there is a slight difference in meaning even in a simple environment. Descriptively, a sentence with *chotto* sounds more casual than one with *sukoshi*. I argue that the difference can be explained based on the notion of precision: while *sukoshi* conventionally implicates that the speaker's manner of measurement is precise (i.e. the speaker is careful about his/her measurement), *chotto* conventionally implicates that the speaker's manner of measurement is imprecise (i.e. the speaker is not careful about his/her measurement). In this approach we can divide the meaning of sentence (1a) into two components:

- (4) Kono sao-wa {sukoshi/sukoshi} magat-teiru.  
 This rod-TOP a bit /a bit bend-STATE  
 At-issue: The degree of bentness of this rod is slightly greater than a minimum (zero).  
 CI of *sukoshi*: The speaker's manner of measurement is precise.  
 CI of *chotto*: The speaker's manner of measurement is imprecise.

The consequence of this analysis is that *sukoshi* and *chotto* are 'mixed' content (Bach 2006; Williamson 2009; Horn 2007; McCready 2010). They have the at-issue scalar meaning 'a bit', yet they also introduce a CI meaning concerning the speaker's manner of measurement.

Let us test the CI-hood of *sukoshi* and *chotto* based on Potts's (2005) definition of CI:

- (5) Potts's (2005) definition of CI<sup>2</sup>
- a. CIs are part of the conventional meaning of words.
  - b. CIs are commitments, and thus give rise to entailments.
  - c. These commitments are made by the speaker of the utterance.
  - d. CIs are logically and compositionally independent of 'what is said.'

We can say that the manner-related implicatures of *sukoshi* and *chotto* satisfy the criteria in (5). First we can say that they satisfy (5a) because they are associated with the words *sukoshi* and *chotto*. The manner-related implicatures also satisfy (5b) and (5c) because they are commitments by the speaker of the utterance. Finally, the manner-related implicatures satisfy (5d) in that they are independent of 'what is said.' This is corroborated by the fact that if we say 'that's not true' after (4), the denial only targets the at-issue part of the sentence.

One might think that the manner-related information concerning *sukoshi* and *chotto* is a presupposition. A presupposition is a proposition whose truth is taken for granted as background information in the utterance of a sentence (i.e. it is common ground among the participants in the conversation). Although the distinction between presupposition and CI is still the subject of debate, in this paper I will assume that the manner-related meanings of *sukoshi* and *chotto* are CIs rather than presuppositions due to the following reasons. First, intuitively the manner-related meanings of *sukoshi* and *chotto* are not backgrounded. Second, the manner-related information triggered by *sukoshi/motto* does not pass the *Hey, wait a minute!* test. According to von Stechow (2004), in response to the speaker's utterance of *p*, the listener can respond *Hey, wait a minute! I didn't know X!* if and only if *p* presupposes *X* (See also Shanon 1976). However, in the case of sentences with *chotto/sukoshi*, we cannot challenge their manner-related information by saying *Hey, wait a minute! I didn't know that your manner of measurement is {precise/imprecise}!*

Third, unlike presuppositions, the manner-related meanings of *sukoshi* and *chotto* can project beyond 'presupposition plugs' such as *omou* 'think' (verbs of thinking):

- (6) Taro-wa kono hon-wa {chotto/sukoshi} takai-to omo-tteiru-nichigainai.  
 Taro-TOP this book-TOP a bit /a bit expensive-than think-PROG-must  
 'Taro must be thinking that this book is a bit expensive.'  
 (CI meaning of *chotto*: The speaker's manner of measurement is imprecise.)  
 (CI meaning of *sukoshi*: The speaker's manner of measurement is precise.)

<sup>2</sup> Note that Potts's definition is slightly different from Grice (1975, 1989)'s definition of conventional implicature (CI) in that Potts adds a property of speaker-orientedness to the property of CI.

In (6) the manner-related meanings of *chotto* and *sukoshi* can be attributed to the speaker. They can project beyond the presupposition plug.<sup>3</sup> The natural context for (6) with *chotto* is one where the speaker measures degrees without direct evidence.

On the other hand, the natural context for (6) with *sukoshi* is one where the speaker has enough evidence to measure degree in a careful manner. For example, *sukoshi* can be used in a sentence given a situation where the speaker knows that Taro usually buys a book if it costs less than 30 dollars (because of his own rule), but the book in question costs 35 dollars.

