The Japanese negative *totemo* 'very': toward a new typology of negative sensitive items

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1   Introduction

The Japanese intensifier *totemo* 'very' intensifies the degree associated with a gradable predicate:

(1)   a.   Kono ie-wa   totemo ookii.
           This   house-TOP very   big

           'This house is very big.'
      b.   Koko-wa   totemo anzen-da.
           Here-TOP very   safe-PRED

           'This place is very safe.'

However, *totemo* can also intensify a negative modal statement:

(2)   a.   Ame-wa   totemo   yami-soo{-ni nai/*-da}.
           Rain-TOP TOTEMO stop-seem-to NEG/PRED

           'The rain does not seem to stop.'
           (Implication: I am emphasizing the unlikelihood.)
      b.   Tetuya-nado   totemo   {deki-nai/*dekiru}.
           Staying up all night-NADO TOTEMO can-NEG/can

           'Staying up all night is impossible.'
           (Implication: I am emphasizing the impossibility.)

In (2a), *totemo* emphasizes the negative modal statement, "the rain does not seem to stop." In (2b), *totemo* emphasizes the negative statement, "I can't stay up all night." The crucial point of this use of *totemo* is that it can only appear in a negative environment (see, e.g., Watanabe 2002). If there is no negation, sentence (2) becomes ill-formed. Therefore, *totemo* in (2) behaves like a negative polarity item (NPI).

However, the negative use of *totemo* displays several characteristics that typical emphatic NPIs (e.g., minimizer NPIs, *any*) do not show. First, unlike typical

emphatic NPIs, the negative *totemo* never falls within the scope of negation. For example, in (2a) the negative *totemo* intensifies the impossibility of staying up all night. Second, the negative *totemo* must always co-occur with a modal, which expresses unlikelihood/impossibility.

The following questions will naturally arise from the above observations:

(3)   a. What is the meaning/function of the negative *totemo*?
        b. Why is it that *totemo* in (2) must appear in a negative context?
        c. Why is it that the negative *totemo* must co-occur with a modal?
        d. What does the existence of the negative *totemo* suggest for the theories of NPIs/negative sensitive items?

In this paper, I will investigate the meaning and distribution of the negative *totemo* and try to answer these questions.

Regarding the meaning of the negative *totemo*, I will argue that it is not a logical/semantic NPI, which is licensed by negation or downward-entailing/non-veridical operators, such as questions (e.g., Ladusaw 1980; Giannakidou 1998). Rather, it is a conventional implicature (CI)-inducing expression/expressive (e.g., Grice 1975; Potts 2005), which intensifies the unlikelihood or impossibility of a given proposition p (the proposition without negation or the modal) and "refuses" to update the common ground (the context set) with the at-issue proposition p, although p is expected prior to an utterance.

As for the question of polarity sensitivity, I will argue that the negative *totemo* can only occur in a negative environment because it presupposes that the maximum probability degree of a gradable modal predicate G is 0.

With regard to the requirement of co-occurrence with a modal, I argue that the negative *totemo* must occur with modality because it is a degree head that appears above a proposition. The negative *totemo* needs a measure function dimension, and the gradable modal provides it.

The theoretical implication of this paper is that there is a new class of NPIs—expressive NPIs (or more specifically, oppositive NPIs), which are not licensed by logical operators, but require a negative element (as an argument) in order to satisfy its use-condition. This paper suggests a new typology of negative polarity items.

This paper will proceed as follows: in section 2, we will analyze the semantic *totemo* as a starting point. In section 3, we will look at the meaning and use of the negative *totemo* and show that it is an expressive/CI-triggering expression. In section 4, we will analyze its meaning in a formal way. In section 5, we will look at the discourse-pragmatic property of the negative *totemo* in detail and clarify its expressive/oppositive property in terms of information update. Section 6 considers the negative *totemo* from a broader perspective and suggests a new typology of negative polarity items. Section 7 concludes.

2   The meaning of the semantic *totemo*

Before moving to the analysis of the negative *totemo*, let us look at the meaning of the semantic *totemo*:

(4) Kono ie-wa   totemo ookii.
     This house-TOP very   big

     'This house is very big.'

The semantic *totemo* intensifies the degree of an adjective at the at-issue (semantic) level. (Superscript *a* stands for an at-issue type. This type is used for calculating an at-issue meaning.)

(5) $[[totemo_{SEM}]] : \langle G^a \langle e^a \langle i^a \langle s^a, t^a \rangle \rangle \rangle \rangle =$
     $\lambda G_{ADJ} \lambda x \lambda t \lambda w \exists d[d \succ !!STAND \wedge G(d)(x)(t)(w)]$

In prose, the semantic *totemo* denotes that the degree of target *x*, with respect to the scale associated with *G*, is much greater than a standard at *t* in *w*. "$\succ !!$STAND" means "much greater than a standard"(Kennedy & McNally 2005)(cf. Kennedy and McNally's (2005) analysis of the English *very*).

