

On Bodily Motion Expressions with *Swing* and *Wriggle**

Noriko Nemoto

1. Introduction

The verb *swing* can take a body-part object and describe either oscillation, as in (1), or one-way motion, as in (2).¹

- (1) a. She was wearing blue tights and sandals and had hitched her dress well up in order to swing her legs.
- b. He stopped swinging his arms and stood with hands on hips, looking at her, his head and shoulders heaving.
- (2) a. She swung her legs over the edge of the bed and went over to the window to look down at the courtyard.
- b. She swung her arms above her head and cracked her hand on a low beam.

The two types of motion are distinguished in the following dictionaries:² *Collins Cobuild Advanced Learner's English Dictionary*, 5th ed. (2006) (=CCALAE), *Longman Dictionary of Contemporary English* 4th ed. (2003) (=LDCE), *Macmillan English Dictionary for Advanced Learner's of American English*, 2nd ed. (2007) (=MEDALAE), *Oxford Advanced Learner's Dictionary*, 7th ed. (2005) (=OALD). CCALAE, for example, defines the sense of expressions like (1) as in (3) and the sense of expressions like (2) as in (4).

- (3) If something swings or if you swing it, it moves repeatedly backwards and forwards or from side to side from a fixed point.
- (4) If something swings in a particular direction or if you swing it in that direction, it moves in that direction with a smooth, curving movement.

As suggested in these definitions, the object of *swing* is not restricted to body parts in either sense, but throughout this paper we will concentrate on *swing* sentences with body-part objects for the sake of exposition. We will refer to the use of *swing* exemplified by (1) and related to the definition in (3) as swing-1 and that of *swing* exemplified by (2) and associated with the definition in (4) as swing-2.

This paper examines the relation between swing-1 and swing-2 by comparing it with the relation between the two uses of the verb *wriggle* illustrated in (5) and (6).

- (5) a. Miranda yawned, stretched, and wriggled her bare, brown toes.
- b. I could wriggle my legs but not use them.
- (6) a. The man slipped off the couch, wriggled his feet into his enormous high-heeled shoes and tugged his wig on.

- b. Alternately press and release pressure with palms, gradually wriggling the hands fairly vigorously along the muscles.

The verb *wriggle* can be used to encode either a motion event in which a body part does not shift its basic location, as in (5), or one in which it traverses a path, as in (6). Of the dictionaries surveyed in this study, *CCALED*, *CIDE*, *LDCE*, and *OALD* cite examples like those in (5) but not examples like those in (6), though semantically similar examples are cited.³ *CCALED* presents the following two senses with *wriggle*.

- (7) If you wriggle or wriggle part of your body, you twist and turn with quick movements, for example because you are uncomfortable.
- (8) If you wriggle somewhere, for example through a small gap, you move there by twisting and turning your body.

In *CCALED*, the use defined as in (8) is exemplified by the following sentences.

- (9) a. He clutched the child tightly as she again tried to wriggle free.
 b. Bauman wriggled into the damp coverall.

Of the two uses in (5) and (6), the use in (5) is straightforwardly related to the sense in (7). With the use in (6), where the verb takes a body-part object and a directional phrase, although examples are not found in the dictionaries consulted, the use is taken to be subsumed under the sense in (8). We will call the use of *wriggle* exemplified by (5) and related to the definition in (7) *wriggle-1* and that of *wriggle* exemplified by (6) and subsumed under the definition in (8) *wriggle-2*. Note that although examples like (6), which have the form “NP V NP XP,” are less common than examples like (9), which have the form “NP V XP,” we can find several instances of the former and thus *wriggle-2* is not extremely rare.

In describing the meanings of these verbs, this study adopts frame semantics, which is articulated in Fillmore (1982). According to Fillmore, a frame is a “system of concepts related in such a way that to understand any one of them you have to understand the whole structure in which it fits” (p.111). The significance of the frame conception in explaining the polysemy structure of a word is demonstrated in Fillmore and Atkins (1992, 1994), which show that a frame-based description succeeds where theories ignoring a background frame of a word fail. Moreover, pointing out that there are examples which cannot directly be understood against an otherwise fairly well-motivated frame, they introduce what they call “derivative syntax,” a process through which a given word incorporates some syntactic and semantic properties of certain other words as its secondary senses. For instance, Fillmore and Atkins (1992) claim that the *on*-phrase and the gambling sense in (10) is not envisioned by the frame in terms of which other *risk* sentences

are interpreted.

- (10) He's likely to risk a week's salary on a horse.

(Fillmore and Atkins (1992:98))

According to them, this sentence inherits some of the distributional and semantic properties of the verb *bet*, which takes an *on*-phrase and is associated with the gambling frame.

