



A Quantitative Constructional Approach to Converbal Motion Constructions in English

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**A QUANTITATIVE CONSTRUCTIONAL APPROACH
TO CONVERBAL MOTION CONSTRUCTIONS
IN ENGLISH**

(英語における副動詞移動構文に対する数量的構文文法からのアプローチ)

by

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Chapter 1

Introduction

1.1 Outline of Study

This thesis discusses what I call 'Converbal Motion Constructions' in English from the theoretical approach of Construction Grammar (Goldberg 1995; 2006, Boas 2003, Stefanowitsch and Gries 2003, Iwata 2008, among others). Examples of these constructions are given in (1).

(1) a. She **went flying** up the garden! (BNC-KCX)

b. It **came crashing** through the window. (BNC-G07)

(The Converbal Intransitive Motion Construction)

(2) a. I hope to **go shopping** tomorrow. (BNC-HH8)

b. Every day they **came looking for** me. (BNC-EVS)

(The Converbal Purposive Motion Construction)

(3) a. He **sent** the clerk **hurrying** into the back room. (BNC-CDN)

b. My boyfriend Fisher Stevens will have to **drag** me **kicking and screaming**
out of the house. (BNC-CH5)

(The Converbal Caused-Motion Construction)

The examples in (1)-(3) are drawn from the *British National Corpus* (hereafter, the *BNC*).^{1 2} Each sentence in (1) and (2) involves an intransitive motion verb and an *-ing* form verb, whereas examples in (3) involve a caused motion verb and an *-ing* form verb, with a noun phrase intervening between them. The Converbal Intransitive Motion Construction is discussed by Goldberg (2006). The Converbal Purposive Motion Construction has been analyzed by Visser (1973), Silva (1975), Bolinger (1983), Wierzbicka (1988), Dixon (2005), Schlüter (2005), Swan (2005), and Salkie (2010). The Converbal Caused-Motion Construction has been paid little attention and treated only by Goldberg (2006: 51).³

A 'converb' is defined by Haspelmath (1995: 3) as a non-finite form verb functioning subordinately. Since each *-ing* form verb in (1)-(3) is a converb by this definition, I regard these constructions as Converbal Motion Constructions.

Converbal Constructions, distributed in European and Altaic languages, have been discussed mainly in the field of typology and they have been compared with Serial Verb Constructions. For these reasons, the notion of 'converb' is not well known among theoretical linguists except for typologists even though Converbal Constructions are found in familiar languages. In this thesis, I focus on constructions denoting motion events among various Converbal Constructions in English. There are many previous studies on constructions associated with motion events and motion verbs (Talmy 1985; 1991; 2000a; 2000b, Levin 1993, Goldberg 1995; 2006, among others), and it is possible

¹The letters in parentheses indicate a sub-corpus from which a sentence is drawn.

²The *BNC* is a balanced, 100 million word collection of samples of spoken and written language from a variety of sources. It is designed to represent current British English.

³Goldberg (2006: 50-52) calls the construction in (1) and (3) 'English Serial Verb Construction' but I do not use this term because Serial Verb Constructions usually refer to constructions found in East Asian languages, West African languages, and so on.

to compare the Converbal Motion Constructions with what has been done in the literature.

1.2 General Claims

The sentences in (1)-(3) look like instances of bi-clausal constructions, such as the Free Participial Construction and the Absolute Participial Construction, in that an inflecting verb co-occurs with an *-ing* form verb. The Free Participial Construction is a bi-clausal construction that involves an implicit subject (i.e., PRO) in its subordinate participial clause. The Absolute Participial Construction is a bi-clausal construction that involves an overt subject in its subordinate participial clause. Examples of the two constructions are given (4).

(4) a. **Inflating** her lungs, Mary **screamed**. (The Free Participial Construction)

b. The coach **being crowded**, Fred **had to stand**.

(The Absolute Participial Construction)

(Kortmann 1991: 5)

However, I will argue that all of the examples in (1)-(3) are different from those of participial constructions in that they are mono-clausal. I will present evidence to demonstrate that these constructions are not bi-clausal in the following chapters. In addition, I will suggest the two verbs in both the Converbal Intransitive Motion Construction and the Converbal Caused-Motion Construction above constitute a single complex predicate. If an inflecting verb and an *-ing* form verb function as a single predicate, each construction turns out to represent a single event.

I claim that form and meaning are closely paired with each other, and meanings of constructions reflect how tightly grammatical elements are combined. That is, there must be characteristic interactions between a main verb and an *-ing* form verb in each construction since the constructions are mono-clausal and the two verbs in each construction are closely related to each other. In order to demonstrate such relationships, about 5,000 examples, drawn from the *BNC*, are statistically analyzed. By using corpus data, I will show the prototypical meaning/function of each construction.

1.3 Theoretical Stances

In this thesis, I adopt the basic assumptions of Construction Grammar.⁴ This theory regards constructions to be the basic units, and such basic units are pairings of form and meaning. Constructions include small units like affixes (e.g., *-ed* / 'past') as well as larger grammatical constructions (e.g., the Ditransitive Construction: Subj V Obj₁ Obj₂ / 'X CAUSE Y to RECEIVE Z'). However, I focus only on grammatical constructions.

I adopt mainly Goldberg's (1995; 2006) Construction Grammar in which verbs are basically monosemous. Her approach is contrasted with the projectionists' approach (e.g., Levin and Rappaport Hovav 1995) in terms of the semantics of verbs. Unlike Goldberg, they regard verbs to be polysemous. Moreover, Goldberg's Construction Grammar can be contrasted with Jackendoff's (1990) approach. Although Jackendoff recognizes constructions as basic units in a language system, he considers verbs to be polysemous. I will clarify the differences between Goldberg's Construction Grammar and other approaches (e.g., Levin and Rappaport Hovav 1995, Jackendoff 1990).

⁴Construction Grammar, spelled with initial capital letters, is used as an inclusive term. When I refer to a particular Construction Grammar, I use other terms such as Goldberg's Construction Grammar and a Unification-based Construction Grammar.

Construction Grammars vary from one scholar to another. For example, Boas (2003) recognizes verbal polysemy in a positive manner, and his Construction Grammar is sharply different from Goldberg's approach in terms of the semantics of verbs. Thus, I will discuss other constructional approaches by Boas (2003) and Iwata (2008) by contrasting them with Goldberg's Construction Grammar.

1.4 Methodology

As the title of this thesis shows, I utilize the frequencies in my corpus data to illustrate prototypical meanings of constructions. Corpus-based or corpus-driven approaches to Cognitive Linguistics have been gaining force since the start of the twenty-first century.⁵ Langacker (1990) proposed the Usage-based Model and this model has been verified by corpus-oriented studies.

Corpus-based studies tend to disregard the grammatical structures and meanings. For example, the two expressions, *John fell down the stairs* and *John fell in love*, may be regarded as the same type of expression in that *fell* is followed by a prepositional phrase in both expressions. In the field of theoretical linguistics, especially Cognitive Linguistics, the latter is said to be different from the former. The latter expresses the change of state of the subject referent while the former does not. However, a KWIC concordance display cannot distinguish the latter from the former.

In response to this shortcoming in corpus linguistics, I employ Collostructional Analysis (Stefanowitsch and Gries 2003), which assumes constructions as basic grammatical units and investigates which words or phrases are attracted or repelled by a construction. However, except for the ICE-GB corpus, there are few corpora fully an-

⁵The difference between corpus-based and corpus-driven approaches is noted in Chapter 2.

alyzed grammatically. Collostructional Analysis needs all examples of a construction appearing in a corpus. Thus, we need to sort out useful sentences from unnecessary ones by examining them one by one. It takes much time to sort them out. However, this process is essential in uncovering the nature of each construction. Collostructional Analysis is based on a statistical analysis (i.e., Fisher exact test), so that frequency data is statistically analyzed to present more creditable evidence in the later chapters.

The (statistically analyzed) frequency information is important to show the prototypical meaning/function of a construction. We can describe how one construction differs functionally from another, only by utilizing such statistic data. Frequency data seems to be just numerical information, not associated with meaning/function, but it provides useful clues as to constructional 'niche' (see also Taylor 2004: 58).

1.5 Brief Summary of Chapters

The organization of this thesis is as follows. Chapter 2 describes the theoretical frameworks of Construction Grammars and the corpus-based approaches. Many constructionists propose their own theories but there are commonalities among them. Their similarities and differences should be clarified. I will also introduce the Usage-based Model, which has been verified by corpus-oriented studies. Chapter 3 will mainly focus on Converbial Constructions in various languages. These constructions have not been given much attention so far, but an investigation into these constructions would contribute to the theoretical development of Construction Grammar. These constructions involve two kinds of closely related verbs. The tightness of linkage between two verbs varies from one construction to another. Chapter 4 will give many instances of the Converbial Intransitive Motion Construction, drawn from the *BNC*. I will discuss

syntactic and semantic properties of the construction, considering a large amount of corpus data. Since this construction resembles the Intransitive Motion Construction as indicated by its name, I will compare the two constructions and consider why more than one similar construction exists in English. Chapter 5 will examine the Converbial Purposive Motion Construction. This construction is similar to the construction dealt with in Chapter 4 but different in several points. The Converbial Purposive Motion Construction is a good construction for discussing an important issue among not only constructionists but also projectionists, who assume syntactic configurations are determined by verbal meanings. The argument structure of this construction lacks a *PATH* argument even though a deictic motion verb is involved. Chapter 6 will discuss the Converbial Caused-Motion Construction and compare this construction with the Caused-Motion Construction. The Converbial Caused-Motion Construction is similar to the Converbial Intransitive Motion Construction in that an *-ing* form verb expresses manner of motion or accompanying action of a subject/object referent. Chapter 7 will discuss all constructions examined from Chapter 4 to Chapter 6 from a theoretical perspective. The iconic characteristics of the three constructions will be discussed. In addition, I will discuss the contributions frequency information provides. Chapter 8 will provide conclusions, reviewing previous chapters.

Chapter 2

Theoretical Backgrounds

2.1 Introduction

As I stated in Chapter 1, a brief introduction to the theoretical frameworks for dealing with English Converbial Motion Constructions in this thesis will be given in this chapter. The main theory introduced here is Construction Grammar (e.g., Fillmore *et al.* 1988, Kay and Fillmore 1999, Goldberg 1995; 2006, Croft 2001, Boas 2003, Stefanowitsch and Gries 2003, among others).¹ Although there are, of course, several commonalities among them, Construction Grammars vary from one scholar to another (see also Croft and Cruse 2004). Among Construction Grammars, I support mainly Goldberg's (1995; 2006) Construction Grammar. Her Construction Grammar is different from that proposed by Boas (2003) since Goldberg considers verbal information should be minimal but Boas does not.

In addition to Construction Grammar, other approaches by Levin (1985), Levin and Rappaport Hovav (1995), Rappaport Hovav and Levin (1998) and Jackendoff (1990)

¹In this thesis, I will not discuss Embodied Construction Grammar (Bergen and Chang 2005) and Fluid Construction Grammar (Steel 2011) since they are beyond the scope of the present study.

will be compared with Goldberg's Construction Grammar in detail in the following sections. The approaches by Levin (1985) and Levin and Rappaport Hovav (1995) are sharply different from Goldberg's (1995) Construction Grammar with respect to the verbal meaning. In other words, projectionists such as Levin and Rappaport Hovav recognize verbal polysemy in a positive manner and they assume that verbal meanings determine syntactic configurations. On the other hand, Goldberg considers verbal meanings to be minimal and assumes that not only verbs but also constructions can determine argument structures. The approach by Jackendoff (1990; 1997) is also contrasted with Goldberg's Construction Grammar. Jackendoff considers verbs to be polysemous as Levin and Rappaport Hovav do. However, unlike Levin and Rappaport Hovav, he recognizes constructions as basic grammatical units, and his approach resembles Goldberg's one in this point.

In addition to Goldberg's approach, I adopt usage-based models (Langacker 1990; 2000) in this thesis, and I will overview the usage-based Construction Grammar (Croft 2001, Boas 2003, Iwata 2008). Boas (2003) recognizes verbal polysemy in a positive manner, and his approach to meanings of verbs is different from Goldberg's (1995; 2006) Construction Grammar. However, his usage-based view is partly useful in my analysis of Converbal Motion Constructions in later chapters.

The organization of this chapter is as follows. In 2.2, I will introduce Goldberg's Construction Grammar, and contrast her approach with the Construction Grammar proposed by Boas (2003) and a Unification-based Construction Grammar (e.g., Kay and Fillmore 1999). Unlike Goldberg's Construction Grammar, there is much information in the background in a Unification-based Construction Grammar. In 2.3, I will review literature associated with compositional semantics (e.g., Levin 1985, Jackendoff 1990,

Rappaport Hovav and Levin 1998), compared with Goldberg's Construction Grammar.

In 2.4, usage-based models, especially corpus-based approaches to constructions, will be considered.

2.2 Construction Grammar

This section introduces three kinds of Construction Grammars. First, I will outline Goldberg's Construction Grammar (Goldberg 1995; 2006). Second I will overview another kind of Construction Grammar proposed by Boas (2003), and contrast his approach with Goldberg's Construction Grammar. Third, I will compare a Unification-based Construction Grammar (e.g., Kay and Fillmore 1999) to Goldberg's approach.

2.2.1 Goldberg's Construction Grammar

Goldberg uses decompositional approaches to represent the semantics of constructions and the meanings are paired with abstract forms, as illustrated in (5)-(7).²

- (5) a. X CAUSES Y to RECEIVE Z
b. Subj V Obj Obj₂
c. Pat faxed Bill the letter. (The Ditransitive Construction)
- (6) a. X CAUSES Y to MOVE Z
b. Subj V Obj Obl
c. Pat sneezed the napkin off the table. (The Caused-Motion Construction)
- (7) a. X MOVES Y

²Goldberg inflects some functions, such as CAUSES. However, conceptual functions are not English words or lexemes such as *cause* and *move* but concepts to represent meanings of words, phrases, sentences, and so on. Thus, conceptual functions should not be inflected.

b. Subj V Obl

c. The fly buzzed into the room. (The Intransitive Motion Construction)

(Goldberg 1995: 3)

Although argument structure had been regarded to be one of the formal properties of a verb only (e.g., Grimshaw 1990), Goldberg (1995) applied the notion of argument structure to constructions as well. In other words, not only verbs but also constructions have argument structures.

She generally does not appeal to verbal polysemy and suggests that constructions determine how many and what kinds of arguments are realized. In order to account for this mechanism, she introduces two kinds of arguments: participant roles and argument roles. Participant roles are arguments provided by verbs and they are distinguished from the roles associated with constructions, which are called argument roles. Participant roles are unique to verbs and these roles are associated with frame-specific ones (e.g., sneezer), whereas argument roles are very general ones (e.g., AGENT). The verb *sneeze*, for example, usually takes only an argument AGENT, as in (8a), and cannot be used as a transitive: *sneeze* cannot be followed only by an NP as shown in (8b). However it can occur in the Caused-Motion Construction, in which *sneeze* is followed by an NP and a PP as in (8c).

(8) a. She sneezed.

b. *She sneezed the tissue.

c. She sneezed the tissue off the table.

She proposes the THEME argument, *the tissue*, is not an argument of *sneeze* because (8b) is not acceptable. It is not only verbs but also constructions that determine how

many arguments are required. Thus, it is valid that the *THEME* argument in (8b) is not an argument of the verb but that of the construction. This process in which the participant role of *sneeze* fuses with the argument roles of the Caused-Motion Construction is illustrated, as shown in Figure 2.1.

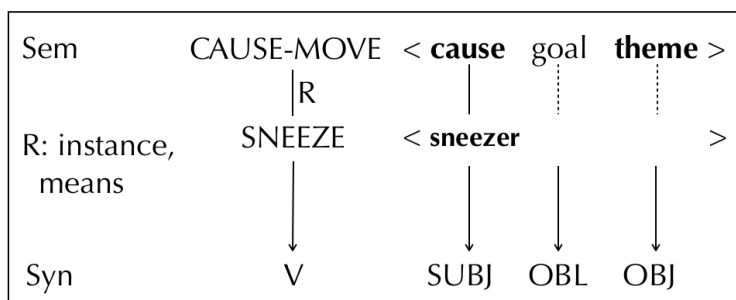


Figure 2.1: The Caused-Motion Construction + *sneeze*

(Goldberg 1995: 52)

In the case of the Caused-Motion Construction, there are three kinds of argument roles, **cause**, goal and **theme**.³ The **cause** role of the Caused-Motion Construction can fuse with the **sneezer** role because the **sneezer** role can be construed as an instance of the **cause** role (Goldberg 1995: 50).

Whether or not a participant role is profiled is lexically determined. She exemplified the difference of meaning between *rob* and *steal* by the examples in (9) and (10).

(9) Jesse robbed the rich (of all their money).

(10) Jesse stole money (from the rich).

(Goldberg 1995: 45)

In the case of *rob*, the participant roles, **thief** (i.e., Jesse) and **target** (i.e., the rich), are profiled. The other participant role, goods (i.e., all their money), is not profiled and can be deleted, as shown in (9). On the other hand, in the case of *steal*, **thief** (i.e., Jesse) and

³The roles represented in boldface are profiled roles.

goods (i.e., *money*) are profiled and target (i.e., *the rich*) is not. Thus, the non-profiled participant role, target, can be omitted, as shown in (10).

Goldberg argues for the principles determining the relation between participant roles and argument roles. When a verb combines with a construction, the participant roles of the verb are fused with the argument roles of the construction. Which participant roles are fused with which argument roles is determined by two principles. One is 'the semantic coherence principle' and the other is 'the correspondence principle.' The former principle says that when a participant role is an instance of an argument role, it can fuse with the argument role. The latter principle says profiled participant roles obligatorily fuse with the profiled argument roles of a construction. That is, in the case of Figure 2.1, the profiled participant role, **sneezer**, obligatorily fuses with the profiled argument role, **cause**, of the Caused-Motion Construction. The participant role, **sneezer**, is regarded as an instance of the argument role, **cause**, and both **sneezer** and **cause** are profiled. Since the verb *sneeze* does not have the other two participant roles, the construction provides the goal and **theme** arguments. Argument roles that are not obligatorily fused with the participant roles of a verb are indicated by dashed lines. In the case of the Caused-Motion Construction, the goal and **theme** arguments are indicated by dashed lines. Each construction specifies which argument roles obligatorily fuse with which participant roles by solid lines.

In Converbial Motion Constructions involving two verbs, one is a main verb and the other is a converb (i.e., an *-ing* form verb). We cannot predict which verbs can be licensed without schematic constructions, and I will show the necessity of argument structure constructions in later chapters.

That is a thumbnail sketch of Goldberg's Construction Grammar. The problems in her theory are discussed by Boas (2003, 2008), and I will discuss the problem in the next subsection.

2.2.2 Construction Grammar proposed by Boas (2003)

Boas (2003, 2008) proposes another kind of Construction Grammar. Goldberg (1995) assumes that the information of verbs is minimal and the syntactic information can be added by constructions, whereas Boas argues for a fine-grained analysis of the meaning of verbs, including not only semantic but also syntactic properties.

According to Boas (2003: 105), it is necessary to maximize the properties of lexical items to explain why some verbs (e.g., *talk*) can be found in the Resultative Construction but others (e.g., *whisper*, *grumble* and *grouch*) cannot. That is, we cannot predict the distribution of verbs in (11a)-(11e).

- (11) a. He **talked** himself blue in the face.
b. *He **spoke** himself blue in the face.
c. *He **whispered** himself blue in the face.
d. *He **grumbled** himself blue in the face.
e. *He **grouched** himself blue in the face. (Boas 2003: 105)

Although *talk*, *speak*, *whisper*, *grumble* and *grouch* are verbs belonging to the same verb class, except for *talk*, none of them are used in the Resultative Construction.

Furthermore, Goldberg cannot explain why some verbs belonging to the same semantic class (i.e., verbs of ingestion) can take postverbal complements and others cannot, as shown in (12)-(14).

- (12) a. Stefan **ate** his food up.
 b. Stefan **ate** his plate clean. (Boas 2003: 113)
- (13) a. Stefan **chewed** his food up.
 b. *Stefan **chewed** his plate clean. (Boas 2003: 114)
- (14) a. *Stefan **devoured** his food up.
 b. *Stefan **devoured** his plate clean. (Boas 2003: 114)

In this thesis, we explore how such abstract constructions are set up in Chapter 4 and 6. In order to get argument structure constructions, first, we build verb-specific or verb-class specific constructions from concrete examples. Then, argument structure constructions are formed through them. A usage-based model (Langacker 1990; 2000) should be adopted to examine this process in which argument structure constructions are formed. Croft (2001) as well as Boas (2003) take a usage-based view of language, and they assume argument structure constructions are formed by abstracting each language use. I agree with the discussion by Boas (2003) above, but cannot agree with the proposal by him below.

Boas (2003) argues for the existence of mini-constructions. Mini-constructions include very specific meaning and information. For instance, the verb *talk* has a single argument in a basic usage but it takes optionally a reflexive object (i.e., 'fake object,' as shown in (11a)) and the result phrase (e.g., *blue in the face*) describing the object referent. All the idiosyncratic information is included in the meaning of the verb *talk* in the resultative use. Of course, Boas claims this meaning is different from another meaning of *talk* in another use. That is, Boas (2003, 2008) argues for multiple meanings of verbs and suggests all information of a verb in all usage should be listed in the lexical entry.

It should be noted that maximized lexical entries of verbs suggested by Boas (2003) can be contrasted with the projectionist approaches discussed in 2.3. Boas assumes *hit* has at least two meanings: one is the sport sense in (15a) and (15b) and the other is the physical impact sense in (16a).

- (15) a. Joe hit the ball.
b. Joe hit the ball across the field.
- (16) a. Joe hit the table.
b. *Joe hit the table across the field.

Levin (1985) and Levin and Rappaport Hovav (1995) also assume the difference of the meanings of verbs is reflected in argument realization (see also Nemoto 1998; 2005). Then, does Boas (2003) agree with the projectionist approaches? The answer to this question is 'no' because Boas does not posit semantic shift of a verb in terms of lexical rules. The meanings of verbs are changed due to the kinds of evoked frames.

2.2.3 A Unification-based Construction Grammar

As to valence, the information of predicates should be minimal in a Unification-based Construction Grammar suggested by Fillmore and Kay (in prep.), Kay and Fillmore (1999), and Fried and Östman (2004). This approach to verbal meanings is similar to that of Goldberg. However, there is much information in the background, and the valence of a verb may be added when the verb is fused with a linking construction such as the Affected Object Construction in a Unification-based Construction Grammar. For example, six Frame Elements are assumed for *walk*: Walker, Distance, Ground, Point of departure, Destination and Companion. The sixth Frame Element, Companion, can be licensed when *walk* is used in the Affected Object Construction given below.

(17) She'll walk **you** across the street.

(Fried and Östman 2004: 50)

One of the background elements (i.e., *you*, a Frame Element of Companion) is realized as an object as shown in (17). Since Goldberg assumes that arguments are added by constructions, she considers the number of valence of a verb to be minimal. She does not assume any frame element. In both Goldberg's Construction Grammar and a Unification-based Construction Grammar, verbal meanings are considered to be minimal (cf. Boas 2003).

2.3 Decompositional Semantic Approaches

Jackendoff (1990; 1997), Levin and Rappaport Hovav (1995), and Rappaport Hovav and Levin (1998) assume that verbal meanings determine syntactic configurations and adopt decompositional semantic approaches.⁴ Thus, their approaches are different from Goldberg's Construction Grammar.

While Jackendoff (1990; 1997) recognizes constructions, larger than words, as basic units composing grammatical systems and also as part of the lexicon, Levin and Rappaport Hovav (1995) reject constructions. They attempt to account for the syntactic behavior of verbs from their meanings.

However, Rappaport Hovav and Levin (1998) recognize Event Templates, similar to constructions, but they consider verbs to be polysemous. That is, some researchers recognize the importance of constructions in language systems while others do not.

⁴As is well known decompositional approaches have their roots in generative semantics (e.g., Lakoff 1971, cf. Katz and Fodor 1963), but I do not introduce generative semantics here.

2.3.1 Semantic Shifts through Lexical Rules

Levin (1985) attempted to describe properties shared among lexical items of the same class by examining a particular verb *slide*. In particular, she claimed that arguments of semantically similar verbs syntactically realize in the same way. To cite a case, *slide* can be used both transitively and intransitively, as shown in (18).

- (18) a. Sarah slid the cup across the table from her place to Laura's place.
b. The cup slid across the table from her place to Laura's place.

(Levin 1985: 5)

Although both of these sentences describe the movement of a certain object (i.e., a cup) along a trajectory, these sentences differ in meaning. The sentence in (18a) indicates the cause of movement of the cup and that in (18b) does not, and *slide* in its transitive use requires two arguments, AGENT and THEME, while *slide* in the intransitive use takes only one argument, THEME.

Within the framework of GB theory, the causative *slide* in (18a) assigns the THEME (i.e., an internal argument) directly and the AGENT (i.e., an external argument) indirectly. According to Burzio's generalization (Burzio 1981), verbs assigning a theta-role to their subject can assign a Case to their object.⁵ As a Case is also assigned under government, the object is assigned a theta-role directly and the subject is assigned a theta-role indirectly.

Levin (1985) makes an alternative proposal that the level of lexical representation determines semantic classes of verbs. Other verbs describing change of location such as *float*, *roll*, *bounce*, and *move* are also used transitively and intransitively. All of these

⁵This capitalized 'Case,' an abstract case, should be distinguished from a 'case' referring to the name of a noun or a pronoun.

verbs in their transitive uses have an AGENT argument and a THEME, and all of these verbs in their intransitive uses have only a THEME argument. That is, verbs in the same semantic class share the same argument structure and the AGENT argument realizes as a subject and the THEME argument as an object. The fact that the same verb *slide* is used in both causative and non-causative uses is not accidental. Levin assumes one of the pair in these two kinds of the uses of a verb is derived from the other. There are some pieces of evidence suggesting that the non-causative *slide* relates to the causative *slide*. She shows the same characteristics between these two uses. First, the causative *slide* and the non-causative *slide* have a THEME argument. Second, both of them take directional phrases. Third, *slide* allows alternation in some sentences but not in others. Fourth, when *slide* occurs in the Ditransitive Construction, it obligatorily takes a RECIPIENT argument that denotes an entity capable of ownership, even though *slide* in the other construction does not necessarily, as shown in (19).

(19) a. Jill slid Susan the present.

b. *Jill slid the door the present.

(20) a. Jill slid the present to Susan.

b. Jill slid the present to the door. (Levin 1985: 35)

The facts about dative alternation suggest that the verb, *slide*, can be used not only as a verb of change of location but also as a verb of change of possession. Thus, following the evidence, she claims that the meaning of change of location is different from that of change of possession, one of which is derived from the other.

Levin and Rappaport Hovav (1995) argue for the nature of multiple meanings of verbs. They are interested in the meaning of verbs relevant to syntactic behavior. According to their assumption, the lexical meaning representation of the verb *slide*

found in (19a) is different from that of *slide* in (20a). They capture this semantic relationship in terms of 'semantic shift,' achieved via a 'lexical rule.' Due to lexical rules, multiple meaning does not have to be listed in the lexical entry of each verb. That is, only the basic meaning of a verb is listed in the lexical entry and the other meanings are derived through the lexical rules.

As I have noted briefly above, there are constructionists such as (Boas 2003) positive about recognizing multiple meanings of a verb. However, what Levin and Rappaport Hovav proposed is clearly different from what is assumed by Boas (2003). While Levin and Rappaport Hovav argue that only the basic meanings should be included as information of verbs, Boas takes a maximal semantic approach to verbal polysemy. That is, he assumes all information relevant to a verb should be contained as the frame of the verb. Differences in opinion among constructionists about verbal polysemy has been already discussed in 2.2.

2.3.2 Lexical Semantic Templates

Rappaport Hovav and Levin (1998) posit event structure templates, roughly equivalent to the meaning part of constructions, and template augmentations instead of lexical rules. In this subsection, I overview the approach proposed by Rappaport Hovav and Levin and contrast it with Goldberg's Construction Grammar. These templates are defined in terms of Aktionsart, given below.

- (21) a. [x ACT <MANNER> (y)] (activity)
 b. [x <STATE>] (state)
 c. [BECOME [x <STATE>] (achievement)
 d. [[x ACT <MANNER>] CAUSE [BECOME [y <STATE>]]]

(accomplishment)

e. [x CAUSE [BECOME [y <state>]]] (accomplishment)

(Rappaport Hovav and Levin 1998: 108)

Each constant such as ACT and CAUSE encodes the verb's core meanings (i.e., lexical aspect or Aktionsart) and determines the number of minimal arguments of verbs. For example, *sweep* may be realized in several syntactic patterns as shown in (22).

(22) a. Phil swept the floor.

b. Phil swept the floor clean. (Rappaport Hovav and Levin 1998: 119)

In (22a), *sweep* takes only a subject and an object, on the other hand, it takes a result phrase *clean* in addition to a subject and an object in (22b). From these facts, they claim *sweep* has multiple meanings. The event structure in (22a) is that of activity, represented in (21a), while, in the case of (22b), the event structure is accomplishment, represented in (21d). Then, which is a more basic meaning, activity or accomplishment? According to Rappaport Hovav and Levin (1998), the meaning of *sweep*, which occurs in the event structure of accomplishment, is derived via Template Augmentation. The lexically specified representation of (22a) and (22b) are shown in (23a) and (23b).

