A Corpus-Based Study of Linguistic Parallelism between Motion and Change-of-State Expressions in English: An Examination of Conceptual Parallelism

Ito, Akinori

(Degree)
博士（学術）

(Date of Degree)
2018-03-25

(Date of Publication)
2019-03-01

(Resource Type)
doctoral thesis

(Report Number)
甲第7067号

(URL)
https://hdl.handle.net/20.500.14094/D1007067

A Corpus-Based Study of Linguistic Parallelism between Motion and Change-of-State Expressions in English: An Examination of Conceptual Parallelism

A Dissertation Submitted to the Graduate School of Humanities
Kobe University
In Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy

by

Akinori Ito

March, 2018

Contents

List of Tables

List of Figures

Chapter 1

Introduction

1.1 Outline of this study

"Spatial concepts are central for human language and cognition." This oft-used phrase tells us how much expressions of space have attracted the attention of researchers. Of particular interest is the relationship between spatial expressions and non-spatial expressions such as change-of-state expressions. It has been pointed out that spatial expressions and non-spatial expressions of some domains are linguistically parallel (e.g., Gruber 1965, Anderson 1971, Talmy 1972, Lyons 1977, Ikegami 1981, Jackendoff 1983, 1990, Talmy 1991, 2000, among others). This linguistic parallelism is exemplified in (1).

(1) a. Spatial motion:

The bird **went from** the ground **to** the tree.

b. Change of possession:

John gave an apple **to** Mary.

c. Time passage:

Christmas is **approaching**.

d. Change of state:

The light **went from** green **to** red.

These examples illustrate that the motion verb *go* and the spatial prepositions *from* and *to* used

in (1a) are also used in non-spatial expressions in (1b)–(1d).

The recent studies have proposed that this linguistic parallelism between spatial and some non-spatial expressions is founded on the conceptual parallelism (Jackendoff 1983, 1990, Talmy 1991, Lakoff 1993). We construe non-spatial events of some domains in a parallel way to spatial events, and the linguistic parallelism is considered to be a reflection of this conceptual parallelism. However, some studies also point out that the motion expressions and the non-spatial expressions are not completely parallel due to differences in the event structures of the spatial and non-spatial events.

This thesis investigates whether the conceptual parallelism is reflected in our linguistic encoding of motion and change-of-state events. If the conceptual parallelism is of importance in our experience, then it should be widely reflected in the linguistic encoding of these events. In order to see how they are coded in linguistic expressions, I will adopt Talmy's typology of event integration (Talmy 1991, 2000). Talmy argues that each type of language in his typological classification exhibits the same characteristic property in terms of the encoding of what he calls "core-schema" both in the motion expressions and in the change-of-state expressions. Thus, his framework is useful to investigate how the conceptual parallelism is reflected in linguistic expressions.

My claims in this thesis are summarized as follows:

(2) a. The parallelism between motion expressions and change-of-state expressions holds only in some cases in English; Generally, English shows different patterns in encoding of motion events and change-of-state expressions.

b. Change-of-state events that tend to be encoded in the predominant pattern of motion expressions are closely related to the motion events in some ways.

c. Linguistic non-parallels are attributed to differences in event structures of motion events and change-of-state events.

Evidence that supports my claims comes from corpus data. In this study, I collected motion expressions and change-of-state expressions from the British National Corpus (BNC), which is a balanced corpus of British English. Data from such a large corpus enable us to examine

predominant patterns of expressions in a language.