We will first consider the two uses of *wriggle*. While we can find no reference to the relation between wriggle-1 and wriggle-2 itself in the literature, the relation between a pair of uses like them is discussed in such studies as Jackendoff (1990), Levin (1993), and Talmy (2003). In section 2, after briefly reviewing these studies we will characterize the relation between wriggle-1 and wriggle-2. We will next examine the relation between swing-1 and swing-2 by comparing it with the case of *wriggle* in section 3. The results of these sections show that wriggle-1 and wriggle-2 are associated with a single frame but swing-1 and swing-2 are associated with two different frames. Section 4 observes that the two uses of each verb allow different sets of directional phrases and they also differ as to the omissibility of the directional phrase. In conclusion, we consider why certain uses must obligatorily be followed by a directional phrase.

2. Wriggle

Let us begin with some previous analyses which will give us clues as to how wriggle-1 and wriggle-2 are related to each other. The verb *wriggle* is included in the list of verbs of body-internal motion in Levin (1993:261-262). Other verbs grouped together include *buck*, *fidget*, *flap*, *gyrate*, *kick*, *rock*, *squirm*, *sway*, *teeter*, *totter*, *twitch*, *waggle*, *wiggle*, and *wobble*. According to Levin, these verbs denote movements of the body but not any displacement in isolation; however, when used with a directional phrase they take on the displacement sense, which might be paraphrased as "go by V-ing." This property is not restricted to this verb class. Levin (1993:105-106) cites another four verb classes: verbs of sound emission (e.g. *purr*, *whistle*), *run* verbs (e.g. *bounce*, *jump*), *waltz* verbs (e.g. *dance*, *jig*), and *push/pull* verbs (e.g. *jerk*, *shove*).

Jackendoff (1990:223-225) discusses this phenomenon, providing the examples in (11) and (12), which display the divergence between the two uses in question clearly.

- (11) Willy wiggled/danced/spun/bounced/jumped for hours, without ever leaving the same spot.
- (12) Willy wiggled/danced/spun/bounced/jumped into Harriet's arms.

As with Levin, Jackendoff observes that these verbs, which need not imply the subject's traversing a path, can appear with a path phrase and argues that expressions like (12) are paraphrased felicitously by (13).

- (13) Willy went/got into Harriet's arms (by) wiggling/dancing/spinning/
bouncing/jumping.

In Jackendoff's analysis, the use in (11) is described as a case of MOVE; and that in (12) is seen as including both a MOVE-function and a GO-function.

The two types of motion are also discussed in Talmy (2003:35-37). In his analysis, a motion event in which an object changes its location is called "translational motion" and a motion event in which an object keeps its basic location as in oscillation and rotation is called "self-contained motion." Talmy provides the sentences in (14a) as expressions of a motion complex consisting of self-contained motion and translational motion and represents this analysis like (14b). As examples encoding pure self-contained motion, he cites the sentences in (14c).

- (14) a. The ball bounced/rolled down the hall.
b. [the ball MOVED down the hall] WITH-THE-MANNER-OF [the ball bounced/rolled]
c. The ball bounced up and down on the same floor tile./The log rolled over and over in the water.

Talmy points out that in reality the separation of a motion complex is not always quite clean, e.g., when the ball rolls down the hall, an event of rotation does not take place in isolation but rather must correlate with the forward translational motion, but we regularly perform this separation in our cognition. Here, it may be helpful to mention Talmy's view on the internal structure of self-contained motion. Talmy (2003:137) states as follows: at a more fine-grained level, self-contained motion can be separated into local translations. For example, in (14a), a bouncing event involves the ball's moving from the floor to some point in midair; and in a rolling event a point on the log traverses an arc-shaped path from one end to the other. Such local translational motion events, however, do not count at a coarser level.

Having introduced some relevant previous studies, we now turn to the verb *wiggle*. What we might call the wiggling frame can be represented as follows.

- (15) The Wiggling Frame
Categories: animate entity, body part
Relation: An animate entity moves its body part repeatedly with small
and quick movements.

The animate entity is expressed as the subject and the body part is optionally designated by the object of the verb. Thus the verb is used either transitively, as in

(5) (repeated here as (16)), or intransitively, as in (17).

- (16) a. Miranda yawned, stretched, and wriggled her bare, brown toes. (= (5a))
 b. I could wriggle my legs but not use them. (= (5b))
- (17) a. Ari cleared her throat and wriggled on the cushions.
 b. She stared at the creature twisting and wriggling in the glass.

Thus the background frame for wriggle-1 is the wriggling frame in (15).

Let us next consider wriggle-2, exemplified by (6) (repeated here as (18)).

