

On Repetitive Interpretation of the English Progressive

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要 旨

本論文では、英語の進行形の多義性のうち、「繰り返し解釈」「習慣的解釈」「多回性解釈」について、動詞を述語分解した語彙概念構造の考えを採用することで、従来記述的に説明されてきたこれらの解釈に対して、体系的な説明を試みる。これら3つの解釈は進行形の基本の意味として定義されている「持続性」がそのまま当てはまる解釈ではなく、「持続性」とそれ以外の意味要素との合成によってあらわれる解釈であることを示し、その上で、その合成を制限する意味上の制約を明らかにしていく。

Keywords: Progressive aspect, Repetitive interpretation, Lexical Conceptual Structure (LCS), Predicate decomposition, Event structure template

1. Introduction

It is widely known that some verbs are likely to have repetitive interpretation when they are used in the progressive form.

- (1) a. He *was nodding*.
b. He *was jumping* up and down.
c. Someone *was firing* a gun at me. (Leech 2004: 24)

Each of these sentences is interpreted as a series of events rather than a single event. Leech (ibid) pointed out that “momentary verbs,” such as *hiccough*, *hit*, *jump*, *knock*, *nod*, *tap*, *wink*, etc., might have this kind of repetitive interpretation. In fact the verbs *nod*, *jump*, and *fire* represent momentary events in a sense that they do not have duration when the events the verbs depict occur. But not all the verbs without duration have this interpretation.

- (2) a. *He is dying.*
 b. *The plane is landing.*

Both the verbs *die* and *land* seem to represent momentary events, but their interpretations of the progressive are so-called *anticipatory interpretation*; the event described in the verb is about to happen. Moreover, some verbs which seem to have duration, in other words *non-momentary verbs*, may have similar repetitive interpretation when they are used with an adverbial phrase representing a period of time.

- (3) a. *I am running* in the morning these days.
 b. *I am swimming* for fun this summer.

Judging from the examples above, it is obvious that whether the verb is momentary or not is not the only factor to determine the repetitive interpretation of the progressive. In this paper I will illustrate in what case the progressive form can have repetitive interpretation. I have already asserted in my previous work (2007) that certain ambiguity of the English progressive is predictable through lexical conceptual structure (LCS) of verbs. I will show that this concept also holds true to repetitive interpretation with slight modification. In section 2, I will recapitulate the categorization of the interpretations which I used for the analysis of the progressive in my earlier work, Hoshino(2007). This categorization shows that repetitive interpretation is a semantically expanded variant of the core meaning of the progressive. I will also suggest that repetitive interpretation be classified into several types in order to analyze repetitive interpretation more precisely. In section 3, I will summarize the basic theory I will use. This is fundamentally the same as the one I used in my earlier work. In section 4, I will investigate the conditions of repetitive interpretation according to the types I will present in section 2.

2. A New Way of Classification of the Interpretations

In my earlier work, I reordered different meanings of the progressive into three groups. This grouping is based on how close to the core meaning of the progressive the interpretation is. I defined the core meaning of the progressive as “a moment in a event with duration,” deducing from the observations by Quirk et al.(1985:197-98) and Leech(2004:19). GROUP I interpretations are the ones that are the closest to this

definition. The sentences below fall into this GROUP.

- (4)
- a. The wind *is blowing* hard.
 - b. The children *are playing* chess.
 - c. The weather *is getting* warmer.
 - d. You *are looking* tired this evening. (Quirk et al. 1985:200-218)

These usages are often treated differently by grammarians as (4a) represents something going on, (4b) represents someone's action, (4c) represents some state changing, and (4d) represents temporary state. But all of these four sentences have one thing in common: all the sentences represent that the events described are actually present. As I showed in Hoshino(2007), these interpretations are systematically predictable through lexical conceptual structure.

GROUP II interpretations shown below are considered as semantically extended interpretations.

- (5)
- a. Downstairs, a door *was banging*. (Quirk et al. 1985:208)
 - b. John *was nodding* his head. (Quirk et al. 1985:208)
 - c. I'm *taking* dancing lessons this winter. (Leech 2005: 32)
 - d. Many children *are dying* of malnutrition every year.

These are also treated differently by grammarians frequently. (5a) represents something repeatedly happening, (5b) represents someone repeating the same action, (5c) represents someone's habitual activity, and (5d) represents some event repeating. What is common here is that all the sentences represent some repetition. Apart from GROUP I interpretations, these sentences do not necessarily represent that the event described are actually present. The event that the verb depicts does not necessarily represent a durative event. But events themselves are actually present before and after the moments the sentences are uttered. It is the concept of repetition that makes these sentences have the sense of the progressive. In order to predict these interpretations, I suggest that different semantic factors, which are not needed in the cases of GROUP I interpretations, should be added to lexical conceptual structure.

GROUP III interpretations shown below are more different than GROUP II.

- (6) a. The train *is arriving* at platform 4. (Quirk et al. 1985: 209)
- b. I'm *stopping* the car at this garage. (Quirk et al. 1985: 209)
- c. Marty *is coming* over for lunch on Sunday. (Leech 2005: 33)

(6a) represents that something is about to happen, (6b) represents someone's intention, and (6c) represents someone's plan in the future. The common feature of these three sentences is that all of them represents events in the future. More apart from GROUP I than GROUP II, these sentences represent that events are not present at all. In these cases, it may be the concept of future that makes these sentences have the sense of the progressive. But some cases of these interpretations require different factors from the future factor.

- (7) a. John's *getting* up at 5 o'clock tomorrow.
- b. *The sun *is rising* at 5 o'clock tomorrow. (Leech 2004: 63)

According to Leech, 'the factor of "plan" or "arrangement" in the future meaning of the Present Progressive restricts its use in the main "doing" verbs involving human agency(ibid).' This means that in order to predict GROUP III interpretations we need to consider factors outside the verb meaning, too. I will not deal with GROUP III interpretations any further in this paper, but the prediction of GROUP III interpretations will be more complicated than that of GROUP II, which I will propose here.

Let us go back to the topic of GROUP II interpretations, namely repetitive interpretations. In order to make the point clearer, I will subcategorize the interpretations into three subgroups. The first subgroup includes verbs which do not need adverbial phrases in order to have repetitive interpretations. Here are some examples.