### 3 Precision in the At-issue Dimension vs. Precision in the CI Dimension

Note that I am using the concept of (im)precision in a different way from how it is ordinarily understood. The following are typical examples of the phenomenon of imprecision:

- (7) a. John arrived at 10 o'clock.  
 b. All the townspeople are asleep. (Lasersohn 1999)

*10 o'clock* in (7a) and *all* in (7b) have perfectly precise definitions, but in practice, we don't use the terms precisely. For instance, in (7a), even if John arrived at *10:01*, the proposition is 'close enough to the truth' (Lasersohn 1999).

However, the notion of precision we are using for our analysis of *sukoshi/chotto* is not used in this way. In the case of *sukoshi/chotto* the concept of precise/imprecise does not apply to the denotation of the scalar term itself (*sukoshi/chotto*). Instead, here the concept of (im)precision is used as a vague predicate (which can be paraphrased as *careful*).<sup>4</sup> The speaker's measurement is precise iff it is above a contextual standard on the scale of precision; otherwise, it is not precise. If the speaker's manner of measurement is not precise, a flavor of casualness arises, and this leads to the idea that *chotto* is used in a colloquial context.

### 4 Formal Analyses of Japanese Minimizers

Let us now analyze the meaning of *sukoshi* and *chotto* in a more formal way based on (8):

- (8) Kono   sao-wa   {sukoshi/chotto}   magat-teiru.  
 This   rod-TOP   a bit /a bit   bend-STATE  
 At-issue: This rod is a bit bent.  
 CI from *sukoshi*: The speaker's manner of measurement is precise.  
 CI from *chotto*: The speaker's manner of measurement is imprecise.

<sup>3</sup> It seems that there is also a reading where the manner-related meanings can be attributed to Taro.

<sup>4</sup> Note that vagueness and imprecision are different. As Kennedy (2007) claims, while vagueness in gradable adjectives directly pertains to meaning, the phenomenon of imprecision in examples like (7) concerns the use of expressions with a precise meaning. (See also Pinkal 1995; Krifka 2007; Sauerland and Stateva 2011; Égré and Klinedinst 2011 for a detailed discussion of the concept of precision and its potential difference from vagueness.)

Building on McCready's theory of mixed content, I define the denotations of *sukoshi* and *chotto* in (8) as follows:

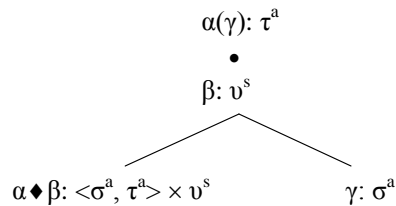
- (9) a. [[*sukoshi*]]:  $\langle\langle d^a, \langle e^a, t^a \rangle \rangle, \langle e^a, t^a \rangle \rangle \times t^s$   
 $= \lambda G_{\langle d, et \rangle} \lambda x. \exists d [d \approx_{\text{STAND}_G} G(d)(x)] \blacklozenge \exists d_1 [d_1 \geq \text{STAND}_{\text{precise}} \wedge \text{precise}(\text{sp's manner of measurement}) = d_1]$
- b. [[*chotto*]] :  $\langle\langle d^a, \langle e^a, t^a \rangle \rangle, \langle e^a, t^a \rangle \rangle \times t^s$   
 $= \lambda G_{\langle d, et \rangle} \lambda x. \exists d [d \approx_{\text{STAND}_G} G(d)(x)] \blacklozenge \exists d_1 [d_1 < \text{STAND}_{\text{precise}} \wedge \text{precise}(\text{sp's manner of measurement}) = d_1]$

The symbol  $\blacklozenge$  is a connective type. The left side of  $\blacklozenge$  is an at-issue component and the right side of  $\blacklozenge$  is a CI component. In the at-issue level, *sukoshi* and *chotto* have the same meaning. They semantically denote that the degree of  $x$  with respect to the gradable predicate  $G$  is slightly greater than a standard associated with a gradable predicate  $G$ .<sup>5</sup> Note that the meaning of 'slightly' is vague. What counts as 'slightly greater than a standard' is context-sensitive. In one context 3.5 degrees can be counted as a 'slightly greater than a minimum standard', while in another context it cannot be counted as such.