1.2 Organization of this thesis

The organization of this thesis is as follows. Chapter 2 will give issues in theories that are founded on the localistic idea. I will point out the partial nature of the linguistic parallelism between spatial expressions and non-spatial expressions of some domains due to domain-specific properties. In Chapter 3, I will compare event structures of motion and change-of-state events to see possible factors that preclude the "full" linguistic parallelism. Then, I will introduce recent modifications to Talmy's typology, and discuss problems and remaining issues. Then, the methodology adopted in this study will be discussed. Chapter 4 will review previous quantitative studies on motion and change-of-state expressions. Chapter 5 will present the results of our corpus investigation into motion expressions. Chapter 6 will examine encoding patterns in English change-of-state expressions. It will be demonstrated that change-of-state expressions investigated show different patterns from motion expressions in many cases. Chapter 7 will investigate encoding patterns in English change-of-state expressions with the preposition *into*. It will be shown that such change-of-state expressions exhibit patterns similar to those presented in Chapter 6. Based on the findings presented in Chapter 6, and Chapter 7, a general discussion will be conducted in Chapter 8. Chapter 9 will propose modifications to the treatment of change-of-state events in Talmy's typology. Finally, Chapter 10 will conclude this study.

Chapter 2

Theoretical issues in conceptual and linguistic parallelism

2.1 Parallelism between spatial and non-spatial expressions and theories founded on the parallelism

When we describe a change-of-state event in English, we can employ spatial expressions such as motion verbs (e.g., *come*, *go*) and spatial prepositions (e.g., *into*, *to*). For example, the motion verb *go* and the prepositions *from* and *to*, which are used to describe some aspects of physical motion as in (1a), are also used to express the change in a color of a traffic light, as in (1b).

(1) a. Spatial motion:

The bird went from the ground to the tree.

b. Change of state:

The light went from green to red.

This linguistic parallelism has been pointed out by many scholars (Gruber 1965, Jackendoff 1983, 1990, Talmy 1991, 2000, among others) and facts like this have led some scholars to the idea called localism. The localism is defined as "the hypothesis that spatial expressions are more basic, grammatically and semantically, than various kinds of non-spatial expressions [...]" (Lyons 1977: 718) like temporal, possessional, and change-of-state expressions. He further states

"[s]patial expressions are linguistically more basic, according to the localists, in that they serve as structural templates, as it were, for other expressions; and the reason why this should be so, it is plausibly suggested by psychologists, is that spatial organization is of central importance in human cognition." The important facet of the localism is that the linguistic parallelism between spatial and non-spatial expressions stems from the conceptual parallelism. In this section, I will briefly go through some theories that are founded on the localistic idea.

2.1.1 Gruber's analysis of the linguistic parallelism

Although he does not give the name of the localism, Gruber's study (Gruber 1965, 1976) was a lexical semantic study relying on the localistic idea, which gave an impact on later works on the relationship between spatial and non-spatial expressions.

His analysis widely adopts the notion of "incorporation," in which abstract prepositions are incorporated into the semantic structure of the verb. Let us look at his analysis of the verb *pierce*. He states that the lexical structure of *pierce* optionally incorporates the abstract preposition THROUGH, as illustrated in Figure 2.1.

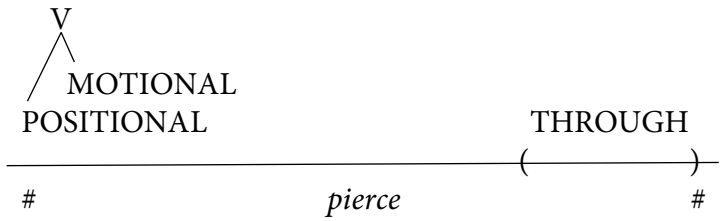

Figure 2.1: Semantic representation of the verb *pierce*

In this figure, MOTIONAL describes that the verb encodes a transition of some kind (a transition of spatial position, a transition of property, and so on). POSITIONAL means that such a transition occurs in the spatial domain rather than non-spatial domains. Thus, the combination of MOTIONAL and POSITIONAL indicates that the verb *pierce* expresses a transition of spatial position. The optionality of incorporation is indicated by the parentheses on the underline. In addition, placing THROUGH on the right side of the V node describes that THROUGH must be in the environment following the verb.

This analysis accounts for grammatical behavior of the verb *pierce* in (2).

(2) a. The pencil pierced the cushion.

b. The pencil pierced through the cushion.