Compositionally speaking, the semantic *totemo* directly combines with a gradable predicate. As for the meaning of this gradable predicate, I assume that it represents the relationships between individuals and degrees (Seuren 1973; Cresswell 1977; von Stechow 1984; Klein 1991; Kennedy & McNally 2005):

(6) $[[ookii]] : \langle d^a, \langle e^a, \langle i^a, \langle s^a, t^a \rangle \rangle \rangle \rangle = \lambda d \lambda x \lambda t \lambda w.big(x)(t)(w) = d$

The following shows the logical structure of sentence (4):

(7)
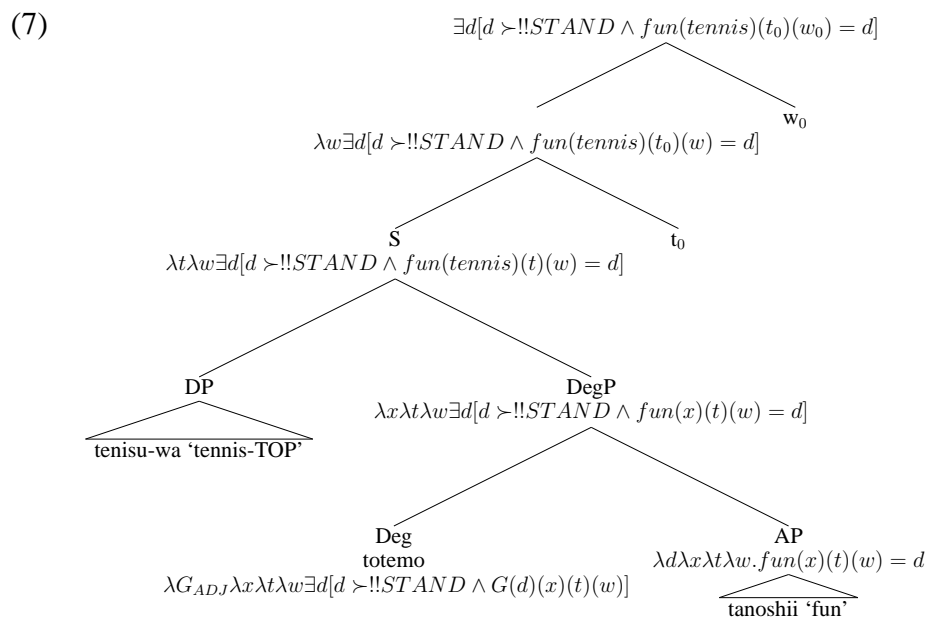
As for tense and world I will treat them as pronouns, on a par with individuals (Hacquard 2006; Percus 2000).

Note that in terms of polarity sensitivity, the semantic *totemo* should be regarded as a positive polarity item (PPI). As the following example shows, the sentence with negation sounds odd:

(8)   * Kono heya-wa   totemo ookiku-nai.
        This   room-TOP very   big-NEG
      'This room is not very big.'

   However, if we add a contrastive topic marker *wa*, the sentence becomes natural:

(9)   Kono heya-wa   totemo ookiku-wa-nai.
      This   room-TOP very   big-CONT-NEG
      'This room is not VERY BIG.'

Notice, however, that in this sentence, *totemo* outscopes negation, and the sentence is interpreted as a denial/metalinguistic negation (Horn 1989; Szabolcsi 2004).

3   The negative *totemo* is an expressive/CI

We now move to the meaning and use of the negative *totemo*. The main point I would like to make is that, unlike the semantic *totemo*, the negative *totemo* is an expressive; it conventionally implicates that a given proposition is extremely unlikely/impossible. In Gricean theory, conventional implicatures (CIs) are considered to be part of the meanings of words, but they are independent of "what is said" (e.g., Grice 1975; Potts 2005, 2007; Horn 2007; McCready 2010; Sawada 2010, 2014; Gutzmann 2012). They are not-at-issue. Furthermore, CI expressions are speaker-oriented (by default) (Potts 2007). In this section, we will provide some evidence for the idea that the negative *totemo* has the properties of a CI.

3.1   Denial

The first piece of evidence is concerned with denial. As the following example shows, denial cannot target the meaning triggered by the negative *totemo*:

(10)   A: Konnna muzukasii mondai-wa   boku-ni-wa totemo
           Such a difficult   problem-TOP I-to-TOP   TOTEMO
           tok-e-nai.
           solve-can-NEG
           'I can't solve such a difficult problem.' (CI: I am emphasizing the impossibility.)
       B: Iya, sonna-hazu-nai
           No such-thing-NEG
           'No, that should not be right.' (You are a smart person!)

Here, speaker B is challenging the at-issue part of (10A) (i.e., 'I can't solve such a difficult problem'), but not the CI. It would be odd if speaker B were challenging the CI of A's utterance, because that would mean that he/she is objecting to A's feeling. Note that the situation becomes quite different in the case of the semantic *totemo*. The meaning of the semantic *totemo* can be challenged by saying (11B):

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(11) A: Kono hon-wa   totemo tumaranai.
    this book-TOP very boring
    'This book is very boring.'

   B: Iya, sonna-hazu-nai
    No such-thing-NEG
    'No, that should not be right.'

3.2   Scope of negation

The second piece of evidence comes from the fact that the negative *totemo* cannot be within the semantic scope of negation:

(12) Tetuya-nado   totemo deki-nai.
   Staying up all night-NADO very can-NEG

   'Staying up all night is impossible.' (Implication: I am emphasizing the impossibility.)