- (8) a. Downstairs, a door *was banging*.
- b. John *was nodding* his head.
- c. Someone *was firing* at us. (Quirk et al. 1985:208)

For convenience sake, I call this subgroup *iterative* interpretation. The second subgroup includes verbs which need adverbial phrases which represent a period of time to have repetitive interpretations.

[BECOME [x < STATE >]] (Third template)

[[x ACT < MANNER >] CAUSE [BECOME [y < STATE >]]] (Fourth template)

[x CAUSE [BECOME [y < STATE >]]] (Fifth template)

(RH&L 1998, modified in Hoshino 2007: p.98)

What I argued in the former study is that ambiguity of the progressive (with GROUP I interpretation) can be figured out through LCS of verbs. I present the conclusion below.

(11) The general interpretation rules for Group I interpretations

i) The *durative* information in the progressive form merges with either the primitive ACT, BECOME, or the *STATE* .

- When the progressive merges with ACT, its interpretation becomes *activities*.
- When the progressive merges with BECOME, its interpretation becomes *change of states*.
- When the progressive merges with *STATE*, its interpretation becomes *temporal states*.

ii) If ACT, BECOME and *STATE* have specific temporal information that contradicts durative property in the progressive, the related interpretation becomes unavailable.

iii) *Temporal states* interpretation is strongly interfered by expressions containing past participle or adjectives closely related to verbs. In cases of the third template group, this interpretation is virtually impossible. (Hoshino 2007: p.117)

To see how this will work, let us follow the examples below.

(12) I *am jogging* now.

[x ACT < JOG >]

possible interpretation: *activities*

(13) The door is banging.

[x ACT(punctual) < BANG >]

possible interpretations: GROUP I interpretations are blocked

- (14) *She is being a Canadian.
 [x < BE CANADIAN(permanent) >]
 possible interpretations: GROUP I interpretations are blocked.
- (15) The vice president is being the national leader now.
 [(The vice president) < BE NATIONAL LEADER(permanent) >]
 possible interpretations: *temporal states*
- (16) The leaves are turning red.
 [BECOME [x < RED >]]
 possible interpretations: *change of states*
- (17) The new age is beginning.
 [BECOME(punctual) [x < BEGUN >]]
 possible interpretations: GROUP I interpretations are blocked.
- (18) He *is painting* a picture.
[[x ACT < PAINT >] CAUSE
 [BECOME [y < IN EXISTENCE(permanent) >]]]
 possible interpretations: *activities, change of states*
- (19) He *is hiding* the money under the pillow.
[[x ACT < HIDE >] CAUSE
 [BECOME(punctual) [y < AT-z(permanent) >]]]
 possible interpretations: *activities, temporary states*
- (20) He *is strangling* her.
[[x ACT < STRANGLE >] CAUSE
 [BECOME(punctual) [y < DEAD(permanent) >]]]
 possible interpretations: *activities*
- (21) We *are swapping* seats.
[[x ACT(punctual) < SWAP >] CAUSE
 [BECOME(punctual) [y < AT-z(permanent) >]]]
 possible interpretations: *temporal states*
- (22) *He *is smashing* the mirror.
[[x ACT(punctual) < SMASH >] CAUSE

[BECOME(punctual) [y < BROKEN(permanent) >]]]

possible interpretations: all the three Group I interpretations are blocked.

As (12) has a primitive predicate ACT, it has a GROUP I interpretation *activities*. (13) also has ACT, but the LCS has temporal information *punctual* in it, and this blocks GROUP I interpretations. (14) has a STATE root < BE CANADIAN > but temporal information *permanent* blocks GROUP I interpretation. In (15), the *permanent* information is annulled because of the unusual situation so it can have *temporal states* interpretation. (16) belongs to the third template groups. This has BECOME and STATE but as the third statement in (11) shows, *temporal states* interpretation is not available, while *change of state* is allowed. In (12), which belongs to the third template group, too, *punctual* information blocks GROUP I interpretations. From (18) to (22), the LCS contains all ACT, BECOME, and STATES. These verbs may have three possible GROUP I interpretations at most, but in most cases, some of them are blocked by temporal information in the LCS.

The main concept of the rules (11) is that the interpretations of the progressive are compositionally formed and semantically constrained. To put this simply, The interpretation of the progressive is formed by the core meaning of the progressive *durative* and the elements in LCS of verbs, and some interpretations become unavailable because of some blocking elements. In the cases of GROUP I interpretations, the semantic calculation of *durative* information of the progressive and elements in LCS is quite straightforward, and blocking elements such as *punctual* and *permanent* are obvious. As we see in section 4, however, we need slightly modified semantic calculation for GROUP II interpretations. Blocking elements are also different from those of GROUP I. (In fact, we will find out that GROUP I interpretations themselves are blocking items.) But by and large, the system itself will be the same.

4. Semantic Calculation of the Progressive

4.1 Iterative Interpretation

In almost all the cases, the examples for this interpretation used in grammar books contain verbs in the first template group, whose LCS consists of a primitive predicate ACT and its argument(s). In fact, the examples taken from grammar source books below perfectly match the first template.

- (23) a. Downstairs, a door *was banging*.
 b. John *was nodding* his head.
 c. Someone *was firing* at us. (Quirk et al. 1985:208)
 d. He *was jumping* up and down. (Leech 2004: 24)
 e. Why *is he hitting* the dog? (Swan 2005:452)
- (24) a. bang: [x ACT(punctual) < BANG >]
 b. nod: [x ACT(punctual) < NOD >]
 c. fire: [x ACT(punctual) < FIRE >]
 d. jump: [x ACT(punctual) < JUMP >]
 e. hit: [x ACT(punctual) < HIT >]

So as the first step, let us suppose that the semantic calculation is something like (25) below. As I mentioned above, GROUP II interpretations are not purely *durative*, because the event is not necessarily present at the moment the sentence is uttered. So *durative* information must be transformed by some other elements. Since all the LCS in (24) contains *punctual* in it, I take this as the operator to transform *durative* into *repetition*.