These examples show that the occurrence of the preposition *through* is optional, but the meaning of *through* is still implied even in (2a). In his analysis, this optionality of *through* is attributed to an optional incorporation of the abstract preposition THROUGH into the semantic structure of the verb *pierce*. The *pierce* has an obligatory specification that a THROUGH-prepositional phrase should be immediately after the verb, and this prepositional phrase should be realized as the surface preposition *through* or incorporated into the semantic structure of the verb itself.

Gruber extends this kind of analysis to expressions with "abstract transitions" or "abstract motion," which includes change-of-state expressions such as *the coach turned into a pumpkin*. Such expressions are analyzed in the same way as motion expressions. For example, the verb *turn* is analyzed as in Figure 2.2.

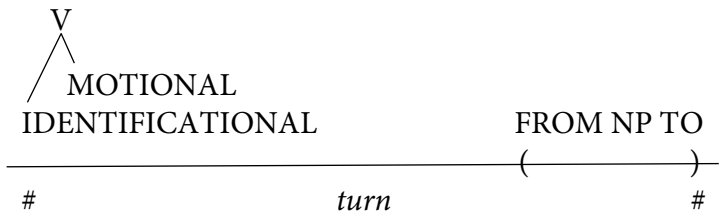

Figure 2.2: Semantic representation of the verb *turn*

It represents that FROM NP TO is optionally incorporated into the semantic structure of the verb *turn*. This analysis accounts for the grammatical behavior of *turn*. First, consider (3).

(3) a. *John decided to turn to (a) redcoat.

b. John decided to turn (a) redcoat.

In (3), the sentence with *to* is unacceptable, while the other is not and it still implies meaning of TO, suggesting that TO must be incorporated into the semantic structure of *turn*. However, *to* can occur if a *from*-phrase is placed between the verb and the *to*-phrase.

(4) John decided to turn from a loyal patriot to a redcoat.

Thus, FROM NP is incorporated whenever TO is. The structure in Figure 2.2 also accounts for the fact that a sentence without any complement or a sentence where only a *from*-phrase appear

is unacceptable.

(5) a. *John turned.

b. *John turned from a doctor.

The important facet of Gruber's study is that he has analyzed semantic structures of verbs both in motion expressions and in change-of-state expressions by adopting the incorporation of the same set of abstract prepositions.

2.1.2 Thematic Relations Hypothesis

Inspired by Gruber's work, Jackendoff proposes the Thematic Relations Hypothesis (TRH) to capture the parallelism between spatial expressions and non-spatial expressions (Jackendoff 1983, 1990). In his theory of semantics, the semantic structure (or the conceptual structure) is represented by the combination of several primitive semantic/conceptual functions. For example, the sentence (or syntactic structure) *John ran into the room* corresponds to the following semantic structure.

(6) $[_{\text{Event}}$ GO ($[_{\text{Thing}}$ JOHN], $[_{\text{Path}}$ TO ($[_{\text{Place}}$ IN ($[_{\text{Thing}}$ ROOM])])])]

In his notation, the semantic/conceptual functions and arguments are represented in capital letters. The labels in subscripts attached to each function/argument (i.e., Event, Thing, Path, and Place) refer to conceptual/ontological categories, which serve as the "part-of-speech" of conceptual structure. In the example above, $[_{\text{Event}}$ GO] means the function GO belongs to the conceptual/ontological category of an event. These categories are also represented as [EVENT], [THING], [PATH], and [PLACE]. In (6), the event-function GO takes two arguments: the thing-function JOHN and the path-function TO; and the path-function takes one argument, the place-function IN, which further takes the thing-argument ROOM. This structure represents the event where a mover, John, makes a movement to a goal, which is inside the room. More examples are given in (7).

(7) a. The bird is in the tree.

$[_{\text{State}}$ BE ($[_{\text{Thing}}$ BIRD], $[_{\text{Place}}$ IN ($[_{\text{Thing}}$ TREE])])]

b. The wind pushed Sim into the room.