Where they differ is with regard to the CI meaning: *Sukoshi* conventionally implicates that there is a degree  $d_1$  that is greater than or equal to the standard of precision, and the degree of precision with respect to the speaker's manner of measurement equals  $d_1$ . On the other hand, *chotto* conventionally implicates that there is a degree  $d_1$  that is less than the standard of precision, and the degree of precision with respect to the speaker's manner of measurement equals  $d_1$ .

Now let us consider how the above meaning can be computed in a compositional way. In order to ensure that the meaning of mixed content is computed in a compositional fashion, McCready (2010) proposes compositional rule(s) for mixed content, which involves the shunting type  $s$ :

(10) Mixed application (Based on McCready 2010)

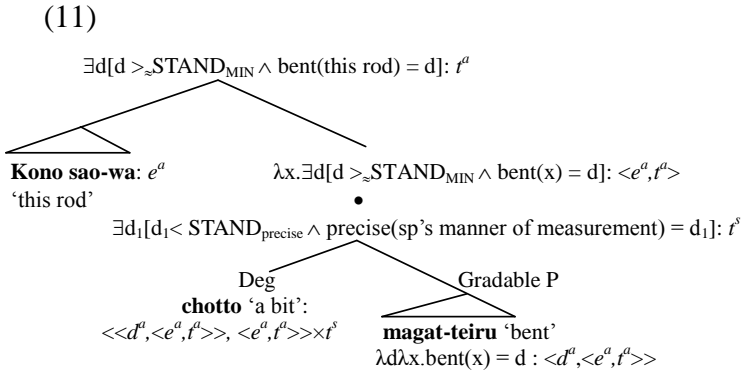


The bullet  $\bullet$  is a metalingual device for separating independent lambda expressions. Note that  $\alpha$  and  $\beta$  form a single lexical item (mixed content). The crucial point is that the rule in (10) is resource sensitive. The argument of the mixed content is not passed up to the level above the bullet  $\bullet$ . Note that the above rule is quite different from Potts's CI application. In Potts's (2005)

<sup>5</sup> Note that in (9), the meaning of STAND can vary depending on what type of gradable predicate the minimizer attaches to. If the minimizer attaches to an absolute gradable predicate that posits a minimum point (e.g. *magat-teiru* 'bent'), STAND is going to be a minimum standard, but if the minimizer attaches to a relative gradable predicate that does not posit a minimum/maximum standard, STAND is going to be a contextual standard. (See Kennedy 2007 for a detailed discussion on the computation of STAND.)

CI application, the at-issue argument of the CI-inducing element is passed up to the level above the bullet—in other words, the application is resource-insensitive. (See McCready 2010 for a detailed discussion on the difference between a resource sensitive CI application (shunting application) and Potts’s resource-insensitive CI application.)

If we apply the above rule to (8) with *chotto*, we get the following logical structure:



The shunting operation prevents the at-issue argument of the minimizers from being consumed twice.

## 5 MP plus Minimizers

Let us now consider the meaning and use of minimizers in a complex environment. The interesting point is that *sukoshi*, but not *chotto*, cannot directly combine with an MP:

- (12) a. Kono sao-wa [30-do {-chotto/??-sukoshi}] magat-teiru.  
This rod-TOP 30-degree a bit / a bit bend-STATE  
'Lit. This rod is bent by a bit more than 30 degrees.'
- b. Kono sao-wa [5-meetoru {-chotto/??-sukoshi}] nagai.  
This rod-TOP 5-meters bit / a bit long  
'This rod is longer than a contextual standard by a bit more than 5 meters.'
- c. Nomimono-dai-ga [50-doru {-chotto/??-sukoshi}] kaka-tta.  
Drinking-fee-NOM 50-dollar a bit / a bit cost-PAST  
'The drinking fee costs a bit more than 50 dollars.'

