Semantic Taxonomies and *Tasi* 'Again' in Korean

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Lee, Juwon. (2017). Semantic taxonomies and *tasi* 'again' in Korean. *The Linguistic Association of Korea Journal*, *25*(4). 59-81. This article presents a new type of repetitive reading of the Korean adverb *tasi* 'again', and shows that the previous lexical or structural accounts of *again* cannot explain the new readings. As a solution to this problem, I propose two lexical entries of *tasi* 'again', the hypernymic *tasi* and the antonymic *tasi*, and argue that both entries can derive the repetitive readings (including the new readings) and restitutive readings, respectively. This account of the semantic phenomena shows an interaction between a semantic taxonomy and the lexical meaning of the adverb in Korean. Finally, I briefly discuss some similar data in English which suggest that a semantic taxonomy-based analysis is also needed for *again* in this language.

1. Introduction

The lexical meaning of *again* and its corresponding modifiers in other languages have been much studied in the literature (see English *again* in McCawley, 1968, 1971; Morgan, 1969; Dowty, 1979; Stechow, 1995, 2003; Beck & Johnson, 2004; Beck, 2005, 2006; Beck & Gergel, 2015; Pedersen, 2015, German *wieder* 'again' in Fabricius-Hansen, 1983, 2001; Stechow, 1996, 2003; Egg, 1999; Klein, 2001; Jäger and Blutner, 2003, and Korean *tasi* 'again' in Yoon, 1996, 2007; Oh, 2009, 2015, among others). In this paper, I introduce a new interpretation of the adverb *tasi* 'again' in Korean and investigate the systematic relation between semantic taxonomies and the interpretations of the adverb. *Tasi* 'again' has been

considered to have the two types of readings, the repetitive reading and the restitutive reading, just like *again* in English (Yoon, 2007; Oh 2015). For instance, in (1) *tasi* 'again' is modifying the sentence (or the VP) headed by the caused change-of-state verb *yel-ess-ta* 'opened', which has a causative event structure, no matter whether the scale of the inherent result is durative or punctual (see Rappaport Hovav and Levin, 1998), and the whole sentence has the two kinds of readings which differ in the presuppositions (see also Yoon, 2007; Oh, 2015).

(1)   *Tom-i   mwun-ul   tasi   yel-ess-ta.*
        Tom-Nom   door-Acc again   open-Pst-Dec
        'Tom opened the door again.'
        1. *Repetitive reading*: Entails that Tom opened the door, and presupposes that Tom had opened the door before.
        2. *Restitutive reading*: Entails that Tom opened the door, and presupposes that the door had been open before.

In the repetitive reading of (1), the whole event of Tom opening the door is repeated, but in the restitutive reading, the state of the door's being open is repeated. Many prior works on the adverb in various languages deal with how to account for these two basic meanings (see section 2 for a brief review of the two main approaches to this problem).

In addition to these canonical readings, however, *tasi* 'again' can have a different interpretation. For example, in (2) the content of the presupposition of the second sentence is not associated with that of the sentence that *tasi* 'again' syntactically modifies, unlike the repetitive and restitutive readings given in (1).

(2)   [Context: Tom had never fried the potato before.]
        Tom-i   ku   kamca-lul   kwu-wess-ko,
        Tom-Nom   the potato-Acc bake-Pst-and
        tasi   ku   kamca-lul   thwiki-ess-ta.
        again   the potato-Acc fry-Pst-Dec
        (lit.) 'Tom baked the potato, and he fried the potato again.'

The second sentence in (2) cannot have the typical repetitive reading due to the

context; the assertion of the second sentence comes from the sentence that *tasi* 'again' modifies, but the presupposition of it seems to be specified by the first sentence. In short, the sentence that *tasi* 'again' syntactically modifies can be different from the sentence which is related to the presupposition of the adverb. This kind of reading has never been discussed in the literature to my best knowledge, and it cannot be accounted for by the previous approaches, whether they be lexical or structural, since they both assume that the basic content of the presupposition of the adverb comes from the overt expression that the adverb syntactically modifies. Thus the existence of this peculiar interpretation which I call pseudo-repetitive reading raises a number of questions about the nature of the lexical meaning of *tasi* 'again' and what conditions give rise to the reading. Regarding these issues, a semantic taxonomy-based analysis of *tasi* 'again' is proposed in this paper. I believe that this study would contribute to shedding light on the relation between the notion of semantic taxonomy and the lexical meaning of the adverb in addition to introducing the new type of readings in Korean.

In section 2, I first review the two main accounts of the semantics of English *again*, and point out that they must be modified so as to accommodate the new data of the adverb *tasi* 'again'. In section 3, a semantic taxonomy-based analysis of *tasi* is proposed; in particular, I show that the two lexical entries of *tasi* can correctly derive all the readings in question. Then I discuss some potential problems of the analysis and similar English data involving *again* in section 4 and 5, respectively. I conclude in section 6.

2. Prior Analyses of *Again*

In this section, I first give a brief description of the two previous analyses of *again*.[1] It is shown, however, that they both are not enough to explain the pseudo-repetitive reading introduced above, and thus a new semantic theory of *tasi* 'again' incorporating the notion of semantic taxonomy is required to properly explain all the interpretations of the adverb under discussion.

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1) I do not attempt to compare or contrast the two approaches in detail; only the main points of the analyses are presented here. This seems to suffice for the present purpose of this paper.