- (25) durative × punctual iterative

Applying (25) format, the calculation of (23) will be like (26)

- (26) a. progressive × [x ACT(punctual) < BANG >] [x ACT (iterative) < BANG >]
 (durative)
 b. progressive × [x ACT(punctual) < NOD >] [x ACT (iterative) < NOD >]
 (durative)
 c. progressive × [x ACT(punctual) < FIRE >] [x ACT (iterative) < FIRE >]
 (durative)
 d. progressive × [x ACT(punctual) < JUMP >] [x ACT (iterative) < JUMP >]
 (durative)
 e. progressive × [x ACT(punctual) < HIT >] [x ACT (iterative) < HIT >]
 (durative)

But how about the third template group, which has a primitive predicate BECOME, a resulting *STATE* , and their argument(s)? Even though the verbs in this template group have *punctual* property in their LCS, *iterative* interpretation is not available at all.

- (27) a. He *is dying*.
(He is about to die. / *He dies again and again.)
- b. The plane *is landing*.
(The plane is about to land. / *The plane lands again and again.)
- (28) a. die: [BECOME(punctual) [x <DEAD >]]
- b. land: [BECOME(punctual) [x <AT LAND >]]

In order to figure out the reason why the third template does not accept the calculation, we have to look back to the definition of the first template group and third template group. The key feature of the classification is whether the event the verb denotes has inherent temporal endpoint or not and whether the argument affects the event or is affected by the event. The verbs in the first template group do not have inherent temporal endpoint, and even if it has an argument which becomes an object in the syntactic structure, it does not undergo any changes throughout the event. On the other hand, the verbs in the third template group do have an inherent temporal endpoint in their LCS, and the object argument undergoes change of states. This means that the event denoted by the verbs in the first template group is repeatable, while the event denoted by the verbs in the third template group is basically a one-time event, especially in the case where the result state has permanent property: in other words, the result state is irreversible. This irreversibility clearly contradicts the concept of repetition. So I suppose that the third template itself may work as blocking element when we carry out semantic calculation. If so, the fourth and the fifth templates, both of which have a sub-event part identical to the third template, do not allow *iterative* interpretation since the third template blocks it. In (29), the underlined sub-event is considered irreversible change of state that occurs only once. As a result, this part works as a blocking element and the iterative interpretation becomes unavailable even though the primitive predicate ACT has the punctual property (GROUP III interpretation is a default interpretation in this case).²

- (29) He *is smashing* the mirror.
[[x ACT(punctual)] CAUSE [BECOME(punctual) [y <SMASHED(permanent)>]]]

(He is about to smash the mirror. / *He repeats the smashing action.)

Just as we have seen in the explanation of the GROUP I ambiguity of the progressive, blocking elements may well be annulled sometimes. For example, when the result state is readily reversible, just as observed in the case of verbs in the second template groups (see Hoshino 2007 for details), verbs in the fourth template group may have iterative interpretation. In the case of (30), the LCS has only one blocking elements for GROUP I interpretations, *punctual* of ACT. So *change of states* interpretation and *temporal state* interpretation are available as far as GROUP I interpretations are concerned. If the result state sub-event does not work as a blocking element since its *permanent* property is annulled, the sentence may have iterative interpretation. The result is somewhat marginal, since GROUP I interpretations are even more preferred. But once some adverbial phrases which weaken the GROUP I interpretations, such as *always*, *constantly*, or *over and over*, the iterative interpretation becomes more acceptable. (In a sense that it requires adverbial phrases, this may belong to the second subgroup, habitual interpretation, though.)³

(30) Ichiro *is changing* his political ground.

[x ACT(punctual)] CAUSE [BECOME [y < DIFFERENT PLACE(~~permanent~~) >]]]

(He is gradually change his ground / His political ground is temporarily different /

?He changes his ground again and again.)

Another example is when the result state sub-event has a plural argument. I will investigate plural argument more in details later in this section, but here I present one simple example.

(31) He *is smashing* mirrors.

In this case, the result state is considered not to be a one-time event. As a result, this sub-event stops being a blocking element and allows iterative interpretation.

One more example is the case where the result state sub-event is not punctual.

(32) I *am sending* a message to Jane, but she will not respond to it at all.

[x ACT(punctual)]CAUSE [BECOME [y < SENT(*permanent*) >]]]

(I am in the process of sending a message / I send the same message again and again)

Since BECOME in (32) does not have *punctual* property, the sentence (32) has a GROUP I interpretation, *change of states*. But at the same time, the sub-event including BECOME represents an event that is not momentary --- in other words, it takes a certain length of time to complete. The action of sending a message, which is represented in the ACT part of the LCS, may take much shorter length of time, such as pressing the return key when we send an e-mail, selecting the redialing function when we use a cell phone, or showing a signboard to a racing driver. Under these conditions, (32) may mean iterative interpretation.

Let us move on to the topic of the fifth template. Since the fifth template does not contain ACT in it, iterative interpretation is not available not only because it has a irreversible sub-event but also because it does not have a carrier of punctual property outside the sub-event.

(33) *This picture *is reminding* me of you.

[x CAUSE [BECOME(*punctual*) [y < HAVE MEMORY (*permanent*)of z >]]

Now I propose a tentative working hypothesis on iterative interpretation based on the discussion so far. Later in this section, after I investigate the next subgroup, I intend to integrate the rules to make the theory more systematic.

(34) The interpretation rules for iterative interpretation

- i) The *durative* information in the progressive form merges with *punctual* property of ACT, and transforms into *iterative* property.
- ii) The third template works as a blocking element for iterative interpretation, unless its result state represents a readily reversible event, has a plural argument, or is not punctual.
- iii) GROUP I interpretations are preferred to iterative interpretation.

4.2 Habitual Interpretation : Basic Concept

Apart from *iterative* interpretation, *habitual* interpretation contains verbs which are not *momentary* verbs. Therefore, without adverbial phrases that represent a period of time, the interpretation of the progressive are taken as GROUP I interpretations, as shown in (9). But in what case does this interpretation

become valid? Let us start with verbs in the first template group. The following example shows that the key is the length of the period.