The sentences with *sukoshi* seem not to be ungrammatical, but they sound strange. The crucial point is that *chotto* in (12) is an affix similar to the scalar approximator *kurai* 'about' (e.g., *5 meetoru-kurai* 'about 5 meters'). Semantically, the affix *chotto* measures the degree from the point denoted by an MP. We can define this type of *chotto* as in (13):

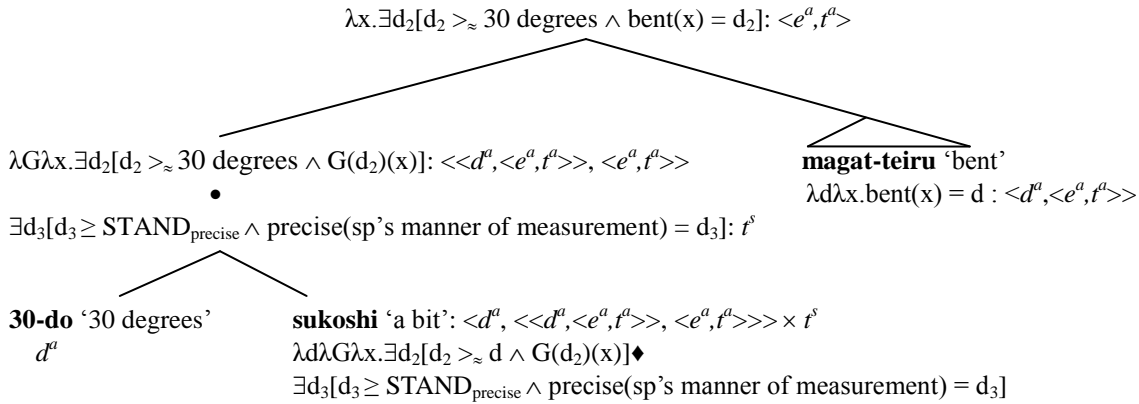
- (13) [[*chotto*<sub>AFFIX</sub>]] :  $\langle d^a, \langle \langle d^a, \langle e^a, t^a \rangle \rangle, \langle e^a, t^a \rangle \rangle \rangle \times t^s$   
=  $\lambda d \lambda G \lambda x. \exists d_2[d_2 \succ_{\approx} d \wedge G(d_2)(x)] \blacklozenge \exists d_3[d_3 < \text{STAND}_{\text{precise}} \wedge \text{precise}(\text{sp's manner of measurement}) = d_3]$

In the at-issue level, *chotto* takes a degree as its first argument and sets it as a standard of measurement.<sup>6</sup> In addition to this, and similarly to the case of normal (non-complex) *chotto*, it conventionally implicates that the speaker's manner of measurement is imprecise.

In principle we could posit the following denotation for *sukoshi* for the complex environment in (12) and analyze the meaning of, for instance, (12a) as in (15):

$$(14) \text{ [[sukoshi}_{\text{AFFIX}}]] : \langle d^a, \langle \langle d^a, \langle e^a, t^a \rangle \rangle, \langle e^a, t^a \rangle \rangle \rangle \times t^s \\ = \lambda d \lambda G \lambda x. \exists d_2 [d_2 \approx d \wedge G(d_2)(x)] \blacklozenge \exists d_3 [d_3 \geq \text{STAND}_{\text{precise}} \wedge \text{precise}(\text{sp}'\text{s manner of measurement}) = d_3]$$

(15) Logical structure of (12a)



However, in reality it is odd to use *sukoshi* in a complex environment like (12). Why is it that a sentence becomes odd if an MP is (directly) combined with *sukoshi*? I argue that sentences with *sukoshi* are odd because, although *sukoshi* implies that the speaker's manner of measurement is precise, the combination of MP and *sukoshi* makes the entire measurement imprecise. Pragmatically speaking, if the speaker was confident that his/her manner of measurement was precise, he/she could have used a more precise/simpler alternative expression (e.g. *30.2-do* ‘30.2 degrees’), because in this environment the speaker is using an MP. However, the speaker didn't use a pure measure term. This results in a violation of the Quantity Maxim: ‘Make your contribution as informative as required’ (Grice 1975). On the other hand, *chotto* can naturally combine with an MP because *chotto*'s imprecise conventional implicature naturally functions as a hedge (e.g. Lakoff 1972).

We may be able to say that the combination of an MP and a minimizer also violates the Maxim of Manner, ‘Be brief’, because the speaker could have used a simpler expression (e.g. 30.2 degrees) if he/she can use an MP.

## 6 Complex Numerical Expressions with *To* ‘and’

<sup>6</sup> Note that although a round number (e.g. 30 degrees) by itself can have a round interpretation (Krifka 2007), in this case 30 is interpreted precisely because it serves as a standard for measurement.