2.1. Lexical approach

In a lexical approach, the adverb *again* is lexically ambiguous between the repetitive *again* and the counterdirectional *again* (see Pedersen, 2015 for a scalar analysis of the reversal *again*): the former describes a repetition of the whole event denoted by a sentence leading to the repetitive reading, and the latter expresses a reversal of direction resulting in the restitutive reading (see Fabricius-Hansen, 1983, 2001; Kamp and Rossdeutscher, 1994; Jäger and Blutner, 2000). For instance, if *again* in (3) is the repetitive *again*, it is presupposed in the sentence that the temperature had risen before, but if it is the counterdirectional *again*, the same sentence presupposes that the temperature had fallen before (the example is from Beck, 2005: 15, (34)).

(3)   (The temperature was falling all morning.) Now it is rising again.

The two lexical meanings of *again* for the repetitive and restitutive readings can be indirectly defined as in the following (Beck, 2005: 15):[2]

(4)   a. $[[again1]](P_{<i,t>})(e) = 1$ iff $P(e)$ & $\exists e'[e' < e$ & $P(e')]$
                              $= 0$ iff $\sim P(e)$ & $\exists e'[e' < e$ & $P(e')]$
                              undefined otherwise.

        b. $[[again2]](P_{<i,t>})(e) = 1$ iff $P(e)$ & $\exists e'[e' < e$ & $P_c(e')$ &
                                  $res_{pc}(e') = pre_p(e)]$
                              $= 0$ iff $\sim P(e)$ & $\exists e'[e' < e$ & $P_c(e')$ &
                                  $res_{pc}(e') = pre_p(e)]$
                              undefined otherwise.

A sentence with the repetitive *again* in (4a) asserts that P is true of an event, and

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2) See Beck (2006) for a little bit more refined formalization of *again*, but the current one seems to be enough to express the main ideas of this paper. Hence, I adopt this formalization for a semantic taxonomy-based analysis of *tasi* 'again' proposed in section 3 below. Note also that P is predicate of events and the negation is assumed to scope only over P(e), since P(e) represents assertion, but the rest part presupposition; when the presupposition failure occurs, the sentence is assumed to have no truth value.

presupposes that there is a preceding event which P is true of. But a sentence with the counterdirectional *again* in (4b) asserts that P is true of an event, and presupposes that there is a prior event which P_c (the counterdirectional predicate) of P is true of, and the result state (res_{pc}) of the counterdirectional predicate P_c is identical to the prestate (pre_P) of P. Equipped with the two lexical entries of *again*, we can formally represent the repetitive reading and the restitutive reading of (5a) as in (5b) and (5c), respectively (Beck, 2005: 15).

(5) a. The temperature is rising again.
     b. The typical repetitive reading of (5a)
         = $\lambda e.rise_e(the\_temp)$ & $\exists e'[e' < e$ & $rise_{e'}(the\_temp)]$
     c. The restitutive/counterdirectional reading of (5a)
         = $\lambda e.rise_e(the\_temp)$ & $\exists e'[e' < e$ & $fall_{e'}(the\_temp)$ &
         $res_{pc}(e') = pre_P(e)]$

The verbal predicate in (5a) is atelic. If this analysis is applied to the sentence with the telic predicate in (6a), then the typical repetitive reading of the sentence can be represented as in (6b), and the restitutive reading as in (6c) (see Beck, 2005: 16):

(6) a. Sally opened the door again.
     b. The typical repetitive reading of (6a)
         = $\lambda e.open_e(the\_door)(Sally)$ & $\exists e'[e' < e$ &
         $open_{e'}(the\_door)(Sally)]$
     c. The restitutive/counterdirectional reading of (6a)
         = $\lambda e.open_e(the\_door)(Sally)$ & $\exists e'[e' < e$ &
         $close_{e'}(the\_door)(Sally)$ & $res_{pc}(e') = pre_P(e)]$

In (6b), it asserts that Sally opened the door and presupposes that she had previously opened the door. But in (6c), it is asserted that Sally opened the door and it is presupposed that she had previously closed the door,[3] and the result

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3) In the counterdirectional reading, it is not necessary that it is Sally who had previously closed the door; a change-of-state of the door becoming closed is enough. Although Beck (2005: 16, footnote 10) notes that the details of this are ignored in his representation, this is an important motivation for taking only the change-of-state part of an antonymic predicate

state of Sally's closing the door is the same as the prestate of Sally's opening the door.

In the lexical approach to repetitive readings, however, the predicate P involved in the presupposition must be identical to the predicate P in the assertion, as represented in (4a). Thus this lexical analysis is unable to deal with the pseudo-repetitive reading of the sentence in (2), repeated in (7).

(7)   [Context: Tom had never fried the potato before.]
      Tom-i   ku   kamca-lul   kwu-wess-ko,
      Tom-Nom   the   potato-Acc   bake-Pst-and
      tasi   ku   kamca-lul   thwiki-ess-ta.
      again   the   potato-Acc   fry-Pst-Dec
      (lit.) 'Tom baked the potato, and he fried the potato again.'

More specifically, the typical repetitive reading of the second sentence in (7) amounts to (8) under the assumption that *tasi* 'again' in the sentence is the repetitive *again* from (4a).

(8)   The typical repetitive reading of the second sentence in (7)
      = $\lambda e.\text{fry}_e(\text{the\_potato})(\text{Tom})$ & $\exists e'[e' < e$ & $\text{fry}_{e'}(\text{the\_potato})(\text{Tom})]$

(8) can surely describe a repetition of the whole event of Tom's frying the potato, but not the situation which the speaker intended to be described by the second sentence in (7). Summarizing, if the lexical analysis of *again* is extended to *tasi* 'again', it cannot capture all the possible repetitive meanings of the Korean adverb. The same problem is also found in the structural analysis of *again*, which I turn to next.