- (18) a. The man slipped off the couch, wriggled his feet into his enormous high-heeled shoes and tugged his wig on. (= (6a))
 b. Alternately press and release pressure with palms, gradually wriggling the hands fairly vigorously along the muscles. (= (6b))

These sentences say all that wriggle-1 says plus something more. Our claim is that both wriggle-1 and wriggle-2 are linked to the same wriggling frame, but wriggle-2 inherits some of the syntax and semantics of some other words. That is, wriggle-2 is a case of derivative syntax, introduced by Fillmore and Atkins (1992). Subtracting an event encoded by wriggle-1 from an event encoded by wriggle-2 is considered to leave the sense of “cause to go.” Consistent with this sense, wriggle-2 occurs with a directional phrase. Then our analysis of the relation between wriggle-1 and wriggle-2 can be represented like (19).

- (19) wriggle-1 (e.g. (16)): the wriggling frame
 wriggle-2 (e.g. (18)): the wriggling frame + “cause to go”

Let us briefly mention the use of *wriggle* in (9) (= (20)), which is more common than wriggle-2 in naturally occurring texts, as noted in the introduction.

- (20) a. He clutched the child tightly as she again tried to wriggle free. (= (9a))
 b. Bauman wriggled into the damp coverall. (= (9b))

I take this use to undergo the same analysis as wriggle-2. Like the sentences in (18), those in (20) evoke the wriggling frame and incorporate the sense of “cause to go.” The only difference is that in (18) but not in (20) the body part moved is specified, thus yielding the difference in syntactic configuration: (18) is transitive but (20) is intransitive. This difference in the transitivity should not be taken to reflect the presence or absence of the causative component. In both (18) and (20), the subject controls his body to cause it to go somewhere. They only differ in that the former controls a part of one’s body and the latter controls the whole body. Moreover, control of the whole body can be encoded by transitive *wriggle* with the noun phrase *one’s body* or a reflexive pronoun as its object, as illustrated below.⁴

- (21) a. The animal wriggles its body beneath the surface until only the top of the head is exposed.

- b. Certain snakes and lizards are highly efficient at wriggling themselves down into the sand or gravel in such a way that only the tops of their heads and their eyes remain exposed to view.

It seems reasonable to regard (20) and (21) as instances of wriggle-2. However, since our aim is to uncover the relation between swing-1 and swing-2 by comparing it with the case of *wriggle*, we concentrate on a verb use taking a body-part object like (18).

3. Swing

Next let us consider the verb *swing*. As noted in the introduction, entities undergoing oscillation or one-way motion are not restricted to body parts. We find examples of *swing* taking such entities as a bag or a club as its object in these senses. Examples of an oscillation event are given in (22) and those of a one-way motion event are given in (23).

- (22) a. Kate walked away, swinging her bag.
- b. ... the apes swing pole trees back and forth to gain momentum ...
- (23) a. The golfer must be in a position to swing the club back.
- b. He swung carrier bags of groceries to the ground before slamming shut the boot of his car.

However, body-part objects are much more common. As illustrated in (1) and (2), which are repeated here as (24) and (25), respectively, both swing-1 and swing-2 can take an arm or a leg as its object.

- (24) a. She was wearing blue tights and sandals and had hitched her dress well up in order to swing her legs. (= (1a))
- b. He stopped swinging his arms and stood with hands on hips, looking at her, his head and shoulders heaving. (= (1b))
- (25) a. She swung her legs over the edge of the bed and went over to the window to look down at the courtyard. (= (2a))
- b. She swung her arms above her head and cracked her hand on a low beam. (= (2b))

Other body parts found with these two uses include a foot, a hand, or a head, as illustrated by (26) and (27).

- (26) a. Constance was still gazing at him, swinging her foot gently and clasping her glass with both hands.
- b. ... but soon the smooth rhythm of one woman winding and the other co-operating by swinging her hands in and out as the thread unwound, pleased and comforted her.

- c. He swung his head from side to side, trying to get rid of that image of the girl he had known as Stella Maris holding a baby in her arms.
- (27)
- a. I swung my feet up on the desk and lay back in the chair.
 - b. ... he swung his hand back and hit the pony who lifted suddenly, ...
 - c. Daisy swung her head towards him and caught him full in the chest with her nose.

Though examples like (22) and (23) can be regarded as instances of swing-1 and swing-2 respectively, we concentrate on the uses of *swing* taking a body-part object, since the aim of this paper is to compare *swing* with *wriggle*, which can only take a body part as its object.

Unlike the case of the two uses of *wriggle*, swing-1 and swing-2 can be seen as being interpreted against two different frames. One is what we call the oscillation frame and the other is what we call the one-way motion frame.

