# Semantic Compositionality in the *Way*-Construction

## — An Approach in the Framework of Generative Lexicon —*

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*Way* 構文は「主語が動詞で表わされる行為を行いながら前置詞句で表わされる経路を進んでいく」という意味を表す。しかしながら、動詞そのものには必ずしも移動の意味が含まれない。このようなことから、*Way* 構文をある種の構文的イディオムとして捉えるべきだとする分析が見られる。 本論文では、文の構成素からは予測できないとされる *Way* 構文の移動の意味がどこから生じるのか、さらに、*Way* 構文の成否を決定付ける情報とは何かという 2 つの問題に焦点を置き、*Way* 構文に生起する動詞と名詞 *way* の合成という観点から考えていく。合成を考えるにあたっては、百科事典的情報を取り込んだ生成語彙意味論的な意味表示が有効と考え、クオリア構造（Pustejovsky 1995）を用いることによって、合成による派生的意味の生成メカニズムを明らかにし、上記に述べた 2 つの問題点の分析を進めていく。その上で、*Way* 構文の意味は、構文的イディオムとしてではなく、文の構成素に基づいて構成的に決定されるものであることを主張する。

まず、すべての *Way* 構文に共通して生起する名詞 *way* の意味表示をクオリア構造を用いて記述し、名詞 *way* が存在するためには必ずそこには「移動」が介在することを主張する。次に *Way* 構文に生起する主要な動詞グループをそれぞれクオリア構造で表示し、名詞 *way* がその補部として結合したときに、共合成という操作が働き、その結果として動詞句全体に新たな派生的意味が生成されること主張する。この共合成のもとで、動詞の主体役割（AGENTIVE role）と名詞 *way* の主体役割が融合して、動詞句全体の主体役割が生成される。これによって生成された派生的な意味が *Way* 構文の中核的な意味、すなわち、「移動」の意味となることを提案する。さらに、移動に加えて動詞によって示される行為が同時に発生し、その行為が、移動の続く限り、継続あるいは反復されることも共合成によって得られた動詞句全体のクオリア構造から導き出されることを主張する。

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* Way 構文における意味の合成－生成語彙意味論から見た分析－　（境　倫代）（SAKAI Michiyo）

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## 1 Introduction

The *Way*-construction, such as (1a), has the syntactic structure of (1b). The semantic meaning of this construction is that the subject performs the activity denoted by the verb and moves to the location described by the directional phrase. The main verbs of the *Way*-construction, however, do not always contain the sense of movement; its meanings cannot be predicted on the basis of its constituents. Therefore this construction has often been considered as a sort of constructional idiom (Jackendoff 1990, Goldberg 1995).

(1) a. Jack plowed his way through the mud.
b. NP – V – one's way – PP (Nakajima, 2005:439)

The constraint on the main verbs in the *Way*-construction is also a controversial issue. As seen in the following examples, there seem to be contradictory phenomena with regard to the main verbs in the *Way*-construction.

(2) a. *She jumped her way over the ditch. (Goldberg 1995: 212)
b. She jumped her way over the ditches. (Goldberg 1995: 240, fn. 5)
(3) a. ??Sally drank her way through the glass of lemonade. (Goldberg 1995: 204)
b. Sally drank her way through a case of vodka. (Goldberg 1995: 204)
(4) a. John, a novice skier, pratfalled / bellyflopped / tumbled / tripped / lurched his way down the hill, while his girlfriend skied smoothly down.
b. Blood dripped its way from his head to his shoulder, and from there to the ground. (Takami and Kuno 2002: 89)

As is clear from (2) and (3), although each sentence has the same main verb, its acceptability is different. Furthermore, Levin and Rappaport (1995) argue that unergative verbs can appear in the *Way*-construction but unaccusative verbs cannot. As seen in (4), however, unaccusative verbs also appear in this construction.