In (12), there is no reading that "it is not the case that I am emphasizing the possibility."

3.3   Interaction with a modal

Relevant to the above evidence, the meaning of the negative *totemo* cannot be within any kind of logical operator. For example, the negative *totemo* cannot be within the semantic scope of a sentential (external) modal, such as *daroo* 'probably':

(13) Tetuya-o   suru-nado totemo deki-nai-daroo.
   Staying up all night-ACC do-NANTE TOTEMO can-NEG-EPI.MOD

   'Probably, staying up all night will be impossible for him/her.'
   (Implication: I am emphasizing the degree of impossibility.)

Here, the speaker is not saying that there is a possibility of an emphatic emotion towards the impossibility. Note that this phenomenon is not observed in the semantic *totemo*. The semantic *totemo* does fall within the scope of *daroo*, as shown in (14):

(14) Taro-wa   totemo isogasii-daroo.
   Taro-TOP very busy-EPI.MOD

   'Probably Taro is very busy.'

4   The formal analysis of the negative *totemo*

We now analyze the meaning of the negative *totemo* in a more theoretical fashion based on example (15):

(15) Tetuya-o   suru-nado totemo deki-na-katta.
   Staying up all night-ACC do-NADO very can-NEG-PAST

   At-issue: Staying up all night was impossible.
   CI: I am emphasizing the impossibility of staying up all night.

I will assume that the negative *totemo* is mixed content (McCready 2010; Gutzmann 2012) that takes a gradable modal predicate (e.g., *deki-nai* 'unlikely') on both at-issue and CI levels, but intensifies the degree only at the CI level, as in (16):

(16) $[[totemo_{NEG}]] = \lambda G_{MODAL}\lambda p\lambda t\lambda w\exists d[d \succeq STAND \wedge G(d)(p)(t)(w)]$ at t in w ♦$\lambda G_{MODAL}\lambda p\lambda t\lambda w\exists d'[d' \succ !!STAND \wedge G(d')(p)(t)(w)]$ at t_0 in w_0
(where $max(G_{MODAL}) = 0, p(t)(w)$ is expected, $p(t) \cap (\cap cg) = \varnothing$)

The left side of ♦ is an at-issue domain, and the right side of ♦ is a CI domain. In the at-issue dimension, the negative *totemo* denotes that the degree of a proposition p with respect to a gradable modal predicate G_{MODAL} is greater than a standard at t in w. Namely, in the at-issue component, the negative *totemo* behaves as a *pos(isitive)* morpheme (see Kennedy 2007 among others for the semantics of *pos*).

In the CI dimension, the negative *totemo* intensifies the degree of G_{MODAL} of the given proposition. Notice that this component is anchored to the current time t_0 and the current world w_0[1]. Notice that the negative *totemo* also has several presuppositional components: (i) the maximum degree of G is 0 in terms of probability, (ii) the at-issue proposition p (the proposition without a negative gradable modal) is expected to be true, and (iii) the speaker assumes that there is no overlap between the common ground (Stalnaker 1978) and the at-issue proposition. (We will see later these components play a crucial role in explaining the polarity sensitivity and pragmatic function of the negative *totemo*).

The crucial assumption behind this analysis is that, similar to regular adjectives, negative modal expressions such as *deki-nai* 'impossible' and *soo-ni-nai* 'unlikely' are gradable predicates (cf. Lassiter 2011; Klecha 2012). This idea is supported by the fact that these expressions can combine with scalar modifiers/measure phrases, as shown in (17):

(17) a. 100 paasento deki-nai.
      100 percent   can-NEG
      '100 percent impossible'
    b. Yaya ari-soo-ni   nai.
      A bit exist-likely-to NEG
      'A bit unlikely'

We can define the meaning of *deki-nai* and *so-ni nai*, as in (18)[2]:

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[1]Note that the proposition p itself can contain negation, as shown in:

(i) Tanpo-no   jouto-o   tuuchi-si-nai-nado   totemo   sinzi-rare-nai.
    Mortgage-GEN transfer-ACC notice-do-NEG-NADO TOTEMO believe-can-NEG

    'It is unbelievable that the bank does not notify the transfer of the mortgage.' (CI: I am emphasizing the impossibility.)
    (http://www.nikkeibp.co.jp/article/sj/20130227/341867/?ST=p_bizboard&bzb_pt=0)

[2]Note that there is also a single word *muri* which has the same meaning as *deki-nai*:

(i) $[[muri]] : \langle d^a, \langle p^a, \langle i^a, \langle s^a, t^a\rangle\rangle\rangle\rangle = \lambda d\lambda p\lambda t\lambda w.impossible_{ABILITY}(p(t)(w)) = d$

(18)   a. $[[deki\text{-}nai]] : \langle d^a, \langle p^a, \langle i^a, \langle s^a, t^a \rangle \rangle \rangle \rangle =$
$\lambda d \lambda p \lambda t \lambda w.impossible_{ABILITY}(p(t)(w)) = d$

      b. $[[V\text{-}soo\text{-}ni\text{-}nai]] : \langle d^a, \langle e^a, \langle i^a, \langle s^a, t^a \rangle \rangle \rangle \rangle =$
$\lambda d \lambda x \lambda t \lambda w.\textbf{unlikely-to-}V(x)(t)(w) = d$