- (28) The Oscillation Frame
 Categories: animate entity, body part
 Relation: An animate entity moves its body part repeatedly between one position and another.
- (29) The One-Way Motion Frame
 Categories: animate entity, body part
 Relation: An animate entity moves its body part from one position to another.

Given this, we can characterize the two uses of *swing* like (30).

- (30) swing-1 (e.g. (24) and (26)): the oscillation frame
 swing-2 (e.g. (25) and (27)): the one-way motion frame

The difference between swing-1 and swing-2 is that the former involves repeated movements but the latter involves a single movement. For example, in (24a), an instance of swing-1, her legs are moved repeatedly backwards and forwards. On the other hand, in (25a), an instance of swing-2, her legs are moved from their original position to somewhere over the edge of the bed. Since her legs are not moved back to their original position in the event described by (25a), such a motion event can be seen as a one-way motion event. Thus swing-1 and swing-2 are said to evoke two different frames. This contrasts with the case of *wriggle*, where wriggle-1 and wriggle-2 evoke a common frame and thus repeated, small and quick movements are involved in both wriggle-1 and wriggle-2.

The view that swing-1 and swing-2 are associated with different frames is supported by the fact concerning some metaphorical uses of this verb. As with many other verbs, *swing* can be used to encode relations defined in abstract domains.

When swing-1 is used metaphorically, it is expected to encode an event in which some abstract entity moves back and forth between two places; when swing-2 is used metaphorically, it is expected to encode an event in which some abstract entity changes its location from one place to another. This expectation is borne out, as shown below.

- (31) a. ... he swung between extremes of mood ...
 b. Buffers and balances that in temperate latitudes keep populations steady have less application in polar regions, and swings between success and failure, between underpopulation and overcrowding, tend to be violent.
- (32) a. You may swing from high to low in a moment.
 b. Forecasts about the course of democracy tend to swing from optimism to despair with alarming speed.

The two types of motion in abstract domains, exemplified by (31) and (32), are also recognized in *Dictionary of English Lexical Polysemy* (2007) (=DEL_P), though the explanation in the dictionary is different from the one in the present paper. This paper regards (31) as an extension from swing-1 and (32) as an extension from swing-2; but DEL_P views the two types of abstract change of location as being extended from a single literal sense which seems to correspond to our swing-1. According to DEL_P, the difference in meaning found between *swing* sentences like (31) and those like (32) results from paying attention to different aspects of the same scene. In this connection, it is interesting to consider the following example.

- (33) However, the courts may gradually have fewer and fewer decisions to make on this issue because the pendulum, swinging between control and decontrol since 1915, has swung once again in favour of the landlord.

(33) involves two instances of *swing*. In the present analysis, the first *swing* is seen as a metaphoric version of swing-1 and the second *swing* is seen as that of swing-2. By contrast, DEL_P would take both instances as metaphoric versions of swing-1. Examining which analysis is preferred over the other goes beyond the scope of this paper; suffice it to say that an event involving repeated movements between one position and another is felt to be different from an event involving a single movement from one position to another.

The claim that swing-1 and swing-2 are understood against different frames does not indicate that the two uses are unrelated. Now let us consider how the two background frames, i.e. the oscillation frame and the one-way motion frame, are related to each other. The two uses of *swing* are recognized in DEL_P, which gives a systematic description of the polysemy structure of some basic words. According to DEL_P, the relation between the two senses which seem to correspond to our

swing-1 and swing 2 is the same as the relation between the two senses of *empty* in (34a) and (34b).

- (34) a. Your glass is empty.
b. Life is empty.

Here the emptiness of the physical container is likened to the emptiness of life, an abstract container. With *swing*, *DELP* states that motion from side to side from a fixed point is similar to curving motion.

Some other verbs manifest a similar property, i.e., some verbs can be used to encode either an event involving repeated movements or an event involving a single movement. Let us cite a couple of examples. Firstly, the verb *clap* can be used to describe either a person's hitting his/her hands together iteratively, as in (35a), or a person's putting his/her hand somewhere, as in (35b).

- (35) a. She stood up and clapped her hands loudly until everyone was looking up from their work.
b. I shouted aloud, then, remembering — where I was, clapped my hand over my mouth.

There is a similarity between the way one hits his/her hands together iteratively and the way one puts his/her hand somewhere. In both cases, one moves his/her hand(s) in a quick and firm motion.

Next, let us look at the verb *kick*. As observed in Ruhl (1989), when this verb is used to encode moving one's leg without making contact with something, it can take a body part like a foot, a heel or a leg as its object. *Kick* is compatible with both iterative movements upwards and downwards, as in (36a), and a single movement in some direction, as in (36b).

- (36) a. Her next-door neighbour, Philippa, was sitting on the draining-board kicking her legs up and down.
b. ... she kicked her leg up backwards and touched her heel with her fingers ...