This paper examines two semantic properties of the *Way*-construction : the source of the meaning of movement and the crucial licensing condition of the *Way*-construction. As mentioned above, Jackendoff (1990) and Goldberg (1995) attribute the sense of movement of the *Way*-construction to its idiosyncratic correspondence rule or construction itself. However, they fail to analyze the relationship between the meanings of the verbs and that

of the noun *way*. If a syntactic structure such as (1b) is given, they argue, the whole sentence automatically signifies the movement of the subject. They also fail to explain how the semantic meaning is derived from this syntactic structure where the verb and the noun *way* are combined. This paper will show that the meaning of the *Way*-construction can be achieved by means of the combined meaning of the verb and its complement: the noun *way* without invoking the idiosyncratic corresponding rule or the constructional approach. I will also attempt to clarify the crucial licensing condition of this construction. In order to achieve this goal, the analysis proceeds in the framework of the qualia structure presented by Pustejovsky (1995). In the following section, I investigate the meaning of the noun *way* and the mechanism, which is called co-composition, in the qualia structure. Section 3 examines the co-composition of the verbs and the noun *way* in the *Way*-construction, and proposes the compositional analysis of the *Way*-construction. Section 4 presents my conclusion.

## 2 Meaning of *Way* and Mechanism of Co-composition

Although various kinds of verbs appear in the *Way*-construction, the use of *one's way* is common to the *Way*-construction. Therefore, it is necessary to pay attention to the meaning of *way*. After examining the noun *way*, let us investigate how the mechanism called co-composition operates between verbs and their complements.

### 2. 1 Meaning of *Way*

Let us begin by analyzing the meaning of *way*. According to the *Oxford English Dictionary* (the *OED*), the noun *way* is defined as in (5). Furthermore, the word *course* in (5) is defined in the *OED* as in (6).

(5) *Way*: course of travel or movement; a line or course of travel or progression.

(6) *Course*: the line along which anything runs or travels; the path or way taken by a moving body.

According to these definitions, we can assume that the noun *way* indicates a path, which is either an abstract path or a physical one according to the context, and that the path comes into being after someone or something has moved or passed over it. This assumption is supported by Kageyama's analysis in (7), which was presented in his analysis on the *All*

*the way* construction. He argues that it is after something moves that a "way" exists. Based on these observations, we present the meaning of *way* as in (8).

(7) Since an area may be called a "way" only if it is traversed by a moving entity, the noun *way* specifies the notion of movement along a path in the Agentive role of its Qualia Structure. (Kageyama 2004: 283)

(8) A "*way*" is a path which comes into being after something or someone has moved.

The semantic representation with the qualia structure based on the generative lexicon can be used to clarify this semantic feature of the noun *way*, which includes encyclopedic information. Here let us outline the qualia structure, which specifies four essential aspects of a word's meaning (Pustejovsky 1995 : 76) :

(9) CONSTITUTIVE: the relation between an object and its constituent parts;
FORMAL: that which distinguishes it within a larger domain;
TELIC: its purpose and function;
AGENTIVE: factors involved in its origin or "bringing it about".

In addition to the qualia structure with the four roles illustrated above, an argument structure (ARGSTR) and an event structure (EVSTR) are also described in the representation of a lexical item. For a lexical item α, its semantic representation is characterized as in (10).

(10)
$$\begin{bmatrix} \alpha & \\ \text{ARGSTR} = & \begin{bmatrix} \text{ARG1} = x \\ \cdots \end{bmatrix} \\ \text{EVSTR} = & \begin{bmatrix} \text{E1} = e1 \\ \cdots \end{bmatrix} \\ \text{QUALIA} = & \begin{bmatrix} \text{CONST} = \text{what x is made of} \\ \text{FORMAL} = \text{what x is} \\ \text{TELIC} = \text{function of x} \\ \text{AGENTIVE} = \text{how x came into being} \end{bmatrix} \end{bmatrix}$$
(Pustejovsky 2001 : 95)

Here we should notice from the representation illustrated above that the relation between the AGENTIVE role and the FORMAL role is equivalent to that between the cause and the result. Pustejovsky (1995) and Ono (2005) argue that the activity denoted by the AGENTIVE role causes the result state denoted by the FORMAL role. Now let us return to our analysis of *way* shown in (8). When we consider the meaning of *way* in the light of the qualia structure, we reach the assumption that the AGENTTIVE role of the noun *way* is "move" and its FORMAL role is "the existence of a path." This assumption is supported by Kageyama's analysis shown in (7), in which he points out that the value of AGENTIVE role of *way* must include the notion of movement. With regard to the FORMAL role of *way*, Kageyama argues that the FORMAL role of *way* is a "place." In our analysis we assume that the FORMAL role of *way* is a "path." This assumption enables us to present more refined properties of *way*. According to Jackendoff (1990), a "path" generally entails a route, a goal and a source, though a goal and a source are not always expressed explicitly. The examples below in (11) prove that the noun *way* entails a route, a source and a goal respectively.