(23) a. [x ACT <SWEEP> (y)]

b. [[x ACT <SWEEP>] CAUSE [BECOME [y <STATE>]]]

The event structure template in (21d) is associated with the resultative construction. That is, event structure templates, suggested by Rappaport Hovav and Levin (1998), are roughly equivalent to the meaning part of constructions in Construction Grammar. However, they make an assumption in favor of multiple meanings for verbs and

semantic derivation via Template Augmentation. In the framework of Construction Grammar, any derivational device is not admitted.

2.3.3 Lexical Conceptual Structures and Constructions

Jackendoff (1983, 1990, 1997) takes decompositional semantic approaches to represent the meanings of words, phrases, and sentences. He considers verbs to be polysemous, but unlike Levin and Rappaport Hovav (1995), he recognizes constructions. Thus, his approach is different from Goldberg's Construction Grammar with respect to the meanings of verbs. In the following, I overview the approach proposed by Jackendoff to contrast it with Goldberg's Construction Grammar. I do not introduce the whole of his theory here, but I would like to discuss i) verbal polysemy, ii) constructional approach, and iii) conceptual functions related to motion events. The reason I introduce Jackendoff's approach to motion events is that I will discuss constructions associated with motion events in Chapters 4, 5, and 6.

For example, Jackendoff (1990: 65-66, 80-81) picks up the verb *dress*. The verb is used as both transitive and intransitive, as shown in (24), respectively.

- (24) a. Bill dressed Harry.
b. Bill dressed. (Jackendoff 1990: 65)

When *dress* is used as transitive, it means 'put clothes on someone' and, when used as intransitive, it means 'put clothes on myself.' Jackendoff assumes two different lexical entries for transitive and intransitive *dress*. According to him, such alternation is due to the difference between the meaning of transitive *dress* and intransitive *dress*. Levin and Rappaport Hovav (1995) and Rappaport Hovav and Levin (1998) derive one meaning from the more basic meaning of a verb and attempt to simplify a lexical entry for each

verb. On the other hand, Jackendoff assumes multiple lexical entries for a verb.

In the framework of Construction Grammar, such kinds of alternations are not attributed to the meaning of each verb. Some constructionists consider it to be implausible that the meaning of the transitive *dress* is changed when the direct object is omitted. Indeed, Goldberg (1995: 22-23) argues the transitive use and the intransitive use of a verb share the same stem in most languages, and the meaning of *dress* in (24a) should not be distinguished from that of *dress* in (24b).

Jackendoff recognizes constructions even though he argues for verbal polysemy. For instance, toward not only idioms but also the *way* construction and the resultative construction, he takes a constructional approach. That is, he is sure that not all phenomena are accounted for by the properties of verbs. For example, an adverb can be inserted after the verb in (25a), whereas an adverb cannot be inserted after the verb in the *way* construction in (25b).

(25) a. Bill belched noisily all the way out of the restaurant.

b. *Bill belched noisily his way out of the restaurant.

(Jackendoff 1990: 212)

This suggests that the constituent structure of the *way* construction is different from that of the other construction. This difference between (25a) and (25b) is not contributed by the verbal meaning. From this fact, Jackendoff recognizes constructions as basic grammatical units.

Although Goldberg (1995; 2006) does not adopt a conceptual meaning for each verb, Jackendoff (1990) does. In the following, I overview Jackendoff's analysis of verbs expressing motion events to contrast his approach to Goldberg's.

Conceptual structure, a semantic representation, is based on a decompositional

approach to the semantics of words, phrases, and sentences. In this theory, spatial motion verbs are decomposed in terms of conceptual functions such as GO, MOVE, ORIENT, EXT, CAUSE and so on. Although, of course, there are other conceptual functions in his theory, I will not introduce all of the conceptual functions since some of them are not concerned with the phenomena in this thesis.

In the case of manner of motion verbs, Jackendoff posits two conceptual functions (Jackendoff 1990: 88-89, 223-225). One is a GO-function and the other is a MOVE-function. The GO-function takes a Thing and a Path argument, and the MOVE-function takes a Thing argument. These conceptual functions are represented, as shown in (26).

- (26) a. [EVENT GO ([Thing], [Path])]
 b. [EVENT MOVE ([Thing])]

Jackendoff claims that the MOVE-function is necessary to analyze the following sentences appropriately because *wiggle* and *dance* express manner of motion or accompanying action, but they do not express locomotions.

- (27) a. Willy wiggled out of the hole.
 b. Debbie danced into the room. (Jackendoff 1990: 89)

The subjects, *Willy* and *Debbie*, are arguments of both the GO-function and the MOVE-function but the path expressions, *out of the hole* and *into the room*, are those of the GO-function alone. That is, the sentence in (27a) is represented by using conceptual functions as shown in (28).

- (28) [GO ([Thing α], [Path])
 MOVE ([Thing α)]

The conceptual functions in (28) show that the subject argument of the GO-function is identical with that of the MOVE-function. Locomotion is denoted by the GO-function and the accompanying action expressed by *wiggle* in (27a) is denoted by the MOVE-function. (see also Jackendoff 1990: 224).

Moreover, Jackendoff (1990: 89) provides evidence from typological studies to distinguish the MOVE-function from the GO-function given below.

- (29) a. *La botella floto a la cueva.
the bottle floated to the cave
'The bottle floated into the cave' (Spanish: Jackendoff 1990: 89)
- b. La botella entró a la cueva flotando.
the bottle moved-in to the cave floating
'The bottle floated into the cave' (Spanish: Talmy 1985: 69)
- (30) a. ?Jon-wa eki-e hashitta.
John-TOP station-to ran
'John ran to the station'
- b. John-wa eki-e hashitte-itta.
John-TOP station-to running-went.
'John went running to the station' (Japanese: Yoneyama 1986: 1-2)

In (29a), *floto* ('floated') expresses manner of motion and it cannot co-occur with a path expression *a* ('to'). On the other hand, in (29b), *entró* ('entered') expresses locomotion to a place and it can co-occur with the path expression (i.e., *a la cueva*) in Spanish. In (30a), *hashitta* ('ran') expresses a manner of motion and it cannot co-occur with a path expression (i.e., *eki-e*). On the other hand, in (30b), the complex predicate, composed of a manner of motion verb *hashiru* and a deictic motion verb *iku*, can co-occur with a path expression. In short, *floto* ('floated') and *hashitta* ('ran') have only the MOVE-function while *entro* ('entered') and the complex predicate *hashitte-itta* involve the GO-function, so that they can take path expressions, as shown in (29b) and (30b).

That is, a MOVE-function does not have an argument representing a path expression but a GO-function does. However, in English, some action verbs such as *wiggle* and *dance* can take an argument for a path expression, as shown in (27a) and (27b). These facts lead him to claim that multi-functional structures are necessary, and he suggests that, also in the case of the *way* construction given in (31a) and (31b), multi-functional conceptual structures are needed.

- (31) a. Bill belched his way out of the restaurant.
 b. Harry moaned his way down the road. (Jackendoff 1990: 211)

That is, he proposes that *belch* and *moan*, action verbs, have not only the MOVE-function but also the GO-function in the *way* construction. In other words, the meanings of *belch* and *moan* in the *way* construction are different from those of these verbs in other constructions that do not represent a locomotion.

Goldberg's (1995) analysis is different from Jackendoff's. According to her, the meaning of a verb is based on the frame of each verb and verbs express manner of motion, accompanying action, and so on. That is, locomotion is expressed by constructions (e.g., the Intransitive Motion Construction and the *Way* Construction). Thus, she does not distinguish the GO-function from the MOVE-function. I will adopt Goldberg's analysis in Chapters 4 and 6.

Projectionists (e.g., Levin and Rappaport Hovav 1995) and Jackendoff (1983, 1990, 1997) assume multiple meanings of verbs, and all of them adopt decompositional semantic approaches. However, not all researchers of lexical semantics adopt such a kind of approach. Indeed, most linguists in the area of Cognitive Linguistics take a different approach to lexical semantics (e.g., Fillmore 1977; 1982; 1985, Fillmore and Atkins 2000, Langacker 1987; 1991).

2.4 Usage-based Models and Construction Grammar

Now we turn to the relation between Usage-based models and Construction Grammar. Usage-based models are supported by most works in the framework of Construction Grammar and my analysis in later chapters is based on these models.⁶ Furthermore, the validity of statistical approaches to usage-based models (e.g., Stefanowitsch and Gries 2003, Gries 2012, cf. Bybee 2010) are considered in this section.

2.4.1 A Usage-based Model in Language Studies

Usage-based models assume linguistic structures (or grammar) are strongly based on language uses. That is, language uses produced by a speaker are based on the abstract grammar of a language and the grammar is formed through daily experiences of language uses.⁷ Langacker's usage-based model is based on Cognitive Grammar (Langacker 1987; 1991) so his usage-based model shares some concepts with Cognitive Grammar. For this reason, his model is built on the assumption that language is highly redundant and has bottom-up properties. Highly frequent collocations become fixed units and become cognitively routinized or 'entrenched,' to use Langacker's term. Since a lot of constructional approaches utilize corpora, they match with usage-based models nicely.⁸

Cognitive linguistics, especially usage-based approaches, met corpus linguistics,

⁶The term, usage-based models, was coined by Langacker (1987) and the models have been developed later (Langacker 2000).

⁷Of course, not all linguists assume this view is reliable. For instance, Newmyer (2003) and other linguists working within the field of generative grammar have been providing evidence to support the idea that not usages but the abstract grammar contributes to an explanation of language use.

⁸A unification-based construction grammar proposed by Fillmore and Kay (1999: 2) is not built on usage-based models. Indeed, they distinguish constructs, roughly equivalent to language uses, from constructions, abstract grammar. In other words, while constructs must have fully-specified values, constructions may have unspecified ones. The former is just a usage but the latter is part of grammar.

which provide objective evidence for analysis (Boas 2007). However, this trend is not universally accepted by all cognitive linguists. Indeed, some cognitive linguists such as Talmy (2000a; 2000b) do not show corpus data or other empirical evidence because the meanings of words are somewhat subjective so that they claim introspection is the best way to know what the meaning of language is. Not all linguists advocating a usage-based model show frequency data drawn from a corpus. Some linguists who take a usage-based view of language do not use corpus frequency (e.g., Iwata 2008). This is because, there can be expressions that are possible but that do not exist in corpora. Thus, it should be noted that not all usage-based models are corpus-based approaches (Iwata 2008: 6-8).

Today, corpus-based cognitive linguistics is not unusual at all and a lot of studies within the framework of cognitive semantics have been published using corpus (e.g., Glynn and Fischer 2010). These quantitative methods in cognitive semantics are called 'corpus-based' approaches, distinguished from 'corpus-driven' approaches. Corpus-based approaches assume linguistic theories and examine the validity of them, whereas corpus-driven approaches are not based on linguistic theories. This distinction between corpus-based and corpus-driven language studies was introduced by Tognini-Bonell (2001). In the field of cognitive linguistics, especially cognitive semantics, quantitative data and methodologies are playing an increasingly important role. However, there are problems, with over-reliance on language data drawn from corpora and statistically analyzed data, and methodological issues including reliance on speech tags and concordance, which enables us to search data easily (Newman 2010). Moreover, there is a problem choosing methodologies (e.g., Collostructional Analysis, proposed by Stefanowitsch and Gries (2003)). Which statistical methodology is the

best to investigate the nature of language? Although Collostructional Analysis is one of the best ways among statistical methodologies (see 2.4.2), this point is criticized by Bybee (2010: Chapter 5, see also Johnson 1999, Killgariff 2005). That is, we must investigate whether or not the frequency of words and phrases really corresponds to the degree of entrenchment as Langacker (1990; 2000) claims. In the next subsection, corpus-based approaches are discussed in detail.

2.4.2 Corpus-based Approaches

As stated above, cognitive linguistics have applied corpus-based methodologies, distinguished from corpus-driven methodologies (e.g., Sinclair 1991), to investigate the nature of language, especially meaning of language. In the course of Construction Grammar, the study by Stefanowitsch and Gries (2003) is one of the most influential ones. They have introduced the notion of collostructional strength to investigate how a collexeme is more attracted to a given construction than would usually be assumed.⁹ This subsection discusses Collostructional Analysis and introduces some critiques against their approach.

Before discussion of Collostructional Analysis, it should be emphasized that raw frequency had played a very important role in the field of corpus-based approaches before. However, since the appearance of a variety of statistical methods in the field of linguistics, raw frequencies have not been reliable evidence to examine the nature of language. Collostructional analysis, calculated in a more strict way, is one of such methodologies based on statistics. Four frequencies are necessary to investigate the collostructional strengths of verbs occurring in a construction, as shown in Table 2.1.

⁹The term 'collostruction' is coined by Stefanowitsch and Gries, composing two terms, 'construction' and 'collocation.'

Table 2.1: Collostructional Approach

	Construction c	Other constructions	Row totals
Word v	w	x	$w+x$
Other words	y	z	$y+z$
Column totals	$w+y$	$x+y$	$w+x+y+z$

Here, we use the Chi-square test (like the Fisher exact test) to calculate collostructional strengths of collexemes occurring in a given construction.¹⁰ In order to calculate collostructional strength of a collexeme for a given construction, we need four frequencies: the frequency of the collexeme in the construction (w), the frequency of the collexeme in all other constructions (x), the frequency of the construction with lexemes other than the collexeme (y) and the frequency of all other constructions with lexemes other than the collexeme (z). We can get the figures in w , $w+y$ and $w+x$ directly from the corpus, and we can get the total number of constructions in $w+x+y+z$ by counting the total number of verbs in the *BNC* (= 10,206,300, counted by Stefanowitsch and Gries (2003: 219)).¹¹ We can get all the other remaining figures (i.e., x , y , z , $x+y$, $y+z$) by subtraction.

Stefanowitsch and Gries (2003: 218-220) consider an example where the collexeme is *accident* and the construction is [N *waiting to happen*] to show how collostructional strength of a given collexeme in a construction is calculated. The result is shown in Table 2.2.

¹⁰The term 'collexeme' is a word occurring in a given construction.

¹¹According to Stefanowitsch and Gries (2003), the number of construction is regarded as the number of uses of verbs.

Table 2.2: Crosstabulation of *accident* and the [N *waiting to happen*] construction

	[N <i>waiting to happen</i>]	$\neg$ [N <i>waiting to happen</i>]	Row totals
accident	14	8,606	8,620
$\neg$ accident	21	10,197,659	10,197,680
Column totals	35	10,206,265	10,206,300

(Stefanowitsch and Gries 2003: 219: slightly modified)

The [N *waiting to happen*] construction occurs only 35 times in the *BNC*, whereas all the other constructions occur 10,206,265 times in the same corpus. Despite the low frequency of the [N *waiting to happen*] construction, the collexeme *accident* occurs 14 times in the construction. If *accident* occurred randomly in various kinds of constructions, it would occur only 0.03 times (=expected value) in the [N *waiting to happen*] construction, and lexemes other than *accident* would occur 34.97 times in the same construction. However, the figures in Table 2.2 differ widely from each expected value in Table 2.3.

Table 2.3: Expected Values of Crosstabulation

	[N <i>waiting to happen</i>]	$\neg$ [N <i>waiting to happen</i>]	Row totals
accident	0.03	8,619.97	8,620
$\neg$ accident	34.97	10,197,644.03	10,197,680
Column totals	35	10,206,265	10,206,300

The squared residual error between a measured value and an expected value in each cell is divided by each expected value. Then we can get the Chi-squared value by adding each resulting value calculated above. The chi-squared value (=6143.629) is the collostructional strength of the collexeme *accident* in the [N *waiting to happen*]

construction.¹² The higher the collostructional strength is, the more a collexeme is associated with a given construction.

According to Bybee (2010: 98), the figure in *z* is problematic because it is impossible to guess the exact number of all uses of verbs in constructions in a corpus such as the *BNC*. Bybee sees this as a problem of Collostructional Analysis, and claims that Collostructional Analysis does not include semantic factors. Moreover she gives confirmed evidence that this analysis does not reflect our knowledge of language (see also Bybee and Eddington 2006, cf. Gries 2012). Bybee (2010: 100) concludes that "simple frequency analysis with semantic similarity produces the best results."

Corpus-based approaches aim to reveal the nature of language by using frequency data drawn from corpora and/or statistically processed data. According to Gries (2012: 487), "different corpus sizes yield similar results, and a more systematic test supports that." However, we should avoid over-reliance on corpus data. Bybee (2010) suggests that introspection should be involved in corpus studies. In this thesis, I aim to approach to the semantic aspects of Converbial Motion Constructions in English by utilizing corpus data, and I examine how Collostructional Analysis is useful in language studies by analyzing two constructions in Chapter 4 and 6.

¹²Fisher exact test is slightly different from the Chi-squared test. Moreover, in fact, Stefanowitsch and Gries use a *p* value to indicate the collostructional strength of each verb. I use Chi-squared test and chi-squared value for ease of explanation, here.

Chapter 3

Converbal Constructions

3.1 Introduction

This chapter aims to give a survey of Converbal Constructions in general, in preparation for discussion of English Converbal Constructions in Chapters 4 through 6. The term ‘converb’ was first introduced by Nedjalkov and Nedjalkov (1987) to describe a certain verb in Altaic languages. Then Haspelmath (1995) applied the notion of converb to European languages. In many works, it is suggested that Converbal Constructions seem to be similar to Serial Verb Constructions, which appear in the languages of West Africa, South-east Asia, Oceania, New-Guinea, and the Caribbean (Bisang 1995, Croft 2012, among others). I will give a broad overview of Converbal Constructions comparing them with Serial Verb Constructions and put together what is discussed in previous studies.

The outline of this chapter is as follows. First, I will give the definition of Converbal Constructions. Although Serial Verb Constructions, similar to Converbal Constructions, are generally regarded as mono-clausal constructions (Durie 1997), Converbal Constructions are not necessarily mono-clausal (Kortmann 1995). Thus, I will define

what Converbial Constructions are, and overview the variety of Serial Verb Constructions and Converbial Constructions in languages in 3.2. Since Haspelmath (1995) introduced the notion of converb into various languages, many researchers have described Converbial Constructions in many languages. I will note their descriptions. I argue that some Converbial Constructions are mono-clausal in this thesis. In some of the mono-clausal Converbial Constructions, two verbs constitute a complex predicate. I will discuss this point in 3.3. I will overview several interpretations of the English converbal form in 3.4. Furthermore, I will discuss the relation between mono-clausality and the range of variety of interpretation the English converbal form marks.

3.2 The Definition of Converbial Constructions

Haspelmath (1995: 3) defines 'converb' as follows: "[a] converb is defined here as a nonfinite verb form whose main function is to mark adverbial subordination." Now, the term converb is coming into widespread use to refer to a verb found in many constructions in various languages. However, in previous times, it had been used to refer to verbs in Altaic languages (Nedjalkov and Nedjalkov 1987). In this thesis, I identify the *-ing* form verbs in English as converbs.

The subject of a converb may or may not be coreferential with the subject of the main verb. If the subject of a converb is coreferential with the subject of the main verb, it must be implicit, but if the subject of a converb is not, it may be explicit, as shown in (32).

- (32) a. *A tall man* **came** after, **hurrying** to catch them. (BNC-CJA)
- b. *Dan* **walked** from the room, *his head* **reeling**. (BNC-FAB)

In (32a), the subject of *hurrying* is coreferential with that of *came*, and the subject (i.e., *a tall man*) of *hurrying* is implicit. On the other hand, in (32b), the subject of *reeling* is not coreferential with that of *walked*, and the subject of *reeling* is explicit.

3.2.1 Criteria for Identification of Subordination

Converbal Constructions are distinguished from coordinate constructions. Haspelmath supposes five criteria for converbs (i.e., i) clause-internal word order, ii) variable position, iii) possibility of backwards pronominal anaphora, iv) semantic restrictiveness and v) possibility of extraction), some of which all converbs must fulfill and none of which coordinate constructions fulfill.

We pay attention to the last criteria, distinguishing subordinate structures from coordinate structures. Haspelmath says that wh-movement from the main clause of subordinate structures is allowed presenting (33) as evidence, and this property is not seen in coordinate structures in the examples in (34) as Ross (1967) discussed (cf. Lakoff 1986).

- (33) a. After he sold his car, Alexis bought a bicycle.
 b. What_{*t*i} did Alexis buy *t*_{*i*} after he sold his car?
 c. What_{*t*i} did Alexis buy *t*_{*i*}, having sold his car? (Haspelmath 1995: 17)
- (34) a. Alexis sold his car and bought a bicycle.
 b. *What_{*t*i} did Alexis sell his car and buy *t*_{*i*}? (Haspelmath 1995: 17)

In the examples of (34), two phrases *sold his car* and *bought a bicycle* are coordinated, and the two clauses are linked by a coordinate conjunction, *and*. As Ross (1967) pointed out, extraction from one clause of coordination structures is not allowed (i.e.,

Coordinate Structure Constraint).

Although wh-movement from the main clause of subordinate structures is allowed, wh-movement from the subordinate one of subordinate structures is not allowed, as shown in (35).

(35) *Who did John come back [before I had a chance to talk to *t*]?

(Huang 1982: 497)

Haspelmath seems unconcerned about from which clause a grammatical element is extracted. That is, in (33), he extracts *a bicycle* from a main clause, and makes a conclusion that extraction is allowed in only subordinate structure constructions. However, if *his car* is extracted from a subordinate clause, the resulting sentences are not accepted, as shown in (36).

- (36) a. Alexis bought a bicycle after he sold his car.
b. *What_i did Alexis buy a bicycle after he sold t_i.
c. *What_i did Alexis buy a bicycle having sold t_i

This constraint is known as Adjunct Island Constraint (Huang 1982). For these reasons, whether a grammatical element is extracted or not is not recognized as a criterion of a subordinate structure.

3.2.2 Converbal Constructions and Serial Verb Constructions

Although not only Converbal Constructions but also Serial Verb Constructions are discussed in the literature, few linguists have compared these similar but different constructions. Serial Verb Constructions are observed in regions such as West Africa (e.g., Baker 1989), East Asia (e.g., Li and Thompson 1981) and Oceania (e.g., Crowley

2002). On the other hand, Converbial Constructions are observed in Europe (e.g., Kortmann 1995) and Asia (e.g., Bisang 1998). Aikhenvald and Dixon (2006) provide an overview of the Serial Verb Constructions, and Haspelmath and König (1995) of Converbial Constructions.

Bisang (1995; 1998) and Croft (2012) focus on the differences and similarities of these two kinds of constructions. In the rest of this subsection, I will overview their observations on differences and similarities between Serial Verb Constructions and Converbial Constructions.

First, all verbs in the Serial Verb Constructions are equal status. In (37a), neither *mú* ('take') nor *wá* are marked for grammatical features. In (37b), both *na-muali* and *nau-mai* are marked for 1SG:REAL. On the other hand, only a main verb inflects and a converb does not in Converbial Constructions, as illustrated by each example of (38).

- (37) a. Mo mú iwè wá ilé
1SG take book come home
'I brought a book home.'

(Serial Verb Construction: Yoruba: Bangbose 1974: 1)

- b. na-muali nau-mai eni leiai
1SG:REAL-walk 1SG:REAL-come SP bush
'I walked from the bush.'

(Serial Verb Construction: Paamese: Crowley 2002: 71)

- (38) a. Uta o **utat-te** **iki-mashita**.
song ACC sing-CONV go-PST:HON
'[He] went along singing'

(Converbial Construction: Japanese: Bisang 1998: 752)

- b. **presjakox** ulitsata na **begom**
across.PF:cut:AOR.1SG street:the on running
'I crossed the street running'

(Converbial Construction: Bulgarian: Croft *et al.* 2010: 216)

Second, Aikhenvald (2006: 1) argues Serial Verbs function as a single predicate and a Serial Verb Construction is conceptualized as a single event. On the other hand, there are bi-clausal Converbial Constructions, as are the case in (32). That is, some Converbial Constructions are conceptualized as two events.

Third, there are also differences in semantic relation between Serial Verb Constructions and Converbial Constructions. For example, 'condition' and 'concession' are expressed only by Converbial Constructions (Croft 2012: 347).

3.3 Converbial Constructions as Complex Predicates

As I noted, unlike Serial Verb Constructions, Converbial Constructions can be either mono-clausal or bi-clausal. Moreover, as in Serial Verb Constructions (Andrews and Manning 1999: Chapter 4), more than one verb constitutes a complex predicate in a mono-clausal Converbial Construction.

Complex predicates are defined by Alsina, Bresnan and Sells (1997: 1) as predicates composed of more than one word or morpheme. Converbial Constructions involve more than one predicate. There is, at least, one head (i.e., an inflecting verb) and another grammatical element (i.e., an *-ing* form verb). This morphosyntactic property of Converbial Constructions does not contradict the definition of complex predicates. In the rest of this section, I will show that Converbial Constructions treated in Chapter 4 and Chapter 6 can be analyzed as involving complex predicates. The significance of regarding Converbial Constructions as complex predicate constructions is important in the rest of this thesis.

3.3.1 Intransitive Complex Predicates

As is the case for Serial Verb Constructions (see (37b) in Paamese), Converbial Constructions represent intransitive motion events as shown in (39).

(39) Eight of the men **came running** out of the trees (···). (BNC-HR7)

The sentence in (39) is mono-clausal (see Chapter 4). However, as an inflecting verb and an *-ing* form verb do not constitute a complex predicate in bi-clausal Converbial Constructions, the two verbs in the example in (39) may not constitute a complex predicate.

In addition, in the English example in (39), both the AGENT argument and the PATH argument can be considered as arguments of either verb. That is, *eight of the men* can be the argument of either verb and *out of the trees* can also be that of either verb. In other words, the two verbs play a role as a predicate. This is evidence to show that two verbs in a mono-clausal Converbial Construction constitute a complex predicate. I will discuss this point in detail in Chapter 4.

3.3.2 Transitive Complex Predicates

As we have already seen, caused-motion verbs appear in Serial Verb Constructions found in West Africa (see (37a) in Yoruba). In the case of Serial Verb Constructions, Baker (1989) pointed out that objects are shared by two verbs. In the case of Converbial Constructions in English, a PATH argument is not always shared by both verbs, as shown in the contrast in (40).¹

¹I cannot find this type of construction in languages other than English.

- (40) a. He **sent** the clerk **hurrying** into the back room to get a dark grey suit (...).
(BNC-CDN).
- b. Bill **took** him **kicking** into the room. (Goldberg 2006: 51)

In (40a), the PATH argument (i.e., *into the back room*) can be regarded as the argument of both verbs, whereas, in (40b), the PATH argument (i.e., *into the room*) cannot be the argument of *kicking*. Why is this type of construction allowed in English Converbal Constructions? A complex predicate construction allows such expressions. I will discuss this point in Chapter 6.

3.4 Several Interpretations of the Converbal Form in English

In Converbal Constructions in English, a converbal form (i.e., *-ing* form) marks a wide variety of interpretations (Kortmann 1991). The default interpretation for the Free Participial Construction is the expression of simultaneity (Haiman 1985: 228) or 'temporal concomitance' in Talmy's (1978: 505) term. However, the corpus analysis by Kortmann (1991) reveals that the converbal form is interpreted as 'anteriority,' 'posteriority,' 'manner,' 'accompanying circumstance,' and others.² Examples of each interpretation, drawn from the corpus, are given below.

- (41) a. **Catching** sight of her, he slowly raised his right hand (...).
- b. **Lifting** the telephone, she asked for room 1410. (Kortmann 1991: 144)
('anteriority')
- (42) a. Reassuringly, the car's motor started at a touch, **purring** smoothly as the
result of an overhaul (...).

²Kortmann (1991: 168) pointed out the term 'accompanying circumstance' is used as a cover term for a variety of semantic relations (e.g., Quirk *et al.* 1985: 1124), and I use a term 'accompanying action' for this in my own analysis.

- b. Booker T. wheeled each trolley in and, (···), spread the contents on a large flat tray, **ranking** the mess back and forth like a gardener preparing topsoil.

(Kortmann 1991: 151)

(‘posteriority’)

- (43) a. They walked little Quilley between them, carefully **trimming** their agile pace to his own faltering tread.
b. Then came the girl (···), **plodding** along the pedestrian pathway.

(Kortmann 1911: 166)

(‘manner’)

- (44) a. Next morning I woke at my usual hour, **feeling** like a bottle of champagne.
b. The door opened and Skullion came in, **holding** his bowler hat in one hand.

(Kortmann 1991: 170)

(‘accompanying action’)

3.5 Prototype of Each Converbial Construction

As I have seen in several constructions in various languages, Converbial Constructions vary widely, and converbal forms mark various interpretations such as ‘anteriority’ and ‘posteriority.’ However, an *-ing* form is interpreted only as ‘manner of motion,’ ‘accompanying action,’ and ‘purpose’ in mono-clausal Converbial Constructions in English. Then, what restricts the interpretation that a converbal form marks?