- | | | | |
|------|----|--|---------------------|
| (35) | a. | He <i>is dancing</i> for thirty minutes. | GROUP I |
| | b. | He <i>is dancing</i> for two hours. | GROUP I |
| | c. | He <i>is dancing</i> for thirty hours. | GROUP I (?GROUP II) |
| | d. | He <i>is dancing</i> for a week. | (?GROUP I) GROUP II |
| | e. | He <i>is dancing</i> for two months. | Group II |

As is shown above, a shorter period of time does not seem to allow habitual interpretation. Since it is quite possible that one can keep on dancing for *thirty minutes*, *two hours*, or even *thirty hours* (if the dancer is physically tough enough, though), GROUP I interpretation may well be preferred to habitual interpretation. But unless the dancer is trying to break the world record of dancing marathon or so, it is nearly impossible for the dancer to keep on dancing for *a week*, or *two months*.

Interestingly, some verbs do not allow habitual interpretation even though time adverbials are added.

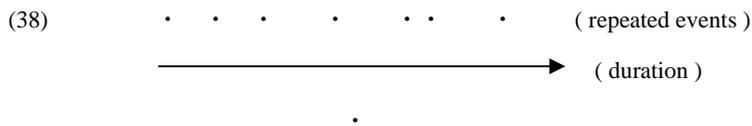
- | | | |
|------|----|---|
| (36) | a. | *It <i>is raining</i> these days/ for three weeks. |
| | b. | *My grandfather <i>is breathing</i> these days / for three weeks. |
| | c. | *My brother <i>is standing</i> these days / for three weeks. |

Unlike *dancing* in (35), the phrases in (36) *raining*, *breathing*, and *standing* are all sustainable for a longer period. In a sense, (36b) or (36c) may be possible in a situation where the subjects *My grandfather* and *My brother* are straggling to get better in hospital --- in these cases, the interpretation will be GROUP I, though. What is common among the examples in (36) is that the length limit of the events that the verbs denote cannot be expected. In fact, if we add some manner adverbials, (36b) and (36c) become available.

- | | | |
|------|----|---|
| (37) | a. | My grandfather <i>is breathing</i> slowly for his health for three weeks. |
| | b. | My brother <i>is standing</i> on hands for his health for three weeks. |

Then, what kind of semantic calculation is undergone in habitual interpretation? In the case of iterative

interpretation, the LCS of verbs contains *punctual* property in the ACT part. But as we have seen so far, habitual interpretation does not contain *punctual* property at all in the ACT part. In order to work out this problem, let us rethink what repetition is. To borrow Leech (2005)'s term, "the Progressive stretches the time-span of an 'event verb,' but compress the time-span of a 'state verb'." The word *stretch* does not seem to be appropriate to me, as the event itself is not stretched. Rather, the image of repetition is something like the diagram below.



I prefer the definition as this: repetition is the result of a longer duration being filled up with a number of shorter events. In the case of habitual interpretation, due to the time adverbial longer than the length of the event that the verb normally denotes, some temporal property similar to *punctual* property arises. I tentatively call this property *periodic*. (As I have mentioned above, I will try integrating iterative interpretation and habitual interpretation later.) Therefore, the semantic calculation will be like (39).

(39) progressive × periodic habitual
 (durative)

Now let us use this calculation to explain habitual interpretation in (9).

- (40) a. I *am running* in the morning these days.
 progressive × [x ACT(periodic) < RUN >] × these days [x ACT(habitual) < RUN >]
 (durative)
- b. I *am swimming* for fun this summer.
 progressive × [x ACT(periodic) < SWIM >] × these days [x ACT(habitual) < SWIM >]
 (durative)

Apparently, the explanation of habitual interpretation is quite similar to that of iterative interpretation.

However, since *punctual* and *periodic* are not the same, some differences actually arise. We will see the differences in the next subsection.

4.3 Habitual Interpretation: Difference Between Iterative and Habitual

Since *periodic* appears in the verbs without *punctual*, the conditions may well be different from those of iterative interpretation. Let us start investigating other template groups.

The second template group represents *state*, so this has nothing to do with habitual interpretation.⁴ In most cases, whether the BECOME has punctual property or not, the third template group does not represent habitual interpretation even with adverbial phrases representing some period of time, just as iterative interpretation.

- (41) a. *He *is dying* these days / for three days.
 b. *The comet *is appearing* these days / for three days.
 c. The Earth *is becoming* warmer these days / for centuries. (Group I / *habitual)
 d. His technique *is improving* these days / for two years. (Group I /*habitual)

- (42) a. die: [BECOME(~~punctual~~) [y < DEAD >]]
 b. appear: [BECOME(~~punctual~~) [y < PRESENT >]]
 c. become warmer: [BECOME(~~punctual~~) [y < WARMER >]]
 d. improve: [BECOME(~~punctual~~) [y < IMPROVED >]]

This fact is readily predictable since the third template group basically represents one-time event, as we have observed in 4.1.

Then, how about the fourth template group? Since *periodic* appears in the ACT part of the LCS and verbs that can be candidates for having the *periodic* property are not momentary verbs, more types of verbs than we discussed on iterative interpretation are supposed to be investigated here. One of the interesting examples is so called incremental theme verbs (Tenny 1994). These verbs have an object argument that gradually appears (or disappears). In our term, they are the verbs whose sub-event representing change of state does not have *punctual* property, and as a result, whose ACT part does not have the property either. Since neither the ACT sub-event nor the BECOME sub-event has *punctual* property, the third template does

not properly work as a blocking element in some cases.

- (43) a. John *is writing* a long letter for two weeks.
 b. John *is building* a kennel for two weeks.
 c. John *is destroying* a house for two weeks.

Each sentence in (43) represents that *John* repeats his action and that he is in the middle of the task of creating something or destroying something. It is quite absurd to think that John should keep on acting without any intermission until he completes his task. From the viewpoint of GROUP I interpretation, these can be called *change of state* interpretation. But they also represent *John's* repeated action, so they can also be called *habitual* interpretation.

However, not all the incremental theme verbs allow habitual interpretation.

- (44) ?Mary *is baking* a cake for two months.