[$_{\text{Event}}$ CAUSE ([$_{\text{Thing}}$ WIND], [$_{\text{Event}}$ GO ([$_{\text{Thing}}$ SIM], [$_{\text{Path}}$ TO ([$_{\text{Place}}$ IN ([$_{\text{Thing}}$ ROOM])])])])]

TRH captures linguistic parallelism between expressions in four semantic fields or domains: spatial, temporal, possessional, and identificational. TRH is stated as in (8).

(8) In any semantic field of [EVENTS] and [STATES], the principal event-, state-, path-, and place-functions are a subset of those used for the analysis of spatial location and motion. Fields differ in only three possible ways:

a. what sorts of entities may appear as theme;

b. what sorts of entities may appear as reference objects;

c. what kind of relation assumes the role played by location in the field of spatial expressions. (Jackendoff 1983: 188)

Here theme refers to the entity undergoing transitions, which corresponds to a moving object in the spatial domain. In the semantic structure in (6), the theme is JOHN, and the reference object is ROOM.

Now let us turn to another field: identificational field, to which change-of-state expressions belong. The identificational field has the following specifications.

(9) Identificational field (Jackendoff 1983: 194)

a. [THINGS] appear as theme.

b. [THING TYPES] and [PROPERTIES] appear as reference objects.

c. Being an instance of a category or having a property plays the role of location.

[THING TYPE] refers to a conceptual/ ontological category for the type or category that [THING] belongs to. [PROPERTY] is one for the property that [THING] can have (e.g., color; [$_{\text{Property}}$ RED]). More examples of expressions in the identificational field are given in (10)

(10) a. Elise became/turned into a mother.

[GO$_{\text{Ident}}$ ([$_{\text{Token}}$ ELISE], [$_{\text{Path}}$ TO$_{\text{Ident}}$ ([$_{\text{Type}}$ MOTHER])])]

b. The coach changed from a handsome young man into a pumpkin

$$[\mathrm{GO}_{\mathrm{Ident}}\ ([_{\mathrm{Token}}\ \mathrm{COACH}], \begin{bmatrix} & \mathrm{FROM}_{\mathrm{Ident}}\ ([_{\mathrm{Type}}\ \mathrm{MAN}]) \\ _{\mathrm{Path}} & \mathrm{TO}_{\mathrm{Ident}}\ ([_{\mathrm{Type}}\ \mathrm{PUMPKIN}]) \end{bmatrix})]$$

c. The light changed from red to green.

$$[\mathrm{GO}_{\mathrm{Ident}}\ ([\mathrm{LIGHT}], \begin{bmatrix} & \mathrm{FROM}_{\mathrm{Ident}}\ ([_{\mathrm{Property}}\ \mathrm{RED}]) \\ _{\mathrm{Path}} & \mathrm{TO}_{\mathrm{Ident}}\ ([_{\mathrm{Property}}\ \mathrm{GREEN}]) \end{bmatrix})]$$

Here, the GO-function and the PATH-function, which are also used in motion expressions, are

An important point here is that the linguistic parallelism between motion and change-of-state expressions is accounted for by the conceptual parallelism. Jackendoff states that "a level of mental representation called *conceptual structure* is seen as the form in which speakers encode their construal of the world" (Jackendoff 1990: 12).

2.1.3 Conceptual metaphor

Another theory that touches on the parallelism between motion and change-of-state expressions is Lakoff's conceptual metaphor theory (Lakoff and Johnson 1980, 1999, Lakoff 1993, Kövecses 2002). Conceptual metaphor is defined as mappings across conceptual domains in our conceptual system. It enables us to conceptualize one conceptual domain (Target domain) in terms of another (Source domain). Take LOVE IS JOURNEY for example. This metaphor has the following correspondences between elements in the two domains.

(11)

Source domain: journey	⇒	*Target domain*: love
the travelers	⇒	the lovers
the vehicle	⇒	the love relationship itself
the journey	⇒	events in the relationship
the distance covered	⇒	the progress made
the obstacles encountered	⇒	the difficulties experienced
decisions about which way to go	⇒	choices about what to do
the destination of the journey	⇒	the goal(s) of the relationship

(Kövecses 2002: 7)

This metaphor accounts for the fact that expressions in the domain of journey are systematically used to describe concepts in that of love.