If there is an iconic relation between grammatical form and meaning, the interaction between a main verb and an *-ing* form verb in a clause is more significant than that between a main clause and a subordinate clause. Kortmann (1991) and Stump (1985) show the prototypical relation between main clauses and subordinate clauses. How

about mono-clausal Converbial Constructions? If a main verb and a converb are in a single clause, the prototypical relation between the two verbs should be examined. I will discuss this point in Chapters 4, 5 and 6.

3.6 Summary

Unlike Serial Verb Constructions, Converbial Constructions are found in European and Asian languages. Scholars have not discussed the differences between mono-clausal constructions and bi-clausal ones except for Talmy (1985; 2000b). The construction discussed in the later chapters are mono-clausal, and thus, they have a great chance of having special combinations between two verbs. The following chapters will investigate the interactions between the two verbs, and account for why such special interactions can be observed.

Chapter 4

The Converbal Intransitive Motion Construction

4.1 Introduction

This chapter examines the properties of the Converbal Intransitive Motion Construction in English given in (45).¹

- (45) a. My son **went running** to Irene's house to see what was the matter.
(BNC-HH3)
- b. He **ran screaming** down through the orchard missing collision with the trees (...).
(BNC-A61)
- c. So if these neutrons **came smashing** into your body, they could break up any of chemicals that are very important for your life, for your body chemistry.
(BNC-GW0)

¹This chapter is built on Morishita (2011a).

The construction has a formal characteristic: a verb precedes a non-finite (*-ing*) form verb. The inflecting verb (e.g., *go*, *come*, and *run*) is a motion verb and the *-ing* form verb is a manner of motion verb (e.g., *running*), denoting a manner of motion while the subject referent is moving, or an action verb (e.g., *screaming*), denoting an accompanying action during motion. There is another construction representing the locomotion of a subject referent, and it is called the Intransitive Motion Construction. Examples of the Intransitive Motion Construction are given in (46).

- (46) a. He **went** upstairs to his shattered bedroom to fetch it for Harry. (BNC-EFW)
- b. She **ran** upstairs, busily chewing toast (BNC-JY0)
- c. Edward **left** Windsor Castle and got into a large black car. (BNC-GV9)

The event represented by the Intransitive Motion Construction is simpler than the event represented by the Converbial Intransitive Motion Construction because there is a single predicate in each example in (46), whereas there are two predicates in each example in (45). In this chapter, I suggest that the two verbs in the Converbial Intransitive Motion Construction constitute a single complex predicate.

Moreover, it should be noted that the Converbial Intransitive Motion Construction differs from the Free Participial Construction (Kortmann 1991; 1995) illustrated in (47) in the light of syntactic structure and semantic/functional properties, and is associated with a constraint not imposed on the Free Participial Construction.

- (47) a. But as we were **coming** out of the doorway, **running** across there (…).
- (BNC-B24)
- b. After we got home, she **ran** into the street, **screaming**. (BNC-CEN)

The organization of this chapter is as follows. Section 2 demonstrates how this construction is different from the Free Participial Construction, and clarifies the syntactic and constituent structure of the Converbial Intransitive Motion Construction. Section 3 examines the semantic/functional properties of the Converbial Intransitive Motion Construction. In order to look closer at the semantic/functional aspects of this construction, 1,130 examples drawn from the *BNC* are statistically analyzed and are compared with the data from randomly sampled examples of the Intransitive Motion Construction. Section 4 presents a constructional analysis aimed at providing a proper description of the variation in meaning and syntactic behavior of the Converbial Intransitive Motion Construction.

4.2 Syntactic Properties

First of all, it should be noted that the Converbial Intransitive Motion Construction is mono-clausal and differs from the Free Participial Construction, although at first glance the Converbial Intransitive Motion Construction looks very similar to the bi-clausal construction.

Goldberg (2006: 50-52) also considers this construction to be different from the Free Participial Construction, since the *-ing* form verbs in subordinate clauses can take a complement, but those of the examples of the Converbial Intransitive Motion Construction cannot, as shown in (48)-(49).

(48) a. Bill went down the street [PRO whistling a tune].

b. Bill took off toward the cops [PRO screaming at the thief].

(Goldberg 2006: 51, slightly modified)

(49) a. *Bill went whistling a tune down the street.

- b. *Bill took off screaming at the thief toward the cops. (Goldberg 2006: 51)

From the differences shown in (48) and (49), I conclude that the Converb Intransitive Motion Construction is not restructured from the Free Participial Construction.

In other languages, similar constructions are regarded as the result of restructuring from bi-clausal constructions. For instance, Talmy (2000b: 224) cites an example of Spanish given in (50).²

- (50) a. La botella salió flotando de la cueva.
the bottle exited floating from the cave
'The bottle exited floating from the cave'
- b. La botella salió de la cueva flotando.
the bottle exited from the cave, floating
'The bottle exited from the cave, floating' (Spanish: Talmy 2000: 224)

He argues that the example illustrated in (50a) is not a complete single clause because the non-finite form verb, *flotando* can also be found in a subordinate clause, as shown in (50b). That is, he regards the example of (50a) as the result of restructuring from the example of (50b). It seems to be problematic to consider non-finite form verbs as a cue of a bi-clausal construction because not all non-finite form verbs behave the same way. A close examination of the syntactic and constituent structure of the Converb Intransitive Motion Construction follows and appears to contradict Talmy's suggestion.

4.2.1 Is the Converb Intransitive Motion Construction Mono-clausal?

There are many examples of the mono-clausal construction that can be paraphrased by the Free Participial Construction. However some examples of the mono-clausal

²Talmy notes that the Participial Motion Construction and the Purposive Motion Construction in Japanese (see Matsumoto 1991) are mono-clausal and are not the result of restructuring.

construction cannot be paraphrased. The examples in (51) seem to be paraphrased by the Free Participial Construction.

(51) a. Louis **came bounding** down the stairs (BNC-F9C)

b. If these neutrons **come smashing** into your body, they will break up any of chemicals (BNC-FMR)

(52) a. **Bounding** down the stairs, Louis **came**.

b. **Smashing** into your body, these neutrons **came**

Then, are the examples illustrated in (51) a construction restructured or derived from the Free Participial Construction illustrated in (52)? In fact, the example of (51b) seems to be bi-clausal because the path expression *into* seems not to be an argument of the main verb *came* but that of the *-ing* form verb *smashing*, as shown in (53).

(53) a. These neutrons **smashed** *into your body* and broke up.

b. #These neutrons **came** *into your body* and broke up. (intended meaning)

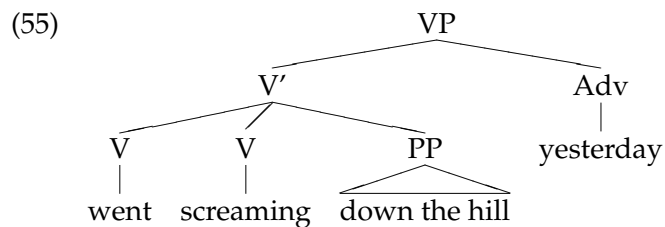
When something bumps against a somewhat hard object, it can break up. Although the examples of (53) seem to be evidence demonstrating that the Converbial Intransitive Motion Construction is the Free Participial construction, other syntactic evidence shows this is not true.

4.2.2 Constituent Structure

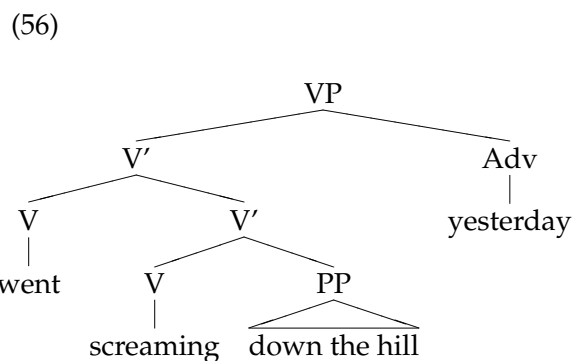
For the Converbial Intransitive Motion Construction, at least three kinds of constituent structures can be posited.

First, three constituent structures corresponding to the sentence illustrated in (54) are shown in (55)-(57).

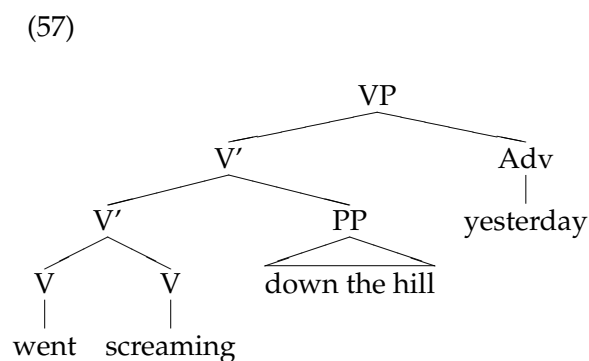
(54) Bill went screaming down the street yesterday.



In (55), the main verb *went*, the *-ing* form verb *screaming*, and the prepositional phrase *down the hill* go together and make a V' constituent.



In (56), a V' constituent is composed of the *-ing* form verb *screaming* and the prepositional phrase *down the hill*. In addition, this V' constituent makes a new constituent, labeled V', with the main verb *went*.



In (57), the main verb *went* and the *-ing* form verb *screaming* make a constituent, labeled V' for now, and then this V' constituent and the prepositional phrase *down the hill* make a large V' constituent.

All of the three kinds of constituent structures are plausible, but in fact one is correct and the others are not. In the following, the validity of each structure is checked by syntactic tests.

4.2.2.1 Tripartite Structure

A trifurcate constituent structure is suggested by Goldberg (2006: 50-52). She pointed out one thing for the constituent structure of the Converbal Intransitive Motion Construction from the evidence given in (58).

(58) a. Down the hill Bill went screaming.

b. ??Screaming down the hill Bill went. (Goldberg 2006: 52)

She denied the constituent structure shown in (56) since the prepositional phrase *down the hill* can be fronted, but the *-ing* form verb and the prepositional phrase cannot be fronted together, as shown in (58b). That is, the *-ing* form verb (i.e., *screaming*) does not make a constituent with the prepositional phrase (i.e., *down the hill*). Furthermore, the examples illustrated in (58) give evidence that a prepositional phrase is not an argument of an *-ing* form verb in this construction.

She assumed only two constituent structures as to the Converbal Intransitive Motion Construction. One is the structure in (55) and the other is shown in (56). She argued for the structure in (55) by denying the structure in (56).

However, the evidence given in (58) is not enough to demonstrate the trifurcate constituent structure to be true because an adverb can intervene between an *-ing* form verb and prepositional phrase, as shown in (59), in contrast to (60).

(59) a. Bill went screaming **loudly** down the hill.

b. Bill went running **quickly** down the hill.

- (60) a. *Bill went **loudly** screaming down the hill.
 b. *Bill went **out** screaming down the hill.

As is well known, an adverb can only intervene between constituents. As the sentences illustrated in (60) show, neither an adverb nor a particle can occur between the main verb and the *-ing* form verb. The sentences in (59) seem to demonstrate that the *-ing* form verb does not make a constituent with the prepositional phrase (see 4.2.2.2), and those in (60) imply that the main verb and the *-ing* form verb make a constituent. For these reasons, this tripartite structure must be rejected. Thus, the sentences in (59) do not support the structure suggested by Goldberg.

4.2.2.2 Main Verb Independent Structure

The evidence shown in (59) seems to demonstrate that the structure shown in (56) is not plausible, but there is other evidence to show that the structure in (56) is plausible.

If the structure in which a main verb is independent of a constituent composed of an *-ing* form verb and a prepositional phrase is plausible, the prepositional phrase is the argument of the *-ing* form verb. Nevertheless, as Goldberg notes about the sentences in (58), *screaming* cannot take an argument denoting a PATH. The evidence Goldberg offers seems to reject the structure in (56). However, *crashing* can take a complement denoting a PATH and this path expression is not the argument of a main verb, as shown in (61).³

- (61) a. She went crashing into him.

³In some examples of the Converbial Motion Constructions in which *crash* occurs as an *-ing* form verb, the *-ing* form verb cannot be deleted although Ando (2005: 236) notes that the *-ing* form verb in this construction is deletable. This fact is observed by Salkie (2010: 177-178) but he does not analyze it theoretically. I will discuss this phenomenon more deeply within the framework of Construction Grammar in a later section.

b. She crashed into him.

c. #She went into him. (intended meaning)

The constituent structure of this type of sentence may be the structure illustrated in (56). That is, *crashing* and *into him* are fronted together, as shown in (62).

(62) Crashing into him, she went.

In order to examine the constituent structure of the sentence in (61a), the *do so* test, adverb insertion, and fronting are applied. The *do so* test is formulated in relation to proverbalization facts. Although Jackendoff (1977: 58) notes the phrase *do so* can be replaced by *V'*, Radford (1988: 234) observes the phrase *do so* can be replaced not only by *V'*, but also by VP. Consider the following contrasts.

(63) a. John will [_{VP} buy the book on Tuesday], and Paul will *do so* as well.

b. John will [_{V'} buy the book] on Tuesday, and Paul will *do so* on Thursday.

(64) a. John will [_{V'} put the book on the table], and Paul will *do so* as well.

b. *John will [put the book] on the table, and Paul will *do so* on the chair.

(Radford 1988: 234)

In (63), the phrase *do so* can replace either the VP, *buy the book on Tuesday*, or *V'*, *buy the book*. In (64), however, the phrase *do so* can only replace the *V'*, *put the book on the table*. These suggest that no argument can be outside *do so* and that the phrase *do so* can replace either *V'* or VP with all arguments included within *do so*.

The results of the *do so* test for the Converbial Intransitive Motion Construction are shown below.

(65) a. Mary [went crashing into Jack] on Monday and Jane *did so* on Tuesday, too.

- b. *Mary went [crashing into Jack] on Monday and Jane went *doing so* on Tuesday, too.

The sentence in (65a) suggests that the string *went crashing into Jack* is V'. That is, in this construction, a prepositional phrase is an argument. Furthermore, the sentence illustrated in (65b) suggests that the *-ing* form verb *crashing* and the prepositional phrase *into Jack* do not make a V' constituent even though *into Jack* appears to be an argument of *crashing* as described in (61).⁴

The evidence shown here demonstrates that the main verb independent structure in (56) is not plausible, and that the Converbial Intransitive Motion Construction is mono-clausal.

4.2.2.3 Complex Predicate Structure

Next I will talk about the complex predicate structure. In the structure in (57), the main verb *went* and *screaming* make a constituent V'. However, this constituent is apparently smaller than V' because *do so* cannot replace it, as shown in (66).

- (66) a. John [_v went screaming down the stairs] and Mary *did so*, too.
 b. *John [went screaming] down the stairs and Mary *did so* up the stairs, too.

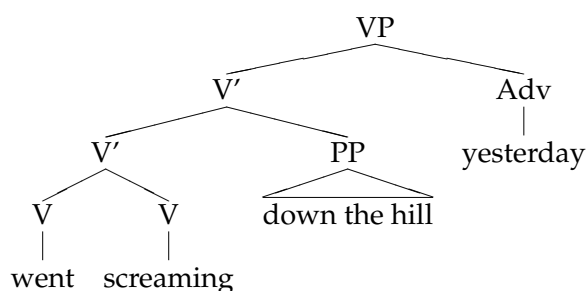
Thus, we need a new category, larger than V and smaller than V'.⁵

Here, the constituent structure in which the main verb and the *-ing* form verb make a constituent and sentences suggesting such a structure are reviewed.

⁴If we make a pause between *went* and *crashing* in the sentence in (65b), the resulting sentence may be accepted since the sentence can be interpreted as an example of the Free Participial construction. That is, the contrast in the sentences illustrated in (65) seems to be evidence rejecting the structure in (56) but if the string *crashing into Jack* is considered to be a subordinate clause, the result of the *do so* test can be changed.

⁵Since the two verbs *went screaming* are morphologically two words, I avoid applying V to them.

(67)

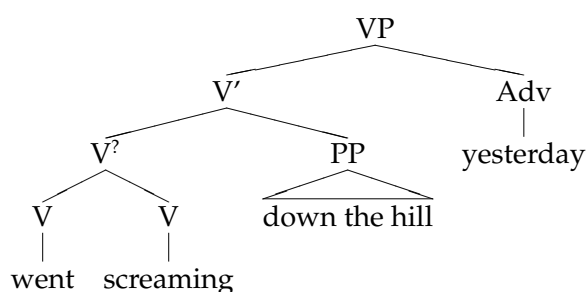


(68) a. *Bill went **loudly** screaming down the hill.

b. *Bill went **out** screaming down the hill.

I adopt $V^?$ in my analysis. The newly created label is larger than V^0 but smaller than V' (cf. Kageyama 1993, Booij 1990). The constituent structure applying the $V^?$ is drawn below.

(69)



Here the $V^?$ is a label for a complex predicate, composed of an inflecting verb and a non-finite form verb. The fact that a non-finite form verb such as *whistling* cannot take an argument (e.g., *a tune*) shows that the $V^?$ is a complex predicate. That is, the argument structure of *went screaming* is different from that of *scream*.

I will give further evidence to support this suggestion that a main verb and an *-ing* form verb go together, and function as a complex predicate in this construction based on quantitative corpus data drawn from the *BNC* in the next section.

4.3 Corpus Studies

In this section, I will investigate the Converbial Intransitive Motion Construction by utilizing corpus data. Furthermore, I will compare this construction with the Intransitive Motion Construction, and conclude that one construction is functionally different from the other. In order to collect examples of the two constructions, I conducted searches of all data matching the following syntactic schemata.

- (70) a. Subj Verb (Motion Verb) Obl (The Intransitive Motion Construction)
- b. Subj Verb (Motion Verb) V-ing Obl⁶
- (The Converbial Intransitive Motion Construction)

The corpus data shown below include statistically analyzed values as well as raw frequencies.

4.3.1 The Intransitive Motion Construction

Before looking at the corpus data of the Converbial Intransitive Motion Construction, I will take a closer look at the Intransitive Motion Construction in light of the frequencies of the verbs appearing in it. There are 1,539 examples of this construction in the *BNC*.⁷

First of all, let us look at the examples of the Intransitive Motion Construction.

- (71) a. Gazzer **went** into Bella's room. (BNC-ACB)
- b. (...) he had **come** out of the darkness and was full of hope and plans.
- (BNC-ASC)

⁶In the corpus investigation, all verbs listed as 'verbs of motion' (Levin 1993: 263-270) and ones listed in Matsumoto (1997: 130-140) are referred to.

⁷As in the case of the Converbial Intransitive Motion Construction, all verbs of motion listed in Levin (1993: 263-270) and Matsumoto (1997: 130-140) are considered. However, in this case, since the number of examples in the *BNC* is too large to survey, only 1% of all data are randomly sampled and considered.

- (72) a. As he **strode** towards the door, Ashley regarded him with cold eyes. (BNC-JY9)
- b. A watery mist **drifted** along the corridors of the castle. (BNC-HTY)
- (73) a. She lowered her head and **entered** the Stygian darkness. (BNC-AEA)
- b. When I **reached** the spot, I breathed in the herb's mint/ammonia vapours and stared over the landscape. (BNC-APC)

I randomly sampled 1% (1,539 examples) of this construction from the *BNC*, and analyzed this construction. In 4.3.1.1, I will focus on the verbs and path expressions of this construction.

4.3.1.1 Verbs and Path Expressions in the Intransitive Motion Construction

In the Intransitive Motion Construction, many types of verbs occur. They are divided into three kinds based on semantic criteria: deictic motion verbs (e.g., *go* and *come*), manner of motion verbs (e.g., *run* and *stagger*) and path verbs (e.g., *leave* and *reach*).⁸ Deictic motion verbs are seen in (71), manner of motion verbs are in (72) and path verbs are in (73). There are 114 types of verbs in the 1,539 examples of the Intransitive Motion Construction, and deictic motion verbs occur 735 times (47.76%) and this is the most dominant type. As for deictic motion verbs, *go* occurs 424 times and *come* occurs 311 times. That is, *go* occurs more frequently than *come* in this construction. Manner of motion verbs occur 394 times (25.60%). Path verbs occur 284 times (18.45%).

Path, Talmy's term, is also divided into three kinds: SOURCE (e.g., *from* and *out of*), VIA (e.g., *across* and *towards*) and GOAL (e.g., *to* and *into*). GOAL is found 638 times, VIA 466 times and SOURCE 261 times in this construction. In Table 4.1, path expressions

⁸There are some verbs that should not be grouped into these three kinds of verbs. For example, *travel* and *move* do not represent manner of motion. In this thesis, I classified these verbs as 'Other.'

occurring more than 15 times in this construction are sorted into three kinds: SOURCE, VIA and GOAL.

Table 4.1: Path Expressions in the Intransitive Motion Construction

SOURCE		VIA		GOAL	
PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.
<i>from</i>	92	<i>back</i>	74	<i>to</i>	359
<i>out</i>	78	<i>through</i>	59	<i>into</i>	79
<i>off</i>	35	<i>down</i>	52	<i>in</i>	72
<i>out of</i>	32	<i>away</i>	40	<i>at</i>	20
		<i>up</i>	39	<i>on</i>	15
		<i>over</i>	23		
		<i>for</i>	21		
		<i>across</i>	20		
		<i>round</i>	19		
		<i>along</i>	16		
		<i>towards</i>	15		
...		...		...	
TOTAL 261		TOTAL 466		TOTAL 638	

In this construction, path expressions representing GOAL (e.g., *to* and *into*) occur statistically more significantly than path expressions representing VIA ($\chi^2=44.4698$; $df=1$; $p<.0001$). That is, this construction is GOAL-oriented. The results are consistent with what Ikegami (1987) proposed. I will show that GOAL is not dominant in the Converbial Intransitive Motion Construction in 4.3.2.

Next, let us look at the relation between verbs and path expressions in the Intransitive Motion Construction. Only the highest-frequency 10 intransitive motion verbs and their Path types in this construction are listed in Table 4.2.⁹

⁹Cases in which a path expression does not occur are classified into the x column.

Table 4.2: High-Frequency Verbs and Path Types

VERBS (n)	SOURCE	VIA	GOAL	x
<i>go</i> (424)	59 (13.9%)	128 (30.2%)	237 (55.9%)	0 (0%)
<i>come</i> (311)	85 (27.3%)	93 (29.9%)	133 (42.8%)	0 (0%)
<i>leave</i> (71)	4 (5.6%)	10 (14.1%)	1 (1.4%)	56 (78.9%)
<i>move</i> (59)	8 (13.6%)	26 (44.1%)	25 (42.4%)	0 (0%)
<i>reach</i> (47)	0 (0%)	0 (0%)	0 (0%)	47 (100%)
<i>return</i> (47)	2 (4.3%)	2 (4.3%)	43 (91.5%)	0 (0%)
<i>arrive</i> (39)	5 (12.8%)	0 (0%)	34 (87.2%)	0 (0%)
<i>run</i> (35)	6 (14.3%)	17 (48.6%)	6 (17.1%)	0 (0%)
<i>climb</i> (33)	4 (12.1%)	7 (21.2%)	13 (39.4%)	9 (27.2%)
<i>cross</i> (31)	1 (3.2%)	3 (9.7%)	4 (12.9%)	23 (74.2%)

As shown in Table 4.2, *go*, *come*, *return*, and *arrive* tend to be followed by path expressions representing GOAL, while *run* is likely to be followed by path expressions representing VIA. That is, some kinds of verbs prefer VIA to GOAL, and other kinds of verbs prefer GOAL to VIA. *Go*, *come*, *return*, and *arrive* do not represent manner of motion, whereas *run* is a manner of motion verb.

In order to generalize the relation between verb types and Path types, I summarized all verbs occurring in this construction in Table 4.3.

Table 4.3: Verb Types and Path Types

	SOURCE	VIA	GOAL	x
DEICTIC MOTION VERBS	144 (19.59%)	221 (30.07%)	370 (50.34%)	0 (0%)
MANNER OF MOTION VERBS	78 (19.95%)	176 (46.01%)	124 (31.47%)	16 (3.55%)
PATH VERBS	18 (6.34%)	25 (8.80%)	86 (30.28%)	155 (54.58%)
OTHER	21 (16.67%)	44 (34.92%)	58 (46.03%)	3 (2.38%)
SUM	261 (16.96%)	466 (30.28%)	638 (41.46%)	174 (11.30%)

As shown in Table 4.3, deictic motion verbs (e.g., *go* and *come*) prefer GOAL to VIA, whereas manner of motion verbs such as *run* and *stagger* prefer VIA to GOAL. Although

the reason the Intransitive Motion Construction is GOAL-oriented may be that deictic motion verbs occur very frequently in this construction, this construction as a whole is GOAL-oriented.

4.3.2 The Converbal Intransitive Motion Construction

Next, let us look at the Converbal Intransitive Motion Construction. I collected all examples of this construction in the *BNC*. There are 1,130 instances of this construction in the corpus, and all of these examples are analyzed.

4.3.2.1 Main Verbs and Path Expressions

In this subsection, I focus on main verbs and path expressions in this construction. There are only 13 types of main verbs: two types of deictic motion verbs; nine types of manner of motion verbs; and two types of other verbs. Deictic motion verbs (e.g., *go* and *come*) occur 1,071 times (94.8%) and these are the most dominant, whereas manner of motion verbs (e.g., *run* and *fly*) occur only 53 times (4.7%), and *drop* and *move* occur three times, respectively.¹⁰ As to Path, GOAL is found 347 times, VIA 582 times, and SOURCE 261 times in this construction. The results of the corpus investigation of this construction are shown in Table 4.4 and Table 4.5.¹¹

¹⁰The verbs *drop* and *move* do not represent manner of motion. Thus, they are classified as 'Other.'

¹¹In Table 4.4, only path expressions occurring more than 15 times in this construction are listed.

Table 4.4: Path Expressions in the Converbal Intransitive Motion Construction

SOURCE		VIA		GOAL	
PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.
<i>out of</i>	64	<i>down</i>	117	<i>in</i>	99
<i>out</i>	56	<i>up</i>	84	<i>into</i>	93
<i>off</i>	30	<i>through</i>	69	<i>to</i>	54
<i>from</i>	27	<i>back</i>	66	<i>up to</i>	15
		<i>across</i>	36		
		<i>over</i>	36		
		<i>towards</i>	33		
		<i>along</i>	24		
		<i>round</i>	19		
...		...		...	
TOTAL 201		TOTAL 582		TOTAL 347	

As shown in Table 4.4, *down* occurs most frequently in this construction, path expressions representing VIA occur statistically more significantly than path expressions representing GOAL ($\chi^2=100.0798$; $df=1$; $p<.0001$). In other words, VIA is the most dominant in this construction. That is, this construction is 'VIA-oriented', though the Intransitive Motion Construction is 'GOAL-oriented' (see 4.3.1.1).

Moreover, the relation between main verbs and path expressions in the Converbal Intransitive Motion Construction is shown in Table 4.5.

Table 4.5: Main Verbs and Path Expressions

VERBS (n)	SOURCE	VIA	GOAL
<i>come</i> (844)	156 (18.5%)	431 (51.1%)	257 (30.5%)
<i>go</i> (227)	31 (13.7%)	129 (56.8%)	67 (29.5%)
<i>run</i> (37)	9 (24.3%)	16 (43.2%)	12 (32.4%)
<i>fly</i> (6)	2 (33.3%)	2 (33.3%)	2 (33.3%)
<i>drop</i> (3)	0 (0%)	0 (0%)	3 (100%)
<i>move</i> (3)	1 (33.3%)	1 (33.3%)	1 (33.3%)
<i>stride</i> (2)	1 (50%)	0 (0%)	1 (50%)
<i>stagger</i> (2)	0 (0%)	0 (0%)	2 (100%)
<i>march</i> (1)	0 (0%)	1 (100%)	0 (100%)
<i>rush</i> (1)	1 (100%)	0 (0%)	0 (0%)
<i>roll</i> (1)	0 (0%)	1 (100%)	0 (0%)
<i>shamble</i> (1)	0 (0%)	1 (100%)	0 (0%)
<i>slide</i> (1)	0 (0%)	0 (0%)	1 (100%)
<i>walk</i> (1)	0 (0%)	0 (0%)	1 (100%)
SUM	201 (17.8%)	582 (51.5%)	347 (30.7%)

As shown in Table 4.5, *come* occurs more frequently than *go* in this construction (cf. 4.3.1.1). Moreover, deictic motion verbs (i.e., *go* and *come*) prefer VIA to GOAL (cf. 4.3.1.1). I will discuss this point in detail in 4.3.3.

4.3.2.2 Collostructional Analysis of Main Verbs

In this subsection, I examine how strongly this construction prefers *come* to *go* statistically. I apply Collostructional Analysis to the main verbs occurring in this construction. As I mentioned in Chapter 2, Collostructional Analysis is a method to measure the interaction of a verb and a construction associated with it.

The results of Collostructional Analysis of the main verbs in this construction are given in Table 4.6.

Table 4.6: Collostructional Strength of Inflecting Verbs

COLLEXEME (n)	COLLO. STRENGTH	COLLEXEME (n)	COLLO. STRENGTH
<i>come</i> (844)	Infinite	<i>drop</i> (3)	1.144
<i>go</i> (227)	140.061	<i>march</i> (1)	0.857
<i>run</i> (37)	23.375	<i>slide</i> (1)	0.621
<i>fly</i> (6)	3.722	<i>rush</i> (3)	0.614
<i>stagger</i> (2)	2.926	<i>roll</i> (1)	0.533
<i>stride</i> (1)	2.179	<i>move</i> (1)	0
<i>shamble</i> (2)	2.247	<i>walk</i> (1)	0

These results show that *come* is very strongly associated with the Converbal Intransitive Motion Construction.¹² On the other hand, *go* is not so strongly associated with this construction. From these results, I conclude this construction is indubitably *come*-oriented.