(11) a. On *the way along* the beach we found two seal bite victims.
(http://web.uct.ac.za/depts/stats/adu/ew_2004team3.htm)

b. On *the way from* the hospital, everything he saw in the streets was inexpressively-beautiful,... (BNC)

c. I reckon *the way to* this woman's heart is through her mind. (BNC)

Therefore, if we assume that the value of the FORMAL role of *way* is a "path," then we can express these three elements in the qualia structure as the values of the CONSTITUTIVE role. Unlike a source or a goal, a route is always included as a constituent of *way* and it has a certain distance. This means that a "*way*" has a certain distance. On the basis of these analyses, let us present a semantic representation of the noun *way* with the qualia structure shown in (12).

(12) way

$$\begin{bmatrix} \text{ARGSTR} = \begin{bmatrix} \text{ARG 1} & = \text{x : path} \\ \text{D-ARG 1} & = \text{y : route} \\ \text{(D-ARG 2} & = \text{z : source)} \\ \text{(D-ARG 3} & = \text{w: goal)} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{CONST} & = \text{consist\_of (x, y · z · w)} \\ \text{FORMAL} & = \text{x : path} \\ \text{AGENTIVE} & = \text{move (e, v , y · z · w)} \end{bmatrix} \end{bmatrix}$$

In the argument structure in (12), ARG1 shows that *way* indicates either a physical path or an abstract one according to the context. Since it is logically inferred that this path has a route, a goal and a source, these three constituents are indicated as D-ARG1–3[1]. The path, however, does not always have an explicit source or goal. That is the reason D-ARG2 and D-ARG3 are parenthesized. Next, in the qualia structure, the CONST role shows that a path consists of one, two or all of the three constituents. With regard to the FORMAL role and the AGENTIVE role, they mean that an event (e), where the subject (v) moves from a source (z) along a route (y) to a goal (w), results in the existence of a path (x). Based on this semantic representation, it can be assumed that a causing event of something moving is followed by a resulting event of a path coming into being.

Now let us consider another representation of *way* with the qualia structure presented by Suzuki (2000). He also attributes the sense of movement of the *Way*-construction to the noun *way*.

(13) way

$$\begin{bmatrix} \text{ARGSTR} = \begin{bmatrix} \text{ARG1 = y: action} \\ \text{ARG2 = x: physical object} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{action · physical object} \\ \text{FORMAL = path; y hold x} \\ \text{TELIC = v move x · y} \\ \text{AGENT = w create x · y} \end{bmatrix} \end{bmatrix}$$

(Suzuki:2000: 189)

[1] A D-ARG (Default Argument) is an argument which participates in the logical expressions in the qualia, but which is not necessarily expressed syntactically.

The most significant difference between our analysis and Suzuki's model is which quale of the four qualia plays a crucial role in giving rise to the sense of movement. We assume that the AGENTIVE role contains the notion of movement, while Suzuki attributes it to the TELIC role. The TELIC role indicates the function or purpose of *way*. The movement, however, is not always realized simply because the purpose of *way* is "move." On the other hand, our model assumes that the AGENTIVE role has to include the value "move." That means that a "*way*" only exists after a certain entity has moved. Therefore our analysis definitely guarantees the sense of movement as one of the semantic properties of the noun *way*.

### 2. 2 Co-composition

In this section, let us see how a generative mechanism in semantics, which is called co-composition, operates to generate "derived" senses. According to Pustejovsky (1995), the qualia structure can encode information about particular properties and activities associated with a noun. This information will provide a verb which governs the noun as its complement with the information required for contextualizing the sense of the verb. In order to capture this relation, Pustejovsky proposes "co-composition" as one of the generative mechanisms in semantics. He defines it as follows:

(14) Co-composition: where multiple elements within a phrase behave as functors, generating new non-lexicalized senses for the words in composition.

(Pustejovsky 1995: 61-62)

Ono (2005: 88-89) describes this mechanism more concretely as shown in (15), and he illustrates the co-composition by presenting (16) and (17).

(15) What an event denoted by a verb describes is not determined only by the meaning of the verb. It is compositionally determined by the combined information associated with the verb and its complement.