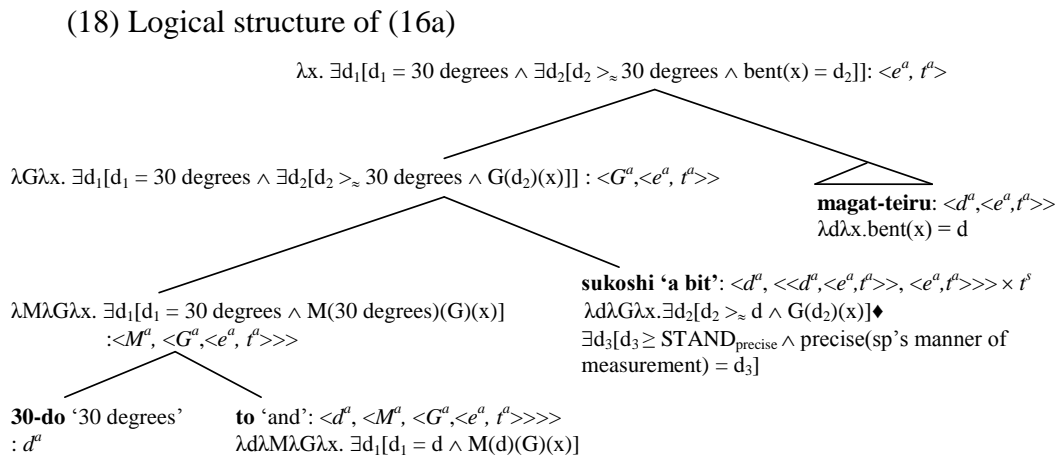
It is puzzling that if the additive conjunction *to* ‘and’ is inserted in a complex numerical environment, *sukoshi* can also be used:

- (16) a. Kono sao-wa 30-do-to {chotto/sukoshi} magat-teiru.  
 This rod-TOP 30-degree-and a bit / a bit bend-STATE  
 ‘This rod is bent by a bit more than 30 degrees.’  
 b. Kono sao-wa 5-meetoru-to {chotto/sukoshi} nagai.  
 This rod-TOP 5-meters-and bit / a bit long  
 ‘This rod is longer than a contextual standard by a bit more than 5 meters.’  
 c. Nomimono-dai-ga 50-doru-to {chotto/sukoshi} kaka-tta.  
 Drinking-fee-NOM 50-dollar-and a bit / a bit cost-PAST  
 ‘The drinking fee costs a bit more than 50 dollars.’

Why can *sukoshi* appear in this environment? There is no difference between (12) and (16) in terms of truth conditionality. I argue that in a conjunctive environment like (16), an MP and a minimizer are construed as independent scalar expressions and the complex scalar expression as a whole is not construed as a ‘single’ scalar term. I define the additive conjunction *to* as follows:

- (17)  $[[to_{ADD.MEAS}]] = \lambda d \lambda M \lambda G \lambda x. \exists d_1 [d_1 = d \wedge M(d)(G)(x)]$   
 (Where M = a minimizer (at-issue part), G = a gradable predicate)

The additive conjunction *to* links an MP and a minimizer in an additive fashion. The crucial point of this denotation is that an MP is computed separately before it semantically conjoins with the meaning of a minimizer. The following figure shows the logical structure of (16a):



The important point of this logical structure is that the at-issue meaning of *sukoshi* is an argument of the conjunction *to*, but the CI part of *sukoshi* is not the argument of *to*. It stays in situ. This is different from the case of complex environments without *to*. In (15), *sukoshi* is not the argument of the at-issue element.

Since an MP and a minimizer are interpreted ‘separately’, the Maxim of Quantity does not apply to them both simultaneously. This ensures that there is no semantic conflict between *sukoshi*’s precise implicature and the meaning of the complex numerical phrase as a whole. Also, we can say that conjunctive complex numerical expressions do not violate the Maxim of Manner,

‘be brief’, because in this environment an MP and *sukoshi* are interpreted ‘separately.’ Thus, the entire scalar expression cannot be an alternative to an MP.