4.3.2.3 -Ing Form Verbs in the Converbal Intransitive Motion Construction

Unlike the Intransitive Motion Construction, the Converbal Intransitive Motion Construction involves an *-ing* form verb. The high-frequency *-ing* form verbs are listed in (74).

- (74) *running* (121), *rushing* (62), *flying* (47), *crashing* (44), *hurtling* (24), *tumbling* (24),
hurrying (23), *screaming* (22), *charging* (21), *striding* (20), etc.

As shown in (74), manner of motion verbs such as *running* and *rushing* tend to occur frequently, but action verbs such as *screaming* can be seen in this construction.

¹²The 'Infinite' means a word associates with a construction so strongly that we cannot calculate the value. For your information, I use the negative logarithm to the base of ten of the exact *p*-value, following Gries, Hampe, and Schönefeld (2005: 648).

4.3.2.4 Collostructional Analysis of *-ing* Form Verbs

Next, I apply Collostructional Analysis to *-ing* form verbs occurring in this construction. Since the data is very large, I cannot show all results of this analysis. Thus, I show only a part of the data in Table 4.7.

Table 4.7: Collostructional Strength of *-ing* Form Verbs

COLLEXEME (n)	COLLO. STRENGTH	COLLEXEME (n)	COLLO. STRENGTH
<i>running</i> (121)	128.492	<i>walking</i> (18)	28.685
<i>rushing</i> (62)	115.540	<i>bounding</i> (17)	27.019
<i>flying</i> (47)	82.268	<i>bursting</i> (15)	25.437
<i>crashing</i> (44)	61.663	<i>riding</i> (14)	24.694
<i>hurtling</i> (24)	60.901	<i>roaring</i> (14)	24.636
<i>tumbling</i> (24)	48.874	<i>trotting</i> (14)	24.367
<i>hurrying</i> (23)	37.294	<i>pouring</i> (13)	22.715
<i>screaming</i> (22)	36.307	<i>storming</i> (13)	21.076
<i>charging</i> (17)	36.126	<i>galloping</i> (12)	18.657
<i>striding</i> (20)	32.959	<i>barging</i> (11)	17.881

Table 4.7 shows that *running*, *rushing*, *crashing*, and *flying* are strongly attracted to this construction. The reason *running* and *rushing* are attracted to this construction is that they represent physically energetic actions. Examples in which attracted *-ing* form verbs occur, are given in (75).

- (75) a. She came **running** down the stairs. (BNC-HGV)
- b. And Manyara came **rushing** out of the temple. (BNC-F72)
- a. She might even fall into the telescope lens and go **crashing** down upon herself. (BNC-H8S)
- b. The bullet goes **flying** over my head and lands in the field behind me. (BNC-B0P)

Most verbs in Table 4.7 are manner of motion verbs representing physically energetic action. However, the collocational strength of *screaming*, an action verb, is high. This is because it represents perceptually salient action.

4.3.2.5 The Interaction between Main Verbs and *-ing* Form Verbs

Next, let us look at the interaction between main verbs and *-ing* form verbs in this construction. Is there a characteristic relation between main verbs and *-ing* form verbs in the Converbial Intransitive Motion Construction? Either a deictic motion verb (e.g., *go*) or a manner of motion verb (e.g., *stagger*) occurs as an inflection verb, and either a manner of motion verb (e.g., *running*) or an action verb (e.g., *screaming*) occurs as a non-finite form verb. That is, there are four combination patterns regarding the co-occurring relation between the two verbs as in (76).¹³

- (76)
- A DEICTIC MOTION VERB x A MANNER OF MOTION VERB
 - A DEICTIC MOTION VERB x AN ACTION VERB
 - A MANNER OF MOTION VERB x A MANNER OF MOTION VERB
 - A MANNER OF MOTION VERB x AN ACTION VERB

Indeed, all of these four patterns are found in the 1,124 examples drawn from the *BNC*, but the frequency of instances of each pattern is skewed. The results from classifying 1,124 examples into four patterns are given in Table 4.8.

¹³As I have already noted, *drop* (3) and *move* (3) are excluded

Table 4.8: Tendency as to the Combination of Main Verbs and *-ing* Form Verbs

	MANNER OF MOTION VERBS	ACTION VERBS	SUM
DEICTIC MOTION VERBS	897	174	1,071
MANNER OF MOTION VERBS	4	49	53
SUM	902	228	1,124

$$\chi^2=179.649; df=1; p<.0001 \text{ (Yates's Correction)}$$

The upper left cell, in which deictic motion verbs occur as main verbs and manner of motion verbs as *-ing* form verbs, is most productive. On the other hand, the lower left cell, in which both verbs are manner of motion verbs, is non-productive. The other two cells in the right row, in which *-ing* form verbs are action verbs, are intermediately productive. Examples of each cell in Table 4.8 are given in (77).

(77) a. A huge dog **came running** towards me. (BNC-H9U)

(A DEICTIC MOTION VERB x A MANNER OF MOTION VERB)

b. She **went humming** upstairs to clean the bathroom. (BNC-ASE)

(A DEICTIC MOTION VERB x AN ACTION VERB)

c. The woman **ran zigzagging** into a cleft on the opposite side of the gully.

(BNC-F9X)

(A MANNER OF MOTION VERB x A MANNER OF MOTION VERB)

d. A mother **ran screaming** from the building. (BNC-CH2)

(A MANNER OF MOTION VERB x AN ACTION VERB)

When a deictic motion verb occurs as a main verb, a manner of motion verb is likely to co-occur to represent a manner of motion. On the other hand, when a manner of motion verb occurs as a main verb, an action verb is likely to co-occur to represent an accompanying action. A manner of motion verb rarely co-occurs with another manner

of motion verb. This is because we cannot, for example, run during walking.

4.3.2.6 Summary of the Converbal Intransitive Motion Construction

We have looked at the results of a corpus investigation of the Converbal Intransitive Motion Construction. The big picture of this construction shows that *come*, a marked deictic motion verb, occurs as a main verb more frequently than *go*. That is, it came into clear view that this construction is not 'GOAL-oriented.' In addition, we found *-ing* form verbs expressing physically energetic or perceptually salient actions such as *running* and *screaming* are likely to occur in this construction.

4.3.3 Comparing Path Expressions in the Two Constructions

In this subsection, I compare path expressions in the two constructions based on the data I have shown so far. First, I show how different the distribution of frequencies associated with path expressions is. Table 4.9 shows an overview.

Table 4.9: Distribution of Path Expressions in Two Intransitive Motion Constructions

	SOURCE	VIA	GOAL	SUM
The Intransitive Motion Construction	261	466	638	1,365
The Converbal Intransitive Motion Construction	201	582	347	1,130

$$\chi^2=85.224; df=2; p<.0001$$

Table 4.9 shows that path expressions representing GOAL tend to occur more often in the Intransitive Motion Construction, whereas path expressions representing VIA are more likely to occur in the Converbal Intransitive Motion Construction.

In order to show the correlation between verbal types and Path types, Cluster Analysis, a multivariable statistical method, is applied. Cluster Analysis is a method

of grouping a set of objects graphically. For example, Gries and Stefanowitsch (2005) use this method of grouping verbs occurring in the Ditransitive Construction.

My analysis was restricted to manner of motion verbs occurring more than five times and two deictic motion verbs in the Intransitive Motion Construction and *go* and *come* in the Converbial Intransitive Motion Construction.¹⁴ These 25 verbs are the treated as cases and three path types are treated as variables in this analysis. The data is summarized in Table 4.10.

Table 4.10: Distribution of Path Expressions of Verbs (Raw Frequencies)

VERBS	SOURCE	VIA	GOAL	VERBS	SOURCE	VIA	GOAL
<i>run</i>	12	17	6	<i>stride</i>	1	4	3
<i>climb</i>	4	7	13	<i>swing</i>	0	7	1
<i>fly</i>	5	8	18	<i>walk</i>	1	2	5
<i>drive</i>	3	15	10	<i>slide</i>	2	3	2
<i>jump</i>	9	10	6	<i>crawl</i>	1	3	2
<i>wander</i>	4	6	3	<i>dash</i>	2	4	0
<i>hurry</i>	1	6	4	<i>flee</i>	2	1	2
<i>slip</i>	5	4	1	<i>march</i>	2	3	0
<i>rush</i>	1	4	4	<i>go</i>	59	128	237
<i>stumble</i>	2	4	3	<i>come</i>	85	93	133
<i>drift</i>	0	7	0	<i>go -ing</i>	31	129	67
<i>leap</i>	2	3	3	<i>come -ing</i>	156	431	257
<i>sail</i>	6	2	0				

In order to apply Cluster Analysis, I converted variables in Table 4.10 to standardized form (z-scores). The standardized data is summarized in Table 4.11.

¹⁴Cases in which path expressions do not occur are excluded.

Table 4.11: Distribution of Path Expressions of Verbs (z-scores)

VERBS	SOURCE	VIA	GOAL	VERBS	SOURCE	VIA	GOAL
<i>run</i>	0.0605	0.9684	-1.0289	<i>stride</i>	-1.0911	0.8729	0.2182
<i>climb</i>	-0.8729	-0.2182	1.0911	<i>swing</i>	-0.7044	1.1446	-0.4402
<i>fly</i>	-0.7835	-0.3428	1.1263	<i>walk</i>	-0.8006	-0.3203	1.1209
<i>drive</i>	-1.0507	0.9401	0.1106	<i>slide</i>	-0.5774	1.1547	-0.5774
<i>jump</i>	0.3203	0.8006	-1.1209	<i>crawl</i>	-1.0000	1.0000	0.0000
<i>wander</i>	-0.2182	1.0911	-0.8729	<i>dash</i>	0.0000	1.0000	-1.0000
<i>hurry</i>	-1.0596	0.9272	0.1325	<i>flee</i>	0.5774	-1.1547	0.5774
<i>slip</i>	0.8006	0.3203	-1.1209	<i>march</i>	0.2182	0.8729	-1.0911
<i>rush</i>	-1.1547	0.5774	0.5774	<i>go</i>	-0.9174	-0.1486	1.0660
<i>stumble</i>	-1.0000	1.0000	0.0000	<i>come</i>	-0.7259	-0.4148	1.1406
<i>drift</i>	-0.5774	1.1547	-0.5774	<i>go -ing</i>	-0.9011	1.0759	-0.1748
<i>leap</i>	-1.1547	0.5774	0.5774	<i>come -ing</i>	-0.9010	1.0759	-0.1749
<i>sail</i>	1.0911	-0.2182	-0.8729				

The result of Cluster Analysis is shown in Figure 4.1. The similarity between cases is measured by Euclidean distance, and the linkage method used here is complete linkage.

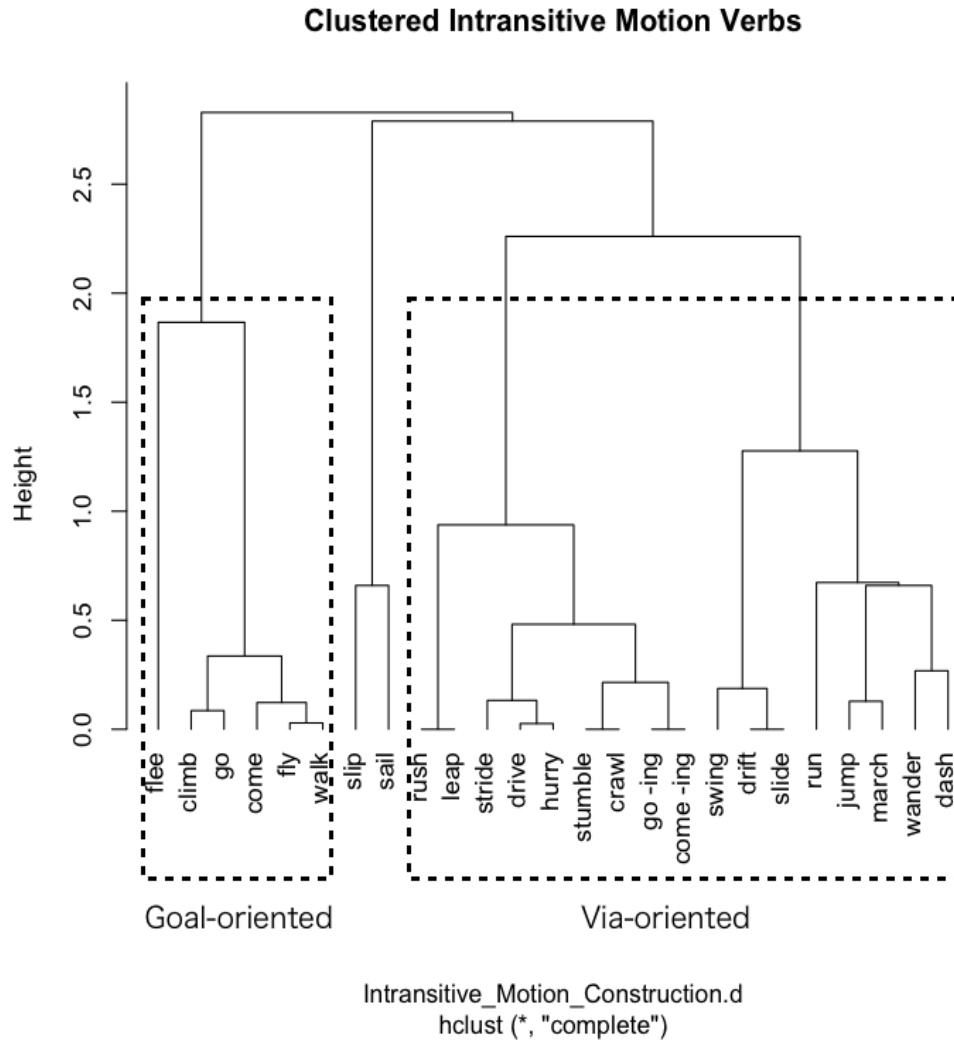


Figure 4.1: The Relation between Verbal Types and Path Types

In Cluster Analysis, similar cases (i.e., verbs) are grouped together in an earlier stage. For example, in Figure 4.1, *go* and *come* in the Converbial Intransitive Motion Construction (i.e., *go -ing* and *come -ing*) are grouped in a very early stage, and then they are grouped in another cluster composed of *stumble* and *crawl*.

The most interesting point in Figure 4.1 is that deictic motion verbs (i.e., *go* and *come*) in the Converbial Intransitive Motion Construction belong to a cluster composed

of many kinds of manner of motion verbs. On the other hand, *go* and *come* in the Intransitive Motion Construction belong to another cluster composed of *flee*, *climb*, *come*, *fly*, and *walk*.

From Figure 4.1, I conclude that *go* and *come* in the Converbal Intransitive Motion Construction tend to co-occur with path expressions representing *VIA*. This is because, as I have noted in 4.3.1.1, manner of motion verbs in the Intransitive Motion Construction are likely to be followed by path expressions representing *VIA*. In fact there is no significant difference between deictic motion verbs in the Converbal Intransitive Motion Construction and manner of motion verbs in the Intransitive Motion Verbs in regard to Path types, as shown in Table 4.11.¹⁵

Table 4.12: Deictic Motion Verbs in CIMC and Manner of Motion Verbs in IMC

	SOURCE	VIA	GOAL
DEICTIC MOTION VERBS IN CIMC	187	560	324
MANNER OF MOTION VERBS IN IMC	78	176	124

$$\chi^2=3.932; df=2; p=.140$$

Considering these facts as to the relation between verbs and path expressions, I can explain why path expressions representing *VIA* are likely to occur in the Converbal Intransitive Motion Construction (see 4.3.2.1). Manner of motion verbs in the Intransitive Motion Construction tend to be followed by path expressions representing *VIA*, whereas deictic motion verbs (i.e., *go* and *come*) tend to be followed by those representing *GOAL* or *SOURCE* (see 4.3.1.1). However, *go* and *come* occurring in the Converbal Intransitive Motion Construction are likely to be followed by particles or prepositional phrases representing *VIA*. This is because *-ing* form verbs representing a manner of

¹⁵The CIMC stands for the Converbal Intransitive Motion Construction, and the IMC stands for the Intransitive Motion Construction.

motion or an accompanying action follow these verbs, and these complex predicates function like manner of motion verbs. In short, when a manner of motion verb is used, the process of motion is focused, whereas when a speaker pays attention to the result of motion, a deictic motion verb tends to be used.

4.3.4 Summary of Corpus Study

In this section, I have shown various kinds of data associated with two kinds of intransitive motion constructions, and analyzed the data statistically. As a result, the characteristics of the Converbial Intransitive Motion Construction have been revealed.

First, this construction is very strongly attracted to *come* rather than *go*. Second, high-frequency non-finite form verbs occurring in this construction represent physically energetic and perceptually salient actions. Third, this construction is VIA-oriented, in contradiction to the nature of language.

4.4 Theoretical Discussion

In this section, I discuss these properties of the Converbial Intransitive Motion Construction from the perspective of Construction Grammar. First of all, I define the Converbial Caused-Motion Construction as a pair of form and meaning as shown in (78).

- (78) a. Subj V V-*ing* Obl
b. X GO Y with/by V-*ing*

As I have noted in Chapter 1, each construction occupies a 'niche' in the grammatical system of a language. In other words, a construction is necessarily different from

another construction functionally/semantically. Then, what kind of 'niche' does the Converbal Intransitive Motion Construction occupy? In this section, I answer this question theoretically.

4.4.1 Functional Explanation

The reason why the Converbal Intransitive Motion Construction exists is that it occupies a constructional 'niche' in the grammatical system in English. First, the most prototypical examples of this construction are given in (79).

- (79) a. Emma **came running** *towards her* (...). (BNC-HWE)
b. He **came rushing** *across the garden* (...). (BNC-ADS)
c. It **came crashing** *through the window*. (BNC-G07)

In the examples in (79), a marked deictic motion verb (i.e., *come*) is followed by *-ing* form verbs, representing a physically energetic manner of motion. In addition, a path expression representing *VIA* follows a non-finite form verb. The Intransitive Motion Construction expresses the same events in (79) as the sentences in (80)-(81) illustrate.

- (80) a. Emma **ran** towards her.
b. He **rushed** across the garden.
c. It **crashed** through the window.
- (81) a. Emma **came** towards her.
b. He **came** across the garden.
c. It **came** through the window.

Each sentence in (80) involves only a manner of motion verb, and thus information associated with deixis is not involved. Each sentence in (81) involves only a deictic

motion verb, and thus information associated with manner of motion is not involved. On the other hand, the examples given in (82) are not prototypical examples of the Converbial Intransitive Motion Construction in that the main verb is *go* and the path expression is *to*. These non-prototypical examples can be replaced by simpler examples shown in (82)-(83) without the loss of significant meaning.

(82) a. My son **went running** *to* Irene's house to see what was the matter.
(BNC-HH3)

b. When he had leisure he **went bicycling** *to* Lincolnshire village churches.
(BNC-A68)

(83) a. My son **ran** *to* Irene's house to see what was the matter.
b. When he had leisure he **bicycled** *to* Lincolnshire village churches.

Moreover, this construction has another grammatical character. Look at the examples in (84), where action verbs such as *muttering* and *crying* follow a deictic motion verb or a manner of motion verb.

(84) a. The old woman shouldered her bag again, giving him a baleful look, and
went muttering away. (BNC-FUB)

b. Looking up, he saw me, and at once jumped up and **ran crying** in terror
into the bushes! (BNC-HGS)

These examples cannot be replaced by simplex predicate constructions, as shown below.

(85) a. *The old woman shouldered her bag again, and **muttered** away.
b. *He saw me, and at one jumped and **cried** in terror into the bushes.

This is the reason why an action verb as an *-ing* form verb follows a motion verb in the Converbal Intransitive Motion Construction.¹⁶ In other words, when we need to refer to an accompanying action, we cannot help using this construction.

For these reasons, the Converbal Intransitive Motion Construction functions differently from the Intransitive Motion Construction, and occupies a 'niche' in the English grammatical system. These results do not conflict with suggestions by Goldberg (1995: 67). Goldberg argues that one construction is different from another semantically/functionally. That is, this construction plays a different role from the Intransitive Motion Construction even though it is not as productive as the unmarked construction.

4.4.2 Four Subconstructions

As discussed in Chapter 2, Goldberg (1995) assumes constructions, pairs of meaning and form, are independent of verbs. However, as I discussed in Chapter 2, I pay attention to each component of a complex predicate. In the following, I assume four kinds of subconstructions of the Converbal Intransitive Motion Construction.

4.4.2.1 Subject V MotionV-*ing* Real PATH

First look at the most prototypical and productive subconstruction, where an *-ing* form verb is a manner of motion verb. Examples of this subconstruction are given below.

- (86) a. Colley the Mason **came blundering** *through the crowds* (...). (BNC-HTN)
- b. The dumpy woman **went bustling** *into a large stone flagged kitchen* (...)
- (BNC-C85)

¹⁶Some sound emission verbs such as *whistle* are used in the Intransitive Motion Construction.

The PATH argument, *through the crowds* and *into a large stone flagged kitchen*, are relevant to either a main verb or a non-finite form verb since both of the two verbs can take a PATH argument.

4.4.2.2 Subject V ActionV-ing Real PATH

Secondly, look at the subconstruction in which an *-ing* form verb is an action verb. Examples of this subconstruction are given in (87).

- (87) a. Hysterically light with fear, I **ran** sobbing *to my room*. (BNC-FU7)
b. She turned to look at the registrar as he **strode** smiling *into the room* (...)
(BNC-JY0)

In this subconstruction, an action verb such as *sob* or *smile* does not require a PATH argument when used in the Intransitive Motion Construction. Thus, *to my room* and *into the room* are not relevant to the *-ing* form verbs. In other words, the directional phrase following an *-ing* form verb is relevant to a main verb such as *run* and *stride*.

4.4.2.3 Subject V crash-typeV-ing pseudo PATH

The third subconstruction is a little tricky because the prepositional phrase does not in fact represent PATH, and I call such a prepositional phrase 'pseudo PATH.' Examples of this subconstruction are given below.

- (88) She prayed for Oliver to come **crashing** *into the flat* (...). (BNC-GV2)

In the example in (88), the subject referent does not come *into the flat*. That is, the preposition, *into*, represents just a GOAL of motion, and the sentence in (89) is acceptable.

- (89) Oliver came crashing into the flat, but he didn't come into the flat.

This fact means that this pseudo PATH argument is not relevant to a main verb (i.e., *come*). It is relevant to an *-ing* form verb (i.e., *crashing*).

4.4.2.4 Subject *go sprawling* location PATH

The last subconstruction is very specific because both the main verb and the *-ing* form verb are fixed to *go* and *sprawling*, and a prepositional phrase represents 'location PATH.' There are only two examples of this subconstruction in the *BNC*, and the examples are given in (90).

- (90) a. (...) as yet another pilgrim went **sprawling** *on the wet peat*. (BNC-CHH)
b. (...) she lost her balance and went **sprawling** *on the floor*. (BNC-H8F)

The complex predicate, *go sprawling*, represents 'fall over', and such a meaning is derived from *go*, *sprawl* and a prepositional phrase. After a subject referent went sprawling on the floor, he/she will sprawl on the floor. Thus, the prepositional phrase in (90) is relevant not to *go* but to *sprawling*, but it is not the argument of *sprawling*. The prepositional phrases *on the wet peat* and *on the floor* seem to represent LOCATION. However, these prepositional phrases are interpreted as PATH in this subconstruction. That is, the meaning of this subconstruction can be reduced to each component constituting the complex predicate *go sprawling* and a prepositional phrase.

4.4.3 Goldberg's Approach to the Converbial Intransitive Motion Construction

Now, I apply Goldberg's Construction Grammar to the Converbial Intransitive Motion Construction. This construction is represented as follows.

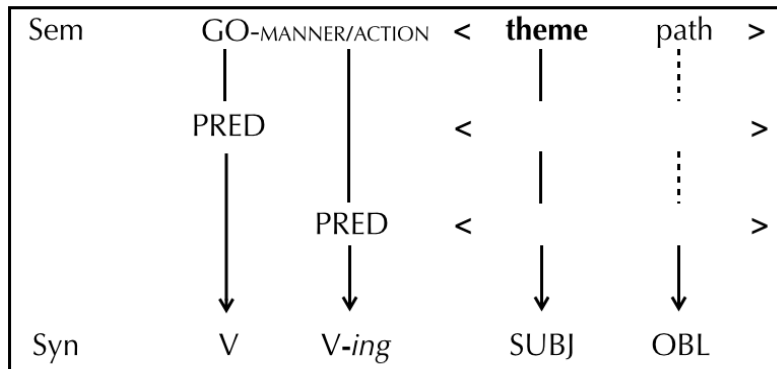


Figure 4.2: The Converbal Intransitive Motion Construction

This construction has two argument roles: *THEME* and *PATH*. The *THEME* argument fuses with the participant roles of both verbs. In the example in (91), Both the *THEME* argument and the *PATH* argument of this construction are fused with the participant roles of both *come* and *running*.

(91) He **came running** back from the grave (...). (BNC-K8S)

The composite fused structure of the Converbal Intransitive Motion Construction with *come* and *running* is represented as follows.

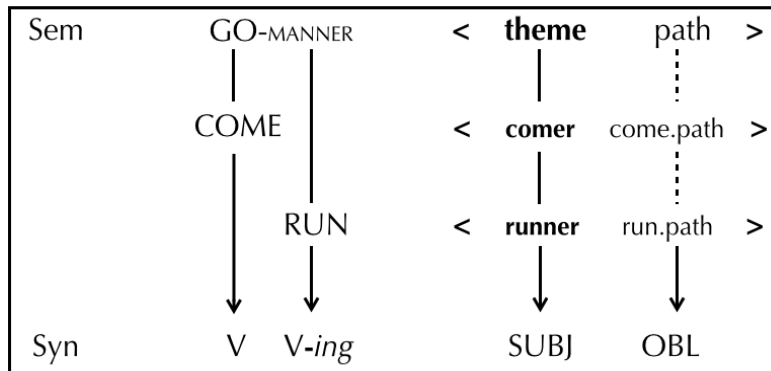


Figure 4.3: Composite fused structure of the CIMC (*come* and *running*)

However, the PATH argument role does not necessarily fuse with the participant roles of both verbs. In (92), the PATH argument fuses with only a participant role of the inflecting verb since the action verb (i.e., *sob*) cannot take a PATH argument in the Intransitive Motion Construction.

(92) Hysterically light with fear, I **ran sobbing** to my room. (BNC-FU7)

The composite fused structure of the Converbial Intransitive Motion Construction with *run* and *sobbing* is represented as follows.

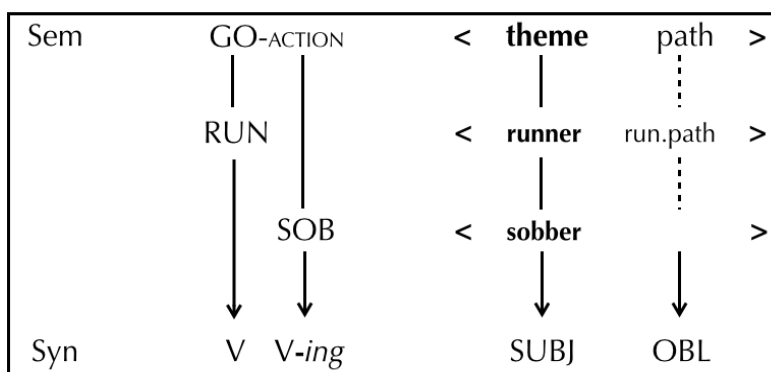


Figure 4.4: Composite fused structure of the CIMC (*run* and *sobbing*)

In the examples in (93), the PATH argument fuses with only the participant roles of

the *-ing* form verbs.¹⁷

- (93) a. She prayed for Oliver to **come crashing** into the flat (···) (BNC-GV2)
 b. (···) she lost her balance and **went sprawling** on the floor. (BNC-H8F)

The composite fused structure of the Converbal Intransitive Motion Construction with *go* and *sprawling* is represented as follows.¹⁸

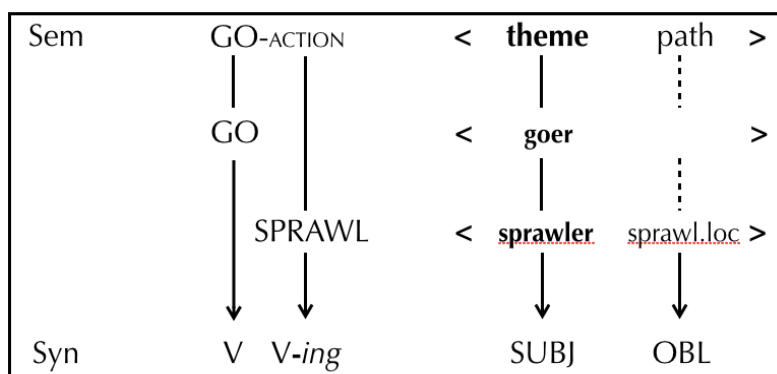


Figure 4.5: Composite fused structure of the CIMC (*go* and *sprawling*)

In this pattern in Figure 4.5, the *sprawl.loc* is fused with the *PATH* argument associated with this construction. As the result of fusion, the *sprawl.loc* is interpreted as a *PATH*. If it were not for the Converbal Intransitive Motion Construction as an argument structure construction, such expressions as (93) would not be created.