Let us consider how the meaning of the negative *totemo* is computed in a compositional fashion. As we have seen in (16), the negative *motto* is mixed content, meaning that we need to introduce a semantic mechanism that can compute the meaning of an at-issue dimension and the meaning of a CI dimension simultaneously. In this paper I will assume, following McCready (2010) and Gutzmann (2012) that the meaning of mixed content is computed via mixed application as in (19):
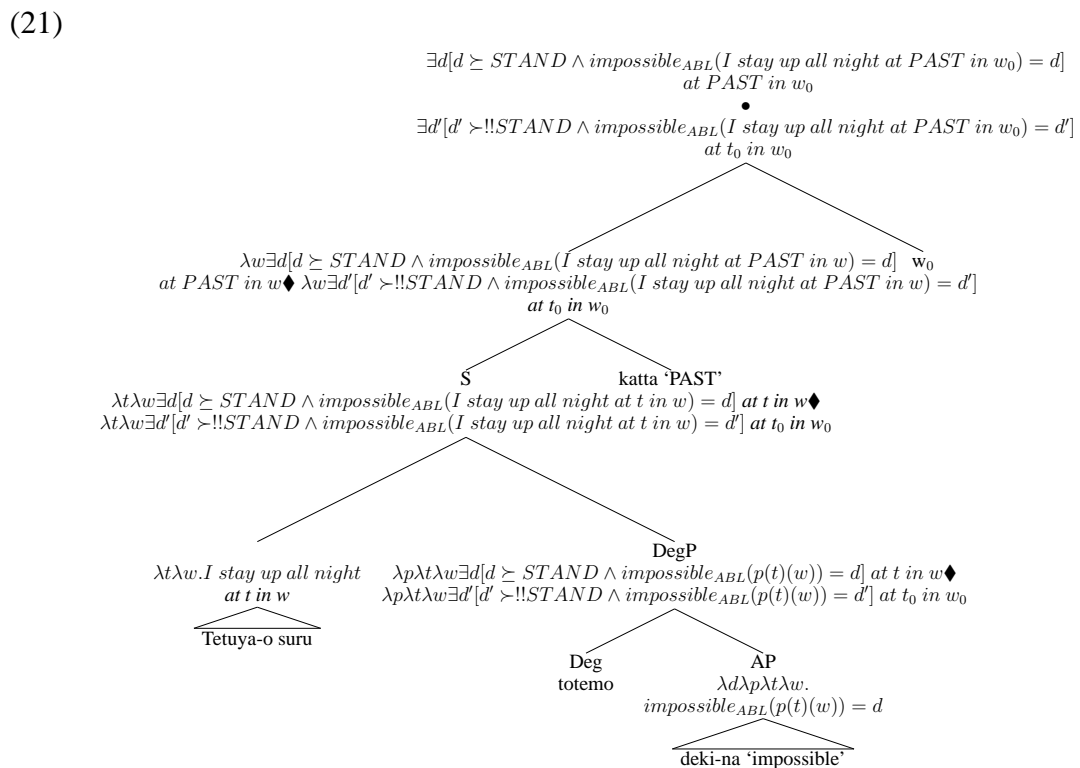
(19)
$$\alpha(\gamma) \blacklozenge \beta(\gamma) : \tau^a \times \upsilon^s$$
$$\alpha \blacklozenge \beta : \langle \sigma^a, \tau^a \rangle \times \langle \sigma^a, \upsilon^s \rangle \quad \gamma : \sigma^a$$

Superscript *a* stands for an at-issue type, and superscript *s* stands for a shunting type. The shunting type *s* is used for the semantic interpretation of a CI involving an operation of shunting (cf. Potts's (2005) CI application). When the derivation of the CI component of mixed content completes, following rule applies for the final interpretation of CI part:

(20)   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)

The following figure shows the logical structure of (15):

(21)

$\exists d[d \succeq STAND \wedge impossible_{ABL}(I\ stay\ up\ all\ night\ at\ PAST\ in\ w_0) = d]$
$at\ PAST\ in\ w_0$

$\bullet$

$\exists d'[d' \succ !!STAND \wedge impossible_{ABL}(I\ stay\ up\ all\ night\ at\ PAST\ in\ w_0) = d']$
$at\ t_0\ in\ w_0$

$\lambda w \exists d[d \succeq STAND \wedge impossible_{ABL}(I\ stay\ up\ all\ night\ at\ PAST\ in\ w) = d]$ w_0
$at\ PAST\ in\ w \blacklozenge \lambda w \exists d'[d' \succ !!STAND \wedge impossible_{ABL}(I\ stay\ up\ all\ night\ at\ PAST\ in\ w) = d']$
$at\ t_0\ in\ w_0$