2.2. Structural approach

The basic idea of the structural account is that *again* is not ambiguous, but has only one meaning, repetition (see e.g. Stechow, 1995, 1996, 2003; Klein, 2001; Pittner, 2003). The repetitive reading arises when *again* is syntactically attached

for the antonymic *tasi* 'again' proposed in section 3.2 below.

to the constituent representing the whole event structure, so what is repeated is the whole event, and the restitutive reading arises if *again* is syntactically attached to the constituent representing the result state, so what is repeated is the result state. For instance, Stechow (1995) proposes that the Logic Form (LF) in (9b) is assigned to the resultative construction in (9a). In (9b) the object 'the metal' moves to the front of the structure to bind the empty pronominal subject of the small clause, and the verb *hammered* combines with a small clause and then with an object (Beck, 2005: 6-8).

(9) a. Sally hammered the metal flat.
   b. [[the metal] [1[$_{VP}$ Sally [$_{V'}$ t1 [$_V$ hammered [$_{SC}$ PRO1 flat]]]]]
      → λe.hammer$_e$(the_metal)(S) &
      ∃e'[BECOME$_{e'}$(λe''.flat$_{e''}$(the_metal)) & CAUSE(e')(e)]

The analysis of the resultative sentence allows us to capture both the readings of (10a) below. The resultative LF in (9b) contains two propositional categories that could be modified by *again*: the entire VP or just the small clause 'PRO flat.' In other words, the ambiguity arises due to the scopal ambiguity of *again*. Using principle (R) (see details of this in Stechow, 1995; Beck, 2005), the two structures of (10a) can be interpreted as (10b) and (10c) ('t_m' stands for the referent of 'the metal') (see Beck, 2005, 2006).

(10) a. Sally hammered the metal flat again.
    b. [$_{VP}$ [the metal] [1[$_{VP}$ [$_{VP}$ Sally [$_{V'}$ t1 [$_V$ hammered [$_{SC}$ PRO1 flat]]] again]]]
       → λe''.again$_{e''}$(λe.hammer$_e$(t_m)(S) &
       ∃e'[BECOME$_{e'}$(λe*.flat$_{e*}$(t_m)) & CAUSE(e')(e)])
    c. [$_{VP}$ [the metal] [1[$_{VP}$ Sally [$_{V'}$ t1 [$_V$ hammered [$_{SC}$ [$_{SC}$ PRO1 flat] again]]]]]
       → λe.hammer$_e$(t_m)(S) &
       λe'[BECOME$_{e'}$(λe''.again$_{e''}$(λe*.flat*(t_m)) & CAUSE(e')(e)])

In (10a), it means that "once more, Sally's hammering the metal caused it to become flat" (Beck, 2005: 14), and in (10b) it means that "Sally's hammering the

metal caused it to become once more flat" (Beck, 2005: 14). It is assumed that *again* has the meaning in (11), which is basically the same as the repetitive *again* in (4a) of the lexical approach (see Beck, 2005).

(11) $[[again]](P_{<i,t>})(e) = 1$ iff $P(e)$ & $\exists e'[e' < e$ & $P(e')]$
          $= 0$ iff $\sim P(e)$ & $\exists e'[e' < e$ & $P(e')]$
          undefined otherwise.

In sum, *again* has the constant meaning according to the structural approach, and the two different readings are derived from the two different syntactic modification of *again* (see the same line of analysis in Dowty, 1979: 261, suggesting the scopal ambiguity of *again*).

However, the assumption of this structural account is that the source of the repetition comes from the constituent that *again* modifies. So, for instance, if the structural analysis is applied to the second sentence in (7), its typical repetitive reading should be represented like the following:

(12)   The typical repetitive reading of the second sentence in (7)
          $= \lambda e''.again_{e''}(\lambda e.fry_e(the\_potato)(Tom)$ &
          $\exists e'[BECOME_{e'}(\lambda e^*.fried_{e^*}(the\_potato))$ & $CAUSE(e')(e)])$

(12) cannot capture the pseudo-repetitive reading due to the same problem that the lexical analysis suffers from. Hence, the existence of the pseudo-repetitive reading definitely calls for a new analysis of *tasi* 'again'.

3. A Semantic Taxonomy−based Analysis of *Tasi* 'Again'

It has been shown that both the previous accounts in the literature must be somehow modified to accommodate the new meaning of *tasi* 'again'. In this section, I propose a semantic taxonomy-based analysis of *tasi* 'again' which is able to cover the pseudo-repetitive readings, as well as typical repetitive and restitutive readings. Note first that the lexical ambiguity of *tasi* 'again' from lexical approach is adopted here, but some notion of lexical decomposition from

structural approach is also used for a representation of the semantic taxonomy-based analysis. This choice is only for expository purposes; I do not attempt here to argue for or against either of the two approaches to the adverb.

3.1. The hypernymic analysis of repetitive readings

What is important in the pseudo-repetitive reading is that the predicate in the assertion is different from the predicate in the presupposition. However, it is not that they are completely different from each other. For example, the verbs *thwiki-* 'fry' and *kwup-* 'bake' describe a cooking. According to the WordNet, *fry* is assumed to be a sister of *bake* in the semantic taxonomy of *bake,* and vice versa. Assuming that the corresponding Korean verbs are also sisters to each other, we can observe the generalization that a sister of the predicate that *tasi* 'again' modifies in a sentence can be the predicate of the presupposition of the sentence, and this is supported by the following additional examples (and many other sentences with manner-of-cooking verbs).