4.4.4 A Network of Subconstructions of the CIMC

So far, we have looked at the four subconstructions of the Converbal Intransitive Motion Construction. Figure 4.6 shows how these subconstructions are combined (see also Langacker 1987; 1991).

¹⁷When an *-ing* form verb is *sprawling*, a prepositional phrase is not the argument of the verb. Nevertheless, since such a prepositional phrase is relevant to *sprawling* in this construction, *sprawl* is

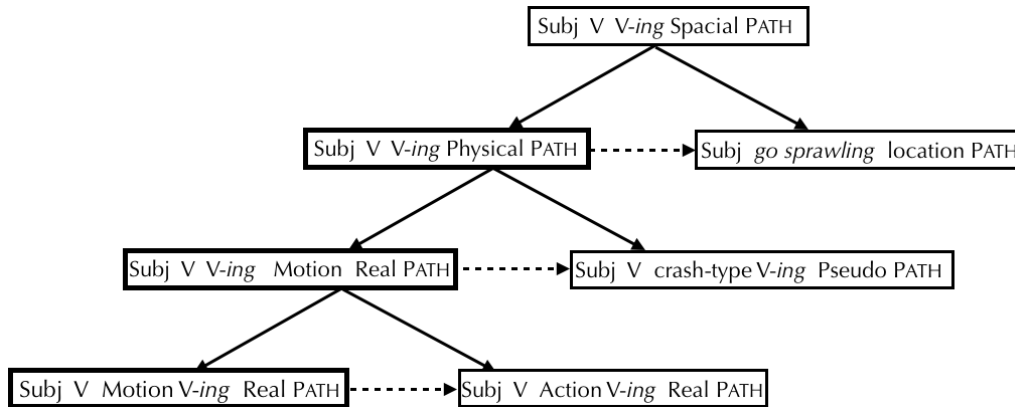


Figure 4.6: A Network of Subconstructions of the CIMC

The most productive subconstruction is the Subj V MotionV-ing Real PATH subconstruction, in which a prepositional phrase is necessarily relevant to either a main verb or a non-finite form verb. The reason why this subconstruction is most productive is that an *-ing* form verb is a manner of motion verb. Comparing manner of motion with accompanying action, manner of motion has a deeper relationship with this construction because this construction represents motion events. Manner of motion (e.g., *running* and *staggering*) is an act, relevant to the locomotion of a subject referent, whereas accompanying action (e.g., *whistling* and *smiling*) is an act, not directly relevant to locomotion. For this reason, the Subj V ActionV-ing Real PATH subconstruction is less productive than the Subj MotionV-ing Real PATH subconstruction.

It should be noted that a common grammatical character is shared by the Subj V MotionV-ing Real PATH subconstruction and the Subj V ActionV-ing Real PATH subconstruction. Obliques in both subconstructions are PATH arguments. According to this common feature, a schematic construction, Subj V V-ing Real PATH, is formed. Of 1,130

regarded as a verb that has two participant roles in this thesis.

¹⁸The participant role, *sprawl.loc*, represents a LOCATION associated with *sprawl*.

examples, most cases are subsumed by this schematic construction.

However, the Subj V crash-typeV-*ing* Pseudo PATH subconstruction is not subsumed by the schematic construction because the Oblique in the subconstruction is not a pure PATH argument, as shown in (94).

(94) She prayed for Oliver to come **crashing** *into the flat* (…). = (88)

Thus, this subconstruction is formed as an extensional construction from a schematic construction, Subj V V-*ing* Real PATH.

In addition, a schematic construction, the Subj V V-*ing* PATH, and the Subj V crash-typeV-*ing* Pseudo PATH subconstruction share a commonality. That is, the obliques in both constructions are physical PATH. According to this commonality, a schematic construction, the Subj V V-*ing* physical PATH, is formed.

Furthermore, the Converb Intransitive Motion Construction subsumes another subconstruction, the Subj *go sprawling* Location PATH subconstruction. In this construction, obliques such as *on the wet peat* and *on the floor* are PATH arguments of neither main verbs nor -*ing* form verbs, as shown in (95)=(90).

(95) a. (…) as yet another pilgrim went **sprawling** *on the wet peat*. (BNC-CHH)

b. (…) she lost her balance and went **sprawling** *on the floor*. (BNC-H8F)

This network is based on the Usage-based Model attributed to Langacker (1990; 2000), where a schematic construction is formed by abstracting commonalities from more concrete expressions. After a schematic unit is formed, we create innovative expressions from the schema. All of the 1,130 examples of this construction contribute to form a highly schematic unit, and they are instances of the schematic constructions as well.

4.4.5 Predictability of the Converbal Intransitive Motion Construction

As I noted in 4.3, a corpus investigation has revealed the nature of the Converbal Intransitive Motion Construction. For example, *come* occurs more frequently than *go*, and *come* tends to co-occur with *running* and *rushing*. These facts cannot be predicted from only the meaning of *come* or *running*. However, we can explain why this construction has such preferences in other terms: this corpus study shows that one construction is different from another construction functionally and/or semantically.

How about some rhetorical expressions of this construction? An example of such an expression is given in (96).

(96) Someone's going to **go flying** if you don't pick up these toys. (OALD^{6th})

As Ando (2005: 237) points out, such an expression as (96) is, to some extent, idiosyncratic. This is because the complex predicate *go flying* can mean 'tumbling to one's knees.' Such a meaning is observable in the example of the Subj *go sprawling* subconstruction, as well. In these expressions, a somewhat dynamic meaning, 'falling down' or 'tumbling to one's knees,' emerges. Or perhaps, such a dynamic meaning is attributed to the prototypical meaning of this construction (see 4.3).

As I have already discussed syntactically, this construction is mono-clausal even though two verbs occur in a single clause. In addition, in terms of constituent structure, the two verbs constitute a single complex predicate. This complex predicate behaves like a single predicate, and a dynamic meaning emerges.

4.4.6 Summary of Theoretical Discussion

The Converb Intransitive Motion Construction is apparently a marked construction since it involves two verbs, and at first glance, this construction seems to be unnecessary in that most motion events can be expressed by the Intransitive Motion Construction. However, a closer look at each grammatical element through a corpus investigation demonstrates how this construction is different from the Intransitive Motion Construction.

In addition, in order to notice such differences between the two intransitive motion constructions, it is necessary to recognize argument structure constructions. It is not until we look at the whole of a construction that we can shed light on a 'niche' a construction occupies. Moreover, networks of subconstructions are very important to understand the meaning of each expression. If we deny the most schematic constructions, we may not understand why the idiomatic expressions such as *go sprawling* and *go flying* get so dynamic a meaning.

4.5 Summary

I first examined the constituent structure of this construction, and collected all examples of this construction in the *BNC*. As a result, important facts are revealed. i) An inflection verb and a non-finite form verb constitute a complex predicate. From the resulting data, I found grammatical features unique to this construction: *come*-orientation and *VIA*-orientation. In order to account for the skewed corpus data, I compared this construction with the Intransitive Motion Construction. The results of the comparison show that one construction is different from the other semantically/functionally. That

is, the Intransitive Motion Construction is *go*-oriented and *GOAL*-oriented, unlike the Converbial Intransitive Motion Construction. Moreover, I discussed the grammatical features of the Converbial Intransitive Motion Construction from the perspective of Construction Grammar and the Usage-based Model, and showed the relation between its subconstructions.

A closer look at the Converbial Intransitive Motion Construction contributes not only to detailed descriptions of the construction but also to the theory of Construction Grammar. Such detailed descriptions of the construction through a corpus investigation suggest each construction occupies a 'niche' in a language system, and the Usage-based Model proposed by Langacker (1990; 2000) is involved in the emergence of innovative expressions.

There is another construction, in which *go* and *come* is followed by an *-ing* form verb, but this construction is different from the Converbial Intransitive Motion Construction in several points. I will examine such a construction in the next chapter.

Chapter 5

The Converbal Purposive Motion Construction

5.1 Introduction

This chapter discusses another construction in which a deictic motion verb is followed by a non-finite (*-ing*) form verb, given in (97) and (98).¹

- (97) a. We **went shopping** in Brighton. (BNC-FB9)
b. We used to **go swimming** there a lot. (BNC-KC4)
- (98) a. He always **came looking for** her. (BNC-BP1)
b. Once, Ken **came knocking** at her door. (BNC-J0W)

An *-ing* form verb such as *shopping* and *looking for*, following a deictic motion verb (i.e., *go* and *come*), represents the purpose of moving somewhere. Thus, I name this construction the Converbal Purposive Motion Construction.² I assume that this construction has two subconstructions. One is a subconstruction in which an *-ing* form

¹This chapter is built on Morishita (2011b; 2013b).

²In this construction, the term 'converb' is used in a broader sense than usual.

verb represents a recreational activity. The other is a subconstruction in which an *-ing* form verb represents a searching or visiting activity. In the former subconstruction, for example in (97a), the subject referents shopped after they had arrived at Brighton. On the other hand, in the latter subconstruction, for example in (98a), the subject referent is looking for a person while he is moving.

The semantic relation that the *-ing* form verb has to the main verb in this construction is different from that seen in the Converbal Intransitive Motion Construction, in which the *-ing* form verb represents a manner of motion or an accompanying action, as dealt with in the last chapter. We cannot predict why the *-ing* form has the semantic relation of ‘purpose’ to the main verb in the Converbal Purposive Motion Construction.

This construction is discussed by Visser (1973), Silva (1975), Bolinger (1983), Wierzbicka (1988), Dixon (2005), Schlüter (2005), Swan (2005), and Salkie (2010). In 5.3.1, I will look at the constraint Salkie (2010) proposed. In 5.4, I will discuss the meaning of deictic motion verbs in this construction, and consider what Visser (1973), Dixon (2005), and Schlüter (2005) proposed. In 5.5.1, I will see what Silva (1975) and Swan (2005) pointed out. In 5.5.3, I will refer to Bolinger’s (1983) proposal.

The most salient point of this construction is that a particle or a prepositional phrase representing a PATH cannot follow an *-ing* form verb, as shown in (99) and (100), at least for most speakers.^{3 4}

(99) a. *We went shopping **to** Brighton.

³Of course, when the *-ing* form verb *swimming* in (99b) is interpreted as a verb representing not a purpose but a manner of motion, the sentence is taken to be grammatical. Moreover, when we say *We went shopping in the evening to the mall*, a PATH argument can occur (personal communication: Nishihara Toshiaki). This expression may not be an example of the Converbal Purposive Motion Construction, but I cannot explain why such an expression can be allowed.

⁴The sentences in (99) and (100) can be accepted by speakers of some dialects, but these sentences are treated as ungrammatical in most previous studies (e.g., Swan 2005). Thus, I discuss this construction, following Swan (2005).

- b. *We used to go swimming **to** the shore.
- (100)
- a. *He came looking for her **to** the town.
 - b. *Ken came knocking **to** her door.

This ungrammatical character distinguishes this construction from the Converbial Intransitive Motion Construction.

Generative Grammar has accounted for the number and kind of complements a verb takes in terms of subcategorization in a lexical entry as in (101).

- (101)
- a. *go*: V, [PP]
 - b. *come*: V, [PP]

Subcategorization frames in (101) indicate that both *go* and *come* take a prepositional phrase as an argument, and these subcategorization frames are satisfied in the sentences in (102).⁵

- (102)
- a. Mary went **to the shopping mall**.
 - b. John came **to the room**.

In the sentences in (102), as you can see, both *went* and *came* take a prepositional phrase, *to the shopping mall* or *to the room*, representing a path expression.

I examine the reason why *go* and *come* in the Converbial Purposive Motion Construction do not take a prepositional phrase as an argument. This might be because the meanings of *go* and *come* in the Converbial Purposive Motion Construction are different from those of *go* and *come* in the Intransitive Motion Construction shown in (102). In

⁵In fact, both *go* and *come* may occur without prepositional phrases in sentences. That is, these verbs may or may not co-occur with prepositional phrases. However, in the Converbial Purposive Motion Construction, it is a necessity that any prepositional phrase representing a path expression does not follow an *-ing* form verb.

fact, Visser (1973), Dixon (2005), and Schlüter (2005) claim that the meanings of *go* and *come* had bleached (see 5.4.1). That is, the inability of *go* and *come* to take a directional argument might be due to the meanings of these verbs.

I argue that the Converbal Purposive Motion Construction is mono-clausal. Moreover, there are two constraints on this construction: the subject in this construction is limited to a human being or a higher animal, and the *-ing* form verb must be atelic. I will present not only syntactic evidence to show the mono-clausality of this construction but also semantic evidence to show the constraints on the subject and telicity of this construction.

The organization of this chapter is as follows. Section 2 will examine the syntactic structure of this construction. Section 3 will theoretically discuss constraints on the subject and telicity of this construction. Section 4 will discuss the meanings of the deictic motion verbs (i.e., *go* and *come*), and the argument structures of these verbs based on two kinds of semantic tests suggested by Quine (1960), McCawley (1967), and others. Section 5 will show the results of a corpus investigation of this construction. More than 1,600 instances were drawn from the *BNC*, and they were statistically analyzed to give a solid examination of this construction, and Section 6 will conclude my discussion.

5.2 Syntactic Properties

Before examining the syntactic structure of the Converbal Purposive Motion Construction, I compare this construction with the Free Participial Construction. The deictic motion verb in the main clause of the Free Participial Construction takes a directional argument. Moreover, there are few examples in which the *-ing* form in a subordinate clause of the Free Participial Construction represents 'purpose' of going or coming

somewhere.⁶

In examples of the Free Participial Construction, a clause headed by an *-ing* form verb is obviously a subordinated clause. In other words, the Free Participial Construction is apparently bi-clausal. In the next subsection, I will show that the Converbial Purposive Motion Construction is not bi-clausal.

5.2.1 Constituent Structure

First, we consider which words are grouped together in the Converbial Purposive Motion Construction to show how *come* and *go* are related to an *-ing* form verb. The results of the *do so* replacement are shown below.

- (103) a. We [_{VP} went shopping in Brighton] and they **did so**, too.
b. We [_{V'} went shopping] in Brighton and they **did so** in Eastbourne, too.
c. *We [went] shopping in Brighton and they **did so** hiking in Eastbourne, too.
d. *We went [shopping] in Brighton and they went **doing so** in Eastbourne, too.

The results shown in (103c) and (103d) mean that both *went* and *shopping* must be within V' because no phrase within V' can appear outside *do so*. In addition, the result of (103b) shows that *went* and *shopping* make a V' constituent. Furthermore, (103b) shows that a prepositional phrase such as *in Brighton* is out of V' and thus it is not an argument.

In order to take a closer look at constituent structure, I present other evidence. If a phrase makes a constituent with another, these two cannot be separated by an adverb.

⁶In fact, according to Kortmann (1995: 216-217), only a few (2.3%) *-ing* forms of the Free Participial Construction can represent a purpose. Most *-ing* forms in the Free Participial Construction represent 'accompanying action' (15.4%), 'simultaneity' (14.4%), 'exemplification/specification' (13.5%), 'cause' (12.9%), 'anteriority' (8.6%), and 'result' (7.4%).

In fact an adverb such as *slowly* or *hastily* cannot be put between a main verb and an *-ing* form verb, as shown in (104).

- (104) a. *We went **slowly** hiking in Eastbourne.
b. *We went **hastily** shopping in Brighton.

The results of the adverb insertion shown in (104) give evidence demonstrating that a deictic motion verb and an *-ing* form verb make up a constituent.

Evidence shown in this subsection suggests that this construction is mono-clausal. In the next section, I will discuss constraints on this mono-clausal construction.

5.3 Constraints on the Converbial Purposive Motion Construction

There are some constraints on the Converbial Purposive Motion Construction described in the literature. However, scholars have not discussed why such constraints are imposed on this construction. In this section, I will give a reason for the constraints.

5.3.1 A human subject constraint

First, consider the constraint on the subject of the Converbial Purposive Motion Construction shown in (105).

- (105) a. *John* went swimming in the river.
b. **The fish* went swimming in the river.

Salkie (2010) claims that only humans can be subjects and other animals like fish cannot in this construction. On the other hand, both *go* and *swim* can take a non-human subject in the Intransitive Motion Construction, as shown in the examples of (106)-(107).⁷

⁷A similar constraint is imposed on a construction called the Light Verb Construction, as shown in (iii).

(106) a. *John* went to the shore.

b. *The fish* went to the shore.

(107) a. *John* swam to the shore.

b. *The fish* swam to the shore.

However, I found some examples in which an animal is the subject of this construction, as shown in (108).

(108) a. **The bear** used to go hunting (...). (BNC-G1A)

b. When **bees** go food-collecting in the tropics (...). (BNC-EFF)

The examples in (108) show that Salkie's (2010) proposal is not correct. Since the events represented by this construction are somewhat complex, the subject referent has to plan ahead to going somewhere. Fish cannot plan ahead to swim, but higher animals (or insects) such as bears can plan ahead to hunt. Of course, the subject referents in most examples of this construction are humans.

5.3.2 Atelicity

Another constraint on the Converbial Purposive Motion Construction is associated with telicity (Vendler 1967). In this section, I argue that the telicity of this construction is identical with that of the verb phrase headed by an *-ing* form verb, which occurs as the *-ing* form verb in this construction.

Telicity is a time scale property of a verb or a verb phrase. If a verb phrase is telic, an action or event represented by the verb phrase must be complete. On the other

(iii) a. **The stone* had a roll down the grassy bank.

b. *The stone* rolled down the grassy bank.

(Dixon 2005: 347)

This constraint is likewise not derived from the property of the main verb, *roll*.

hand, if a verb phrase is atelic, an action or event represented by the verb phrase is incomplete.

Examples of telic and atelic events are given in (109)-(110).

- (109) a. John went to the station *in* thirty minutes.
b. *John went to the station *for* thirty minutes.
- (110) a. *Mary shopped at the supermarket *in* thirty minutes.
b. Mary shopped at the supermarket *for* thirty minutes.

Whether a verb phrase is telic or not can be tested by adding *in ... minutes* or *for ... minutes* to sentences. Telic sentences can add *in ... minutes*; on the other hand, in atelic sentences *for ... minutes* can be added.

I applied this test to the Converbal Purposive Motion Construction, and the resulting sentences are shown in (111).

- (111) a. They went shopping *for* three hours.
b. *They went shopping *in* three hours.

The resulting sentences in (111) show that the Converbal Purposive Motion Construction represents an atelic event. The atelic property of this construction can be drawn from the verb phrase, which occurs as the *-ing* form verb in the Converbal Purposive Motion Construction, as shown in (112).⁸

- (112) a. We swam to the shore *in* ten minutes.

⁸Wierzbicka (1988) and Langacker (1991: 24) pointed out that the Light Verb Construction is also atelic. This atelic property of the Light Verb Construction reflects the telicity of the main verb phrase, as shown in (iv).

- (iv) a. *John had a walk *in* ten minutes.
b. John [_{VP} walked to the post office *in* ten minutes].
c. *John [_{VP} walked *in* ten minutes].

- b. We swam *for* ten minutes.
- c. We went swimming *for* ten minutes.

In the sentence in (112a), *swam* is followed by a directional argument *to the shore*, and the sentence is telic. When *swim* is not followed by a GOAL argument, the verb phrase is atelic, as shown in (112b). In the Converbial Purposive Motion Construction, the *-ing* form verb is not followed by a directional argument, and thus this construction is atelic (see also Wierzbicka 1988: 97).

As I have already stated in 5.1, the Converbial Purposive Motion Construction cannot take a directional argument like *to the store*.⁹ This inability to take a directional argument is related with the atelicity of this construction. When a verb phrase, where a motion verb is followed by a directional argument, especially one representing a GOAL in Talmy's term, must be telic.

5.3.3 Summary of Constraints

I have discussed two grammatical characteristics of the Converbial Purposive Motion Construction in this section. i) Only human beings or higher animals can be the subject of this construction since the subject referent has to plan ahead to move somewhere. Lower animals cannot plan ahead. ii) This construction is atelic, and this atelicity is drawn from the verb phrase, which occurs as the *-ing* form verb in this construction.

⁹Wierzbicka (1988: 326) notes that a directional prepositional phrase also does not occur in the Light Verb Construction as shown in (v).

(v) *John had a walk to the post office to post a letter.

(Wierzbicka 1988: 326)

5.4 The Meanings of *Go* and *Come*

In this section, I examine whether or not the meanings of *go* and *come* in the Purposive Motion Construction are different from those of *go* and *come* in the Intransitive Motion Construction.

5.4.1 Bleaching of the Meanings of Deictic Motion Verbs

In some previous studies, it is suggested that the deictic motion verbs in the Purposive Motion Construction had been semantically bleaching (Visser 1973). For example, Schlüter (2005: 228) observes that the inflecting verb is not phonologically stressed but a non-finite form verb is stressed in this construction. Moreover, Dixon (2005: 55) notes *go* and *come* in this construction behave like a secondary verb.¹⁰ If their suggestions are correct, the meanings of deictic motion verbs in the Converbial Purposive Motion Construction are different from those of deictic motion verbs in the Intransitive Motion Construction. To my mind, this does not ring true. In 5.4.3 and 5.4.4, I will examine whether deictic motion verbs are polysemous or not by using two kinds of semantic tests.

5.4.2 Polysemy or Vagueness

There have been many studies on the meaning of a word and many scholars have been concerned about whether a word is polysemous or vague, and several kinds of tests have been proposed (Quine 1960, Zwicky and Sadok 1975, Kempson 1977,

¹⁰An inflecting verb is more likely to be a syntactic head than a non-finite form verb in English. This is an interesting point, but this gap between syntactic headness and phonological and semantic headness does not concern us in this thesis.

Lyons 1977, Geeraerts 1993, Tuggy 1993, among others).¹¹ In the case of polysemy, a given phonological form is associated with two or more meanings and they are related to but distinct from each other. On the other hand, in the case of vagueness, a given phonological form is associated with an abstract single meaning and has non-distinguished subcases. However, it is not easy to distinguish polysemy from vagueness. That is, it is difficult to confirm whether a sense of a word is related to another of the same word (Geeraerts 1993, Tuggy 1993, see also Lyons 1977: 550).

Of course, some tests to distinguish polysemy from vagueness are able to make the distinction. In this section, I use two kinds of tests, the logical test and the identity test, in order to examine whether or not one meaning of a word is different from that of another. In other words, whether or not a word is polysemous will be confirmed by these two tests, and I will suggest that the Constructionist approach does well in the cases of *go* and *come* in the Converbial Purposive Motion Construction and the Intransitive Motion Construction. That is, the meanings of deictic motion verbs (e.g., *go* and *come*) in the Converbial Purposive Motion Construction are identical with those in the Intransitive Motion Construction.¹²

5.4.3 The Logical Test

Quine (1960) proposed a test examining whether a word is polysemous or not. If a sentence *p and/but not q* with respect to a word is true, the word is polysemous. This

¹¹Some linguists use another term 'ambiguous.' In the case of ambiguity, a given phonological word is associated with more than one distinct meaning. The most typical example of ambiguity is homonyms like *bank* (i.e., 'river edge' and 'financial institution') in that the two meanings of *bank* are not related to each other. Ambiguity may not be clearly distinguished from polysemy. Since homonyms do not concern us here, I do not use the term ambiguous.

¹²Although Lakoff (1970) and Kempson (1977) proposed a test called the linguistic test, this test cannot be applied to the Converbial Purposive Motion Construction because a deictic motion verb and an *-ing* form verb make a V' constituent replacing *do so*.

test is called the logical test. For example, the noun *dog* is polysemous but *lion* is not, as shown in the contrast between the two in (113).

- (113) a. That's a dog, but it isn't a dog.
b. ?That's a lion, but it isn't a lion. (Zwicky and Sadock 1975: 7)

The noun *dog* has at least two separate meanings. One is 'a carnivorous animal' and the other is 'a male dog.' Thus, when the *dog* referred to in (113a) represents a bitch, the sentence is true. On the other hand, a noun *lion* does not have two or more meanings, given that the sentence in (113b) is not true. The noun *lion* does not distinguish 'a male lion' from 'a female lion.'

The application of the logical test to the two kinds of usages of deictic motion verbs (e.g., *go* and *come*) results in the sentences shown in (114).

- (114) *Mary **went** shopping at the mall but she didn't **go** to the mall.

The resulting sentence in (114) shows that the meaning of *go* in the Intransitive Motion Construction cannot be separated from that of *go* in the Converbial Purposive Motion Construction.

The result in (114) demonstrates that the meaning of *go* in the Intransitive Motion Construction is identical with that of *go* in the Converbial Purposive Motion Construction. In the next section, I do another test called the identity test proposed by McCawley (1968).

5.4.4 The Identity Test

A test proposed by McCawley (1968) demonstrates one meaning of a word is identical with another meaning. If the meaning of a word is identical with another, one of them

can be deleted in a sentence. The following sentence is an example of the identity test.

(115) John is as sad as the book he read yesterday. (McCawley 1968: 126)

In (115), the meaning of the adjective *sad* describing *John* is identical with that of *sad* indicating the property of *the book*.

The sentence in (116) demonstrates that the meaning of *go* in the Intransitive Motion Construction is identical with that of *go* in the Converbial Purposive Motion Construction.

(116) I went shopping in Toronto and then ____ to a Haunted Halloween.

(<http://www.youtube.com/watch?v=wXedkYApYms>)

The results of not only the logical test but also the identity test show that the meanings of deictic motion verbs in the Intransitive Motion Construction are identical with those of deictic motion verbs in the Converbial Purposive Motion Construction. However, the syntactic configuration of *go* and *come* in one construction is different from that of *go* and *come* in the other. That is, deictic motion verbs in the Intransitive Motion Construction take a directional argument while those in the Converbial Purposive Motion Construction do not as I have already discussed in 5.1.

This means that syntactic behavior does not always reflect a verbal meaning. The constructionist approach suggested by Kay and Fillmore (1999) and Goldberg (1995; 2006) does well. For example, Goldberg (1995: 10-12) argues that the meaning of the verb *kick* in the sentence *John kicked the ball* is the same as that of *kick* in *John kicked at the ball*. I will turn to the facts demonstrated in this section, and discuss them in relation to *-ing* form verbs in 5.6.

5.5 Corpus Studies

There are 1,614 examples of the Converbal Purposive Motion Construction in the *BNC*. Of these examples, only *go (out)* and *come (out)* can be used as inflecting verbs, and *go* occurs more frequently than *come*. This distribution of frequency of the construction is different from that of the Converbal Intransitive Motion Construction discussed in Chapter 4; unlike the Converbal Intransitive Motion Construction, the Converbal Purposive Motion Construction is *go*-oriented.

In this section, I focus mainly on *-ing* form verbs occurring in the Converbal Purposive Motion Construction. In the literature, it is noted that specific kinds of *-ing* form verbs can occur in this construction, like recreational verbs and searching verbs (Silva 1975; Swan 2005). However, my corpus investigation leads us to a different conclusion. Moreover, this investigation and the result of a multivariable analysis found another important tendency that some *-ing* form verbs are likely to co-occur with *go* while others are likely to co-occur with *come*.

5.5.1 Overview of Corpus Investigation

An overview of the corpus investigation into *-ing* form verbs occurring in the Converbal Purposive Motion Construction is given in Table 5.1.

Table 5.1: Results of Corpus Investigation into *-ing* Form Verbs

<i>go</i> or <i>go out</i>	frequencies	<i>come</i> or <i>come out</i>	frequencies
<i>shopping</i>	308	<i>looking for</i>	62
<i>swimming</i>	134	<i>knocking</i>	29
<i>looking for</i>	95	<i>visiting</i>	12
<i>fishing</i>	81	<i>calling</i>	11
<i>hunting</i>	53	<i>shopping</i>	7
<i>skiing</i>	43	<i>dancing</i>	5
<i>dancing</i>	42	<i>feeling</i>	5
<i>sailing</i>	26	<i>begging</i>	4

Table 5.1 shows that *go* and *go out* tend to co-occur with *-ing* form verbs representing recreational activities such as *shopping*, *swimming* and *fishing*. On the other hand, *come* and *come out* do not behave in the same way: they tend to co-occur with *-ing* form verbs representing searching and visiting activities such as *looking for* and *knocking*. In addition, *come* and *come out* often co-occur with *-ing* form verbs representing activities not associated with recreational or searching activities. For example, *begging* does not represent recreational or searching activities at all. The example in which *begging* occurs is given below.

(117) One day a very poor man came **begging** at his door. (BNC-ABV)

This fact that *-ing* form verbs representing non-recreational activities are not ruled out is contradictory to what is written in the literature (Silva 1975: 348-350, Swan 2005: 202).¹³

Except for *visiting* and a few *-ing* form verbs, as Silva (1975: 346-347) pointed out, an *-ing* form verb in the Converbial Purposive Motion Construction cannot take an object,

¹³As Silva (1975: 348) pointed out, compound verbs such as *hill-walking*, *witch-hunting* and *pupil-teaching* occur in this construction. Some examples in which these compounds occur are found in the BNC, as well. Some of them (e.g., *pupil-teaching*) are not related to recreational activities.

as shown in (118)-(119).