The above discussion strongly suggests that if an MP and a minimizer form a single scalar expression (via affixation), a pragmatic principle (i.e. the Maxim of Quantity and the Manner Maxim) applies to the at-issue meaning and the CI meaning simultaneously. However, if an MP and a minimizer are combined via an additive linker, a pragmatic principle does not apply to them simultaneously. Based on the above discussion, I propose the following generalization:

- (19) A pragmatic principle can apply to both an at-meaning and a CI meaning simultaneously if they are part of the “same” expression.

## 7 Minimizers in Other Environments

As Sawada (2012) observes, we can find an asymmetry between *chotto* and *sukoshi* in other environments as well:

- (20) *Expressive measurement*

{Chotto/\*sukoshi} hasami aru?  
A bit / a bit scissors exist  
‘Chotto do you have scissors?’

(The function of *chotto*: The speaker is weakening the imposition of his/her speech act on the addressee.)

(Example from Matsumoto 1985)

- (21) *Amount measurement*

{Sukoshi/??chotto}-no mizu  
A bit / a bit -GEN water  
‘A bit of water’

In (20) *chotto*, but not *sukoshi*, is used as a hedge (Matsumoto 1985). We can say that here the speaker uses *chotto* in order to attenuate the degree of imposition of his/her speech act (i.e. request) on the addressee (Sawada 2010). Note that *chotto* in (20) is a pure expressive morpheme and does not behave as mixed content. In (21), on the other hand, *sukoshi*, but not *chotto*, can naturally be used. In this environment a measurement is made in the nominal domain. A minimizer measures the amount of the thing/object (water, money, etc).

It seems that the asymmetry in (20) and (21) can be connected to the distinction between precise and imprecise manners of measurement (directly/indirectly). As for (20), it makes sense that *chotto* fits into the expressive measurement, because expressive measurement cannot be precise. It is attitudinal/emotional. By contrast, *sukoshi* does not fit into an expressive measurement environment, because it does not make sense to signal that the speaker’s manner of measurement is precise in an attitudinal/emotional context.

On the other hand, it is natural that *sukoshi* can be used in a quantitative measurement environment because amounts are precisely measurable. The question is why *chotto* does not fit into quantitative measurement. It may be because physical measurement itself has nothing to do with a speaker’s attitude (or emotion). Usually *chotto*’s imprecise meaning creates a context redolent of casualness. However, such information may not be necessary in a nominal domain.

(See Sawada 2012 for a discussion of the meaning and use of expressive and amount minimizers).

## 8 Conclusion

This paper investigated the meaning of the Japanese minimizers *sukoshi* and *chotto* in terms of the semantics/pragmatics interface and considered a mechanism behind the use of minimizers in complex measurement environments.

As for the meaning of minimizers I argued that although both kinds of minimizers have the same semantic meaning of ‘a bit’, they have different kinds of conventional implicature (CI): *sukoshi* conventionally implicates that the speaker’s manner of measurement is precise, while *chotto* conventionally implicates that it is not precise. I then argued that this distinction can naturally explain the asymmetrical relationship between *sukoshi* and *chotto* in complex measurement (i.e. an MP plus a minimizer). We argued that *sukoshi* cannot combine with an MP because although *sukoshi* signals that the speaker is precisely measuring the degree in question, the combination of *sukoshi* and an MP makes the speaker’s manner of measurement by *sukoshi* ‘not precise.’ On the other hand, *chotto* can naturally combine with an MP because its imprecise CI meaning is semantically consistent with the entire meaning of the complex scalar expression.

The important point was that if the additive *to* is added to an MP, *sukoshi* can appear in a complex measurement environment. We argued that in such an environment *sukoshi* can co-occur with an MP because there, an MP and a minimizer behave as independent scalar expressions, so there is no semantic inconsistency between the meaning of *sukoshi*’s precise implicature and the meaning of the complex numerical expression.

The theoretical implication of our analyses is that the Quantity Principle (and the Manner Principle) can apply to an at-issue meaning and a CI meaning simultaneously if they are part of the ‘same’ (scalar) expression. This is significant for the semantics/pragmatics interface because the phenomenon strongly suggests that there is an interaction between the at-issue meaning and a CI, even though they are logically and dimensionally independent from each other.

The phenomenon of Japanese minimizers is also important for the theory of imprecision in that it suggests that the notion of precision is relevant not only for interpretations of scalar expressions themselves (e.g. *all*, *approximately*, etc.; Lasersohn 1999, Sauerland and Stateva 2011); it can also be used at the level of CI. The concept of precision is cross-dimensional.