As far as I know, there is no cake in the world that requires two month of time to be baked, so it is impossible to think about the situation where *Mary* checks the oven again and again for two months to bake up just one cake. With much shorter period, this sentence is interpreted as GROUP I.

- (45) Mary *is baking* a cake for two hours.

Judging from the facts above, the acceptability of habitual interpretation seems to depend on our perception of the length of the BECOME sub-event. To *write a long letter* in (43a) may well take *two weeks*, but to *bake a cake* in (44) takes at most *hours*, not *weeks* or *months*. As we are mortal, almost all of our conscious actions last not more than a couple of days since we need to sleep. So when the BECOME part represents an event which lasts less than a couple of days, we tend to reject habitual interpretation. On the contrary, when the BECOME part may represent longer period of time than our normal duration of actions, we tend to accept habitual interpretation.

Deducing from this observation, we can easily predict the unacceptability of the habitual interpretation of the verb *strangle*.

(46) *John is *strangling* a woman these days.

Strangle: [[x ACT < STRANGLE >] CAUSE [BECOME(punctual) [y < DEAD >]]]

Since the BECOME sub-event is punctual, which is considered to be much shorter than the *strangling* action, we reject habitual interpretation of this sentence even though the action of *strangling* itself does not have *punctual* property.

The same analysis can be applied to so-called route verbs with path objects, and change of state verbs (Tenny 1994). Route verbs are the ones with a path object and an optional goal phrase. For example, when the verb *walk* is used as a transitive verb, it has a path object and we can add a goal phrase to it.

(47) Sue is walking Appalachian Trail (to her grandmother's house).

The path object does not seem to undergo any change by Sue's action, so one might take this as an event of a verb in the first template, but since an optional goal can be added, it is safe to say that the path object has an implicit temporal endpoint. Tenny herself did not describe how we represent the LCS of *walk* in this use. I suppose that the change that the path object *Appalachian Trail* undergoes is that the coverage of *Sue's* action inside the path. Under this supposition, I try representing the LCS of *walk*.

(48) [[x ACT(periodic) < WALK >] CAUSE [BECOME [y < COVERED >]]]

As the LCS shows, the BECOME sub-event is not punctual. When the variable *y* is replaced by *Appalachian Trail*, the distance of which is too long to cover in a day or two, habitual interpretation becomes possible.

To be brief, the third template section in the fourth template becomes a blocking element when it is *punctual*, or considered to be shorter than the length of time that the ACT section may represent. This condition is a little looser than that of iterative interpretation. In addition, other condition included in the rules of iterative interpretations is also applied to habitual interpretation. For example, when the result state represents a readily reversible event, the sentence may be interpreted as habitual.

(49) John is *cleaning* his room these days.

[[x ACT(periodic)] CAUSE [BECOME [y < < CLEAN(permanent) >]]]

Since the action of *cleaning* is not punctual, ACT can have periodic as a result of inserting an adverbial phrase *these days*. The BECOME part is not punctual, but the length of time needed to complete this task is at most hours or so, unless John's room is extravagantly large like a palace. So this sentence does not mean that *John* is gradually making his room cleaner by repeating his cleaning action. However, since the result state is not a permanent state, as it is readily reversible, this sentence may have habitual interpretation, meaning that *John* cleans his room again and again.

Another example is the case of having a plural argument. Both (44) and (46) become acceptable when they have plural arguments.

(50) Mary *is baking* cakes for two months.

(51) John *is strangling* women these days.

And just as in the cases of iterative interpretation, habitual interpretation is not applied to the verbs of fifth template because they do not have the ACT part that carries *periodic*. This leads us to a conclusion similar to iterative interpretation. I present the interpretation rules for habitual interpretation below without adding the explanation of what periodic means. I also present the rules for iterative interpretation again

(52) The interpretation rules for habitual interpretation

- i) The *durative* information in the progressive form merges with periodic property of ACT, and transforms into habitual property.
- ii) The third template works as a blocking element for habitual interpretation, unless its result state represents a readily reversible event, has a plural argument, or its length is considered longer than that of the ACT part.
- iii) GROUP I interpretations are preferred to iterative interpretation.

(53)=(34) The interpretation rules for iterative interpretation

- i) The *durative* information in the progressive form merges with punctual property of ACT, and transforms into iterative property.
- ii) The third template works as a blocking element for iterative interpretation, unless its result state represents a readily reversible event, has a plural argument, or is not punctual

iii) GROUP I interpretations are preferred to iterative interpretation.

These two are strikingly similar except for the underlined parts. So I would like to integrate these two into one. The underlined part of the rule ii) is virtually the same, because in the case of iterative interpretation, state which is not punctual must be longer than punctual action represented in ACT part. Then, what the similarity/difference between *periodic* and *punctual*? Both are temporal property attached to ACT. The former appears when time adverbial representing longer period of time is added and it makes the durative information of the progressive not purely reflected in the sentence. The latter is an inherent property of verbs and it also makes the durative information of the progressive not purely reflected in the sentence. In other words, both are unavailable when the durative information is purely reflected in the sentence; namely it has GROUP I interpretation *activities*. To borrow Leech's term again, it is safe to say that both the repetitive interpretations *iterative* and *habitual* are the result of the fact that the shorter length of ACT event represented by *punctual* or *periodic* is "stretched" by the durative property in the progressive. In my term, these shorter periods fill up the longer duration. Here I revise the former sets of rules into one.

(54) The interpretation rules for repetitive interpretation.

i) The durative information in the progressive form merges with ACT and may transform into *repetitive* property.

ii) GROUP I interpretation *activities* blocks this interpretation.

iii) The third template works as a blocking element for repetitive interpretations, unless its result state represents a readily reversible event, has a plural argument, or its length is considered longer than that of the ACT part.

4.4. Controversial Cases

One controversial case is so called *roll* verbs (Levin 1993: 264-65). Most verbs in this class allow causative/inchoative alternation.

(55) a. Bill rolled the ball down the hill.

b. The ball rolled down the hill. (ibid)

In addition, as Jackendoff (1990) illustrates, verbs in this class allow volitional subjects to come in their intransitive use.