S   katta 'PAST'
$\lambda t \lambda w \exists d[d \succeq STAND \wedge impossible_{ABL}(I\ stay\ up\ all\ night\ at\ t\ in\ w) = d]\ at\ t\ in\ w \blacklozenge$
$\lambda t \lambda w \exists d'[d' \succ !!STAND \wedge impossible_{ABL}(I\ stay\ up\ all\ night\ at\ t\ in\ w) = d']\ at\ t_0\ in\ w_0$

                DegP
$\lambda t \lambda w.I\ stay\ up\ all\ night$ $\lambda p \lambda t \lambda w \exists d[d \succeq STAND \wedge impossible_{ABL}(p(t)(w)) = d]\ at\ t\ in\ w \blacklozenge$
$at\ t\ in\ w$ $\lambda p \lambda t \lambda w \exists d'[d' \succ !!STAND \wedge impossible_{ABL}(p(t)(w)) = d']\ at\ t_0\ in\ w_0$

Tetuya-o suru

         Deg   AP
        totemo $\lambda d \lambda p \lambda t \lambda w.$
                   $impossible_{ABL}(p(t)(w)) = d$

                  deki-na 'impossible'

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Given this, why is it that the negative *totemo* must combine with a negative modal gradable predicate rather than a positive modal gradable predicate?

(22)   *Tetuya-o   suru-nado totemo   dekiru.
        Staying up all night-ACC do-NADO TOTEMO can

        At-issue: Staying up all night is possible.
        CI: I am emphasizing the possibility (Use condition: I am refusing to update the context set with the at-issue proposition.)

One might think that the above analysis allows a situation in which the negative *totemo* takes a positive modal gradable predicate. I argue that G_{MODAL} must be a negative gradable modal predicate because the negative *totemo* presupposes that the maximum degree of G_{MODAL} is 0 in terms of probability, as represented in the parenthetical part in (16)[3]:

(23) $max(G_{MODAL}) = 0$

If a given G_{MODAL} is a positive modal gradable predicate like *arieru* 'likely', then its maximal degree will be 1 (i.e., 100 percent). Thus, the sentence becomes infelicitous. However, if a modal predicate is negative, its maximal degree will be 0 (i.e., 0 percent). Thus, the resulting sentence is well formed. This analysis is compatible with the idea that a modal gradable predicate like *likely* is basically a relative gradable predicate (because it refers to a contextual standard) but can also behave as an absolute gradable predicate (having a closed scale; Kennedy & McNally 2005) when it co-occurs with the proportional modifier *n*% (Lassiter 2011; Klecha 2012).

Then, the questions is: why is it that the negative *totemo* must occur with a modal? I argue that the negative *totemo* must occur with modality because it is a degree head that appears above a proposition. The negative *totemo* needs a measure function dimension and the gradable modal provides it. This implies that if a modal is not a gradable predicate, a sentence with the negative *totemo* becomes ill-formed. This prediction is borne out:

(24)   Taro-wa   gakusei-de-wa   (*totemo*) nai-hazuda.
        Taro-TOP student-PRED-TOP TOTEMO NEG-must

        'Taro must *totemo* not be a student.'

Hazuda is a sentential modal, thus it cannot interact with *totemo*.

5   Discourse-pragmatic properties of the negative *totemo*

Let us now consider the discourse-pragmatic properties of the negative *totemo* in detail.

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[3]I thank Eric McCready for the valuable discussion regarding this point.

5.1   The expectation behind the use of the negative *totemo*

In dialogue, the negative *totemo* is used under the assumption that the listener expects the at-issue proposition *p* to be true:

(25)   A: Kono mondai tok-e-masu-ka?
            This   problem solve-can-PRED.POLITE-Q

            'Can you solve this problem?'

        B: Iya, boku-ni-wa totemo   tok-e-masen.
            No I-to-TOP   TOTEMO solve-can-NEG.PRED.POLITE

            'No, I can't solve this problem.' (I am emphasizing the inability.)

In this conversation, Speaker A expects that B can solve the problem. Formally, it is an open question, but there is an expectation of a positive answer. As Watanabe (2002) observes, the negative *totemo* is often used in contexts where the speaker thinks that the at-issue proposition/event is preferable or is necessarily the case. The requirement that *p* is expected means that the proposition is not new information. This is supported by the fact that it is unusual to use *ga* in these contexts, which conveys new information:

(26)   Tetuya   {-nado/??-ga} totemo   deki-nai.
        Staying up all night -NADO/NOM TOTEMO can-NEG

        At-issue: Staying up all night is impossible.
        CI: I am emphasizing the impossibility.

The discourse particle *nado* in (26) signals that the given proposition/event is currently under discussion and that the speaker construes it negatively. Crucially, the above asymmetry disappears if we delete the negative *totemo*:

(27)   Tetuya   {-nado/-ga}   deki-nai.
        Staying up all night -NADO/NOM can-NEG

        'Staying up all night is impossible.'
        CI: I am emphasizing the impossibility.