(16) arrive (spatial movement)

ARGSTR = ARG1 = x
D-ARG1 = y
QUALIA = FORMAL = at (e, x, y)
AGENT = arrive (e' , x)

(17) arrive at conclusion

ARGSTR = ARG1 = x
ARG2 = y: conclusion
QUALIA = AGENT = mental-act (e, x)
QUALIA = FORMAL = at (e, x , y)
AGENT = mental_act (e' , x)

As seen in (16) and (17), when the verb *arrive* is combined with its complement *conclusion*, a kind of feature unification occurs. The qualia values for AGENTIVE roles in the verb and its complement are unified in the qualia structure of the VP. The newly generated semantics for the VP *arrive at conclusion* results from this feature unification, that is, co-composition. From this example we can assume as follows:

(18) Under the operation of the co-composition, the values for AGENTIVE roles of a verb and its complement are unified into the values for the AGENTIVE role of the VP.

## 3 Co-composition of Verbs and the Noun *Way* in the *Way*-Construction

In this section, we clarify the categories of the verbs that occur in the *Way*-construction, and then examine how the co-composition of the verbs and the noun *way* generates a derived meaning at the VP level in the *Way*-construction.

### 3. 1 Verbs in the *Way*-Construction

As pointed out in several previous analyses, the verbs in the *Way*-construction are not homogeneous with regard to their ability to license their complements. Consider the following examples.

(19) a. Sally made her way into the ballroom. (Goldberg 1995: 204)
b. Sally made her way.
c. *Sally made into the ballroom.

(20) a. The wounded soldiers limped their way across the field. (Israel 1996: 218)
b. *The wounded soldiers limped their way.
c. The wounded soldiers limped across the field

(21) a. Bill belched his way out of the restaurant. (Jackendoff 1990: 211)
b. *Bill belched his way.
c. *Bill belched out of the restaurant.

The verb in (19a) allows *one's way* to occur in its direct object position as seen in (19b), but it prevents a directional phrase from occurring as its complement as in (19c). Next, the verb in (20a) is an intransitive verb, so it cannot take *one's way* as its direct object as in (20b), while it can take a directional phrase as its complement as seen in (20c). These observations show that at least one of the complements of the main verbs in (19a) and (20a) is syntactically motivated. In contrast, the verb (21a) allows neither *one's way* nor a directional phrase to occur as its complement as in (21b) and (21c). In this paper we concentrate on the verb classes of (19) and (20). This is because these types of verbs occupy a large part of the verbs which occur in the *Way*-construction. This observation will be presented more in detail later.

Let us first discuss the type of (19) : the verbs which take *one's way* as their objects. This type of verbs are divided into two groups: verbs of creation and verbs of *Gain*. The creation verbs include *make, dig, build, cut, burrow, carve,* and *tunnel* (Nakajima 2005: 441). Here we should notice that the verb *make* means the creation itself but does not clarify the means for creation. On the contrary, the activities described by the other creation verbs denote the means for creating an object, which is called a "result object" (Jespersen 1946). According to Nakajima (2005), such verbs are included into the creation verbs. Therefore, *one's way* in the *Way*-construction shown in (22) can be thought of as a kind of a result object just like *a hole* in *dig a hole* or *a road* in *cut a road.*

(22) a. About six feet below them they could hear thumps and scrapes as the luckless Stim *dug his way* down into the darkness. (BNC)
b. Rescuers had to *cut their way* through the chassis of the mangled coach to reach the dead and injured. (BNC)

Another class of verbs that take *one's way* as their objects is that of *Gain* verbs, such

as *find, feel, pick, fight, win, grope,* and *earn.* The verbs in this class denote both the sense of GET and the means for getting. In other words, their objects are something obtained by the activities presented by the verbs. Therefore, *one's way* in the *Way*-construction shown in (23) can be thought of as a gained entity just like *words* in *pick words carefully* or *her place* in *earned her place on the team.*

(23) a. Shivering, he *picked his way* down the draughty main staircase to the unlit hall.... (BNC)

b. She watched him *fight his way* across the room to hang up the coats and then to the bar. (BNC)

Next we turn to the class of verbs in (20). They are the class of verbs of manner of movement, which can co-occur with directional phrases as in (20c) although they cannot co-occur with *one's way* alone as shown in (20b). This class includes verbs such as *wind, thread, wing, weave, inch,* and *worm.*

So far we have investigated the verbs in the *Way*-construction in terms of their syntactic behaviors. Now let us review how the previous studies analyze the classes of verbs in the *Way*-construction. The several studies think of the verb *make* as a base verb for the *Way*-construction (Salkoff (1988), Goldberg (1995), Kageyama (1997), Omuro (1998)). Salkoff points out that most *Way*-constructions have a paraphrase expressed in (24), and he argues that *make* is a base verb of this construction.