- (56) a. Bill rolled down the hill (intentionally). (willful doer)
 b. Bill rolled down the hill (accidentally). (non-willful doer)
 c. The ball rolled down the hill. (undergoer) (ibid:128)

Interestingly, the progressive of (56a) can have habitual interpretation when it is used with the progressive form. I would like you to consider the situation where Bill has found rolling down the hill quite exciting, and has started enjoy rolling down the hill for fun regularly. Apparently, the intransitive use of a *roll* verb represents an event which includes *change of state*, so the template it falls into seems to be the third template. In fact, Jackendoff applies the same conceptual structure to all the three patterns, and his conceptual structure here shares quite similar concept as the LCS in the third template. If so, this can be a great challenge to my theory arguing that habitual interpretation appears in verbs in the first and fourth templates.

- (57) Bill rolled down the hill.
- | | | |
|---|------------------------------------|--------------------|
| { | GO ([BILL], [DOWN [HILL]]) | |
| { | a. AFF+vol ([BILL],) | (willful doer) |
| { | b. AFF-vol ([BILL],) | (non-willful doer) |
| { | c. AFF (, [BILL]) | (undergoer) |

Jackendoff uses the event function GO for expressing motion, and the first line of his conceptual structure GO ([BILL], [DOWN [HILL]]) represents thematic relation of the sentence. In this case, *Bill* is in motion, and its path is *down the hill*. The other three lines represent whether the theme is *Actor* or *Patient*. The first line means that the theme is a volitional *Actor*. The second line means that the theme is a non-volitional *Actor*, and the third line means that the theme is *Patient*. Jackendoff uses the same function GO for these three interpretations, and distinguishes them by adding extra level of representation, which he calls action tier. If we translate this Jackendovian structure into RH&L framework, we will probably change the event function GO into the primitive predicate BECOME, since both represent the motion to a certain endpoint. If this analysis is true, then the LCS will be represented as follows, partly adopting Jackendoff's +vol marker.

- (58) *roll down*: [BECOME+vol [y <DOWN>]] (willful doer)
 [BECOME-vol [y <DOWN>]] (non-willful doer)
 [BECOME [y <DOWN>]] (undergoer)

It may be true that from the viewpoint of language acquisition the less lexical conceptual structure a verb has, the more desirable it is, but this conceptual structure does not seem to correctly reflect the fact that the verb *roll* also has transitive use, which falls into the fourth template group.

- (59) Bill rolled the ball down the hill.
 [[x ACT] CAUSE [BECOME [y <DOWN>]]]

This insight coincides with the approach of Levin and Rappaport Hovav (1995). According to their analysis, “when the roll verbs are used nonagentively, they are externally caused....The result is that the *roll* verbs, when external cause is left unexpressed, are unaccusative (ibid: p.155),” while “...these verbs are unergative when they are used agentively (ibid: p.176).” Both unaccusative use and unergative use of the *roll* verbs have the same event structure, and the difference between them is the linking rules they follow. In other words, all the sentences in (56) have exactly the same LCS in (59), and under their linking rules, (56a) becomes interpreted as unergative, and (56b) and (56c) as unaccusative. From the viewpoint of aspectual property, it is not desirable to adopt some volitional features used in Jackendoff, since it is not an element concerning time. On the other hand, L&RH’s approach perfectly matches on the line we are taking.

4.5. Multiple Occurrences

Before we discuss *multiple occurrences*, we have to keep mass/count difference shown in Tenny (1994) in mind.

- (60) a. Chuck ate an apple (*for an hour/ in an hour).
 b. Chuck ate ice cream (for an hour/ *in an hour).
 c. Chuck ate apples (for an hour / *in an hour). (Tenny 1994: p. 24)

According to her, “with incremental-theme verbs like *eat*, the spatially non-delimited quality of the measuring

argument can be translated into the temporal non-delimitedness of the event(ibid).” This fact is reflected in the cases of *multiple occurrences*.

- | | | | |
|------|----|--|----------------------------------|
| (61) | a. | The child <i>is dying</i> in hunger. | Group III |
| | b. | The children <i>are dying</i> in hunger. | Multiple occurrences / Group III |
| | c. | Children <i>are dying</i> in hunger. | Multiple occurrences |
| (62) | a. | The nationalism <i>is disappearing</i> . | Group III / Multiple occurrences |
| | b. | Nationalism <i>is disappearing</i> . | Multiple occurrences |

With the singular argument *the child* in (61), the verb *die* represents a one-time event, and it is always interpreted as GROUP III interpretation, *the child is about to die in hunger*. With plural noun or mass noun arguments as in (61b), (61c), (62a) and (62b), the verbs *die* and *disappear* can represent multiple occurrences, *one child after another is dying in hunger*, or *nationalism disappears here and there*. But with a definite article *the*, as in the case of (61b) and (62a), they may also mean GROUP III interpretation, *a group of children are on the verge of dying simultaneously* or *the nationalism in a certain number of people is on the verge of disappearing simultaneously*.

In order to reflect this phenomenon, we have to think about not only the difference between singular and plural but also the difference between definite and indefinite; in other words, the difference between delimited or not. Judging from the facts above, plural nouns and mass nouns are candidates for multiple occurrence interpretation. Indefinite plural nouns and indefinite mass nouns are always candidates for multiple occurrence interpretation, while definite nouns are not always candidates. Since these are not verbal properties, I will apply the property markers *plural*, *mass*, and *definite* directly to the arguments, not to the verbal elements such as primitive predicates or roots. The sets of LCS in (63) and (64) are examples of how to represent these properties.

- | | | | |
|------|----|--|--|
| (63) | a. | The child <i>is dying</i> in hunger. | |
| | | | [BECOME [x(definite) < DEAD >]] |
| | b. | The children <i>are dying</i> in hunger. | |
| | | | [BECOME [x(plural/definite) < DEAD >]] |
| | c. | Children <i>are dying</i> in hunger. | |

- [BECOME [x(plural) < DEAD >]]
- (64) a. The nationalism *is disappearing*.
[BECOME [x(mass/definite) < DISAPPEARED >]]
- b. Nationalism *is disappearing*.
[BECOME [x(mass) < DISAPPEARED >]]

Apart from the other two repetitive interpretations, *iterative* and *habitual*, *multiple occurrence* interpretation seems to depend not on verbal elements, but on plural or mass property. This means that the semantic calculation is undergone upon *plural* or *mass* attached to the arguments. I suppose that when the durative property of the progressive merges with *plural* or *mass*, multiple occurrence interpretation occurs, and that the definiteness optionally works as a blocking element. In the cases of (63c) and (64b), where *definite* does not interfere with *multiple occurrence* interpretation, the calculation will be “durative × plural / mass multiple, just as shown in (65) and (66).