(13) a. [Context: Tom had never fried the potato before.]
  Tom-i   ku   kamca-lul   cci-ess-ko,
  Tom-Nom   the   potato-Acc   steam-Pst-and
  tasi   ku   kamca-lul   thwiki-ess-ta.
  again   the   potato-Acc   fry-Pst-Dec
  (lit.) 'Tom steamed the potato, and Tom fried the potato again.'

  b. [Context: Tom had never fried the potato before.]
  Tom-i   ku   kamca-lul   salm-ass-ko,
  Tom-Nom   the   potato-Acc   boil-Pst-and
  tasi   ku   kamca-lul   thwiki-ess-ta.
  again   the   potato-Acc   fry-Pst-Dec
  (lit.) 'Tom boiled the potato, and Tom fried the potato again.'

Assuming that Tom had never fried the potato, the following clause in (13a) can be applied to the situation where Tom had previously steamed the potato, and later he fried the potato, and similarly for the second clause in (13b). The lexical meaning of *tasi* 'again' in (14) can be then proposed to account for the

pseudo-repetitive readings adapting the formalization of Beck (2005).

(14) $[[tasi_{sis}]](P_{<i,t>})(e) = 1$ iff $P(e)$ & $\exists e'[e' < e$ & $P_{sis}(e')]$
                    $= 0$ iff $\sim P(e)$ & $\exists e'[e' < e$ & $P_{sis}(e')]$
                    undefined otherwise.
        (P_{sis} is a sister predicate of P)

With (14), the pseudo-repetitive reading of *Tom-i kamca-lul tasi thwiki-ess-ta* 'Tom fried the potato again' can be represented like the following:

(15)   a. $P = \lambda e.fry_e(the\_potato)(Tom)$
        b.   The pseudo-repetitive reading of *Tom-i kamca-lul tasi$_{sis}$ thwiki-ess-ta*
              'Tom fried the potato again'
              $= \lambda e.fry_e(the\_potato)(Tom)$ & $\exists e'[e'<e$ & $P_{sis}(e')]$

P_{sis} in (15b) can be specified by any sister predicate of P. That is, (15b) can be applied to the situations that the two sentences in (13) describe. However, a theoretical problem of this approach is that we need to posit the pseudo-repetitive *tasi* in (14) as well as the typical repetitive *tasi* like (11). To solve this problem, I propose a more generalized account below. First, note that an important fact about a semantic taxonomy is that if P_{sis} is a sister of P, then P is also a sister of P_{sis}. This automatically means that P_{sis} and P share an immediate hypernym. For instance, *Tom fried the potato* and *Tom baked the potato* share the immediate hypernym, *Tom cooked the potato,* since *cook* is the immediate hypernym of *fry* and *bake*.[4] Based on this property, I propose the hypernymic *tasi* in (16), instead of the pseudo-repetitive *tasi* in (14).[5]

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4) The hypernym-hyponym relation normally holds between words, but it is assumed here that the relation also holds between sentences. Since the set of events described by *Tom cooked the potato* include the events expressed by *Tom fried the potato*, it is plausible to consider the former as a "hypernym" of the latter.

5) As a reviewer pointed out, it may be better to clearly distinguish assertion from presupposition in the framework of *dynamic semantics*. As mentioned above, however, the current formalization seems to be enough to express the core idea of this paper, so I leave it to future research.

(16) $[[tasi_{hyper}]](P_{<i,t>})(e) = 1$ iff $P(e)$ & $\exists e'[e' < e$ & $P_{hyper}(e')]$

$= 0$ iff $\sim P(e)$ & $\exists e'[e' < e$ & $P_{hyper}(e')]$

undefined otherwise.

(P_{hyper} is a immdeiate hypernym of P)

The hypernymic *tasi* in (16) can account for both the typical repetitive and pseudo-repetitive readings, as illustrated in (17).

(17)   a. $P = \lambda e.fry_e(the\_potato)(Tom)$
        b. $P_{hyper} = \lambda e.cook_e(the\_potato)(Tom)$
        c.   The hypernymic reading of *Tom-i kamca-lul tasi_{hyper} thwiki-ess-ta*
            'Tom fried the potato again'
            $= \lambda e.fry_e(the\_potato)(Tom)$ &
               $\exists e'[e'<e$ & $cook_{e'}(the\_potato)(Tom)]$

(17c) can be applied to the typical repetitive situation where Tom had previously fried the potato, and later he fried the potato, and to a pseudo-repetitive context in which Tom had previously baked (or boiled or steamed) the potato, and later he fried the potato.

If an adverb modifies a sentence, then the modified sentence is semantically more specific than the sentence itself. In terms of semantic taxonomy, the modified sentence would be an immediate hyponym of the unmodified sentence. Thus, it seems plausible to assume that *Bella read the paper carefully* is an immediate hyponym of *Bella read the paper*. In addition, *Bella skimmed the paper* would be an immediate hyponym of *Bella read the paper*, since *skim* is an immediate hyponym of *read* according to the WordNet. In other words, *Bella read the paper carefully* should be a sister of *Bella skimmed the paper*. Assuming that this semantic taxonomy also holds in Korean, it is predicted that *Bella-ka ku nonmwun-ul caseyhi ilk-ess-ta* 'Bella read the paper carefully' can satisfy the presuppositional content of *Bella-ka tasi ku nonmwun-ul hwulthepo-ass-ta* 'Bella skimmed the paper again'. This is borne out in (18).

(18) *Bella-ka   ku nonmwun-ul caseyhi   ilk-ess-ko,*
Bell-Nom   the paper-Acc   carefully   read-Pst-and
Bella-ka   tasi   ku   nonmwun-ul   hwulthepo-ass-ta.
Bella-nom   again   the   paper-Acc   skim-Pst-Dec
'Bella read the paper carefully, and Bella skimmed the paper again.'