(12) a. Look *how far we've come*.

b. We're *at a crossroads*.

c. We're *stuck*.

d. It's been a *long, bumpy road*.

e. Our marriage is *on the rock*.

f. We've gotten *off the track*.

(Lakoff and Johnson 1980: 44–45)

In the conceptual metaphor theory, the linguistic parallelism between motion and change-of-state expressions is captured by the metaphor CHANGES ARE MOTION (Lakoff 1993: 220, Lakoff and Johnson 1999: 179ff.). A change of state is often conceptualized as movement from/to a container. A change from a certain state can be described as a movement from a container, and a change to a certain state can be described as a movement to a container, as in (13).

(13) a. I came out of my depression.

b. I fell into depression.

An important facet of conceptual metaphor is that metaphor is a conceptual phenomenon. Metaphorical expressions such as those in (13) are just some of the realizations of a conceptual metaphor. Indeed, conceptual metaphor realizes in many different nonlinguistic phenomena, such as inferences and gestures (Lakoff 1993, Lakoff and Johnson 1999). This means this theory treats the linguistic parallelism shown in (13) as a reflection of our conceptual parallelism.

2.1.4 Typology of event integration

Talmy's typology of event integration (Talmy 1991, 2000) is also founded on the conceptual parallelism between motion and change of state. It concerns a cross-linguistic difference in how complex events are integrated into a single clause. For example, the sentence *the bottle floated*

into the cave involves an integration of a complex event (called a "macro-event") consisting of two subevents, as in (14).

(14) [the bottle MOVED in to the cave] WITH-THE-MANNER-OF [it floated]

(Talmy 2000: 227)

The first bracketed event is called a "framing event," which is considered to be the main event in the macro-event. The second bracketed event is a co-event, which co-occurs with the framing event. These two types of events are integrated into a macro-event with various "support relations" such as Manner, and Cause. Figure 2.3 is the schematic representation of the internal structure of the macro event.

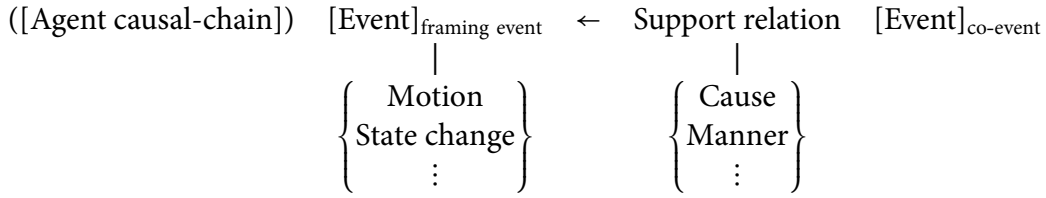

Figure 2.3: Structure of the macro-event (Talmy 2000: 221)

The framing event has the internal structure too. The framing event is composed of four components: figural entity, ground entity, activating process, and association function. The figural entity (or Figure) is the component on which attention or concern is most centered. In the case of motion events, the figural entity is a moving object. The ground entity (or Ground) function as a reference point, with respect to which the condition of the figural entity is characterized. In motion events, the ground entity is a physical object with respect to which the Figure's path is characterized. In (14), for example, Figure is the moving entity, a bottle, and Ground is a cave. The third component is the activating process, which has two values: transition and fixity. When the figural entity makes a transition with respect to the ground entity, then the activating process is the transition. When the figural entity stays fixed with respect to the ground entity (e.g., *the lamp lay on the table*), the activating process is the fixity. Finally, the fourth component, an association function, sets the figural entity into a particular relationship with the ground entity. In motion events, the association function is Path. Either the association function alone or the association function together with the ground entity is considered to be the schematic core of the framing event called "core schema," which determines a particular

character of the event and distinguishes it from other types of framing events. Figure 2.4 is the schematic representation of the internal structure of the framing event.