- (65) progressive × [BECOME [x(plural) < DEAD >]]
(durative)
[BECOME [x(multiple) < DEAD >]]
- (66) progressive × [BECOME [x(mass) < DISAPPEARED >]]
(durative)
[BECOME [x(multiple) < DISAPPEARED >]]

In the cases of (63b) and (64a), where *definite* property exists, this calculation can be interfered.

Now let us apply this calculation system to other template groups. Interestingly, the first template accepts this calculation.

- (67) Our children *are dancing*.
progressive × [x(~~plural~~/definite) ACT] [x(~~plural~~/definite) ACT(durative)]
(durative)
progressive × [x (plural/definite) ACT] [x (multiple/definite) ACT]
(durative)

(68) Children *are dancing*.

progressive × [x (plural) ACT] [x (multiple) ACT]

The meanings of the sentence (67) is predicted from the calculations as Our children are dancing together now(GROUP I), or Our children like dancing and they dance any time any place (multiple occurrences). Basically when (68) is uttered, it rather implies the children's tendency (multiple occurrences).

As to the second template, the plural/mass arguments seem to have nothing to do with multiple occurrences, mainly because states themselves contradict the repetitive interpretation. (As I mention in the end note 4, adverbial phrases including clear plurality, such as ones representing frequency, *once a week*, *every day*, *on Sundays*, may have repetitive interpretation. As space is limited, I will not mention this use any further here.)

As I have mentioned, the third template accepts multiple occurrences. The fourth template is a little complicated. As we have seen above, BECOME parts of the fourth template can work as a blocking element for *iterative* and *habitual*. We have also observed that plural arguments in BECOME parts allow the ACT part to have repetitive interpretation. But now we have to revise this theory. For example, let us think about (69), where the object is definite/plural.

(69) He *is smashing* the mirrors.

[[x ACT(punctual)] CAUSE [BECOME(punctual) [y(plural/definite) < SMASHED(permanent) >]]]

Judging from the LCS, no GROUP I interpretation is possible since all ACT, BECOME, and the root *SMASHED* have a blocking element. If the variable y is a singular noun, the BECOME part works as a blocking element for iterative interpretation, and the repetitive interpretation fails. But in (69), the argument y's property is *plural/definite*. If *definite* does not block *plural*, then the BECOME part allows the ACT part to have iterative interpretation. If *definite* blocks *plural*, then the iterative interpretation is also blocked. Virtually, the former means that *he is smashing one glass after another*(iterative), and the latter means *he is going to smash the glasses at one time*(GROUP III). Similarly, if the object is indefinite plural, the latter interpretation fails. Basically, the plural argument in the BECOME part of the fourth template determines whether the BECOME part blocks repetitive interpretation or not, since repetitive interpretation occurs in the ACT part.⁵

Now let us examine the plural argument of the ACT sub-event. To begin with, we are going to examine the verb *smash* again. We will see how easily the rules can be applied to this type.

- (70) a. The boy *is smashing* mirrors.
 b. The boys *are smashing* mirrors
 c. Boys *are smashing* mirrors.

The LCS of (70a)-(70c) will be represented as shown below. (Since the BECOME sub-event allows repetitive interpretation in these cases, I will omit the detailed representation here.)

- (71) progressive × [[x ACT(punctual)] CAUSE [BECOME [y < SMASHED >]]]
 [[[x ACT(iterative)] CAUSE [BECOME [y < SMASHED >]]]]
 (72) progressive × [[x(plural/definite) ACT(punctual)] CAUSE [BECOME [y < SMASHED >]]]
 [[[x(multiple) ACT(punctual)] CAUSE [BECOME [y < SMASHED >]]]]
 (73) progressive × [[x(~~plural~~/definite) ACT(punctual)] CAUSE [BECOME [y < SMASHED >]]]
 [[[x(~~plural~~/definite)ACT(iterative)[CAUSE [BECOME [y < SMASHED >]]]]
 (74) progressive × [[x(plural) ACT(punctual)] CAUSE [BECOME [y < SMASHED >]]]
 [[[x(multiple) ACT(punctual)] CAUSE [BECOME [y < SMASHED >]]]]

(71) represents the semantic calculation of (70a). Nothing blocks the progressive merging with *punctual* property, so the interpretation will become *iterative*, but as there is no *plural* property in the argument x, (70a) may not have *multiple occurrences* interpretation. Namely, the meaning here is *the boy keeps smashing mirrors again and again*. (72) and (73) represent the calculations of (70b). In (72), *definite* does not block *plural* and its interpretation becomes multiple occurrences: *the boys separately smash mirrors here and there*. On the other hand, in (73), *definite* blocks *plural*, and its interpretation becomes *iterative*: *a group of boys smashes one mirror after another together*. (74) is the calculation or (70c). The interpretation is multiple occurrences: *unknown boys separately smash mirrors here and there*.

Lastly, I will examine the fifth template, which is hard to become repetitive interpretation so far. Since even the third template allows *multiple occurrences*, the fifth template, which contains the third template as its end state, may well allow *multiple occurrences*. Here are some cases of the verb *remind*, which

does not have GROUP I interpretations when used with singular arguments, just as in the case of the verb *smash* above. (Again, the LCS below is simplified).