(24) a Max pushed his way through the crowd.

b. Max made his way through the crowd by pushing (Salkoff 1988: 60)

In addition to *make,* some of the *Gain* verbs, such as *find, take,* and *pick,* are also given a special status in the *Way*-construction. Salkoff (1988:60) argues that these *Gain* verbs are exceptional because the paraphrase expressed in (24) does not apply to them. Israel (1996), based on the historical background, claims that the *Way*-construction has three basic types of verbs: creation verbs, possession verbs and verbs of manner of motion. Furthermore, Nakajima (2005: 446) takes the semantic components of MAKE, GET, and MOVE to be the major semantic features of the verbs that can occur in the *Way*-construction. The analysis presented by Omuro (2000) supports the above-mentioned assumption

that three kinds of verbs: creation verbs, *Gain* verbs and verbs of manner of movement are the base verbs for the *Way*-construction. Omuro investigates the frequency of the verbs that occur in the *Way*-construction by using a large corpus named *Cobuild Direct*. His research shows that the three classes of verbs mentioned above appear more frequently than the other types. According to Omuro's data, these three classes of verbs account for about two-thirds of all the verbs that appear in this construction.

On the basis of the observations about the syntactic behaviors, the analyses in the previous studies and the data from the corpus, we come to the assumption that three types of verbs: creation verbs, *Gain* verbs, and verbs of manner of movement are the main verbs that can occur in the *Way*-construction. On this assumption, let us investigate the "derived" semantics of the *Way*-construction generated by combining these three classes of verbs with the noun *way*. In the next section we examine the co-composition of the verbs and the noun *way* at the level of the qualia structure.

### 3. 2 Co-composition of Verbs and the Noun *Way*

We have already presented the qualia structure of *way* as in (12). Now let us present the qualia structures of three types of verbs mentioned above, and see how the co-composition operates to give rise to a derived meaning, beginning with the creation verbs. A creation verb shown in (25a) has a structured representation with three levels of argument, event, and qualia structures, as illustrated in (25b). In (25b), the AGENTIVE role indicates a causing event E1, in which ARG1 acts on D-ARG1. The FORMAL role indicates a resulting event E2, in which ARG2 comes into being. Next, the noun *way* is combined with the verb, and an operation called co-composition, under which the qualia structures of the verb and *way* are unified, occurs. The unified qualia structure is that for the entire VP. The derived sense results from this unified qualia structure for the VP, which is illustrated in (26). The representation shown in (26) is that for the newly generated VP, in which the noun *way* as ARG2 (= an artifact) is combined with a creation verb. Since this verb is a creation verb, the event denoted by the AGENTIVE role should result in the existence of *way*, which is the event denoted by the FORMAL role. In order for a "*way*" to come into being, the value of "move" should be included into the AGENTIVE role. As a result, the values of "move" and $\alpha$ co-exist in the AGENTIVE role for the entire VP. Therefore the VP generates the derived meaning that a movement and an activity $\alpha$ co-occur as long as the movement proceeds along a route which constitutes a path.

(25) a. ...the government hopes that Japan can ***build its way*** out of recession. (BNC)

b. α = a creation verb

$$\begin{bmatrix} \text{EVENTSTR} = \begin{bmatrix} \text{E1} = \text{e1: process} \\ \text{E2} = \text{e2 : state} \end{bmatrix} \\ \text{ARGSTR} = \begin{bmatrix} \text{ARG1} = \text{x : animate individual} \\ \text{ARG2} = \text{y : artifact} \\ \text{D-ARG1} = \text{z : material} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{create\_lcp} \\ \text{FORMAL} = \text{exist (e2, y)} \\ \text{AGENTIVE} = \alpha\text{\_act (e1, x , z)} \end{bmatrix} \end{bmatrix}$$

(26) α + one's way α = a creation verb

$$\begin{bmatrix} \text{EVENTSTR} = \begin{bmatrix} \text{E1} = \text{e1 : process} \\ \text{E2} = \text{e2 : state} \end{bmatrix} \\ \text{ARGSTR} = \begin{bmatrix} \text{ARG1} = \text{x : animate\_individual} \\ \text{ARG2} = \begin{bmatrix} \text{y : way} \\ \text{QUALIA} \begin{bmatrix} \text{CONST} = \text{consist\_of} \\ \quad \text{(y , w: route} \cdot \text{v: source} \cdot \text{u: goal)} \\ \text{FORMAL} = \text{y : path} \\ \text{AGENTIVE} = \text{move (e, x , w} \cdot \text{v} \cdot \text{u)} \end{bmatrix} \end{bmatrix} \\ \text{D-ARG 1} = \text{z : material} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{create\_lcp} \\ \text{FORMAL} = \text{exist (e2, y)} \\ \text{AGENTIVE} = \alpha\text{\_act (e1, x , z), move (e1 , x , w} \cdot \text{v} \cdot \text{u)} \end{bmatrix} \end{bmatrix}$$