In a future study I would like to investigate to what degree our analyses can be extended to other linguistic phenomena. In Japanese the NPI counterparts seem to have the same manner-related implicatures:

- (22) Keeki-ga                    {*sukoshi-mo/chitto-mo*}    yoku-na-ttei-nai.  
 Economy-NOM    a bit-even / a bit-even    well-become-TEIRU-NEG  
 ‘Lit. The economy is not going well at all.’

If we use *sukoshi-mo* an implication that the speaker’s manner of measurement is precise arises, and if we use *chitto-mo*, an implication arises that the speaker is measuring the economy’s degree of ‘wellness’ imprecisely. Typically, *chitto-mo* is used to convey a complaint by the speaker. In sentence (22) with *chitto-mo*, there is a strong implication that the speaker considers

the at-issue condition to be unexpected. There may be some connection between impreciseness and unexpectedness in the environment of emphatic negation.

## References

- Bach, Kent. 2006. Review of Christopher Potts, 'The logic of conventional implicatures.' *Journal of Linguistics* 42(2): 490-495.
- Égré Paul and Nathan Klinedinst. 2011. Introduction: vagueness and language use. In Paul Égré and Nathan Klinedinst (eds.), *Vagueness and language use*, 1-21. London: Palgrave Macmillan.
- Grice, H. Paul. 1989. *Studies in the way of words*. Cambridge, Mass.: Harvard University Press.
- Grice, H. Paul. 1975. Logic and conversation. In Peter Cole and Jerry Morgan (eds.), *Syntax and semantics, iii: speech acts*, 43-58. New York: Academic Press.
- Horn, Laurence R. 2007. Toward a Fregean pragmatics: *Voraussetzung, Nebengedanke, Andeutung*. In Istvan Kecskes and Laurence Horn (eds.), *Explorations in pragmatics*, 39-69. Berlin: Mouton de Gruyter.
- Kennedy, Christopher. 2007. Vagueness and grammar: the semantics of relative and absolute gradable adjectives. *Linguistics and Philosophy* 30(1): 1-45.
- Krifka, Manfred. 2007. Approximate interpretations of number words: a case for strategic communication. In Gerlof Bouma, Irene Krämer, and Joost Zwarts (eds.), *Cognitive foundations of interpretation*, 111-126. Amsterdam: Koninklijke Nederlandse Akademie van Wetenschappen.
- Lakoff, George. 1972. Hedges: a study in meaning criteria and the logic of fuzzy concepts. *Papers from the eighth regional meeting of the Chicago Linguistic Society*, 183-228. Chicago: Chicago Linguistic Society.
- Lasersohn, Peter. 1999. Pragmatic halos. *Language* 75: 522-551.
- Matsumoto, Yoshiko. 1985. A sort of speech act qualification in Japanese: *chotto*. *Journal of Asian Culture* IX: 143-159.
- McCready, Eric. 2010. Varieties of conventional implicature. *Semantics & Pragmatics* 3: 1-57.
- Pinkal, Manfred. 1995. *Logic and lexicon*. Dordrecht: Kluwer.
- Potts, Christopher. 2005. *The logic of conventional implicatures*. Oxford: Oxford University Press.
- Sauerland, Uli and Penka Stateva. 2011. Two types of vagueness. In P. Égré and N. Klinedinst (eds.), *Vagueness and language use*, 121-145. London: Palgrave Macmillan.
- Sawada, Osamu. 2012. Varieties of positive polarity minimizers in Japanese: the semantics-pragmatics interface. Manuscript, Mie University.
- Shanon, Benny. 1976. On the two kinds of presupposition in natural language. *Foundations of Language* 14(2): 247-249.
- von Fintel, Kai. 2004. Would you believe it? The king of France is back! (Presuppositions and truth-value intuitions). In Anne Bezuidenhout and Marga Reimer (eds.) *Descriptions and beyond: an interdisciplinary collection of essays on definite and indefinite descriptions and other related phenomena*, 315-341. Oxford: Oxford University Press.
- Williamson, Timothy. 2009. Reference, inference and the semantics of pejoratives. In Joseph Almog and Paolo Leonardi (eds.), *The philosophy of David Kaplan*, 137-159. Oxford: Oxford University Press.