The two uses of *kick* have in common the manner of motion of one's leg, i.e. a kind of motion characteristic of an entity hanging from a fixed point.

Lastly, let us consider the verb *whirl*. Unlike the verbs *clap* and *kick*, instances of *whirl* taking a body-part object strike me as rare. Thus here we cite transitive *whirl* which takes a person as its object and intransitive *whirl* taking a human subject. In both cases, the verb can be used to describe either repeated movements or a single movement. Transitive *whirl* is illustrated in (37) and intransitive *whirl* is illustrated in (38).

- (37) a. Swollen guests thumped around the kitchen table, whirling their partners

faster and more crazily.

- b. As they joined the other dancers, he caught her hand in his and whirled her round into his arms, smiling at the astonishment on her features.
- (38) a. Champagne and laughter ruled the room, while the dancers whirled in glittering joy.
- b. Tabitha whirled back to the monitors.

In these examples, motion in some direction described in (b) is considered to involve part of motion characteristic of repeated rotary motion described in (a).

So far we have illustrated that some verbs employed to describe an event involving repeated motion can also be employed for an event involving single motion. This phenomenon might be likened to an image-schema transformation called “segment profiling,” proposed by Dewell (1994). This transformation allows a path expression to be used to describe a characteristic segment of that path. In his analysis of *over*, Dewell illustrates this transformation with the following examples.

- (39) a. The plane flew over the hill. (Dewell (1994:352))
- b. Sam fell over the cliff. (Dewell (1994:356))

According to Dewell, the use of *over* in (39a) profiles the peak point of an arc, which constitutes a characteristic segment of a curved path, and the use of *over* in (39b) profiles the downward path from the peak to the endpoint. In (39a), the upward path from the starting point and the downward path from the peak are implicit and in (39b) the upward path from some starting point is implicit. He points out that similar transformations are found with other curved-path prepositions, citing as an example the phrase *walk around a house*, which encodes either a complete circular path or a semicircular path. Concerning verbs, Iwata (2002:78-80) analyzes the following uses of the verb *bounce* as involving segment profiling.

- (40) a. The ball bounced.
- b. A ball bounced against the wall.

While we will not pursue the question of whether the link between swing-1 and swing-2, i.e. the relation between the oscillation and one-way motion frames, is identified as an instance of segment profiling, these observations suggest that the two frames are related in such a way that one involves a characteristic portion of the other. Hence we can say that swing-1 and swing-2 are associated with two distinct but related frames.

4. The Directional Phrase

This section is concerned with directional phrases which occur with wriggle-1, wriggle-2, swing-1, and swing-2. A brief survey of naturally occurring instances in the BNC shows that the four uses are found with different sets of directional phrases. With wriggle-1, I find one example taking a directional phrase, exemplified below.

- (41) Dalziel pushed his right index finger through the small hairs which fringed the cavity of his ear, and wriggled it sensuously about.

The sense of the particle *about* is taken to be consistent with the sense of wriggle-1, where the body part undergoes small and quick movements but not a change in its basic location. Other than this I could find no examples of wriggle-1 with a directional phrase.

Next, wriggle-2 occurs with directional phrases headed by prepositions like *along* and *into*, as in (42), and *away from*, as in (43).

- (42) a. Alternately press and release pressure with palms, gradually wriggling the hands fairly vigorously along the muscles. (= (18b))
 b. The man slipped off the couch, wriggled his feet into his enormous high-heeled shoes and tugged his wig on. (= (18a))
- (43) So much so that she remembers trying to wriggle her face away from it without success.

Since wriggle-2 encodes the motion complex consisting of wriggling movements and a location change, wriggle-2, by definition, takes a directional phrase obligatorily. To put it another way, the omission of a directional phrase from an instance of wriggle-2 yields that of wriggle-1.

Let us next consider the case of *swing*. Swing-1 can appear with directional phrases such as *around*, *back and forth*, *backwards and forwards*, *from left to right*, *from side to side*, *in and out*, and *up and down*, as illustrated below.

- (44) a. He swung his legs around so that he was perched on the edge of the bunk.
 b. Jill went and sat on the windowsill, and swung her bare feet back and forth.
 c. And if we don't let go, it will get annoyed, and swing the leg backwards and forwards trying to wrench it from our grasp.
 d. Swinging his arm from left to right, he had scythed through one row of skinny necks after another until every bird was decapitated and motionless.
 e. He swung his head from side to side, trying to get rid of that image of the girl he had known as Stella Maris holding a baby in her arms.