Notice that it is not always the listener who expects *p* to hold. As the following example shows, it can be a speaker, not the listener, who expects *p*:

(28)   Kibou-suru daigaku-ni-wa   totemo   ukari-soo-ni-nai.
        Hope-do   university-to-TOP TOTEMO pass-likely-to-NEG

        'It is unlikely that I can pass the entrance examination of a desired university.' (CI: I am emphasizing the unlikelihood.)
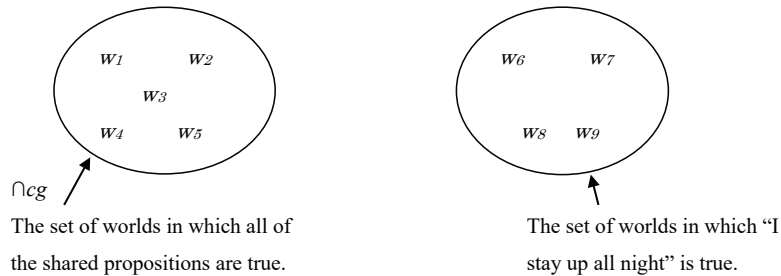   (http://www.gmm.co.jp/maeda.html)

5.2   Update refusal

The important point is that the negative *totemo* always rejects to update the expected proposition *p* with a common ground. The final part of the CI component conveys that the intersection between the set of possible worlds in which the at-issue proposition is true and the context set is empty:

(29) Refusal of p (in dynamic semantics)
$p \cap cs = \varnothing$

This emptiness triggers a negative emotion of "rejection/refusal." The following situation graphically describes the situation in (26) with *nado*:

(30)

$\cap cg$

The set of worlds in which all of
the shared propositions are true.

The set of worlds in which "I
stay up all night" is true.

The above figure shows that there is no world in $\cap cg$ in which the at-issue proposition ("I stay up all night") is true.

The refusal update is quite different from usual negation. In the dynamic semantics literature, a simple negative proposition ($\neg p$) is usually assumed to create a new context set that contains no worlds in which p is true (I abbreviate $\cap cg$ as cs):

(31) Negation of p (in dynamic semantics)
$cs[\neg p] = cs - cs[p]$

Notice, however, that sentences with the negative *totemo* have at-issue components as well, and within the at-issue components, there is a negative modal statement. It may be possible to analyze $impossible(p)$ as a negative sentence. If this is correct, there will be two kinds of information updates in the sentence with the negative *totemo*: one creating a new context set that contains no worlds in which a negative modal statement (e.g., $\neg possible(p)$) is true, and the other is refusing to update p with a common ground.

5.3 Comparison with the English expressive *totally*

Let us now compare the discourse-pragmatic use of the negative *totemo* with the expressive *totally*. McCready & Schwager (2009) argue that the expressive use of *totally* conventionally implicates that the speaker is maximally epistemically committed to his/her justification for his/her use of the proposition. An interesting point is that, as Beltrama (2015) shows, the expressive *totally* can be used in a situation in which the at-issue proposition is expected to be false:

(32) John: Luke didn't get married at 25. ($\neg p$)
    Mark: No! What are you talking about! He TOTALLY got married at 25..
        (Beltrama 2015)

This use of the expressive *totally* seems to behave as a mirror image of the negative *totemo* (Anastasia Giannakidou, personal communication.) Note, however, these words are not always in a mirror image. As Beltrama (2015) shows, the expressive *totally* can also be used in situations in which the previous utterance is a polar question about p, as in (33), or a tentative assertion of p, as in (34):

(33) John: Did Luke get married at 25?
     Mark: Yes, he TOTALLY got married at 25.   (Beltrama 2015)

(34) John: I can't remember if Luke got married at 25.
     Mark: Yes, he TOTALLY got married at 25.   (Beltrama 2015)

The negative *totemo* cannot be used in these environments. This suggests that the distribution of the expressive *totally* is wider than the negative *totemo*[4].

6 Toward a new typology of negative polarity items

Finally, let us discuss the characteristics of the negative *totemo* from a broader perspective. The existence of the negative *totemo* suggests that there is a new class of NPIs, i.e. discoruse-oriented NPIs, or more specifically, oppositive NPIs.

	Contribute to "what is said" (= at-issue)	Not contributing to "what is said" (=CI)
Within the semantic scope of negation	Minimizer NPIs, *any* (Class 1)	None (but vulgar NPIs partially belong to this class) (Class 4)
Not within the semantic scope of negation	wh-*mo*, Greek emphatic n-word (Class 2)	The negative *totemo* (Expressive NPIs) (Class 3)

Table 1: Typology of Negative Polarity Items

Class 1 and Class 2 negative polarity items in Table 1 have been extensively studied in the literature of negative polarity items/negative concord. The typical examples of Class 1 items are *any*-type NPIs and minimizer NPIs (e.g. Kadmon & Landman. 1993; Krifka 1995; Lee & Horn 1994; Chierchia 2013). These NPIs are within the semantic scope of negation and their meanings are part of "what is said":

(35) a. John didn't say anything.
    b. John didn't say a word.
    c. John doesn't give a damn.

For example, (35c) roughly means that "John didn't help even for a minimal degree"[5]. The idea that the meanings of *any* and minimizers are "part of what is said" is supported by the fact that their meanings can be targeted by saying "No, that is not true":

(36) A: There aren't any cookies left.

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[4]Note also that as Beltrama (2015) claims, *totally* can appear in a discourse-initial position（i.e. in the out-of-the-blue content).