As mentioned in section 2.1, a route entails a certain distance, so it is logically inferred that the movement along the route continues for a certain time. That means that the activity α will be continued if it is an unbounded activity and that the activity α will be repeated if it is a bounded activity.

Next let us discuss the *Gain* verbs shown in (27a), whose semantic representation with the qualia structure is illustrated in (27b). In (27b), the AGENTIVE role indicates the causing event E1, where ARG1 acts. The FORMAL role indicates the resulting event E2, where ARG1 gains ARG2 ( = a gained entity).

(27) a. He *picked his way* along the muddy track to where he left his car. (BNC)

b. α = a *Gain* verb

$$\begin{bmatrix} \text{EVENTSTR} = \begin{bmatrix} \text{E 1} & = \text{e1 : process} \\ \text{E 2} & = \text{e2 : state} \end{bmatrix} \\ \text{ARGSTR} = \begin{bmatrix} \text{ARG 1} & = \text{x : animate\_individual} \\ \text{ARG 2} & = \text{y : gained\_entity} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{FORMAL} & = \text{be\_with (e2, x , y )} \\ \text{AGENTIVE} & = \alpha\text{\_act (e1, x )} \end{bmatrix} \end{bmatrix}$$

The noun *way* is combined with a *Gain* verb as a gained entity to give rise to the semantic representation at the VP level illustrated in (28). The representation in (28) shows the unified qualia structure for the verb and the noun *way*. In this representation, just like the case of creation verbs, the event denoted by the AGENTIVE role should result in the event denoted by the FORMAL role, where ARG1 gains ARG2: *way*. Therefore, it is logically inferred that a "*way*" exists together with ARG1. In order for a "*way*" to exist, the value "move" should be included into the AGENTIVE role. Then the same process as that of the creation verbs follows. The co-existence of values of α and "move" generates the derived meaning that the subject performs both the movement and the activity described by the main verb at the same time. Since the movement continues along a route which entails a certain distance, it is assumed that the movement and the activity α co-occur for a certain time. Then it is predicted that the activity α will be continued if it is unbounded and that it will be repeated if it is bounded.

(28) α + one's way α = a *Gain* verb

$$\begin{bmatrix} \text{EVENTSTR} = \begin{bmatrix} \text{E 1 = e1 : process} \\ \text{E 2 = e2 : state} \end{bmatrix} \\ \text{ARGSTR} = \begin{bmatrix} \text{ARG 1 = x : animate\_individual} \\ \text{ARG2} = \begin{bmatrix} \text{y : way} \\ \text{QUALIA} = \begin{bmatrix} \text{CONST = consist\_of} \\ \text{(y , z : route} \cdot \text{w : source} \cdot \text{v : goal )} \\ \text{FORMAL = y : path} \\ \text{AGENTIVE = move (e, x , z} \cdot \text{w} \cdot \text{v)} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{FORMAL = be\_with ( e2, x , y )} \\ \text{AGENTIVE = } \alpha\text{\_act (e1, x ), move ( e1 , x , z} \cdot \text{w} \cdot \text{v)} \end{bmatrix} \end{bmatrix}$$

However, the verb *find*, which is included in the *Gain* verbs, can not be repeated although it denotes a bounded event. Now we should notice that the verb *find* is likely to mean discovering or attaining something by search or effort (the *OED*). Consequently, it can be inferred that the searching activity continues as long as the movement continues along a route. This searching activity denotes the sense of the means for getting, which is one of the two semantic aspects of the *Gain* verbs, as mentioned above. Therefore, in the case of the *Gain* verbs, the event that indicates the sense of the means for getting can be continued or be repeated.