- (= (26c))
- f. ... but soon the smooth rhythm of one woman winding and the other co-operating by swinging her hands in and out as the thread unwound, pleased and comforted her. (= (26b))
- g. Other repetitive abnormal behavior exhibited by deprived horses includes swinging the head and neck up and down, or from side to side, and the extension of this habit into the stable vice of weaving.

These directional phrases share the sense of repeated motion and thus they are compatible with swing-1, which is understood against the oscillation frame.

Lastly, swing-2 occurs with a wider range of directional phrases. It can be found with directional phrases headed by prepositions like *above*, *at*, *off*, *onto*, *out of*, *over*, and *to*, as exemplified below.

- (45) a. She swung her arms above her head and cracked her hand on a low beam. (= (25b))
- b. Marlene watched helplessly as he swung his foot at Keith.
- c. She swung her feet off the bed.
- d. He kicked the sheet off and swung his legs onto the floor.
- e. She swung her legs out of bed and reached for her dressing gown.
- f. She swung her legs over the edge of the bed and went over to the window to look down at the courtyard. (= (25a))
- g. I sit up in bed and swing my legs to the floor.

In addition, it is also compatible with particles like *back*, *down*, *out* and *up*, as shown below.

- (46) a. ... he swung his hand back and hit the pony who lifted suddenly, ... (= (27b))
- b. Slowly, he swung his feet down to the floor and sat up, ...
- c. Swinging long jeans-clad legs out, she got to her feet and slammed the car door.
- d. I swung my feet up on the desk and lay back in the chair. (= (27a))

The directional phrases found with swing-2 are those that are used in describing common translational motion events.

Note in passing that *swing* can also be found with *round*, encoding rotation, as exemplified below.

- (47) Do your shoulders creak if you swing your arms round in circles?

As we have seen in the introduction, *CCALED*, *LDCE*, *MEDALAE*, and *OALD* cite the sense of repeated motion from one position to another, as in (3), and the sense of directed curving motion, as in (4). The rotation scene denoted by (47) does not

seem to instantiate either of them. Since the sentence in (47) is neither a case of swing-1 or swing-2, the sentence does not evoke either the oscillation or one-way motion frame. Then this use is taken to evoke another frame, which might be called the rotation frame. To consider how this rotation sense is related to the other uses of *swing*, it is useful to recall the discussion concerning segment profiling in section 3. According to Dewell (1994), this transformation allows a path expression like *around* and *over* to be employed to denote a characteristic segment of the whole path. As with *around* and *over*, the rotation use of *swing* in (47) and the oscillation use of *swing*, i.e. swing-2, can be regarded as linked via segment profiling.

So far we have observed that each of these uses appears with a different set of directional phrases. In what follows, we examine whether the directional phrase with each use is obligatory or not. Before we proceed, let us review some observations concerning the omissibility of the directional phrase in bodily motion expressions. Nemoto (2007) observes that verbs like *slap* and *push* can encode “X CAUSE [X’s body part GO Path]” in the syntactic frame “NP V NP XP” and that these verbs take a path phrase obligatorily in the bodily motion sense, as shown in (48)-(51).

- (48) a. He slapped his hand on the table.
 b. # He slapped his hand. (≠ (48a))
- (49) a. John wiped his hand across his mouth.
 b. # John wiped his hand. (≠ (49a))
- (50) a. John pushed his hands into his pockets.
 b. # John pushed his hands. (≠ (50a))
- (51) a. John threw his arms around her neck.
 b. # John threw his arms. (≠ (51a))

If we omit the directional phrase from the bodily motion expressions, (a), the resulting simple transitive sentences, (b), no longer encode moving the body part expressed as object in some direction. In the (b) sentences, the body-part object is construed as the target of the act encoded by each verb rather than the entity moved in some direction.

This contrasts with the case of *wiggle*. Jackendoff (1990) observes that the verb *wiggle* can be used to encode motion which involves no paths, as in (52a), and it can also be used to encode traversal of a path, as in (52b).

- (52) a. Willy wiggled. (Jackendoff (1990:88))
 b. Willy wiggled out of the hole. (Jackendoff (1990:89))

He characterizes (52a) as instances of a MOVE-function and (52b) as including both

a MOVE-function and a GO-function.

When used transitively *wiggle* occurs with body parts like fingers, hips, and toes, as exemplified below.

- (53) a. He managed to free himself only when an ambulance team talked him into trying to wiggle his fingers.
 b. Too many normal clubs are full of preoccupied people who spend the night wiggling their hips on the edge of the dancefloor, ...
 c. Blanche frantically wiggled her toes inside her shoes again to try to warm them.

Transitive *wiggle* can also appear with a directional phrase, as shown in (54).

- (54) ... she wiggled her feet down more firmly into her shoes ...