- (75) a. The cherry blossoms *are reminding* Japanese of spring.
b. Cherry blossoms *are reminding* Japanese of spring.
- (76) a. progressive × [x(plural/definite) CAUSE [BECOME [y < REMINDED >]]]
b. progressive × [x(~~plural~~/definite) CAUSE [BECOME [y < REMINDED >]]]
c. progressive × [x(plural) CAUSE [BECOME [y < REMINDED >]]]

Just as in the case of *smash*, the LCS of (75a) is (76a) and (76b). The LCS of (75b) is (76c). Similarly, the result of the semantic calculations will be as follows: *a certain kind of cherry blossoms here and there cause Japanese to remember spring* in (76a), and *a group of cherry blossoms in one place cause Japanese to remember spring* in (76b). The latter sounds quite awkward or impossible as the LCS does not contain the ACT part unlike the case of *smash*. (76c) would mean *when Japanese see any cherry blossoms, they remember spring*.

Compared with *iterative* and *habitual* interpretations, *multiple occurrences* interpretation is quite flexible as to the template which it can occur with. This is mainly because this interpretation does not depend on the verb meaning but on the number property of its arguments. In this sense, *multiple occurrences* interpretation may not be a lexical semantic valiant of the progressive. But in a sense this interpretation also consists of durative property of the progressive and another semantic property in the event structure, just as the other two interpretations *iterative* and *habitual*, this is as close to the core meaning of the progressive as *iterative* and *habitual*. So I believe it is safe to say that *multiple occurrences* interpretation also belongs to GROUP II.

5. Conclusion

The three repetitive interpretations I have mentioned here are derived from the durative property of the progressive and another semantic property in the event structure. Compared with GROUP I interpretations, whose semantic calculation is simpler than GROUP II, GROUP II needs slight modification of the durative property of the progressive. In the case of all these three interpretations, the durative property becomes not

purely durative --- it contains a plural number of shorter events in its duration. Now I conclude that the key features of the GROUP II interpretation are this plurality and the integration of shorter events. In the case of *iterative* interpretation, plural *punctual* events, literally the shortest events that event structures can represent, are integrated into duration. In the case of *habitual*, plural events which are pragmatically considered shorter as a result of addition of adverbials representing a longer period of time, here I have tentatively named *periodic* events, are integrated into duration. In the case of *multiple occurrences* interpretation, though plurality lies outside of the verb meaning, the durativity is forced to be divided into shorter pieces by the plurality.

The restrictions I have presented are also explained from this viewpoint. For example, the irreversibility of the result state is nothing but a sign of one-time event, which contradicts plurality.

Anyway, the basic concept I used for GROUP I interpretations, the interpretations of the progressive are compositionally formed and semantically constrained, is proven to hold in the case of GROUP II, with a slight modifications. Honestly, as to the multiple occurrences interpretation I need more space for detailed explanation, since I have not mentioned all the cases of the fourth template and the fifth template mainly because of the limited space here. In addition, I did not mention some adverbial phrases indicating frequency or cycle such as in the case of *I am running on Mondays* or *I am swimming every third day*. They look something like habitual interpretation, but in reality, they are more like *multiple occurrences* in terms of the plurality in the adverbial phrases.

End note

1 The term “root” is basically used by Pesetsky.(1995). Rappaport Hovav and Levin(1998) used the term “constant” instead of root. In their recent work Levin and Rappaport Hovav(2005) they began using this accepted term “root,” which I accept here, too.

2 When extraordinary arguments are used, some aspectual property may become invalid.

i) He *is smashing* the huge glass.

[[(He) ACT(punctual)]CAUSE

[BECOME(~~punctual~~)]((the huge glass) < SMASHED(permanent) >]]]

In this case, the result part may imply a durative event and as a consequence, it allows the punctual property in the action part to have iterative interpretation, meaning *he kept on hitting the sledgehammer (or something) to the huge glass, but it*

has not yet completely broken to pieces.

3 Another possible implication of this sentence from an informant is “Ichiro has changed his political ground, and he is now letting others know about it, by persuading his supporters or by acting against his old political ground.” In other words, “Ichiro’s supporters are gradually accepting his new political ground.” This is virtually a valiant of change of states interpretation. The difference between this and the normal “he is gradually changing his ground” interpretation is that the viewpoint is not from Ichiro’s but from his supporters. In this paper, I do not deal with the topic of viewpoints.

4 When adverbial phrase representing *cycle* is added, even states seem to be able to occur with repetitive interpretation.

i) The statue *is standing* in the park only on Sundays.

The adverbial phrase *on Sundays* is not the one representing a period of time, but the *cycle*, so this implies that the event regularly repeated. (*The statue is standing in the park these days* does not have this interpretation. This means *temporary state*.) As the *permanent* property of the verb *stand* can easily annulled because of its easy changeability, some kind of repetitive interpretation seems to become possible. I suppose this type of repetitive interpretation is a valiant of multiple interpretation owing to the plurality attached to the plural noun *Sundays* in the adverbial phrase.

5 Ritter and Rosen(1998) argue that delimitedness should be accounted for by syntax. According to them, “result-oriented verbs are lexically specified for delimitation because they lexically select a result. As a consequence, they must map into a D-event in the syntax.(*ibid*: 138)” But their explanation does not account for the cases below.

i) He drew a circle in an instant/*for minutes.

ii) He drew circles *in an instant/for minutes.

They insist that their way is desirable because it is a more compositional explanation than semantic approaches. But my explanation here is also compositional. The difference is that theirs is syntactically compositional while mine is semantically compositional. The existence of the functional projection they propose seems to be difficult to prove universal since some languages lack plural forms or determiners. In my explanation, when the language does not have plural forms or determiners, the sentence simply becomes ambiguous and to avoid this ambiguity, the language users just add other units. The Japanese example below clearly shows this process. Since Japanese nouns do not have morphological plural forms, the literal translation of (i) and (ii) become the same sentence except for the adverbial phrases.

iii)	Kare-wa	isshun-de/suufun-kan	en-o	egaita.
	He-NOM	in an instant/for minutes	a circle/circles-ACC	drew

Of course, when we add some specifying elements to the noun *en* as in (iv) and (v), the meanings become clearer, but in most cases, these elements are not necessary.

iv)	Kare-wa	isshun-de	en-o	hitotsu	egaita.
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He-NOM	in an instant	circle-ACC	one	drew
Kare-wa	suufun-kan	en-o	ikutsumo	egaita.
He-NOM	in an instant	circle-ACC	many	drew

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