- (118) a. Jake said he'd be sailing catamarans tonight.
b. Sue is hunting bear. (Silva 1975: 347)
- (119) a. *Jake said he'd go sailing **catamarans** tonight.
b. *Sue's gone hunting **bear**. (Silva 1975: *ibid.*)

However, I found an example in which *hunting* takes an object as shown in (120).

- (120) Do I want to go hunting **Easter eggs**? (BNC-KRP)

As long as an event represented by an *-ing* form verb and its object is interpreted to be atelic, taking an object of an *-ing* form verb does not violate the constraint discussed in (5.3.2). For this reason, some *-ing* form verbs can take an object in this construction.

In the following subsections, I will look at the relation between a deictic motion verb and a non-finite form verb by utilizing a statistical method.

5.5.2 Relation between a Deictic Motion Verb and an *-ing* Form Verb

As I have already noted, *go* and *come* occur with different sets of *-ing* form verbs. This correlation between deictic motion verbs and *-ing* form verbs can be seen in Table 5.2. This is just a list of high-frequency *-ing* form verbs, so I take a closer look at the associations of the two verbs (i.e., an inflecting verb and an *-ing* form verb) by using a multivariable analysis, called Cluster Analysis.

The analysis was restricted to the 21 most frequent *-ing* form verbs, which occur more than 10 times in this construction. The 21 *-ing* form verbs are treated as cases and the four main verb types are treated as variables in this analysis. The data is

summarized in Table 5.2.¹⁴

Table 5.2: Raw Frequency and z-scored Data of High-Frequency Verbs

	<i>go</i>	<i>go out</i>	<i>come</i>	<i>come out</i>
<i>shopping</i>	295 (1.499)	14 (-0.451)	7 (-0.500)	0 (-0.548)
<i>looking for</i>	84 (1.126)	11 (-0.711)	61 (-0.547)	1 (-0.963)
<i>swimming</i>	134 (1.500)	1 (-0.490)	0 (-0.505)	0 (-0.505)
<i>fishing</i>	81 (1.500)	0 (-0.516)	2 (-0.467)	0 (-0.516)
<i>hunting</i>	46 (1.486)	7 (-0.311)	2 (-0.541)	2 (-0.634)
<i>dancing</i>	39 (1.490)	3 (-0.479)	5 (-0.369)	0 (-0.643)
<i>skiing</i>	43 (1.500)	0 (-0.515)	1 (-0.469)	0 (-0.515)
<i>visiting</i>	23 (1.296)	1 (-0.741)	12 (0.278)	0 (-0.833)
<i>knocking</i>	4 (-0.311)	0 (-0.588)	30 (1.487)	0 (-0.588)
<i>walking</i>	23 (1.478)	4 (-0.250)	0 (-0.614)	0 (-0.614)
<i>sailing</i>	26 (1.500)	0 (-0.500)	0 (-0.500)	0 (-0.500)
<i>camping</i>	22 (1.499)	0 (-0.530)	1 (-0.438)	0 (-0.530)
<i>riding</i>	13 (1.276)	7 (0.319)	0 (-0.797)	0 (-0.797)
<i>drinking</i>	10 (1.046)	8 (0.665)	0 (-0.856)	0 (-0.856)
<i>looking</i>	9 (1.178)	2 (-0.558)	6 (0.434)	0 (-1.054)
<i>racing</i>	15 (1.500)	0 (-0.500)	0 (-0.500)	0 (-0.500)
<i>climbing</i>	13 (1.496)	1 (0.394)	0 (-0.551)	0 (-0.551)
<i>jogging</i>	11 (1.480)	1 (-0.493)	0 (-0.296)	0 (-0.691)
<i>calling</i>	2 (-0.238)	0 (-0.619)	11 (1.476)	0 (-0.619)
<i>seeking</i>	5 (1.015)	2 (-0.338)	4 (-0.564)	0 (-1.240)
<i>wandering</i>	11 (1.500)	0 (-0.500)	0 (-0.500)	0 (-0.500)

The result of Clustered Analysis based on the data in Table 5.2 is given in Figure 5.1.

The similarity between cases is measured by Euclidean distance, and the linkage method used here is complete linkage.

¹⁴The figures in parentheses are standardized (z-scored) values.

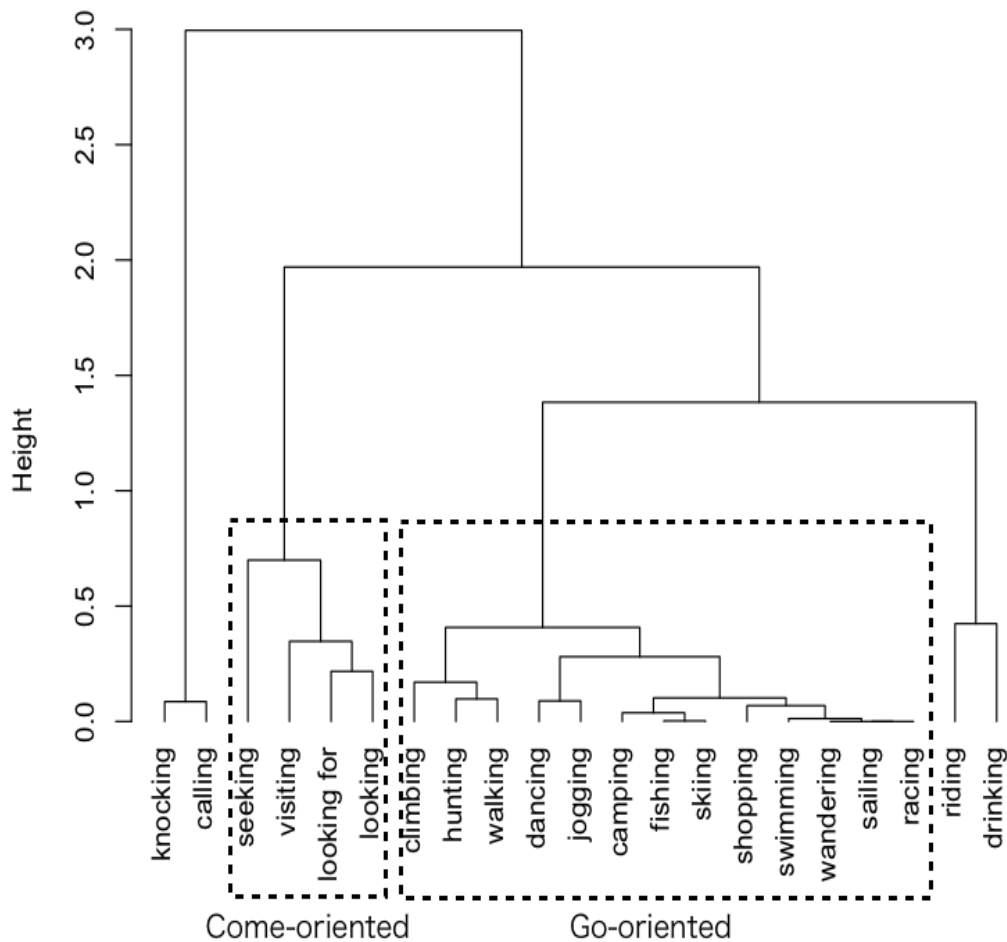


Figure 5.1: Clustered Purposive Verbs

As shown in Figure 5.1, *seeking*, *visiting*, *looking for* and *looking* are grouped together in a relatively early stage. Moreover, *climbing*, *hunting*, *walking*, *dancing*, *jogging*, *camping*, *fishing*, *skiing*, *shopping*, *swimming*, *wandering*, *sailing* and *racing* are also clustered together in a relatively early stage. The *-ing* form verbs belonging to the former cluster are likely to follow *come*. On the other hand, the *-ing* form verbs belonging to the latter tend to follow *go* or *go out*.¹⁵

¹⁵As Figure 5.1 shows, *knocking* and *calling* are not grouped with other *come*-oriented verbs. This is because *knocking* and *calling* are associated with *come* more strongly than other *come*-oriented verbs.

As I have noted in 5.1, the sentences in which *visiting* and *looking for* follow *come* may be instances of a subconstruction of the Converbial Purposive Motion Construction. The result of Cluster Analysis supports this suggestion. That is, when a main verb is *go* or *go out*, *-ing* form verbs representing recreational activities are likely to occur. On the other hand, when the main verb is *come*, *-ing* form verbs associated with searching activities tend to occur.

5.5.2.1 The Reason *Go* Occurs More Frequently than *Come*

In this construction, *go* occurs 1,346 times and *come* occurs 268 times. That is, *go* occurs much more frequently than *come*. In fact, the collostructional strength of *go* is infinite, whereas that of *come* is 191.11. So it is no wonder that *go* is more productive than *come* in this construction, and we will look at the reasons later on.

In this construction, the prototypical activities, represented by *-ing* form verbs, are recreational activities such as *shopping* and *swimming*. In order to do such recreational activities, we have to move to a place such as a shopping mall or the sea. Since speakers are not at such a place in most cases, *go* occurs much more frequently than *come*. That is, the *go*-oriented character of this construction is associated with the prototypical meaning of this construction. This correlation between deixis and kinds of activities has already been graphically shown in Figure 5.1.

5.5.3 Frame Semantics and the Productivity of Each *-ing* Form Verb

We now turn to the individual verbs of the Converbial Purposive Motion Construction to discuss why there is such a skew in the results of the corpus investigation.

5.5.3.1 On *running* and *jogging*

The productivity of *-ing* form verbs occurring in this construction varies. For example, *running* occurs only five times while *jogging* occurs 11 times in this construction. I examined how frequently *running* and *jogging* as verbs appear in the *BNC*, and the result shows that *running* appears 34,637 times and *jogging* only 318 times: the collocational strength of *running* is just zero, whereas that of *jogging* is 21.995. These results show that the Converbial Purposive Motion Construction prefers *jogging* to *running*. How is this possible?

The reason why this construction is more likely to co-occur with *jog* than *run* is that the schematic meaning of the construction is more coincident with the meaning of *jog* than that of *run*. As Taylor (1996) states, the meaning of *jog* implies a pleasurable activity but that of *run* does not. According to *The Oxford Dictionary of English*, *run* is defined as 'move at a speed faster than walk, never having both or all the feet on the ground at the same time' and *jog* is defined as 'run at a steady gentle pace, especially on a regular basis as a form of **physical exercise**' (emphasis added). The difference of meanings between *run* and *jog* is not relevant in their syntactic behavior (cf. Jackendoff 1983), but the difference in frequencies of both verbs reflects the difference of meanings of both verbs.

As noted in the literature, the most typical meaning of the Converbial Purposive Motion Construction is associated with recreational activities such as *shopping* and *swimming*, and it is no wonder that the schematic meaning of the construction is more coincident with the meaning of *jogging* than that of *running*.

5.5.3.2 On *shoplifting* and *begging*

Now, let us look at verbs representing non-recreational activities such as *shoplifting* and *begging* in this construction. The encyclopedic or frame semantic knowledge of a word (e.g., Fillmore 1982) is highly relevant to the productivity of *-ing* form verbs occurring in this construction (see also 5.5.3.1). If this suggestion is correct, *-ing* form verbs representing non-recreational and non-searching activities must be non-productive, but this is not true. For example, both *shoplifting* and *begging* are to some extent productive. The former occurs eight times and the latter occurs 13 times, but they seem to represent non-recreational activities; examples of these verbs occurring in the Converbial Purposive Motion Construction are given below.¹⁶

- (121) a. (···) The Smiths, as always, led by manic vegetarian Morrissey, were inciting the nation's kids to go **shoplifting**. (BNC-ART)
- b. One day a very poor man came **begging** at his door. (BNC-ABV)

According to Silva (1975: 348-349) and Swan (2005: 202), such non recreational activities do not fit with the Converbial Purposive Motion Construction. However, Bolinger (1983) argued that verbs representing nonrecreational activities can be used in this construction, as shown in (122).

- (122) a. The English were getting restive because King Richard had gone **crusading** again.
- b. Let's go **canvassing** this morning. I think we can pick up some more signatures. (Bolinger 1983: 154)

¹⁶The expression *go begging* has two meanings. One is 'going somewhere to get something' and the other is the idiomatic meaning, 'unwanted or unused by anybody.' An example of the latter meaning is shown in (vi).

(vi) WELL-PAID Euro jobs are **going begging**. (BNC-CH2)

Bolinger (1983: 155) explains why such verbs can be used in this construction, noting “what is fun for you may be work for me” and this is correct. That is, *-ing* form verbs in this construction are relatively non-restricted; if the subject referent feels enjoyment, various kinds of verbs can occur in the slot, but they do not represent prototypical recreational activities.

5.5.4 Summary of Corpus Studies

In 5.5, I presented the properties of the Converbal Purposive Motion Construction and also discussed some characteristic *-ing* form verbs occurring in this construction. Some appear very often and others do not, and the reasons for this are accounted for. Some are likely to co-occur with *go* or *go out* and others with *come* or *come out*. There are many *-ing* form verbs representing activities not associated with recreational or searching activities in this construction. In the next section, I bring together some properties described in the previous sections, and discuss them within the framework of Construction Grammar.

5.6 Theoretical Discussion on the Converbal Purposive Motion Construction

In this section, I suggest that the Converbal Purposive Motion Construction should be regarded as a construction or a pair made up of form and meaning.

5.6.1 The Converbal Purposive Motion Construction as a Construction

One of the characteristic mechanisms of Construction Grammar is that it is based on constraints. That is, form constrains its meaning. The form and meaning of the Converbal Purposive Motion Construction are formalized, as shown in (123).

- (123) a. Subj_{humans/higher animals} *go/come* V-*ing*
b. X GO in order to ACT_{telic}

The form and meaning pair illustrated in (123) imposes constraints on the subject and the verb. As I have noted in 5.3.1, the subject in this construction must be a human being or a higher animal such as a bear. Furthermore, part of the meaning of this construction (i.e., in order to ACT) is subordinated. It is commonplace that non-finite form verbs play subordinate roles (Haspelmath 1995: 3), and also in this construction, *-ing* form verbs provide a subordinative meaning. The constraints on the subject and telicity of the *-ing* form verb are specific to this construction, and the constraint on telicity of *-ing* form verbs cannot be predictable from each grammatical element in this construction.

5.6.2 Syntactic Configuration Is not Always Determined by Verbs

It has been generally agreed that predicates, especially verbs, play central roles in clauses. In fact, Boas (2003) places emphasis on the meanings of verbs in his work (cf Levin 1985, Pinker 1989). Although his suggestion may be correct in some cases, I have found that syntactic configuration is not always determined by verbal meanings.

In 5.4, I presented independent evidence to demonstrate that the meanings of *go* and *come* in the Converbal Purposive Motion Construction are identical with those of

go and *come* in the Intransitive Motion Construction by presenting results of the logical test and the identity test.

As many constructionists have noted in the literature, Construction Grammar has multiple orientations. For example, Boas (2003) suggested that verbs have multiple meanings. It is necessary to examine his argument with independent evidence demonstrating the correctness of this assumption. I argued that deictic motion verbs occurring in several syntactic configurations do not necessarily have multiple meanings.

5.7 Conclusions

The Converbial Purposive Motion Construction has been described in the literature, but such descriptions did not account for why a subject referent is restricted to a human being and why a prepositional phrase is not a *PATH* argument. I tackled these problems theoretically, and have explained why these constraints are imposed on this construction.

First, I showed the constituent structure of this construction, and proposed that this construction is mono-clausal. In addition, since only human beings or higher animals can plan ahead to do recreational or searching activities, this construction imposes a constraint on its subject. Moreover, I demonstrated that *go* and *come* do not have multiple meanings although they occur in multiple syntactic configurations, applying the logical test and the identity test.

I have treated, at first glance, very similar constructions, where an inflecting verb is followed by an *-ing* form verb in Chapters 4 and 5. I will examine a causative construction in the next chapter. The causative construction involves an *-ing* form verb but the *-ing* form verb does not immediately follow an inflecting causative verb, and

an object intervenes between them.

Chapter 6

The Converbal Caused-Motion Construction

6.1 Introduction

In this chapter, I discuss a construction introduced by Goldberg (2006: 51), shown in (124) and (125).¹

(124) a. Bill **took** him **kicking** into the room.

b. Bill **brought** him **kicking and screaming** into the room.

(Goldberg 2006: 51)

(125) a. He **sent** the clerk **hurrying** into the back room to get a dark grey suit.

(BNC-CDN)

b. A series of small explosions one morning **brought** Alec **running** out to the top of the step.

(BNC-B1X)

c. A day's yacht charter **took** us **threading** through the islands. (BNC-BPJ)

¹This chapter is built on Morishita (2013a).

- d. My boyfriend Fisher Stevens will have to **drag** me **kicking and screaming**
out of the house. (BNC-CH2)

This construction has a formal characteristic: an inflecting verb is followed by an object, an *-ing* form verb, and then a particle or a prepositional phrase. I name this construction the Converbal Caused-Motion Construction. Since this construction has been paid little attention, there are few previous studies.

In general, one predicate represents a single event. The Converbal Caused-Motion Construction involves two predicates: one predicate is an inflecting verb and the other is an *-ing* form verb. I will show the cases where two predicates in this construction constitute a single complex predicate and that the complex predicate represents a single event.

The organization of this chapter is as follows. Section 2 will discuss whether the Converbal Caused-Motion Construction is mono-clausal or not, by comparing this construction with the Free Participial Construction and the Absolute Participial Construction, which are apparently bi-clausal. In addition, I will examine the constituent structure of this construction, applying some syntactic tests. In Section 3, I will show the results of a corpus investigation. The corpus data of the Converbal Caused-Motion Construction will be compared with that of the Caused-Motion Construction. Section 4 will discuss the Converbal Caused-Motion Construction from the perspective of Construction Grammar. I will conclude in Section 5.

6.2 Syntactic Properties

The Converbal Caused-Motion Construction is similar to the Free Participial Construction and the Absolute Participial Construction in that both of them involve two kinds of verbs: one is an inflecting verb and the other is a non-finite form verb. The two Participial Constructions are bi-clausal, and the Converbal Caused-Motion Construction may appear to be bi-clausal also. However I will show that the Converbal Caused-Motion Construction is mono-clausal. Let us examine how the Converbal Caused-Motion Construction is different from the others.

6.2.1 A Comparison between the Converbal Caused-Motion Construction and the Free Participial Construction

In order to examine whether or not the Converbal Caused-Motion Construction is the same as the Free Participial Construction, some examples of both the Converbal Caused-Motion Construction and the Free Participial Construction are given in (126) and (127).

(126) a. The feeling **sent** the adrenalin **rushing** to her cheeks. (BNC-GCG)

b. He **was dragged kicking and screaming** to a van parked nearby.

(BNC-CH2)

(The Converbal Caused-Motion Construction)

(127) a. The Queen **has sent** a message to Pakistan, **welcoming** its formal return to the Commonwealth. (BNC-AIG)

b. A huge hand grabbed Zen's shoulder and **dragged** him outside, **shoving** him up against the side of the car. (BNC-HTT)

(The Free Participial Construction)

The most remarkable point of the Converbial Caused-Motion Construction is that the object of a causative motion verb (e.g., *send* and *drag*) is identical with the logical subject of an *-ing* form verb (e.g., *rushing* and *kicking and screaming*). For example, in (126a), the object of *sent* is *the adrenalin* and the logical subject of *rushing* is also *the adrenalin*.

On the other hand, in the cases of the Free Participial Construction, the object of a causative motion verb is not identical with the subject of an *-ing* form verb. For example, in (127a), the object of *sent* is *a message to Pakistan* but the subject of *welcoming* is a PRO (=The Queen). From the facts, I conclude that the Converbial Caused-Motion Construction is different from the Free Participial Construction.

6.2.2 A Comparison between the Converbial Caused-Motion Construction and the Absolute Participial Construction

Now, I will show how the Converbial Caused-Motion Construction differs from the Absolute Participial Construction. In the case of the Absolute Participial Construction, the subject of a superordinate clause must be different from the explicit subject of a subordinate clause. Examples of the Absolute Participial Construction are given in (128).

- (128) a. Dan **walked** from the room, his head **reeling**. (BNC-FAB)
- b. (...) the woman **was** on him like a tigress (...), her hand **chopping** down viciously at his chest. (BNC-GUG)

In the sentence in (128a), the subject of *walked* is *Dan* and that of *reeling* is *his head*, and in the sentence in (128b), the subject of *was* is *the woman* and that of *chopping* is *her hand*.

In the case of the Absolute Participial Construction, there is no argument shared by both verbs, whereas there is an argument shared by the main verb and the *-ing* form verb in the Converbial Caused-Motion Construction. In cases where the object of the main verb is identical with the subject of the *-ing* form verb, an additional argument is needed in the Absolute Participial Construction, as shown in (129).

- (129) a. He sent the clerk into the room, **she** hurrying to get a dark grey suit.
b. My boyfriend Fisher Stevens will have to drag me out of the house, **I** kicking and screaming.

Thus, the absence of a shared argument between two kinds of verbs differentiates the the Absolute Participial Construction from the Converbial Caused-Motion Construction.

6.2.3 Constituent Structure

As I have discussed above, the Converbial Caused-Motion Construction is different from the two kinds of participial constructions. However, I have not shown that the Converbial Caused-Motion Construction is mono-clausal yet. Moreover, the constituent structure of this construction has been overlooked. Thus, I will now examine the mono-clausality and constituent structure of this construction.

6.2.3.1 Mono-clausality of the Converbial Caused-Motion Construction

Now I discuss the mono-clausality of the Converbial Caused-Motion Construction. Evidence demonstrating whether a sentence is mono-clausal or not comes from reflexivization. Reflexives (i.e., forms ending in *-self/-selves*) require a clausemate antecedent, as shown in (130).

- (130) a. John_i killed himself_i.
 b. *John_i killed him_i.
 c. *John_i killed himself_j

If the Converbial Caused-Motion Construction is mono-clausal, a reflexive must be bound within the same clause. Relevant sentences are given in (131).

- (131) a. John_i sent a boomerang crashing against himself_i.
 b. *John_i sent a boomerang crashing against him_i.

The sentences in (131) show that the Converbial Caused-Motion Construction is mono-clausal because *John* is coindexed with *himself* in (131a).

6.2.3.2 *Do so* Test

The *do so* test examines which grammatical elements make up the V' or the VP. Elements that can be replaced by *do so* make a constituent, the V' or the VP. The results of this test are given in (132).

- (132) a. He [_V sent the clerk hurrying into the back room] and she **did so**, too.
 b. ??He [sent the clerk hurrying] into the back room and she **did so** into the front room, too.
 c. *He [sent the clerk] hurrying into the back room and she **did so** running into the front room, too.
 d. *He sent the clerk [hurrying into the back room] yesterday and she will send another clerk **doing so** tomorrow, too.

The sentences in (132a) and (132b) show that the strings *sent the clerk hurrying into the back room* make a constituent, the V'. The prepositional phrase *into the back room* is an

argument because an argument cannot occur out of *do so*. However, at this stage, the internal structure of the V' has not yet been clarified. Thus, in the following analysis, fronting will be applied to this construction.

6.2.3.3 Fronting

It has been shown that a directional phrase goes together with a motion verb, and the results of the *do so* test demonstrate that a prepositional phrase or a particle is an argument. A directional phrase of this construction may seem to be the arguments of an *-ing* form verb since most *-ing* form verbs occurring in this construction are manner of motion verbs such as *scurrying* or *rushing*. However, some non-finite form verbs occurring in this construction are action verbs, and such verbs cannot take a directional phrase. I will examine which grammatical element takes the directional phrase in this construction as an argument by a syntactic test here.

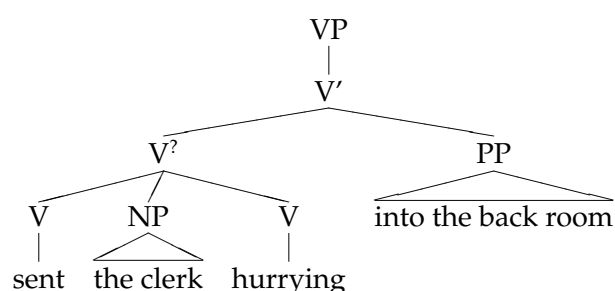
Fronting has been used in Chapter 4. Thus I do not discuss details of this test here. I merely show an original sentence and resulting sentences below.

- (133) a. A sudden rain shower sent the drivers scurrying to the pits.
b. *Scurrying to the pits a sudden rain shower sent the drivers.
c. To the pits a sudden rain shower sent the drivers scurrying.

The sentences in (133b) and (133c) show that the strings *scurrying to the pits* is not a constituent. If the prepositional phrase *to the pits* were an argument of *scurrying*, the sentence in (133b) would be accepted, but it is not. Only a directional phrase *to the pits* can be fronted. Such evidence shows that an *-ing* form verb and a directional phrase do not make a constituent together even though a prepositional phrase may seem to be the argument of a non-finite form verb.

The constituent structure of the Converbal Caused-Motion Construction is shown in (134).²

(134)



The tree illustrated in (134) shows that a directional phrase like *into the back room* is not the argument of a single verb but an argument of the whole of a complex predicate *sent ... hurrying* given that the prepositional phrase is the sister of *sent...hurrying*. The complex predicate is labeled as $V^?$ as in the case of the Converbal Intransitive Motion Construction.

6.2.4 Argument Structure of the Complex Predicate

Next let us look at the argument structure of the complex predicate composed of an inflecting verb and an *-ing* form verb. In the Converbal Caused-Motion Construction, an action verb as well as a manner of motion verb occurs as an *-ing* form verb, as shown in (135).

- (135) a. Just as Angel was about to leap on her, Luke picked up and carried her
yelling into the house. (BNC-CA0)
- b. It is the noise of a foul and loathsome beast which emerges from the tunnel
and drags him **screaming** into the darkness. (BNC-F9C)

²The $V^?$ indicates a grammatical element, larger than V^0 but smaller than V' as defined in Chapter 4.

The action verbs (i.e., *yelling* and *screaming*) cannot take a directional argument, as shown in (136), and this fact affords collateral evidence that a prepositional phrase is the argument of a complex predicate.

(136) a. *She yelled into the house.

(This sentence is intended to mean 'she went into the house, yelling')

b. *He screamed into the darkness.

(This sentence is intended to mean 'he went into the darkness, screaming')

In addition, an *-ing* form verb in the Converbial Caused-Motion Construction cannot take an argument, as shown in the contrast between (137a) and (137b).

(137) a. She screamed **insults** at him.

b. *Luke carried her screaming **insults** at himself into the house.

This contrast in (137) shows that the argument structure of *scream* changes when it becomes a part of a complex predicate.

If this construction were bi-clausal and an *-ing* form verb headed an independent VP, the *-ing* form verb would take an argument, as is possible with the Free Participial Construction in (138).

(138) Luke carried her into the house, she screaming **insults** at him.

From the evidence, I argue that the Converbial Caused-Motion Construction is mono-clausal and that an inflecting causative motion verb and a non-finite form verb go together and make a V[?] constituent. In the next section, I will show examples of the Converbial Caused-Motion Construction found in the corpus data drawn from the BNC.

6.3 Corpus Results

There are only 303 examples of the Converbial Caused-Motion Construction in the *BNC*, and in order to make a comparison of this construction and the Caused-Motion Construction, I selected 397 examples of the Caused-Motion Construction from the same corpus. Examples of the former construction are drawn from the corpus in full detail, but those of the latter are a randomly sampled 1% of the whole from the corpus. In this section, I analyze the 700 examples statistically, and show the differences between the two constructions.

6.3.1 The Caused-Motion Construction

Before looking at the Converbial Caused-Motion Construction, I examine 397 examples of the Caused-Motion Construction randomly sampled from the *BNC*.³ In the case of this construction, there is only one verb slot and a wide-ranging variety of verbs occur there. I will take a closer look at the verbal types and Path types of this construction. The examples of the Caused-Motion Construction are given in (139).

- (139) a. I'll **take** it out of the oven! (BNC-CEB)
- b. Andy, can you **bring** my bible downstairs? (BNC-KBW)
- c. FRANK Sinatra **sent** flowers to the funeral of Sixties pop star Paul Ryan yesterday. (BNC-CBF)
- d. He stooped and took off his shoes and **kicked** them aside. (BNC-APM)

³1% of all uses of causative motion verbs listed in Levin (1993: 132-137) are extracted from the whole of the *BNC*.

6.3.1.1 Verbs and Path Expressions in the Caused-Motion Construction

In this subsection, I focus on verbs and their path expressions in this construction. Only high-frequency causative motion verbs and their Path types in this construction are listed in Table 6.1, and high-frequency path expressions, occurring more than five times in this construction, are listed in Table 6.2.