The uses of *wiggle* in (53) and (54), let us call them wiggle-1 and wiggle-2 respectively, can be likened to wriggle-1 and wriggle-2. Wiggle-1 is understood against something like the wriggling frame; and wiggle-2 is understood as involving the event encoded by wiggle-1 and the sense of “cause to go.” Given this parallelism, wiggle-1 is expected to allow directional phrases denoting small and quick movements. In fact, I can find two examples of transitive *wiggle* taking such a phrase not in the BNC but in *The Kenkyusha Dictionary of English Collocations* (1995), as shown below.

- (55) a. wiggle one’s toe up and down
 b. The rabbit wiggled its long ears back and forth.

Like *about* in the *wriggle* sentence in (41), *up and down* and *back and forth* are compatible with events in which a body part undergoes small and quick movements without changing its basic location. In terms of the MOVE/GO distinction, wiggle-1 and wriggle-1 are cases of MOVE and wiggle-2 and wriggle-2 are cases involving both MOVE and GO. It follows from the above consideration that it oversimplifies matters to state that a case of MOVE does not take a directional phrase but a case involving GO does. Rather, the two types of events are associated with different types of directional phrases.

Now we proceed to the case of *wriggle* and *swing*. As we have observed above, wriggle-1 rarely takes a directional phrase. Most examples do not involve a directional phrase, as in (16). Thus the directional phrase with wriggle-1 can be said to be optional. By contrast, as we have mentioned above, the directional phrase with wriggle-2 is, by definition, obligatory. The fact that wriggle-1 can occur with or without a directional phrase but wriggle-2 must occur with a directional phrase can be taken to indicate that directional phrases used to encode small and quick movements like *about*, *back and forth*, and *up and down* can be

omitted but directional phrases used to encode a change of an entity's basic location like *away from*, *into*, and *out of* cannot be omitted.

Next let us consider the case of *swing*. Swing-1 can occur without a directional phrase, as in (56), or it can take a directional phrase, as in (57).

- (56) a. She was wearing blue tights and sandals and had hitched her dress well up in order to swing her legs. (= (24a))
 b. He stopped swinging his arms and stood with hands on hips, looking at her, his head and shoulders heaving. (= (24b))
- (57) a. Jill went and sat on the windowsill, and swung her bare feet back and forth. (= (44b))
 b. He swung his head from side to side, trying to get rid of that image of the girl he had known as Stella Maris holding a baby in her arms. (= (44e))

Thus directional phrases used to encode oscillation like *back and forth* and *from side to side* can be omitted.

Swing-2 tends to occur with a directional phrase. As we have observed above, swing-2 occurs with a wider range of directional phrases which can also be used to describe common translational motion events, including the particle *back* and prepositional phrases headed by *out of* and *over*, as illustrated below.

- (58) a. ... he swung his hand back and hit the pony who lifted suddenly, ... (= (46a))
 b. She swung her legs out of bed and reached for her dressing gown. (= (45e))
 c. She swung her legs over the edge of the bed and went over to the window to look down at the courtyard. (= (45f))

In most cases, if we omit a directional phrase from a sentence with swing-2, the resulting simple transitive *swing* sentence may be taken to be an instance of swing-1. To this extent, the directional phrase can be said to be obligatory with swing-2. However, when *swing* takes a physical object like a club or a racket, it seems to encode a one-way motion event without a directional phrase, as illustrated below. (Sentence (iic) in note 1 is repeated here as (59b).)

- (59) a. I swung the club and missed it.
 b. She swung her tennis racket (=moved it smoothly through the air) to hit the ball.

While we leave open the question of whether *swing* taking a body-part object can encode a one-way motion event without a directional phrase, we can say that directional phrases used to encode oscillation like *back and forth* and *from side to*

side can be omitted but directional phrases used to encode a one-way motion event, like *back*, *out of*, and *over* cannot generally be omitted.

5. Conclusion

Concerning the omissibility of the directional phrase in bodily motion expressions with *swing* and *wriggle*, this paper has made the following observations: with *wriggle*, the use encoding repeated movements (i.e. wriggle-1) can omit the directional phrase but the use encoding the repeated movements plus a change of location (i.e. wriggle-2) cannot; with *swing*, the use encoding oscillation (i.e. swing-1) can appear with or without a directional phrase but the use encoding one-way motion (i.e. swing-2) usually must appear with a directional phrase. Why is the directional phrase optional in expressions encoding repeated movements and oscillation but obligatory in expressions encoding repeated movements plus a change of location and one-way motion?