The second sentence in (18) can be formalized in the current system as follows:

(19) a. P = $\lambda e.\text{skim}_e(\text{the\_paper})(\text{Bella})$
      b. P_{hyper} = $\lambda e.\text{read}_e(\text{the\_paper})(\text{Bella})$
      c. The hypernymic reading of *Bella-ka tasi$_{hyper}$ ku nonmwun-ul*
          hwulthepo-ass-ta 'Bell skimmed the paper again'
          = $\lambda e.\text{skim}_e(\text{the\_paper})(\text{Bella})$ &
             $\exists e'[e'<e$ & $\text{read}_{e'}(\text{the\_paper})(\text{Bella})]$

The hypernymic interpretation in (19c) can be also applied to the typical repetitive situation, of course. Due to the linguistic context (the preceding sentence) in (18), the second sentence is likely to be taken as a description of the pseudo-repetitive situation, but this is not a requirement for the sentence.

3.2. The antonymic analysis of restitutive readings

It has been argued above that the two types of repetitive readings can be derived by the hypernymic *tasi*. I show here that the restitutive/counterdirectional reading can be also dealt with in a similar fashion. Consider the restitutive reading in (1), repeated in (20).

(20) *Tom-i   mwun-ul   tasi   yel-ess-ta.*
      Tom-Nom   door-Acc   again   open-Pst-Dec
      'Tom opened the door again.'
      1. *Repetitive reading*: Entails that Tom opened the door, and presupposes that Tom had opened the door before.
      2. *Restitutive reading*: Entails that Tom opened the door, and presupposes that the door had been open before.

Since it seems to be implausible to open a door which is already open, it is also presupposed in the restitutive reading in (20) that the door became closed before Tom opened the door.[6] An important relation between *open* in the assertion and *close* in the presupposition is that they are the antonym to each other (see a similar point in Pedersen, 2015). Based on this observation, I propose the antonymic *tasi* 'again' in (21).

(21) $[[tasi_{anto}]](P_{<i,t>})(e) = 1$ iff $P(e)$ & $\exists e'[e' < e$ & $C(P_{anto})(e')]$

            $= 0$ iff $\sim P(e)$ & $\exists e'[e' < e$ & $C(P_{anto})(e')]$

            undefined otherwise.

        ($C(P_{anto})$ is the change-of-state part in the semantics of the antonymic predicate P_{anto} of P)

In (21), C is taken to be the function that takes P_{anto}, the antonym of P, and returns the change-of-state part in the meaning of P_{anto}. For instance, the restitutive interpretation of the sentence in (20) is represented as follows:

(22)   a. $P = \lambda e.open_e(the\_door)(Tom)$
        b. $P_{anto} = \lambda e.close_e(the\_door)(Tom)$
        c. $C(P_{anto}) = \lambda e.become\text{-}closed_e(the\_door)$
        d.   The restitutive reading of *Tom-i mwun-ul tasi_{anto} yel-ess-ta* 'Tom opened the door again'
            $= \lambda e.open_e(the\_door)(Tom)$ &
                $\exists e'[e'<e$ & $become\text{-}closed_{e'}(the\_door)]$

In (22c), $C(P_{anto})$ introduces the change-of-state part of P_{anto}, whose decomposed event structure may be represented as in (23) (see the decomposition approach to the lexical semantics in Dowty, 1979; Jackendoff, 1990; Levin and Rappaport

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[6] In this paper restitutive reading has been assumed to be identical to counterdirectional reading. The presupposition of the restitutive reading of *Jane opened the door again* is that the door had been open before, and the presupposition of the counterdirectional reading of the same sentence is that the door had become closed. In the restitutive reading, it is implicit that the door had become closed, since it is implausible for Jane to open the door which is already open, and in the counterdirectional reading, it is implicit that the door had been open before, since it is not plausible for the door which is already closed to become closed. So what is presupposed in restitutive or counterdiretional reading seems to be basically the same.

Hovav, 1995, among many others).

(23) P_{anto} = λe.causing-event$_e$(the_door)(Tom) &
      ∃e′[BECOME$_{e′}$(λe*.closed$_{e*}$(the_door)) & CAUSE(e′)(e)])

Based on the event structural decomposition in (23), the change-of-state subevent of the P_{anto} can be represented as λe.become-closed$_e$(the_door). This is a simplified representation, but suffices for the purpose of this paper. With this, (22d) can describe the restitutive situation in which the door had become closed before, and then Tom opened the door. Another important point in the restitutive reading is that the door went through the change-of-state, but it is not necessary that the change-of-state is externally caused; this flexibility is reflected in $C(P_{anto})$ by the specification only on the change-of-state.

    In addition to the telic sentence in (20), the atelic sentence in (24) allows the restitutive reading:

(24) *Tom-i   kwuk-ul   tasi   sikhi-ess-ta.*
      Tom-Nom   soup-Acc   again   cool-Pst-Dec
      'Tom cooled the soup again.'
      1. *Repetitive reading*: Entails that Tom cooled the soup, and presupposes that Tom had cooled the soup before.
      2. *Restitutive reading*: Entails that Tom cooled the soup, and presupposes that the soup had been cool before.

The restitutive/counterdirectional reading in (24) entails that Tom cooled the soup and presupposes that the soup had become heated before. The semantics of this restitutive/counterdirectional reading can be represented like (25).