Table 6.1: High-Frequency Causative Motion Verbs and Their Path Types

VERBS (n)	SOURCE	VIA	GOAL
<i>take</i> (121)	42 (34.7%)	14 (11.6%)	65 (53.7%)
<i>bring</i> (43)	9 (20.9%)	10 (23.3%)	24 (55.8%)
<i>send</i> (42)	5 (11.9%)	2 (4.8%)	35 (83.3%)
<i>push</i> (26)	6 (23.1%)	8 (30.8%)	12 (46.2%)
<i>pull</i> (25)	8 (32.0%)	7 (28.0%)	10 (40.0%)
<i>carry</i> (20)	7 (35.0%)	4 (20.0%)	9 (45.0%)
<i>transfer</i> (15)	4 (26.7%)	0 (0%)	11 (73.3%)
<i>move</i> (14)	4 (28.6%)	3 (21.4%)	7 (50.0%)
<i>drive</i> (10)	5 (50.0%)	3 (30.0%)	2 (20.0%)

Table 6.2: Path Expressions in the Caused-Motion Construction

SOURCE		VIA		GOAL	
PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.
<i>from</i>	46	<i>back</i>	12	<i>to</i>	140
<i>off</i>	28	<i>through</i>	11	<i>into</i>	31
<i>away</i>	15	<i>up</i>	11	<i>home</i>	8
<i>out</i>	14	<i>down</i>	8	<i>in</i>	6
<i>out of</i>	14	<i>over</i>	6		
...		...		...	
TOTAL 113		TOTAL 66		TOTAL 218	

In this construction *take* occurs most frequently, and *bring* follows it (cf. 6.3.2). These high-productive verbs are mainly used as ‘continuous causation’ verbs in Talmy’s (2000a: Chapter 8) term (see also Shibatani 1976), and sentences in (139a) and (139b)

are representative examples containing such verbs. That is, continuous causation verbs such as *take*, *bring*, and *carry* are comparatively productive in this construction. Of 397 examples of the Caused-Motion Construction, there are 285 examples in which the causation represented by verbs is continuous causation (71.8%).

Looking at the particles and prepositions listed in Table 6.2, path expressions representing GOAL seem to occur dominantly in this construction (cf. 6.3.2). In addition to causative type, the dominant Path type of the Caused-Motion Construction is also different from that of the Converbial Caused-Motion Construction. In the next Section, I will look at the results of the corpus investigation of the Converbial Caused-Motion Construction.

6.3.2 The Converbial Caused-Motion Construction

In order to compare the Caused-Motion Construction with the other caused-motion construction, this subsection shows the corpus data of the Converbial Caused-Motion Construction.

6.3.2.1 Main Verbs and Path Expressions

There are a wide variety of *-ing* form verbs that occur in the Converbial Caused-Motion Construction. However there are only eight kinds of main verbs: two kinds of deictic causative verb (i.e., *take* and *bring*), and six kinds of causative motion verbs (e.g., *send* and *drag*). As to Path, GOAL is found 125 times, VIA 144 times and SOURCE 34 times in this construction (cf. 6.3.1). All main verbs and their path expressions in this construction are listed in Table 6.3.⁴

⁴The particle *against* does not represent Path in Talmy's term, and I term this particle 'pseudo-path.' I will discuss this point in a later section.

Table 6.3: Main Verbs and Path Types in the Converbial Caused-Motion Construction

VERBS (n)	SOURCE	VIA	GOAL
<i>send</i> (250)	24 (9.6%)	128 (51.2%)	98 (39.2%)
<i>bring</i> (35)	6 (17.1%)	10 (28.6%)	19 (54.3%)
<i>drag</i> (9)	2 (22.2%)	2 (22.2%)	5 (55.6%)
<i>take</i> (4)	1 (25%)	0 (0%)	3 (75%)
<i>carry</i> (2)	1 (50%)	0 (0%)	1 (50%)
<i>drive</i> (1)	0 (0%)	0 (0%)	1 (100%)
<i>haul</i> (1)	0 (0%)	0 (0%)	1 (100%)
<i>kick</i> (1)	0 (0%)	1 (100%)	0 (0%)

As shown in Table 6.3, unlike the Converbial Intransitive Motion Construction, where *go* and *come* occur at a high-frequency, deictic causative verbs such as *bring* and *take* do not occur at a high-frequency. On the other hand, *send* occurs at a high-frequency in the Converbial Caused-Motion Construction.

Path expressions such as *to* and *across* are divided into three groups, SOURCE, VIA, and GOAL. These path expressions are listed in Table 6.4.

Table 6.4: Path Expressions in the Converbial Caused-Motion Construction

SOURCE		VIA		GOAL	
PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.	PATH EXPRESSIONS	FREQ.
<i>from</i>	12	<i>across</i>	29	<i>to</i>	42
<i>off</i>	7	<i>down</i>	29	<i>into</i>	36
<i>out of</i>	7	<i>through</i>	17	<i>in</i>	6
		<i>over</i>	14	<i>against</i>	5
		<i>back</i>	12		
		<i>towards</i>	7		
		<i>backwards</i>	5		
		<i>for</i>	5		
...		...		...	
TOTAL 34		TOTAL 144		TOTAL 125	

As pointed out in Chapter 4, there is a linguistic dissymmetry between SOURCE and GOAL cross-linguistically, and it is said that languages have a GOAL-oriented property. However, Table 6.4 shows the Converbial Caused-Motion Construction is VIA-oriented. This characteristic grammatical property of this construction is compared with that of the Caused-Motion Construction in 6.4.

6.3.2.2 Collostructional Analysis of Main Verbs

In the Converbial Caused-Motion Construction, the most high-frequency inflecting verb is *send*. Nevertheless, this result may be a reflection of token frequency of verbs in the corpus. That is, if *send* appears much more than other verbs such as *take* and *bring* in the corpus, the result may be skewed. In order to solve this problem, Collostructional Analysis (see Chapter 2) is applied.

The results of the Collostructional Analysis are shown in Table 6.5.

Table 6.5: Collostructional Strength of Main Verbs

COLLEXEME (n)	COLLO. STRENGTH	COLLEXEME (n)	COLLO. STRENGTH
<i>send</i> (250)	Infinite	<i>kick</i> (1)	1.070
<i>bring</i> (35)	38.733	<i>carry</i> (2)	0.668
<i>drag</i> (9)	15.366	<i>drive</i> (1)	0.513
<i>haul</i> (1)	1.558	<i>take</i> (4)	0.084

As Table 6.5 shows, *send* is the most prototypical causative verb occurring in this construction. Unlike the Caused-Motion Construction, onset causation verbs are the most dominant in this construction (cf. 6.3.1). The most striking fact is that *take*, occurring most frequently in the Caused-Motion Construction, occurs only four times in this construction and its collostructional strength is very low (i.e., 0.084) among other causative motion verbs. In addition, in this construction, *bring* as well as *send* are

used as onset causation verbs in most cases, as shown in (140).

- (140) a. A series of small explosions one morning **brought** Alec running out to the
top of the steps. (BNC-B1X)
- b. My screams of terror awoke my parents and **brought** them rushing in panic
to my room. (BNC-A6C)

Before preceding to the next subsection, it should be noted that this construction much prefers onset causation to continuous causation. Of the 303 examples in the Converbial Caused-Motion Construction, there are 276 examples (91.1%) in which causation represented by verbs is 'onset causation' in Talmy's (2000a: Chapter 8) term (cf. 6.3.1). This is the most prominent semantic/functional difference between these two constructions. This fact is closely compared with the Caused-Motion Construction in 6.4.

6.3.2.3 Collostructional Strength of *-ing* Form Verbs

Next we look at the *-ing* form verbs of this construction. Type frequency of inflecting verbs occurring in this construction is relatively low, whereas that of *-ing* form verbs is very high. As in the case of inflecting verbs, the typicality of *-ing* form verbs needs to be checked by Collostructional Analysis as well, and the result of that analysis is shown in Table 6.6.

Table 6.6: Collostructional Strength of *-ing* Form Verbs

COLLEXEME (n)	COLLO. STRENGTH	COLLEXEME (n)	COLLO. STRENGTH
<i>crashing</i> (38)	91.139	<i>screaming</i> (8)	13.494
<i>scurrying</i> (19)	56.463	<i>kicking and screaming</i> (4)	13.349
<i>sprawling</i> (13)	36.326	<i>hurtling</i> (5)	12.735
<i>flying</i> (21)	32.408	<i>spinning</i> (5)	12.718
<i>tumbling</i> (10)	22.705	<i>arcing</i> (5)	8.559
<i>rushing</i> (12)	21.274	<i>fleeing</i> (3)	7.645
<i>billowing</i> (3)	16.418	<i>whirling</i> (3)	6.754
<i>reeling</i> (6)	14.413	<i>bouncing</i> (2)	6.636
<i>hurrying</i> (8)	13.996	<i>rolling</i> (5)	6.421

Table 6.6 shows that *crashing* is the prototypical *-ing* form verb occurring in this construction. Most verbs, except for *arcing*, listed in Table 6.6 represent physically energetic and perceptually salient actions (see also Chapter 4). Examples including *screaming* and *screaming and kicking* are given below.

- (141) a. TV GIRL Yvette Fielding was dragged **screaming** behind a horse when a stunt backfired. (BNC-CH2)
- b. They proceeded to apprehend Willis and a fellow partygoer and dragged them **screaming and kicking** to the squad car. (BNC-CDG)

The reason why the collostructional strengths of *screaming* and *kicking and screaming* are high is that they are verbs representing perceptually salient actions. Of course, *yelling* represents a perceptually salient actions as well as *screaming* and *kicking and screaming*, but the collostructional strength of *yelling* is not high. This is because *drag...kicking and screaming* is a 'cliché', whereas *drag...yelling* is not (see also Boas 2003: Chapter 5).

6.3.2.4 The Interaction between Main Verbs and *-ing* Form Verbs

Is there any tendency of correlation between the two verbs in this construction? In the case of the Converbial Intransitive Motion Construction, when an inflecting verb is a deictic motion verb, a manner of motion verb is likely to co-occur. How about in the case of the Converbial Caused-Motion Construction? The result is shown in Table 6.7.

Table 6.7: The Interaction between Main Verbs and *-ing* Form Verbs

	MANNER OF MOTION VERBS	ACTION VERBS	SUM
DEICTIC CAUSATIVE VERBS	37	3	40
NON-DEICTIC CAUSATIVE VERBS	242	21	263
SUM	279	24	303

$$\chi^2=0.043; df=1; p=0.835 \text{ (Yates's Correction)}$$

As shown in Table 6.7, there is no significant difference between deictic causative verbs and non-deictic causative verbs in this construction, and this is one difference between this construction and the Converbial Intransitive Motion Construction.

However, we should focus on the most high-frequency verb, *send*. The reason this verb is so productive in this construction hints at the solution to the problem of the interaction between inflecting and non-finite form verbs. Among causative motion verbs, *send* is the most canonical onset causation verb, whereas *take* and *bring* are representative continuous causation verbs in Talmy's (2000a: Chapter 8) terms. Focusing on this difference in the types of causation, we can understand the nature of this construction. Table 6.8 shows the interaction of the two verbs.

Table 6.8: The Interaction between Main Verbs and *-ing* Form Verbs (Version 2)

	MANNER OF MOTION VERBS	ACTION VERBS	SUM
ONSET CAUSATION VERBS	267	9	276
CONTINUOUS CAUSATION VERBS	14	13	27
SUM	281	22	303

$$\chi^2=67.077; df=1; p<.0001 \text{ (Yates's Correction)}$$

As Table 6.8 shows, when a causative verb denotes onset causation, manner of motion verbs are likely to co-occur. Why does a main verb affect the selection of the *-ing* form verb? When a main verb denotes continuous causation, an object referent cannot move by itself freely. That is, when a main verb is a continuous causative verb, it is hardly likely that an *-ing* form verb represents the manner of motion of an object referent. This physical constraint leads to the reduced co-occurring of a continuous causation verb and a manner of motion verb. However, when an inflecting verb is a onset causation verb, an object referent can move by itself freely, and thus manner of motion verbs are likely to co-occur with onset causation verbs.

6.4 Discussion on the Results of the Corpus Investigation

As Goldberg (1995: 67) discussed, there are no synonymous constructions: construction are different from each other semantically and/or functionally. If this is true, the Converbial Caused-Motion Construction should be different from the Caused-Motion Construction in regard to semantics and/or functions.

In 6.3.1 and 6.3.2, we have reviewed and looked closely at the causative type and path expressions of two causative constructions. This section compares one construction with the other construction.

6.4.1 Onset Causation or Continuous Causation

As noted before, in most examples of the Caused-Motion Construction, the causation type involved is continuous causation, whereas, in the examples of the Converbial Caused-Motion Construction, onset causations can be seen. Why are there such differences? The difference is due to the number of verbs and kinds of verbs involved.

In the case of the Caused-Motion Construction, there is only a single verb, indicating the means of causation. Examples of this construction are given in (142).

- (142) a. Grace quickly **rowed** the boat out to sea again. (BNC-FPP)
- b. (...) devouring month-old copies of The Times which had been **airmailed** to Australia (...) (BNC-CHG)

Causative motion verbs specify the means of causation. For example, in (142a), the verb *row* specifies the means of causation, and it means 'propelling a boat with oars.' In (142b), the verb *airmail* specifies the means of causation and its meaning is 'sending something, especially mail, by airplane.' Using these verbs in the Caused-Motion Construction, we can specify the means of causation.

On the other hand, in the case of the Converbial Caused-Motion Construction, there are two verbs, constituting a single complex predicate. One represents the means of causation, and the other represents manner of motion or accompanying action of an object referent. Unlike the Caused-Motion Construction, this construction can focus on an action by an object referent. This suggestion is clearly valid in view

of corpus evidence shown in 6.3.2.3. Most high-frequency *-ing* form verbs in this construction represent physically energetic and perceptually salient actions. Table 6.6 in 6.3.2.3 shows that the physically energetic manner of motion represented by *crashing* and *scurrying*, or perceptually salient accompanying action expressed by *kicking* and *screaming* and *screaming* fit this construction.

What it comes down to is that the Caused-Motion Construction pays attention to the action to a subject referent, and the Converbial Caused-Motion Construction pays attention to an action by an object referent. Usually, object referents in causative motion events do not behave in a special way and speakers need not pay attention to their actions. For these reasons, the Caused-Motion Construction is more frequently used than the Converbial Caused-Motion Construction. However, when an object referent moves in a distinctive way, speakers cannot help paying attention to his/her/its action or movement, and they use the Converbial Caused-Motion Construction to represent such causative events.

6.4.2 GOAL, SOURCE, or VIA

Next, we consider path expressions. As the corpus investigation shows, prepositional phrases or particles representing GOAL occur most often in the Caused-Motion Construction, whereas, prepositional phrases or particles representing VIA occur most often in the Converbial Caused-Motion Construction. These differences between the two constructions are statistically significant, as shown in Table 6.9.

Table 6.9: Difference Distribution of Path Expressions

	SOURCE	VIA	GOAL	SUM
THE CONVERBAL CAUSED-MOTION CONSTRUCTION	34	125	66	303
THE CAUSED-MOTION CONSTRUCTION	144	113	218	397

$$\chi^2=109.070; df=2; p<.0001$$

This difference as to Path between the two constructions is not attributed to the causative verbs. For example, the verb *send* is of a relatively high-frequency in both of the constructions: it occurs 42 times in the Caused-Motion Construction and 250 times in the Converbal Caused-Motion Construction. In the case of the Caused-Motion Construction, *send* co-occurs with path expressions representing GOAL 35 times (83.3%), whereas in the case of the Converbal Caused-Motion Construction, it co-occurs with GOAL expressions 72 times (28.8%).⁵

Moreover, this difference as to Path between the two constructions is not due to *-ing* form verbs in the Converbal Caused-Motion Construction. For example, the verb *fly* occurs in the Converbal Caused-Motion Construction as an *-ing* form as well as in the Intransitive Motion Construction as an inflecting verb, as shown in (143).

- (143) a. He was shaking from the shock of the recoil of the gun, which had sent him
flying backwards. (BNC-ABX)
- b. He plans to **fly** to Canada on Wednesday to bring her home. (BNC-AHX)

In (143a), *flying* represents a manner of motion by the object referent. On the other hand, *fly* in (143b) represents the means to go somewhere by airplane. Types of path expressions co-occurring with *flying* in the Converbal Caused-Motion Construction are

⁵Especially, causative motion verbs such as *transport* and *transfer*, which are usually company services, generally co-occur only with path expressions representing GOAL or SOURCE.

different from those co-occurring with *fly* in the Intransitive Motion Construction, as shown in Table 6.10.⁶

Table 6.10: Path Expressions Co-occurring with *flying* in CCMC and *fly* in IMC

<i>flying</i> in CCMC		<i>fly</i> in IMC	
PATH EXPRESSIONS	FREQUENCIES	PATH EXPRESSIONS	FREQUENCIES
<i>across</i>	5	<i>to</i>	15
<i>in</i>	3	<i>away</i>	3
<i>back</i>	2	<i>from</i>	2
<i>down</i>	2	<i>into</i>	2
<i>into</i>	2	<i>over</i>	2
<i>against</i>	1	<i>through</i>	2
<i>backwards</i>	1	<i>down</i>	1
<i>everywhere</i>	1	<i>in</i>	1
<i>through</i>	1	<i>off</i>	1
<i>up</i>	1	<i>onto</i>	1
<i>upwards</i>	1	<i>towards</i>	1

In the case of *flying* in the Converbial Caused-Motion Construction, path expressions corresponding to VIA such as *across*, *backwards*, and *through* are most likely to co-occur with it. However, in the case of *fly* in the Intransitive Motion Construction, path expressions corresponding to GOAL such as *to* are most dominant. From the facts, we can conclude that the VIA-oriented grammatical character of the Converbial Caused-Motion Construction is not due to *-ing* form verbs as well. In short, the VIA-oriented feature of this construction is reduced to neither the properties of causative verbs nor to those of verbs occurring in the *-ing* form either.

⁶CCMC stands for the Converbial Caused-Motion Construction, and IMC stands for the Intransitive Motion Construction

6.4.3 Attention to Processes

As I have already discussed, the Converbial Caused-Motion Construction focuses on an object referent, and pays attention to an action by this object referent. In general, events are GOAL-oriented, but the results of events represented by this construction are not the focus. In order to focus on actions by an object referent, onset causation is preferred rather than continuous causation. This construction as a whole is designed to represent such processes.

6.5 Theoretical Discussion

In this section, I discuss the Converbial Caused-Motion Construction within the framework of Construction Grammar. First of all, I define the Converbial Caused-Motion Construction as a pair of form and meaning as shown in (144).

- (144) a. Subj V Obj V-ing Obl
b. X CAUSE Y_i to GO Z with/by V-ing_i

This construction is a mono-clausal construction as I have already demonstrated. In addition, the two verbs in this construction interact with each other. When the type of causation is onset causation, manner of motion verbs such as *flying* and *scurrying* tend to occur. When verbs represent continuous causation, in contrast, action verbs such as *screaming* are likely to occur. Furthermore, a corpus investigation showed that this construction has the property of being VIA-oriented. By virtue of these grammatical characteristics, this construction can occupy a 'niche' in causative constructions in English.

In the following, I will discuss this construction from the perspective of Construction Grammar (Goldberg 1995; 2006, Kay 2005) and the Usage-Based Model (Langacker 1990; 2000).

6.5.1 Three Subconstructions

As the Converbial Intransitive Motion Construction has several subconstructions (see Chapter 4), the Converbial Caused-Motion Construction has three subconstructions as well. Recognizing three kinds of subconstructions is motivated by the argument structure of the verbs involved.

In some examples of this construction, *PATH* arguments are related to two verbs. In other cases, *PATH* arguments are related to causative verbs. In still other cases *PATH* arguments are, without a doubt, related to *-ing* form verbs. I classify all of the examples of this construction into these three sub-groups.

6.5.1.1 Subject V Object Motion V-*ing* Real *PATH*

In this subconstruction, a manner of motion verb follows an object. Examples of this subconstruction are given in (145).

(145) a. Much to his horror he was (...) **sent flying** *through the corridors* by a roomful of water. (BNC-AMB)

b. (...) a single slip could **send** them **plummeting** *down the mountainside*. (BNC-A15)

In the examples in (145), the *PATH* arguments, *through the corridors* and *down the mountainside*, are related to both inflecting verbs and *-ing* form verbs.

6.5.1.2 Subject V Object Action V-ing Real PATH

In the examples in the second subconstruction, PATH arguments are apparently related to causative verbs only, as shown in (146).

- (146) a. She was **carried screaming** *from the siege house*, where she lives with her parents. (BNC-K4W)
- b. He was **dragged kicking and screaming** *to a van parked nearby*. (BNC-CH2)

In the examples of this subconstruction, an *-ing* form verb cannot take a PATH argument, as shown in (147).

- (147) a. *She **screamed** *from the siege house*, where she lives with her parents.
- b. *He **kicked and screamed** *to a van parked nearby*.

This shows that a path expression is related only to an inflecting verb. A complex predicate inherits this PATH argument. Most examples of this subconstruction involve a continuous causation verb.

6.5.1.3 Subject V Object crash-type V-ing Pseudo PATH

In addition, some PATH arguments are, without doubt, related to *-ing* form verbs, as shown in (148).

- (148) a. (...) the impact hurled her forward again and **sent** her **crashing** *against the steering column* with enough force to knock the breath from her. (BNC-G0P)
- b. First I pulled the great ladder away from the tower, **sending** it **crashing** *back into the trees*. (BNC-HGS)

In these examples, the prepositional phrases, *against the steering column* and *back into the trees*, are not related to causative verbs but related to *crashing*, as shown in (149).

(149) a. She **crashed** *against the steering column*.

b. The car **crashed** *back into the trees*.

Furthermore, in some examples of this subconstruction, *crashing* cannot be deleted.

Such an example is given in (150).⁷

(150) a. Donna sent the Volvo **crashing** into the Audi again, then shifted up through the gears and drove off. (BNC-G0P)

b. #Donna sent the Volvo ____ into the Audi. (intended meaning)

6.5.2 Goldberg's Approach to the Converbal Caused-Motion Construction

Now, I apply Goldberg's Construction Grammar to the Converbal Caused-Motion Construction. This construction is represented as follows.

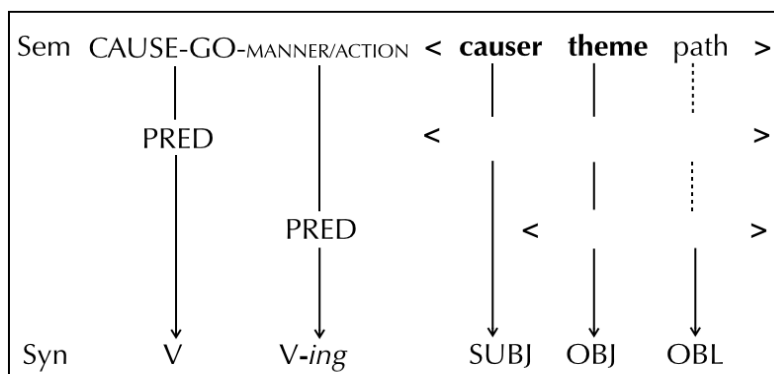


Figure 6.1: The Converbal Caused-Motion Construction

Unlike the Converbal Intransitive Motion Construction (see Chapter 4), this construction has three argument roles, CAUSER, THEME, and PATH. In this construction, the

⁷Sometimes *crashing* can be deleted without largely altering the meaning of the sentence.

(i) One by one, the concrete weighted drums were winched up and then sent **crashing** into the sea. (BNC-AN9)

(ii) One by one, the concrete weighted drums were winched up and then sent ____ into the sea.

CAUSER argument is fused with the participant role of an inflecting verb only. The THEME argument fuses with the participant role of both verbs. In some cases, the PATH argument is fused with the participant role of either verb or both verbs. In the example in (151), the participant roles of both *send* and *whirling* fuse with argument roles associated with this construction: PATH and THEME arguments are related to *whirling* as well as *send*.

(151) He (...) **sent** his axe **whirling** across the room. (BNC-HA3)

In the composite fused structure of the Converbal Caused-Motion Construction, one of the participant roles of *send* is fused with the CAUSER argument. In addition, the other participant roles of *send* and *whirling* are fused with the PATH and THEME arguments. The composite fused structure with *send* and *whirling* is represented as follows.

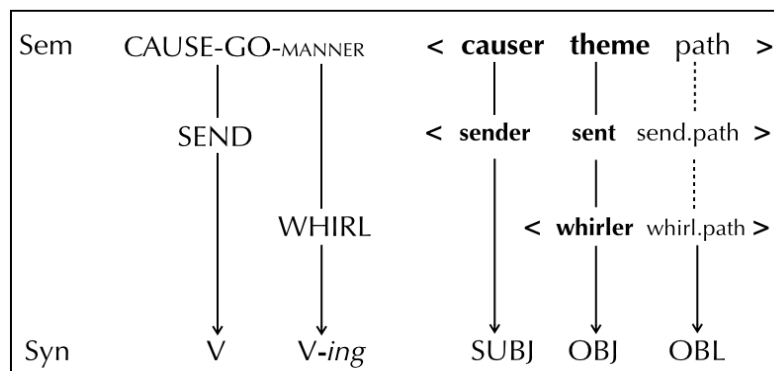


Figure 6.2: The Converbal Caused-Motion Construction (*send* and *whirling*)

However, the PATH argument does not necessarily fuse with a participant role or both participant roles of both verbs. In (152), the PATH argument does not fuse with a participant role of the action verb (i.e., *yelling*).

(152) (...) Luke picked her up and **carried** her **yelling** into the house. (BNC-CA0)

The composite fused structure of the Converbial Caused-Motion Construction with *carry* and *yelling* is represented as follows.

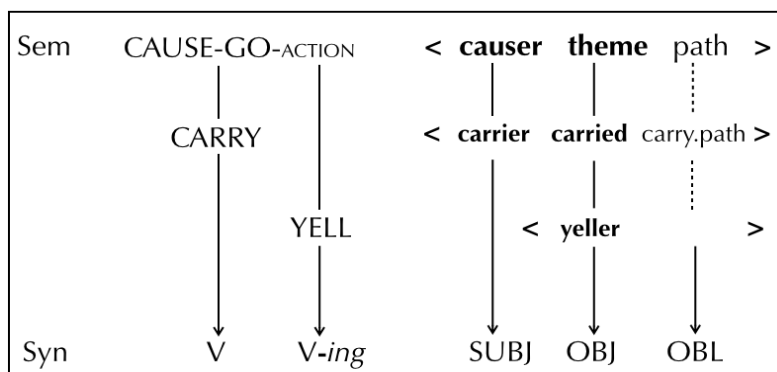


Figure 6.3: The Converbial Caused-Motion Construction (*carry* and *yelling*)

In some cases, the PATH argument fuses with only a participant role of *-ing* form verbs, as shown in (153).

- (153) (···) an underwater earthquake **sent** 50ft tidal waves **crashing** into the coast of
Nicaragua. (BNC-CH2)

The composite fused structure of the Converbial Caused-Motion Construction, where the participant roles of *sent* and *crashing* are fused with the argument roles of this construction, is represented as follows.

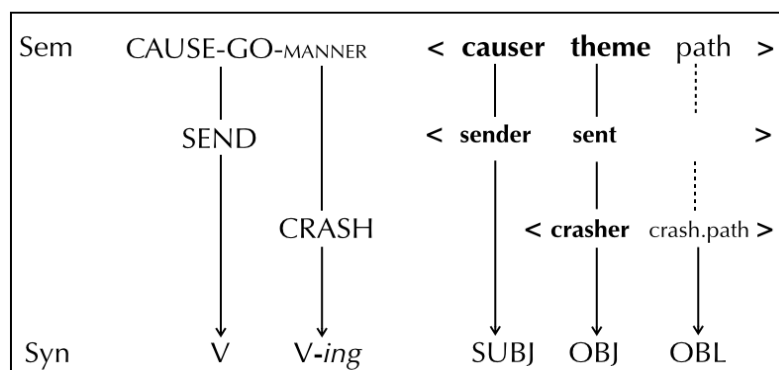


Figure 6.4: The Converbial Caused-Motion Construction (*send* and *crashing*)

In the composite fused structure shown in Figure 6.4, the PATH argument must be fused with a participant role of *crashing*. This participant role of *crashing* is necessarily GOAL.

6.5.3 Networks of Subconstructions in a Usage-based Model

In the Usage-Based Model, all examples are considered as instances of schemata. When we find that one instance and another instance have something in common, we build a schema. Then, we create innovative expressions through the schema. Now, we will look at how schemata are created in the Converbial Caused-Motion Construction.

First, the most productive subconstruction is made as a schema. Instances of this subconstruction, *-ing* form verbs, are manner of motion verbs such as *flying* and *rushing*. Thus, the Subj V Obj MotionV-*ing* Real PATH subconstruction is formed. Very productive schemata form an innovative schema as their extension. The Subj V Obj ActionV-*ing* Real PATH subconstruction is an extension from the Subj V Obj MotionV-*ing* Real PATH subconstruction.

This newly created subconstruction has elements in common. In the path expressions with the Subj V Obj MotionV-*ing* Real PATH subconstruction, the verbs following

objects are in *-ing* form. Thus, a new schema, the Subj V Obj V-*ing* Motion PATH, is created. This subconstruction subsumes the two subconstructions, the Subj V Obj MotionV-*ing* Real PATH subconstruction and the Subj V Obj ActionV-*ing* Real PATH subconstruction. From the Subj V Obj V-*ing* Motion PATH subconstruction, the Subj V Obj crash-typeV-*ing* Pseudo PATH subconstruction is created as an extension. By these steps, all three subconstructions are created, and finally, the most schematic construction is created, subsuming all of the subconstructions and all examples of this construction. This can be seen in Figure 6.5.