To answer this question, the present study suggests that a motion event involving body parts can be divided into two types: one is the event in which a body part undergoes repeated local movements; the other is the event in which a body part undergoes a change in its basic location. To borrow Talmy's (2003) terms, the former is "self-contained motion" of a body part and the latter is "translational motion" of a body part. Given this distinction, repeated movements encoded by wriggle-1 and oscillation encoded by swing-1 are taken to fall under the former type; and repeated movements plus a change of location encoded by wriggle-2 and one-way motion encoded by swing-2 are taken to fall under the latter type. Recall Talmy's statement that self-contained motion consists of local translations which cancel each other out at a coarser level. Taking this into account, it is possible to answer the above question. In translational motion of a body part, the direction of motion counts within the usual broad scope, thus the directional phrase is usually necessary. By contrast, in self-contained motion of a body part, the direction of motion does not count within the usual broad scope, thus the directional phrase need not be involved.

NOTES

* This work is financially supported by Grant-in-Aid for Young Scientists (B), No. 18720128, from the Ministry of Education, Culture, Sports, Science and Technology.

¹ Unless otherwise indicated, the examples in this article are taken from the British National Corpus (=BNC) (provided by Shogakukan Corpus Network (<http://scn02.corpora.jp/~sakura04/cgi-bin/login1.cgi>)).

² *Cambridge International Dictionary of English* (1995) (=CIDE) does not seem to distinguish the two types of motion. The following quote from the dictionary suggests that the two types of motion in question are grouped together and subsumed under (i), which is exemplified by (ii).

- (i) to (cause to) move, esp. smoothly backwards and forwards or from one side to the other and esp. from a fixed point.
- (ii) a. The door swung open.
- b. The truck driver swung himself (=moved himself through the air while holding on to a fixed point) up into the driver's seat.
- c. She swung her tennis racket (=moved it smoothly through the air) to hit the ball.

³ While these four dictionaries include examples like both (5) and (9), *LDC'E*'s classification differs from the other dictionaries. *CCALD*, *CIDE*, and *OALD* distinguish movements of either one's body or a part of one's body without a change of location from a change of location of one's body. In contrast, *LDC'E* distinguishes movements of one's body with or without a change of location from movements of a part of one's body.

⁴ In this connection, Rappaport Hovav (2008) observes that verbs like *wiggle* and *pull* occur with or without the reflexive in the presence of the result phrase *free*, as exemplified by (i).

- (i) He wiggled/jerked/pulled/yanked/wriggled (himself) free.

Rappaport Hovav explains that the reflexive is present when a durative event of wiggling or pulling leads to a punctual becoming free and the reflexive is absent when the wiggling or pulling event takes place in tandem with the becoming free.

REFERENCES

- Dewell, Robert (1994) "Over Again: Image-Schema Transformations in Semantic Analysis," *Cognitive Linguistics* 5, 351-380.
- Fillmore, Charles J. (1982) "Frame Semantics," *Linguistics in the Morning Calm*, ed. by the Linguistic Society of Korea, 111-137, Hanshin, Seoul.
- Fillmore, Charles J. and Beryl T. Atkins (1992) "Toward a Frame-Based Lexicon: The Semantics of RISK and Its Neighbors," *Frames, Fields, and Contrasts: New Essays in Lexical Organization*, ed. by Adrienne Lehrer and Eva F. Kittay, 75-102, Lawrence Erlbaum Associates, Hillsdale NJ.
- Fillmore, Charles J. and Beryl T. Atkins (1994) "Starting where the Dictionaries Stop: The Challenge of Corpus Lexicography," *Computational Approaches to the Lexicon*, ed. by Beryl T. Atkins and Antonio Zampolli, 349-393, Oxford University Press, Oxford.
- Iwata, Seizi (2002) "Does MANNER Count or Not?: Manner-of-Motion Verbs Revisited," *Linguistics* 40, 61-110.
- Jackendoff, Ray (1990) *Semantic Structures*, MIT Press, Cambridge, MA.

- Levin, Beth (1993) *English Verb Classes and Alternations: A Preliminary Investigation*, University of Chicago Press, Chicago.
- Nemoto, Noriko (2007) "A Constructional Analysis of Bodily Motion Expressions," *English Linguistics* 24, 389-420.
- Rappaport Hovav, Malka (2008) "Lexicalized Meaning and the Internal Temporal Structure of Events," *Theoretical and Crosslinguistic Approaches to the Semantics of Aspect*, ed. by Susan Rothstein, 13-42, John Benjamins, Amsterdam.
- Ruhl, Charles (1989) *On Monosemy: A Study in Linguistic Semantics*, State University of New York Press, Albany.
- Talmy, Leonard (2003) *Toward a Cognitive Semantics*, vol. 2, *Typology and Process in Concept Structuring*, MIT Press, Cambridge, MA.

Faculty of Human Development and Culture
Fukushima University
e-mail: nemoto@educ.fukushima-u.ac.jp