(25) a. P = λe.cool$_e$(the_soup)(Tom)
      b. P_{anto} = λe.heat$_e$(the_soup)(Tom)
      c. $C(P_{anto})$ = λe.become-heated$_e$(the_soup)
      d. The restitutive reading of *Tom-i kwuk-ul tasi$_{anto}$ sikhi-ess-ta* 'Tom cooled the soup again'
          = λe.cool$_e$(the_soup)(Tom) &
            ∃e′[e′<e & become-heated$_{e′}$(the_soup)]

One may argue that since *cool* and *heat* are also a sister to each other according to the WordNet, the hypernymic *tasi* in (16) can be used to derive the restitutive reading, as well. However, the antonym of a verb is not necessarily a sister of the verb: e.g. *open* is not a sister of *close*, and *assemble* is not a sister of *disassemble* in the WordNet. Furthermore, as mentioned above, restitutive readings do not require a caused change-of-state predicate in the presuppositions. For example, in the restitutive reading of *Tom-i ku cip-ul tasi coliphay-ss-ta* 'Tom assembled the house again', either the house had previously disassembled by itself or somebody had previously disassembled it. But this flexibility is not reflected in the hypernymic *tasi,* since its presupposition is always a caused change-of-state predicate if P is a caused change-of-state predicate. These further support the antonymic *tasi* in (21) distinct from the hypernymic *tasi* in (16).

As mentioned above, if a sentence is modified by an adverb, the combination is semantically more specific than the sentence itself. Thus a situation described by such a combination can be also described by the presupposition of the antonymic *tasi*, as shown in the following:

(26) *ku   kwuk-i   chenchenhi/ppalli   sik-ess-ko,*
      the   soup-Nom   slowly/quickly   cool-Pst-and
      Tom-un   ku   kwuk-ul   tasi   teywu-ess-ta.
      Tom-Top   the   soup-Acc   again   heat-Pst-Dec
      'The soup cooled slowly/quickly, and Tom heated the soup again.'

The antonymic reading of the second sentence in (26) has the presupposition, $\exists$ $e'[e' < e$ & become-cooled$_{e'}$(the_soup)], and this can be applied to the situation in which the soup had cooled slowly or quickly, as expected.[7] Summarizing, the semantic taxonomy-based analysis of *tasi* 'again' can cover all the readings

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7) I do not argue that this antonymic analysis of restitutive/counterdirectional reading is superior to previous analyses in terms of empirical coverage, but the antonymic analysis is theoretically consistent with the hypernymic analysis of repetitive readings since they employ the semantic relations. If an analysis should incorporate semantic taxonomies in order to account for pseudo-repetitive readings, it seems better to employ the notion of semantic taxonomy to explain restitutive/counterdirectional readings as well.

under discussion; the hypernymic *tasi* derives the repetitive readings (typical repetitive and pseudo-repetitive readings), and the antonymic *tasi* the restitutive/counterdirectional readings.

4. Potential Counterexamples

It has been argued in this paper that the hypernymic *tasi* can give rise to the two types of the repetitive readings, typical repetitive and pseudo-repetitive readings, and the antonymic *tasi* can derive restitutive readings. In this section, I discuss some potential problems for this semantic taxonomy-based analysis of *tasi* 'again'.

In the WordNet, it is assumed that *open* and *close* have no direct hypernym and these verbs have no sister. If this assumption is really true and the corresponding Korean verbs have the same property,[8] then it may be a problem for the hypernymic analysis of *tasi* 'again', according to which a hypernymic predicate (P_{hyper}) of a predicate (P) is required to give rise to either of the two types of repetitive readings. Consider the following examples:

(27) a. The hypernymic reading of *Bill-i mwun-ul tasi$_{hyper}$ yel-ess-ta* 'Bill opened the door again'
= $\lambda e.open_e(the\_door)(Bill)$ & $\exists e'[e'<e$ & $P_{hyper}(e')]$
= undefined

   b. The hypernymic reading of *Bill-i mwun-ul tasi$_{hyper}$ tat-ass-ta* 'Bill closed the door again'
= $\lambda e.close_e(the\_door)(Bill)$ & $\exists e'[e'<e$ & $P_{hyper}(e')]$
= undefined

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8) As a reviewer pointed out, not every semantic relation is specified in the WordNet, and probably the verb *move* is a hypernym of the verb *open* or *close*. However, it is not clear that *move* is really the immediate hypernym of the verbs. Since the meaning of *move* is very general than that of *open* or *close*, there may be a verb located between *move* and *open* (or *close*) in the semantic taxonomies. This issue requires further examination, and we should see whether the immediate hypernym, if any, can properly capture the hypernymic readings. In this paper I suggest a possible solution to the problem caused by the assumption that *yel-* 'open' or *tat-* 'close' has no immediate hypernym.

Since P_{hyper} in (27) is undefined, the sentences are wrongly predicted to be unable to have a repetitive reading; in fact they have their typical repetitive readings. As a solution to this problem, I assume that when a predicate has no hypernym, the predicate itself serves as the immediate hypernym of the predicate, though a predicate is not actually an immediate hypernym of the predicate. This assumption may sound nonsensical at first glance, but this is not very implausible considering that the set of events described by a predicate is a subset of the set of events described by its hypernym, and similarly the set of events described by a predicate is a subset of the set of events described by the same predicate. But when a predicate has an immediate hypernym, the predicate denotes a proper subset of the hypernym. Under this assumption, the hypernymic readings of the sentences in (27) can now be represented like the following:

(28)   a.   The hypernymic reading of *Bill-i mwun-ul tasi_{hyper} yel-ess-ta* 'Bill opened the door again'
= $\lambda e.open_e(the\_door)(Bill)$ & $\exists e'[e'<e$ & $open_{e'}(the\_door)(Bill)]$

   b.   The hypernymic reading of *Bill-i mwun-ul tasi_{hyper} tat-ass-ta* 'Bill closed the door again'
= $\lambda e.close_e(the\_door)(Bill)$ & $\exists e'[e'<e$ & $close_{e'}(the\_door)(Bill)]$

In this case, the hypernymic interpretations are the same as the typical repetitive interpretations, though normally the former is more general than the latter.