[5]Chierchia (2013) analyzes the meaning of (35c) as (i):

(i) Chierchia's semantics of *give a damn* (Chierchia 2013: 151)
    a. E[John doesn't give a damn$_{[+\sigma]}$
    b. E($\neg\exists s$ [care(s, j, d$_{min}$)]) =
    c. $\neg\exists s$[care(s, j, d$_m$in)] $\wedge\neg\exists s$ [care(s, j, d$_{min}$)] $<_\mu \neg\exists$ s [care(s, j, d')]

B: No, that is not true.

The typical examples of Class 2 negative polarity items are emphatic n-words in Greek (Giannakidou 2000), Hungarian n-words (Szabolcsi 1981), Japanese *sika* (e.g., Kataoka 2006), or wh-*mo* NPIs (e.g., Shimoyama 2011). They are not within the semantic scope of negation, but their meanings are part of "what is said." For example, Giannakidou (2000) argues that Greek emphatic n-words, including TIPOTA, are universal quantifiers that outscope negation, based on various linguistic facts/diagnostics, including *almost/absolutely* modification, donkey anaphora and predicate nominals[6]:

(37) Dhen ipa   TIPOTA.
    Not   said.1sg n-thing
    'I didn't say anything.'   (Giannakidou 2000: 458)

Shimoyama (2011) claims that the Japanese wh-*mo* also has a wide-scope universal property based on examples like (38):

(38) Kokyaku-no dare-kara-mo   gozentyuu-wa taitei   denwa-ga
     Client-GEN who-from-MO morning-TOP mostly call-NOM
     nakat-ta.
     not.exist-PAST
     'For every client, it was mostly the case that there was no call from him or her in the mornings.'   (Shimoyama 2011: 13)

In (38) there is a reading "$\forall > Q_{mostly}\neg$", and this supports the idea that wh-*mo* must be interpreted as a wide-scope universal, but not as a narrow scope existential.

Class 1 negative polarity items and Class 2 negative polarity items are different in terms of scope, but their meanings are all part of "what is said." They contribute to the truth condition of a given sentence. The Japanese negative *totemo* belongs to neither Class 1 nor Class 2; it is beyond the scope of negation and does not contribute to "what is said."

Finally let us consider the following question: are there class 4 NPIs? Logically, there cannot be such NPIs. There cannot be expressions that are within the scope of negation but do not contribute to "what is said." However, we can say that the so-called vulgar NPIs partially belong to this class. (I thank Jason Merchant and Thomas Grano for the valuable discussions regarding vulgar NPIs.)

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

Postal (2004) claims that there is a perfect equivalence between *any* and vulgar NPIs:

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[6]In the literature, Class 2 NPIs are often called negative concord items (NCIs) because they are placed above negation and may appear in fragment answers. Because NCIs also need negation for legitimacy, I assume that NCIs constitute a variety of NPIs (see, e.g., Giannakidou (2011) for the relationship between NPIs and NCIs).

(40)   a. Irma does not understand dick about clones. =

         b. Irma does not understand anything about clones.

I argue that although the above sentences may be truth conditionally equivalent, they differ at the not-at-issue level. Vulgar NPIs are anti-honorific expressions similar to the pure expressives like *bastard*, *fucking*. It seems that the vulgar NPIs in the above sentences conventionally implicate a speaker's negative attitude/emotional feeling toward an utterance situation. I consider vulgar NPIs to be mixed content in the sense of McCready (2010) and Gutzmann (2012), in that they have truth-conditional meaning similar to *any*, but in addition to that they have an expressive/CI component. If we consider them as such, the not-at-issue component of vulgar NPIs will belong to Class 4, and the vulgar NPIs, as a whole, have properties of both Class 1 and Class 4.

7 Conclusion

This paper investigated the meaning and use of the Japanese negative *totemo* and considered what the existence of the negative *totemo* suggests for the theories of polarity items.

I argued that the negative *totemo* is not a logical NPI, which is licensed by negation or downward-entailing/non-veridical operators (see e.g., Ladusaw 1980; Giannakidou 1998). Rather, it is an expressive/conventional implicature (CI)-triggering expression (see e.g., Grice 1975; Potts 2005), which intensifies the unlikelihood or impossibility of a given proposition (the proposition without negation) and refuses to update the common ground (the context set) with the at-issue proposition.

I then claimed that there is a new class of NPIs, expressive NPIs (or more specifically, oppositive NPIs), which are not licensed by logical operators, but are regulated by their pragmatic functions.

In a future study, I would like to investigate the extent to which expressive/ oppositive NPIs are pervasive in natural language. It seems that there are various related phenomena that behave similarly to the negative *totemo*. For example, Japanese *nani-mo* 'what-MO' has a not-at-issue use, and in this use it must appear in a negative modal environment, where it has a function of opposition:

(41)   Nani-mo ima sore-nituite hanasu-hituyoo-wa {nai/*aru}.
        What-MO now it-about   talk-need-TOP   NEG/BE

        At-issue: You do not need to talk about it now.
        CI: The at-issue proposal is going too far. (I have a negative feeling toward the current proposal (i.e. to talk about it)).