Lastly we turn to the co-composition of the verbs of manner of movement and the noun *way*. This class of verbs, such as *wind, thread, worm, snake,* or *plod*, basically contain the sense of movement in addition to presenting the manner of movement. Therefore, they can appear with directional phrases. However, among the verbs of manner of motion, there are verbs of nondirected motion, such as verbs of sound emission, waltz verbs and verbs of body-internal motion (Kageyama 1997: 156-157). The verbs of sound emission indicate events where the subject emits sounds that accompany the subject's movement. With regard to the waltz verbs and the verbs of body-internal motion, they do not contain a clear sense of movement. However, the motion described by these verbs can function as propelling power that can cause the subject to move. In fact, they present the meaning of both movement and its manner when combined with directional phrases. A directional phrase functions as a path. In our analysis, the noun *way* indicates a path. Therefore, the verbs of manner of movement including verbs of nondirected motion can be combined with the noun *way* as their path. Here let us present the semantic representation of verbs of manner of movement as in (29).

(29) $\alpha$ = a verb of manner of movement

$$\begin{bmatrix} \text{EVENTSTR} & = \text{E1} = \text{e1} : \text{process} \\ \text{ARGSTR} & = \text{ARG 1} = \text{x} : \text{physical\_object} \\ \text{QUALIA} & = \text{AGENTIVE} = \alpha\text{\_act (e1, x)} \end{bmatrix}$$

As is clear from (29), the verbs of manner of movement describe process, so they do not contain the sense of a resulting state. When they are, however, combined with a path that has a goal, as shown in (30a), the unified qualia structure is illustrated as in (30b). The causing event E1 denoted by the AGENTIVE role, where ARG1 performs the activity $\alpha$,

should result in the resulting event E2 denoted by the FORMAL role, where ARG1 arrives at the goal denoted by ARG2. As seen in (18) in Section 2.2, under the co-composition of a verb and its complement, the values of the AGENTIVE role for the verb and its complement are unified into the values for the AGENTIVE role of the VP. The unified qualia structure in (30b) results from this mechanism. The values of the AGENTIVE roles for the noun *way* and the verb, that is, "move" and α, co-exist in the AGENTIVE role for the VP. The derived sense is that the subject performs the activity α and moves along the route to the goal denoted by ARG2. The movement continues for a certain time because it proceeds along the route. Then the activity α, if it is unbounded, will be continued and if it is bounded, then it will be repeated. Even when a verb of manner of movement is combined with a way that has no goal as in (31a), the same mechanism as that of (30b) operates to give rise to the derived meaning of the VP. The difference is that the resulting event denoted by the FORMAL role is not expressed because the way has no goal.

(30) a. ... their column of official jeeps *snaked its way* down into the Rante. (BNC)

b. α + one's way  α = a verb of manner of movement

$$\begin{bmatrix} \text{EVENTSTR} = \begin{bmatrix} \text{E 1} = \text{e1 : process} \\ \text{E 2} = \text{e2: state} \end{bmatrix} \\ \text{ARGSTR} = \begin{bmatrix} \text{ARG 1} = \text{x : physical\_object} \\ \text{ARG 2} = \begin{bmatrix} \text{y : way} \\ \text{QUALIA} = \begin{bmatrix} \text{CONST} = \text{consist\_of} \\ (\text{y , z : route} \cdot \text{w : source} \cdot \text{v : goal}) \\ \text{FORMAL} = \text{y : path} \\ \text{AGENTIVE} = \text{move (e, x , z} \cdot \text{w} \cdot \text{v)} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{QUALIA} = \begin{bmatrix} \text{FORMAL} = \text{at (e2 , x , y)} \\ \text{AGENTIVE} = \alpha\text{\_act (e1 , x), move (e1 , x , z} \cdot \text{w} \cdot \text{v)} \end{bmatrix} \end{bmatrix}$$

(31) a. I *wormed my way* along the roadside ditch.

b. α + one's way  α= a verb of manner of movement

$$\begin{bmatrix} \text{EVENTSTR} = & \text{E1} = \text{e1 : process} \\ \text{ARGSTR} = & \begin{bmatrix} \text{ARG 1} = & \text{x : physical\_object} \\ \text{ARG 2} = & \begin{bmatrix} \text{y : way} \\ \text{QUALIA} = & \begin{bmatrix} \text{CONST} = \text{consist\_of (y, z : route)} \\ \text{FORMAL} = \text{y : path} \\ \text{AGENTIVE} = \text{move (e, x , z)} \end{bmatrix} \end{bmatrix} \end{bmatrix} \\ \text{QUALIA} = & \begin{bmatrix} \text{AGENTIVE} = \alpha\text{\_act (e1 , x), move (e1 , x , z)} \end{bmatrix} \end{bmatrix}$$

Based on all the investigations mentioned above, let us present the conclusion that the derived sense in the *Way*-construction results from the operation called co-composition under which the qualia structures of the main verb and the noun *way* are unified at the level of VP. The derived sense of the VP means the co-occurrence of the activity denoted by the main verb and the movement. This is the source of the sense of movement in the *Way*-construction. In addition, this derived sense resulting from the co-composition explains the repetition or continuation of the activity denoted by the main verb in the *Way*-construction.