Another potential problem is the fact that a direct hypernym of *assemble* is *create* in the WordNet, and *create* has many other direct hyponyms, one of which is *compose*. In other words, *compose* is a sister of *assemble* in the semantic taxonomy. Then a composing situation should be covered by the presuppositional content of the hypernymic reading of *Bill-i cip-ul tasi coliphay-ss-ta* 'Bill assembled the house again'. But this is not true, as shown in the following:

(29)   [Context: Bill had never assembled the house before.]
   #*Bill-i   ku   cip-ul   cakkokhay-ss-ko,*
   Bill-Nom   the   house-Acc   compose-Pst-and
   Bill-i   ku   cip-ul   tasi   coliphay-ss-ta.
   Bill-Nom   the   house-Acc   again   assemble-Pst-Dec
   '#Bill composed the house, and Bill assembled the house again.'

However, this example does not cause a problem for the hypernymic *tasi* 'again', since the semantic implausibility in (29) is due to the independent reason, selectional restriction, that a house is not appropriate to be used as an argument of *cakkokha-* 'compose'. In summary, the non-availability of a hypernym of *yel-* 'open' or *tat-* 'close', or the existence of an inappropriate sister of *colipha-* 'assemble' does not really pose a problem for the semantic taxonomy-based analysis of *tasi* 'again'.

5. Extension to English *Again*

In this section, I introduce some similar data in English and briefly discuss the potential extension of the semantic taxonomuy-based analysis to English *again*. First, the adverb *again* in English can also give rise to some pseudo-repetitive readings, as exemplified in (30).

(30)   a.   [John had never skimmed the paper before.]
            John read the paper carefully, and later he skimmed the paper again.
        b.   [John had never read the paper carefully before.]
            John skimmed the paper, and later he read the paper carefully again.

The second sentences in (30) cannot have a typical repetitive reading due to the pragmatic contexts blocking the repetition of the same type of event. Instead, the pseudo-repetitive readings are available for them. This suggests that the presuppositional content of *again* in (30) should be more general than the contents of the sentences that *again* syntactically modifies.

Furthermore, the English manner-of-cooking verbs seem to allow pseudo-repetitive readings:

(31)   a.   [Context: Grace had never fried the potato before.]
            'Grace baked the potato, and she fried the potato again.'
        b.   [Context: Tom had never fried the potato before.]
            'Grace steamed the potato, and she fried the potato again.'

Although the sentences in (31) are not perfectly acceptable, they can be used in a certain situation.[9] For instance, the sentence in (31a) can describe the situation in which Grace baked the potato, but it cooled, so Grace fried the potato to heat it up. Similarly, when Grace steamed the potato, but it cooled, and so Grace heated the potato up by frying it, the sentence in (31b) seems to be acceptable. The following examples may have the interpretations of the same kind:

(32) a. [Context: Grace had never baked the potato before.]
          'Grace fried the potato, and she baked the potato again.'
      b. [Context: Grace had never baked the potato before.]
          'Grace steamed the potato, and she baked the potato again.'

(33) a. [Context: Grace had never grilled the potato before.]
          'Grace baked the potato, and she grilled the potato again.'
      b. [Context: Grace had never grilled the potato before.]
          'Grace steamed the potato, and she grilled the potato again.'

Again, the data of this sort shows that the previous lexical or structural analyses of *again* are not enough to properly predict the pseudo-repetitive readings in English.

Interestingly, however, the English manner-of-killing verbs never allow pseudo-repetitive readings (see a discussion regarding similar data in Beavers & Koontz-Garboden, 2012: 358):

(34) a. [Context: Taylor had never hung Jane before.]
          'Taylor electrocuted Jane, but Jane revived, #so Taylor hung Jane again.'
      b. [Context: Taylor had never electrocuted Jane before.]
          'Taylor hung Jane, but Jane revived, #so Taylor electrocuted Jane again.'

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9) There is a speaker-to-speaker variation on judgments of the data like (31); some never accept the data. For now I ignore the issue of why this variation occurs.

(35)   a.   [Context: Taylor had never poisoned Jane before.]
'Taylor electrocuted Jane, but Jane revived, #so Taylor poisoned Jane again.'

         b.   [Context: Taylor had never electrocuted Jane before.]
'Taylor poisoned Jane, but Jane revived, #so Taylor electrocuted Jane again.'

By contrast, the corresponding Korean sentences of these examples seem to be acceptable. Consider the following examples:

(36)   a.   [Context: Taylor had never guillotined Jane before. Taylor poisoned Jane, but she revived.]
Taylor-ka   Jane-ul   tasi   tantwutay-lo   cwuki-ess-ta.
Taylor-Nom Jane-Acc again guillotine-Inst kill-Pst-Dec
(lit.) 'Taylor guillotined Jane again.'

         b.   [Context: Taylor had never poisoned Jane before. Taylor guillotined Jane, but she revived.]
Taylor-ka   Jane-ul   tasi   toksalhay-ss-ta.
Taylor-Nom Jane-Acc again poison-Pst-Dec
(lit.) 'Taylor poisoned Jane again.'

These can be also accounted for by the hypernymic *tasi* 'again' since guillotining and poisoning are both killing event. In sum, Korean and English basically allow pseudo-repetitive readings, but they differ in how much pseudo-repetitive readings are allowed in the languages. This opens the possibility of extending the semantic taxonomy-based analysis to English *again*.