In (41), *nani-mo* conventionally implicates that the at-issue proposition is going to far. Therefore, similar to *totemo*, it serves the pragmatic function of rejection.

References

Beltrama, A. 2015. Totally between subjectivity and discourse: Exploring the pragmatic side of intensification. Manuscript, University of Chicago.

Chierchia, G. 2013. *Logic in Grammar: Polarity, Free Choice, and Intervention*. Oxford: Oxford University Press.

Cresswell, M. J. 1977. The semantics of degree. In *Montague Grammar*, ed. by B. Partee, 261–292. New York: Academic Press.

Giannakidou, A. 1998. *Polarity Sensitivity as (Non)veridical Dependency*. Amsterdam: John Benjamin.

Giannakidou, A. 2000. Negative ... concord? *Natural Language and Linguistic Theory* 18.457–523.

Giannakidou, A. 2011. Positive polarity items and negative polarity items: variation, licensing, and compositionality. In *Semantics: An International Handbook of Natural Language Meaning*, ed. by C. Maienborn, K. von Heusinger, & P. Portner, 1660–1712. Berlin: Mouton de Gruyter.

Grice, P. H. 1975. Logic and conversation. In *Syntax and Semantics III: Speech Acts*, ed. by P. Cole & J. Morgan, 43–58. New York: Academic Press.

Gutzmann, D. 2012. Use-conditional meaning. Ph.D dissertation, University of Frankfurt.

Hacquard, V. 2006. Aspects of modality. Ph.D. Dissertation, MIT.

Horn, L. R. 1989. *A Natural History of Negation*. Chicago: University of Chicago Press.

Horn, L. R. 2007. Toward a fregean pragmatics: Voraussetzung, nebengedanke, andeutung. In *Explorations in pragmatics*, ed. by I. Kecskes & L. Horn, p. 39—69. Berlin: Mouton de Gruyter.

Kadmon, N., & F. Landman. 1993. Any. *Linguistics and Philosophy* 16(4).353–422.

Kataoka, K. 2006. Neg-sensitivie elements, neg-c-command, and scrambling in japanese. In *Japanese/Korean Linguistics 14*, ed. by T. J. Vance & K. Jones, 221–233.

Kennedy, C., & L. McNally. 2005. Scale structure, degree modification, and the semantics of gradable predicates. *Language* 81.345–381.

Klecha, P. 2012. Positive and conditional semantics for gradable modals. In *Proceedings of Sinn und Bedeutung 16*, 363–376.

Klein, E. 1991. Comparatives. In *Semantik: Ein Internationales Handbuch der Zeitgenossischen Forschung*, ed. by A. von Stechow & D. Wunderlich, 673–691. Berlin: Walter de Gruyter.

Krifka, M. 1995. The semantics and pragmatics of polarity items. *Linguistic Analysis* 25.1–49.

Ladusaw, W. A. 1980. *Polarity Sensitivity as Inherent Scope Relations*. New York&London: Garland Publishing.

Lassiter, D. *Measurement and modality: The scalar basis of modal semantics*. New York University dissertation.

Lee, Y.-S., & L. Horn. 1994. Any as indefinite plus even. Manuscrip, Yale University.

McCready, E. 2010. Varieties of conventional implicature. *Semantics & Pragmatics* 3.1–57.

McCready, E., & M. Schwager. 2009. Intensifiers. Paper presented at the workshop on expressives and other kinds of non-truth-conditional meaning.

Percus, O. 2000. Constraints on some other variables in syntax. *Natural Language Semantics* 8.173–229.

Postal, P. M. 2004. *Skeptical Linguistic Essays*. Oxford: Oxford University Press.

Potts, C. 2005. *The Logic of Conventional Implicatures*. Oxford: Oxford University Press.

Potts, C. 2007. The expressive dimension. *Theoretical Linguistics* 33.165–197.

Sawada, O. 2010. Pragmatic aspects of scalar modifiers. Ph.D. Dissertation, University of Chicago.

Sawada, O. 2014. An utterance situation-based comparison. *Linguistics and Philosophy* 37.205–248.

Seuren, P. 1973. The comparative. In *Generative Grammar in Europe*, ed. by F. Kiefer & N. Ruwet, 528–564. Dordrecht: Reidel.

Shimoyama, J. 2011. Japanese indeterminate negative polarity items and their scope. *Journal of Semantics* 28(4).413–450.

Stalnaker, R. 1978. Assertion. In *Syntax and Semantics Vol. 9: Pragmatics*, ed. by P. Cole., 315–332. New York: Academic Press.

Szabolcsi, A. 1981. The semantics of topic-focus articulation. In *Formal Methods in the Study of Language*, ed. by J. Groenendijk, T. Janssen, & M. Stokhof, 513–540. Amsterdam: Mathematical Centre Tracts 136.

Szabolcsi, A. 2004. Positive polarity-negative polarity. *Natural Language and Linguistic Theory* 22.409–452.

von Stechow, A. 1984. Comparing semantic theories of comparison. *Journal of Semantics* 3.1–77.

Watanabe, M. 2002. *Sasuga! Nihongo (Sasuga! Japanese)*. Tokyo: Chikuma Shinsho.