## 4 Conclusion

In Section 1, two issues were presented: the source of the sense of movement and the crucial licensing condition of the *Way*-construction. The solutions can be obtained in the conclusion presented at the end of Section 3. The co-occurrence of the activity denoted by the main verb and the movement clarifies where the sense of movement comes from. The continuation or repetition of the activity denoted by the main verb can be thought of as a crucial licensing condition of this construction. Let us consider the examples (2), (3) and (4). The examples in (2a) and (3a) cannot be licensed because they indicate a single event respectively. On the contrary, (2b) and (3b) describe repeated events, so they are licensed. The examples in (4) are licensed because the events denoted by the verbs are repeated. Whether the verbs are unaccusative or unergative is not crucial.

Finally we close our discussion by arguing that the meaning of the *Way*-construction with three major classes of verbs can be compositionally determined on the basis of the information of its constituents. We do not have to invoke an idiosyncratic corresponding

rule or a constructional approach.

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## References

Goldberg, Adele E. (1995) *Constructions : A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.

Israel, Michael (1996) The *way* constructions grow. In Adele E. Goldberg (ed.) *Conceptual Structure, Discourse and Language*: 217-30. Stanford : Center for the Study of Language and Information Publications.

Jackendoff, Ray (1990) *Semantic Structures*. Cambridge, MA : MIT Press.

Jespersen, Otto (1946) *A Modern English Grammar on Historical Principles*, Part 6. London: George Allen & Unwin.

Kageyama, Taro (1997) Tango o koeta gokeisei. *Gokeisei to Gainenkouzou*: 128-197. Tokyo: Kenkyusha Publishers.

Kageyama, Taro (2004) *All the way* adjuncts and the syntax-conceptual structure interface. *English Linguistics* 21 (2) : 265-293.

Levin, Beth and Malka Rappaport Hovav (1995) *Unaccusativity : At the Syntax-Lexical Semantics Interfaces*. Cambridge, MA : MIT Press.

Nakajima, Heizo (2005) Semantic compositionality of the *way*-construction. In Hans Broekhuis, Norbert Corver, Riny Huybregts, Ursula Kleinhenz, and Jan Koster (eds.) *Organizing Grammar: Linguistic Studies in Honor of Henk Van Riemsdijk*: 439-446. KG, Berlin: Mouton de Gruyter.

Ono, Naoyuki (2005) *Seiseigoiimiron*. Tokyo: Kuroshio Publishers.

Omuro, Takeshi (1997) Problems with Jackendoff's treatment of the *Way*-construction. *Studies in Language and Culture*. 18. 2: 33-44. Nagoya University.

Omuro, Takeshi. (1998) Eigo no *Way* koubun to sono lexicon deno atsukai ni tsuite. *JCSS 98*: 333-334.

Omuro, Takeshi (2000) *One's Way* koubun ni okiru doushi to *One's Way* koubun no ishikiteki-shiyou ni tsuite (2) - *Cobuild Direct* no gengo-shiryou kara ieru koto-.

*Studies in Language and Culture*. 21. 2: 59-73. Nagoya University.

Pustejovsky, James (1995) *The Generative Lexicon*. Cambridge, MA : MIT Press.

Pustejovsky, James (2001) Type construction and the logic of concepts. In Pierrette Bouillon and Federica Busa (eds.) *The Language of Word Meaning*: 91-123. Cambridge: Cambridge University Press.

Salkoff, Morris (1988) Analysis by fusion. *Lingivisticae Investigationes* 12: 49-84. Amsterdam: John Benjamins.

Suzuki, Toru (2000) Goiteki-imi ni okeru setsumei no kikou – Qualia kouzou kara mita *Way* koubun no bunseki. *Yamagata Daigaku Kiyou. 14. 3*: 181-200. Yamagata University.

Takami, Kenichi and Kuno, Susumu (2002) *Nichieigo no Jidoushikoubun*. Tokyo: Kenkyusha Publishers.