6. Conclusion

In this paper a new type of readings of *tasi* 'again' was introduced, and I have argued that the notion of semantic taxonomy should be incorporated in a proper analysis of *tasi* 'again'. Particularly the hypernymic *again* and the antonymic *again* were proposed to account for the repetitive readings (both the

typical repetitive and pseudo-repetitive readings) and the restitutive/counterdirectional readings, respectively. This semantic phenomenon of *tasi* 'again' shows an important interaction of semantic taxonomy with the lexical meaning of the adverb. In addition to *tasi* 'again' in Korean, English *again* allows some pseudo-repetitive readings. This suggests that a semantic taxonomy-based analysis may be also required for *again*, though a more detailed cross-linguistic investigation is left for future work.

References

Beavers, J., & Koontz-Garboden, A. (2012). Manner and result in the roots of verbal meaning. *Linguistic Inquiry*, *43(3)*, 331-369.

Beck, S., & Johnson, K. (2004). Double objects again. *Linguistic Inquiry, 35*, 97-124.

Beck, S., & Gergel, R. (2015). The diachronic semantics of English *again*. *Natural Language Semantics, 23*, 157-203.

Beck, S. (2005). There and back again: A semantic analysis. *Journal of Semantics, 22*, 3-51.

Beck, S. (2006). Focus on *again*. *Linguistics and Philosophy, 29*, 277-314.

Dowty, D. (1979). *Word Meaning and Montague Grammar*. Dordrecht, The Netherlands: Kluwer Academic Publishers.

Egg, M. (1999). Derivation and resolution of ambiguities in *wieder*-sentences. In *Proceedings of the 12th Amsterdam Colloquium,* 109-114.

Fabricius-Hansen, C. (1983). Wieder ein wieder? Zur Semantik von wieder. In R. Baeuerle, C. Schwarze, & A. von Stechow (Eds.), *Meaning, use and interpretation of language* (pp. 97-120). Berlin: De Gruyter.

Fabricius-Hansen, C. (2001). Wi(e)der and again(st). In C. Fery & W. Sternefeld (Eds.), *Audiatur Vox Sapientiae: A festschrift for Arnim von Stechow*. Berlin: Akademie Verlag.

Jackendoff, R. (1990). *Semantic structures*. Cambridge, MA: MIT Press.

Jäger, G., & Blutner, R. (2000). Against lexical decomposition in syntax. In A. Z. Wyner (Ed), *Israeli Association for Linguistics*, *15* (pp. 113-137). Haifa University.

Jäger, G., & Blutner, R. (2003). Competition and interpretation: The German

adverb *wieder* 'again'. In E. Lang, C. Maienborn, & C. Fabricius-Hansen (Eds.), *Modifying adjuncts (Interface Explorations 4)* (pp. 393-416). Berlin: Mouton de Gruyter.

Kamp, H., & Rossdeutscher, A. (1994). DRS-construction and lexically driven inference. *Theoretical Linguistics, 20*, 165-235.

Klein, W. (2001). Time and again. In C. Fery & W. Sternefeld (Eds.), *Audiatur Vox Sapientiae: A festschrift for Arnim von Stechow* (pp. 267-286). Berlin: Akademie Verlag.

Levin, B., & Rappaport Hovav, M. (1995). *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.

McCawley, J. D. (1968). The role of semantics in a grammar. In E. Bach & R. Harms (Eds.), *Universals in linguistic theory* (pp. 124-169). New York: Holt, Rinehart and Winston.

McCawley, J. D. (1971). Pre-lexical syntax. In R. J. O'Brien (Ed.), *Report of the 22nd roundtable meeting on linguistics and language studies*. Georgetown University Press.

Morgan, J. (1969.) On arguing about semantics. *Papers in Linguistics, 1*, 49-70.

Oh, S.-R. (2009). On the semantics of *again*: A crosslinguistic perspective. *The Journal of Modern British & American Language & Literature, 27(4)*, 221-239.

Oh, S.-R. (2015). A crosslinguistic semantic analysis of *again*. *Studies in Generative Grammar, 25(4)*, 851-872.

Pedersen, W. (2015). A scalar analysis of *again*-ambiguities. *Journal of Semantics, 32*, 373-424.

Pittner, K. (2003). Process, eventuality and wieder/again. In E. Lang, C. Maienborn, & C. Fabricius-Hansen (Eds.), *Modifying adjuncts (Interface Explorations 4)* (pp. 365-391). Berlin: Mouton de Gruyter.

Princeton University. (2010). *WordNet*. from http://wordnet.princeton.edu

Rappaport Hovav, M., & Levin, B. (1998). Building verb meanings. In M. Butt & W. Geuder (Eds.), *The projection of arguments: lexical and compositional factors* (pp. 97-133). Stanford: CSLI Publications.

Stechow, A. von. (1995). Lexical decomposition in syntax. In U. Egli, P. E. Pause, C. Schwarze, A. von Stechow, & G. Wienold (Eds.), *Lexical knowledge in the organization of language* (pp. 81-118). Amsterdam, The Netherlands: John Benjamins.

Stechow, A. von. (1996). The different readings of *wieder* 'again': A structural account. *Journal of Semantics, 13*, 87-138.

Stechow, A. von. (2003). How are results represented and modified? Remarks on Jäger & Blutner's anti-decomposition. In E. Lang, C. Maienborn, & C. Fabricius-Hansen (Eds.), *Modifying adjuncts (Interface Explorations 4)* (pp. 517-454). Berlin: Mouton de Gruyter.

Yoon, J.-H. (1996). *Temporal adverbials and aktionsarten in Korean*. Unpublished doctoral dissertation, Ohio State University.

Yoon, J.-H. (2007). *Tasi* vs. *tto*. [in Korean] *Language and Information, 11(2)*, 1-22.

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