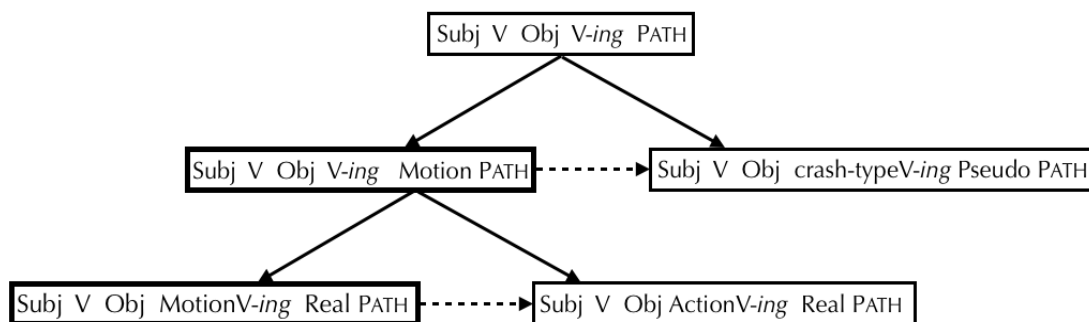


Figure 6.5: Subconstructions of the Converbial Caused-Motion Construction

This analysis within the framework of the Usage-Based Model concerns information about the frequency of each expression. The most productive subconstruction, of course, the prototype of this construction, is the Subj V Obj MotionV-*ing* Motion PATH subconstruction.

6.5.4 Summary of Theoretical Discussion

The Converbial Caused-Motion Construction is a special construction in that it has two verbs even though it is mono-clausal. Prepositional phrases are considered to be related to main verbs in most examples. However, in some examples, where the *-ing* form verb

is *crashing*, prepositional phrases are not related to causative motion verbs but related to *crashing*. How is this expression possible? This was answered using the Usage-based Model. Our ability to form schemata and make innovative expressions as extensions of such schemata enables us to create expressions. Moreover, I investigated how the highest placed schema is formed. In Goldberg's Construction Grammar, only the highest level constructions are emphasized, but middle-level schematic constructions (i.e., verb-class constructions) are also important (Iwata 2008).

6.6 Conclusion

In this chapter, I have examined syntactic and semantic aspects of the Converbial Caused-Motion Construction. This construction is the causative version of the Converbial Intransitive Motion Construction, treated in Chapter 4.

Unlike the Converbial Intransitive Motion Construction, deixis is unimportant in the Converbial Caused-Motion Construction. However, many high-frequency *-ing* form verbs representing physically energetic and perceptually salient actions are found in both constructions. That is, there are not only differences but also similarities between these constructions. The next chapter will discuss the three constructions dealt with in Chapters 4, 5, and 6.

Chapter 7

General Discussion

7.1 Introduction

In the previous three chapters, I have argued that Converbial Motion Constructions in English are mono-clausal even though two verbs are involved.¹ In addition, the corpus investigation and statistical analysis have shown the correlation patterns between verbs in each construction. In this chapter, I discuss three issues related to these constructions: i) iconicity in grammar, ii) the niches of constructions and iii) the importance of corpus data in Construction Grammar.

7.2 Iconicity in Grammar

As Kortmann (1991; 1995) and Stump (1985) pointed out, the interpretation of *-ing* form varies widely (see Chapter 2). The interpretation of *-ing* form in the Free Participial Construction is greatly varied. In contrast, in the case of the Converbial Motion Constructions discussed in Chapters 4, 5, and 6, the interpretation of the *-ing* form is

¹This chapter is based on Morishita (2012a; 2012b).

limited to 'manner of motion' as in (154a, 156a), 'accompanying action' as in (154b, 156b), or 'purpose' as in (155a, 155b).

(154) a. James came **running** up the stairs as she came out of the office. (BNC-FRS)

b. Kylie ran **sobbing** out of the studios (...). (BNC-ADR)

(155) a. We must go **swimming** together one day. (BNC-CFJ)

b. I went **shopping** and filled an entire cupboard with the sprays and powders (...). (BNC-A0R)

(156) a. All the windows in my carriage shattered, and sent glass **flying** across the people inside. (BNC-K55)

b. They proceeded to apprehend Willis and a fellow partygoer and dragged them **screaming and kicking** to the squad car. (BNC-CDG)

This limitation of interpretation is correlated with the differences in the constituent structures of bi-clausal constructions and mono-clausal constructions. As I have already noted, the Converbial Intransitive Motion Construction, Converbial Purposive Motion Construction, and the Converbial Caused-Motion Construction are mono-clausal even though they involve two verbs. That is, the verbs in the Converbial Motion Constructions in (154) - (156) are integrated into single clauses. In contrast, the Free Participial Construction is undoubtedly bi-clausal. The Free Participial Construction, which has a wide variety of interpretations, involves two kinds of verbs, but they are loosely integrated.

The interpretations 'manner of motion,' 'accompanying action,' and 'purpose' are associated with simultaneity in a broader sense. In the Converbial Intransitive Motion Construction, the action represented by a manner of motion verb or an action

verb continues while a subject referent is moving. In the Converbial Caused-Motion Construction, the action represented by a manner of motion verb or an action verb continues while an object referent is moving. Moreover, in the Converbial Purposive Motion Construction, a subject referent moves to somewhere to accomplish the purpose represented by an *-ing* form verb, and the subject referent keeps the purpose in mind during motion.

The integrity of the two verbs in the Converbial Motion Constructions is reflected in the limitation of interpretation, and the simultaneity in a broader sense. These facts support the iconicity of grammar (e.g., Haiman 1985).

7.3 Each Construction Occupies Its Own Niche

Taylor (2004: 58) argues that a linguistic unit occupies a 'niche.' As one word in a language is different from another word semantically/functionally, one construction functions differently from another. That is, there are no synonymous constructions (Goldberg 1995: 67, see also Matsumoto 2010). In this section, I show that the prototypical meaning/function of one construction is different from that of another, reviewing corpus evidence.

In previous chapters, I drew 1,539 examples of the Intransitive Motion Construction, 1,130 examples of the Converbial Intransitive Motion Construction, 397 examples of the Caused-Motion Construction, and 303 examples of the Converbial Caused-Motion Construction from the *BNC*.

As I noted in Chapter 4, the prototypical function of the Intransitive Motion Construction is different from that of the Converbial Intransitive Motion Construction. This difference is clearly shown by the corpus data. In the former construction *go* (424) oc-

curs more frequently than *come* (311). In contrast, *come* (844) occurs more frequently than *go* (227) in the latter construction. In other words, the Intransitive Motion Construction is *go*-oriented, whereas the Converbial Intransitive Motion Construction is *come*-oriented. That is, these two constructions are contrasted in terms of deixis.

As I have noted in Chapter 6, the Caused-Motion Construction is also contrasted with the Converbial Caused-Motion Construction in term of causative type. The former construction prefers continuous causation (71.8%) to onset causation (28.2%), whereas the latter construction prefers onset causation (91.1%) to continuous causation (8.9%).

Moreover, while both the Intransitive Motion Construction and the Caused-Motion Construction are GOAL-oriented as a whole, both the Converbial Motion Constructions dealt with in Chapters 4 and 6 are VIA-oriented. These facts strongly show that each construction occupies its own niche.

7.4 Corpus Data in Construction Grammar

Many linguists in the field of Construction Grammar have utilized corpus data, and most previous studies by them examine which words are prototypical in a given construction (e.g., Stefanowitsch and Gries 2003). These studies aim to describe each construction in detail by presenting several statistically analyzed data as well as raw frequencies of words occurring in constructions. These studies are certainly important to Construction Grammar, and I have described three constructions in detail by showing corpus data in this thesis.

The data drawn from corpora are numerical, and thus, we can compare the distribution of frequency of a word or words in a given construction with that in another construction. Especially, these numerical data are helpful to compare two similar con-

structions in meaning and/or function. In fact, I compared two kinds of Intransitive Motion Constructions in Chapter 4, and two kinds of Caused-Motion Constructions in Chapter 6.

The theoretical generalizations proposed by Goldberg and Taylor are important, but such theoretical hypotheses need to be examined by some empirical methods. Corpus investigation is one of such empirical methods.

Chapter 8

Concluding Remarks

8.1 Introduction

This dissection has adopted a constructional approach to Converbial Motion Constructions in English based on large corpus data. These constructions have been described in few previous studies. However, through the foregoing chapters, my corpus-based statistical descriptions of these constructions not only give exhaustive and reliable data to the field of theoretical linguistics but also contribute to the theory of Construction Grammar. In what follows, I will summarize the major findings of my study.

The organization of this final chapter is as follows. Section 1 will briefly recapitulate the essential points in the previous chapters. Section 2 will indicate what remains to be seen in the future since the scope of this thesis is limited to constructions involving *-ing* form verbs.

8.2 Converbal Constructions Revisited

Converbal Constructions have mainly attracted the attention of typologists since Haspelmath (1995) introduced the notion of 'converb' into theoretical linguistics. The non-finite form verbs functioning subordinately are seen in many languages, and the notion of 'converbs' has tempted linguists of European languages to describe phenomena in terms of 'converb' (e.g., Kortmann 1995). The researchers focused on bi-clausal constructions such as the Free Participial Construction and the Absolute Participial Construction. This may be because mono-clausal constructions that involve converbs are regarded as reduced versions of bi-clausal constructions through reconstructing. Nevertheless, in fact, some Converbal Constructions are syntactically mono-clausal as I demonstrated in Chapters 4, 5 and 6. Moreover, in mono-clausal Converbal Constructions in English, a complex predicate composed of an inflecting verb and an *-ing* form verb functions as a single predicate, and it takes a single path argument.

These observations suggest not all Converbal Constructions are bi-clausal. Mono-clausal Converbal Constructions should not be regarded as reduced versions from bi-clausal ones. This difference between mono-clausal constructions and bi-clausal ones is reflected in the range of variety of interpretations. That is, the range of interpretations of *-ing* forms are very limited in mono-clausal Converbal Constructions.

In addition, the corpus investigation illustrated the prototypical meaning/function of each construction. In the theory of Construction Grammar, there should not be more than one semantically and/or functionally same construction (The Principle of No Synonymy: Goldberg 1995: 67). Corpus investigation is very useful to examine the prototypical meaning/function of a construction because verbs occurring frequently in a construction reflect their prototypical meanings.

Many functional and/or cognitive linguists have faith in an assumption that the grammatical structure in languages is functionally motivated. What I have done so far in this thesis contributes to this issue. That is, grammatical structure motivates meaning and/or function.

8.3 What Remains to Be Seen

In my thesis, I focus on limited constructions, in which a motion verb or a causative motion verb co-occurs with an *-ing* form verb. However, there are constructions where a motion verb is followed by another verb. Examples of such constructions are given in (157) and (158).

(157) a. You should **come** and **see** them. (BNC-A6E)

b. I should **go** and **get** the other box and then you've got all the other bits and pieces as well. (BNC-KBW)

(158) a. **Come buy** wine and milk without money and without cost. (BNC-KN9)

b. Come on, I'm hungry, let's **go get** some lunch and then we'll find an estate agent. (BNC-CDB)

The expressions in (157) involve a conjunction between a deictic motion verb (i.e., *come* and *go*) and a transitive verb (i.e., *see* and *get*). On the other hand, in (158), two verbs are juxtaposed without a conjunction.

It should be noted that the second verbs in (157) and (158) seem to be transitive and take an object. In the Converbial Motion Constructions dealt with in Chapters 4, 5, and 6, most *-ing* form verbs cannot take an object. If each construction occupies its niche, these constructions in (157) and (158) must be different from the constructions discussed

in previous chapters. If this is true, how are these constructions different from other similar constructions? In addition, I should demonstrate that the construction in (158) is not a reduced version of the construction in (157), as well. Moreover, the productivity of the verbs in the constructions should be examined with a corpus investigation.

References

- Aikhenvald, Alexandra Y. 2006. Serial verb constructions in typological perspective. In Alexandra Y. Aikhenvald and R.M.W. Dixon. (eds.), 1-68. Oxford: Oxford University Press.
- . and R.M.W. Dixon. 2006. *Serial verb constructions: A cross-linguistic typology*. Oxford: Oxford University Press.
- Alsina, Alex, Joan Bresnan and Peter Sells. (eds.). 1997. *Complex predicates*. Stanford: CSLI Publications.
- Ando, Sadao. 2005. *Gendai ebunpo kogi [Lectures on Modern English Grammar]*. Tokyo. Kaitakusha
- Andrews, Avery D. and Christopher D. Manning. 1999. *Complex predicates and information spreading in LFG*. Stanford, Calif.: CSLI Publications.
- Baker, Mark. 1989. Object sharing and projection in serial verb constructions. *Linguistic Inquiry* 20. 513-553.
- Bangbose, Ayo. 1974. On serial verbs and verbal status. *Journal of West African Languages* 9, 17-48.
- Bergen, Benjamin and Nancy Chang. 2005. Embodied construction grammar in simulation-based language understanding. Construction grammars: Cognitive grounding and theoretical extensions. In Jan-Ola Östman and Miriam Fried. (eds.), 147-190.
- Bisang, Walter. 1995. Verb serialization and converbs: differences and similarities. In Ekkehard König and Martin Haspelmath (eds.), 137-188.
- . 1998. The view from the far East. Comments on seven thematic areas. In Van der Auwera, Johan with Dónall P. Ó Baoill (eds.), 641-812.
- Boas, Hans C. 2003. *A constructional approach to resultatives*. Stanford, Calif.: CSLI Publications.
- . 2007. Construction Grammar in the twenty-first century. *English Language and Linguistics* 11, 569-585.
- . 2008. Determining the structure of lexical entries and grammatical constructions in construction grammar. *Annual Review of Cognitive Linguistics* 6, 113-144.
- Bolinger, Dwight. 1983. The go-progressive and auxiliary-formation. Frederick B. Agard, Gerald Kelley, Adam Makkai and Valerie Becker Makkai (eds.). *Essays in honor of Charles F. Hockett*. Leiden: Brill, 153-167.
- Booij, Geert. 1990. The boundary between morphology and syntax: Separable complex verbs in Dutch. *Yearbook of Morphology* 3, 45-63.
- Burzio, Luigi. 1986. *Italian syntax: A government-binding approach*. Hingham, MA: Kluwer Academic Publishers.
- Bybee, Joan. 2010. *Language, usage and cognition*. Cambridge; New York: Cambridge University Press.

- Bybee, Joan and David Eddington. 2006. A usage-based approach to Spanish verbs of 'becoming'. *Language* 82, 323-355.
- Croft, William. 2001. *Radical construction grammar: Syntactic theory in typological perspective*. Oxford: Oxford University Press.
- . 2012. *Verbs: Aspect and causal structure*. Oxford: Oxford University Press.
- . and D. Alan Cruse. 2004. *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- ., Jóhanna Barðdal, Willem Hollmann, Violeta Sotirova and Chiaki Taoka. 2010. In Hans C. Boas (ed.). *Contrastive studies in construction grammar*. Amsterdam; Philadelphia: John Benjamins.
- Crowley, Terry. 2002. *Serial verbs in oceanic: A descriptive typology*. Oxford: Oxford University Press.
- Dixon, R. M. W. 2005. *A semantic approach to English grammar: 2nd ed.* New York: Oxford University Press.
- Durie, Mark. 1997. Grammatical structures in verb serialization. In Alex Alsina, Joan Bresnan and Peter Sells. (eds.), 289-254. Stanford, Calif.: CSLI Publications.
- Fillmore, Charles J. 1977. Topics in lexical semantics. In R.W. Cole ed. *Current issues in linguistic theory*, 76-138. Bloomington: Indiana University Press.
- . 1982. Frame semantics. In *Linguistics in the morning calm*. 111-138. Seoul: Hanshin.
- . 1985. Frames and the semantics of understanding. *Quaderni di Semantica* 6, 222-253.
- . and Beryl T. Atkins. 2000. Describing polysemy: The case of 'crawl'. In Y. Raven and C. Leacock (eds.). *Polysemy*, 91-110. Oxford: Oxford University Press.
- and Paul Kay (in preparation). *Construction Grammar*. Stanford, Calif.: CSLI.
- , ---- and Mary Catherine O'Connor. 1988. Regularity and idiomaticity in grammatical constructions: The case of let alone. *Language* 64, 501-538.
- Mirjam Fried and Jan-Ola Östman. (eds.). 2004. *Construction grammar in a cross-language perspective*. Amsterdam; John Benjamins.
- Geeraerts, Dirk. 1993. Vagueness's Puzzles, polysemy's vagaries. *Cognitive Linguistics* 5, 223-272.
- Givón, Talmy. 1980. The binding hierarchy and the typology of complements. *Studies in Language* 4, 333-377.
- Glynn, Dylan and Kerstin Fisher. (eds.). 2010. *Quantitative methods in cognitive semantics: corpus-driven approaches*. Berlin; New York: De Gruyter Mouton.
- Goldberg, Adele E. 1995. *Constructions: A construction grammar approaches to argument structure*. Chicago: University of Chicago Press.
- . 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.
- Gries, Stefan Th. 2012. Frequencies, probabilities, and association measures in usage-/exemplar-based linguistics: Some necessary clarifications. *Studies in Language* 11, 477-510.

- , Beate Hampe and Doris Schönfeld. 2005. Converging evidence: Bringing together experimental and corpus data on the association of verbs and constructions. *Cognitive Linguistics* 16, 635-676.
- Haiman, John 1985. *Natural syntax: Iconicity and erosion*. New York: Cambridge University Press.
- Haspelmath, Martin. 1995. The converb as a cross-linguistically valid category. In Martin Haspelmath and Ekkehard König (eds.). 1995. *Converbs in cross-linguistic perspective: Structure and meaning of adverbial verb forms: adverbial participles, gerunds*, 1-55.
- Huang, Cheng-Teh James. 1982. *Logical relations in Chinese and the theory of grammar*. Ph.D. thesis, Massachusetts Institute of Technology, Cambridge, Mass.
- Ikegami, Yoshihiko. 1987. Source vs. goal: A case of linguistic dissymmetry. In Rene Dirven and Giinter Radden (eds.). *Concepts of case*, 122-146.
- Iwata, Seizi. 2008. *Locative alternation: A lexical-constructional approach*. Amsterdam: John Benjamins Publications.
- Jackendoff, Ray. 1977. *X' syntax: A study of phrase structure*. Cambridge, Mass.: MIT Press.
- . 1983. *Semantics and cognition*. Cambridge, Mass.: MIT Press.
- . 1990. *Semantic structure*. Cambridge, Mass.: MIT Press.
- . 1997. *The architecture of the language faculty*. Cambridge, Mass.: London: MIT Press.
- Johnson, Douglas H. 1999. The insignificance of statistical significance testing. *Journal of Wildlife Management* 63, 763-772.
- Kageyama, Taro. *Bunpoo-to gokeisei [Grammar and word formation]*. Tokyo: Hituzi Syobo.
- Katz, Jerrold J. and Jerry A. Fodor. 1963. The structure of a semantic theory. *Language* 39, 170-210.
- Kay, Paul. 2005. Argument structure constructions and the argument/adjunct distinction. In Miriam Fried and Hans C. Boas. (eds.). *Grammatical constructions: Back to the roots*, 71-98.
- and Charles J. Fillmore. 1999. Grammatical constructions and linguistic generalizations: The what's X doing Y? construction. *Language* 75, 1-33.
- Kempson, Ruth M. 1977. *Semantic theory*. Cambridge; New York: Cambridge University Press.
- Kilgarriff, Adam. 2005. Language is never, ever, ever, random. *Corpus Linguistics and Linguistic Theory* 1, 263-276.
- Kortmann, Bernd. 1991. *Free adjuncts and absolutes in English: Problems of control and interpretation*. London; New York: Routledge.
- . 1995. Adverbial participial clauses in English. In Martin Haspelmath and Ekkehard König (eds.). 1995. *Converbs in cross-linguistic perspective: Structure and meaning of adverbial verb forms: adverbial participles, gerunds*, 189-237.
- Lakoff, George. 1970. *Irregularity in syntax*. New York: Holt, Rinehart and Winston.

- . 1971. The role of deduction in grammar. In C. J. Fillmore and D. T. (eds.) *Studies in linguistic semantics*. New York: Holt, Rinehart and Winston.
- . 1986. Frame semantic control of the coordinate structure constraint. *CLS 22: Papers from the Parasession on Pragmatics and Grammatical Theory at the twenty-second annual regional meeting*, 152-167.
- Langacker, Ronald W. 1987. *Foundations of cognitive grammar vol. 1: Theoretical prerequisites*. Stanford, Calif. Stanford University Press.
- . 1990. *Concept, image, and symbol: The cognitive basis of grammar*. Berlin; New York: Mouton de Gruyter.
- . 1991. *Foundations of cognitive grammar: vol. 2: Descriptive application*. Stanford, Calif. Stanford University Press.
- . 2000. A dynamic usage-based model. In Michael Barlow and Suzanne Kemmer. (eds.). *Usage-Based Models of language*. Stanford, Calif.: CSLI Publications, 1-63.
- Levin, Beth. 1985. Lexical semantics in review: An introduction. In Beth Levin. (ed.). 1985. *Lexical semantics in review*, Lexicon Project Working Papers 1, Center for Cognitive Science, MIT, Cambridge, Mass.
- . 1993. *English verb classes and alternations: A preliminary investigation*. Chicago: University of Chicago Press.
- and Malka Rappaport Hovav. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, Mass.: MIT Press.
- . 2005. *Argument realization*. Cambridge: Cambridge University Press.
- Li, Charles N. and Sandra A. Thompson. *Mandarin Chinese: A functional reference grammar*. Berkeley: University of California Press.
- Lyons, John. 1977. *Semantics vol.2*. Cambridge; New York: Cambridge University Press.
- Matsumoto, Yo. 1991. On the lexical nature of purposive and participial complex motion predicates in Japanese. *Proceedings of the seventeenth annual meeting of the Berkeley Linguistic Society: General session and parasession on the grammar of event structure*, 180-191.
- . 1996. *Complex predicates in Japanese: A syntactic and semantic study of the notion 'word'*. Stanford, Calif.: Center for the Study of Language and Information.
- . 2010. Tagigo-ni okeru tyuusinteki imi-to sono tenkei-sei [The central meaning and centrality of polysemous lexical item]. *Sophia Linguistica* 57, 89-99.
- McCawley, James D. 1968. The role of semantics in a grammar. In In Emmons Bach and Robert T. Harms (eds.) *Universals in linguistic theory*. New York: Holt, Rinehart and Winston.
- Morishita, Yuzo. 2011a. Dousi-renzoku-koubun-ni kansuru koubun-bunpouteki-kousatu. [A constructional approach to the serial verb construction]. *Nihon ninti-gengo-gaku ronbunshuu*. 11, 395-405. [Papers from the 11th national conference of the Japanese Cognitive Linguistics Association].
- . 2011b. Keidousi-idou-kobun niokeru dousi-no seiki-jyouken saikou. [Constraints on the occurrence of verbs in light verb motion construction reconsidered].

- Nihon Goyou-ron gakkai taikai happyou ronbunshuu. 6, 129-136. [Proceedings of the Pragmatics Society of Japan 6].
- . 2012a. A quantitative approach to converbial motion constructions in English. Paper presented at the 7th International Conference of Construction Grammar.
- . 2012b. Huku-dousi-wo hukumu idou-koubun-to sieki-idou-koubun-no ruijiten-to soui-ten. [The similarities and differences between the Converbial Intransitive Motion Construction and the Converbial Caused-Motion Construction]. Paper presented at the 38th Conference of Japan Association for English Corpus Studies.
- . 2013a. Kopasu-hindo-ni motozuku eigo-no hukudousi-sieki-idou-koubun-ni kansuru bunseki. [A corpus-based analysis of the Converbial Caused-Motion Construction in English]. Nihon ninti-gengo-gaku ronbunshuu. 13, 146-156. [Papers from the 13th national conference of the Japanese Cognitive Linguistics Association].
- . 2013b. Mokuteki-ido-kobun-ni kansuru koubun-bunpou-teki kousatu. [A constructional approach to the Purposive Motion Construction]. Paper presented at the 31st Conference of the English Linguistic Society of Japan.
- Nedjalkov, Vladimir P. and Igor' Nedjalkov. 1987. On the typological characteristics of converbs In Toomas Help (ed.), *Symposium on language universals*, Tallinn, 75-79.
- Nemoto, Noriko. 1998. On the polysemy of Ditransitive *save*: The role of frame semantics in construction grammar. *English Linguistics* 15, 219-242.
- . 2005. Verbal polysemy and frame semantics in construction grammar. In Mirjam Fried and Hans C. Boas. (eds.) *Grammatical constructions: Back to roots*, 118-136.
- Newman, John. 2010. Balancing acts: Empirical pursuits in cognitive linguistics. In Dylan Glynn and Kerstin Fisher (eds.), 79-100.
- Newmyer, Frederick J. 2003. Grammar is grammar and usage is usage. *Language* 79, 682-707.
- Östman, Jan-Ola and Mirjam Fried. 2004. A thumbnail sketch of construction grammar. In Mirjam Fried and Jan-Ola Östman. (eds.), 11-86.
- Pinker, Steven. 1989. *Learnability and cognition: The acquisition of argument structure*. Cambridge, Mass. MIT Press.
- Quine, Willard Van Orman. 1960. *Word and Object*. Cambridge, Mass.: MIT Press.
- Radford, Andrew. 1988. *Transformation grammar: A first course*. Cambridge: Cambridge University Press.
- Rappaport Hovav, Malka and Beth Levin. 1998. Building verb meanings. In Miriam Butt and Willhelm Geuder (eds.) *The projection of arguments: Lexical and compositional factors*.
- Ross, John Robert. 1967. *Constraints on variables in syntax*. Ph.D. thesis, Massachusetts Institute of Technology, Cambridge, Mass.
- Salkie, Raphael. 2010. On going. In Bert Cappelle and Naoaki Wada (eds.), *Distinctions in English Grammar: Offered to Renaat Declerck*, 169-190. Tokyo:

- Kaitakusha.
- Schlüter, Julia. 2005. *Rhythmic grammar: The influence of rhythm on grammatical variation and change in English*. Berlin: Mouton de Gruyter.
- Shibatani, Masayoshi. 1976. The grammar of causative constructions. *Syntax and Semantics* 6.
- Silva, Clare M. 1975. Adverbial-ing. *Linguistic inquiry* 6, 346-350.
- Steel, Luc. (ed). 2011. *Design patterns in fluid construction grammar*. Amsterdam: John Benjamins.
- Stefanowitsch, Annatol and Stefan Th. Gries. 2003. Collostructions: Investigating the interaction of words and constructions. *International Journal of Corpus Linguistics* 8, 209-243.
- Stump, Gregory Thomas. 1985. *The formal semantics and pragmatics of free adjuncts and absolutes in English*. Ann Arbor, Mich.: University Microfilms International.
- Swan, Michael. 2005. *Practical English usage*. 3rd ed. Oxford: Oxford University Press.
- Talmy, Leonard. 1978. Figure and Ground in complex sentences. In Greenberg Joseph H. (ed.), *Universals of human language, vol. IV: Syntax*, 625-649. Stanford, Calif.: Stanford University Press.
- 1985. Lexicalization patterns: Semantic structure in lexical forms. In Timothy. Shopen (ed.) *Language typology and syntactic description vol. 3: Grammatical categories and the lexicon*, 57-149. Cambridge: Cambridge University Press.
- 1991. Path to realization: A typology of event conflation. *Proceedings of the seventeenth annual meeting of the Berkeley Linguistics Society: General session and parasession on the grammar of event structure*. 480-519.
- 2000a. *Toward a cognitive semantics vol. 1: Concept structure systems*. Cambridge, Mass: MIT Press.
- 2000b. *Toward a cognitive semantics vol. 2: Typology and process in concept structuring*. Cambridge, Mass.: MIT Press.
- Talyor, John R. 1996. On running and Jogging. *Cognitive Linguistics* 7, 21-34.
- . 2004. The ecology of constructions. In Günter Radden and Klaus-Uwe Panther (eds.), *Studies in linguistic motivation*. Berlin: Mouton de Gruyter.
- Tognini-Bonell, Elena. *Corpus linguistics at work*. Amsterdam and Philadelphia: John Benjamins.
- Tuggy, David. 1993. Ambiguity, polysemy and vagueness. *Cognitive Linguistics* 4, 273-290.
- Vendler, Zeno. 1967. *Linguistics in Philosophy*. Ithaca, New York: Cornell University Press.
- Visser, F. Th. 1973. *An historical syntax of the English language*. Leiden: E. J. Brill.
- Wierzbicka, Anna. 1988. *The semantics of grammar*. Amsterdam; Philadelphia: John Benjamins.
- Yoneyama, Masayo. 1986. Motion verbs in conceptual semantics. *Bulletin of the faculty of humanities* 22, Tokyo: Seikei University.
- Zwickey, Arnold M. and Jerrold M. Sadock. Ambiguity tests and how to fail them.

Syntax and Semantics 4, 1-36.

Dictionary

Oxford Dictionary of English

Oxford Advanced Learner's Dictionary of Current English.

Corpus

British National Corpus. XML Edition (available in <http://www.natcorp.ox.ac.uk>)