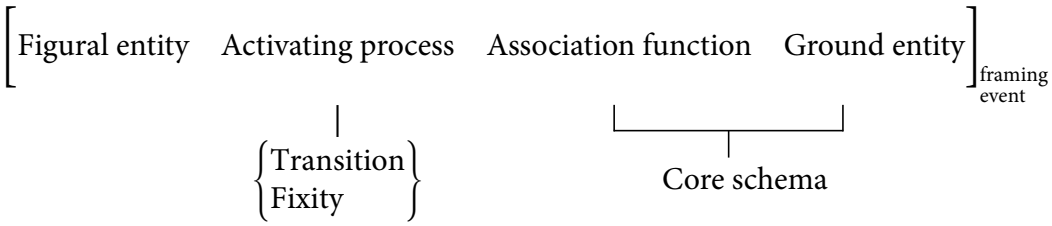

Figure 2.4: Structure of the framing event (Talmy 2000: 221)

Talmy argues that languages can be divided into two distinct types in terms of which constituent expresses the core schema (i.e. Path in the case of motion events). Languages encoding Path in the main verb are called "verb-framed languages" and languages encoding Path in "satellites" are called "satellite-framed languages." Here the satellite refers to "the grammatical category other than a noun-phrase or prepositional-phrase complement that is in a sister relation to the verb root" (Talmy 2000: 102), which includes English particles, and Latin or Russian prefixes.

Now let us look at how the two types of languages describe motion events. The following illustrates how differently English (a satellite-framed language) and Spanish (a verb-framed language) describe motion events (Talmy 2000: 227–228). It clearly shows that English encodes Path in satellites and Spanish in the main verb. (15) shows descriptions in which moving objects are denoted by the subject of the sentences, and (16) shows those in which they are encoded by the object.

(15) Nonagentive

a. Support relation: Manner

[the bottle MOVED in to the cave] WITH-THE-MANNER-OF [it floated]

English: The bottle floated into the cave.

Spanish: *La botella entró flotando a la cueva.*

the bottle entered (MOVED.in) floating to the cave

b. Support relation: Cause

[the bone MOVED out from its socket] WITH-THE-CAUSE-OF [(something)

pulled on it]

English: The bone pulled out of its socket.

Spanish: *El hueso se salió de su sitio de un trión.*

the bone exited (MOVED.out) from its location from a pull

(16) Agentive (= causative)

a. Support relation: Manner

[I $_{A}$MOVED[1] the keg out of the storeroom] WITH-THE-MANNER-OF [I rolled it]

English: I rolled the keg out of the storeroom

Spanish: *Saqué el barril de la bodega rodándo-lo.*

I.extruded ($_{A}$MOVED.out) the keg from the storeroom, rolling-it

b. Support relation: Cause

[I $_{A}$MOVED the ball in to the box] WITH-THE-CAUSE-OF [I kicked it]

English: I kicked the ball into the box.

Spanish: *Metí la pelota a la caja de una patada.*

I.inserted ($_{A}$MOVED.in) the ball to the box from a kick

Talmy's typology is applicable to change-of-state events as well (Talmy 1991, 2000).[2] In the case of the change-of-state events, the core schema is considered to be the combination of "transition type" together with a state. The transition type refers to "the direction of the relationship that the object or situation has with respect to the property" (Talmy 2000: 238), and the state functions as a ground of the transition type. Thus, according to Talmy the core schema in the change-of-state events is the analog of the path + ground in the motion events. For example, the change denoted by the verb *die* is the combination of TO and the state DEATH functioning as a ground, and the meaning of the verb is represented as "MOVE" TO DEATH. "MOVE" (with double quotation marks) stands for the existence of an abstract motion (i.e., change-of-state). Following this representation, the sentence *he choked to death on a bone* is represented as in (17).

[1] "$_{A}$MOVE" stands for agentive (i.e., causative) motion.

[2] Talmy lists other three types of events, which can be handled in his framework: temporal contouring, action correlating, and realization. However, I will not deal with these types of events in this thesis.

(17) He choked to death on a bone.

[he "MOVED" TO DEATH] WITH-THE-CAUSE-OF [he choked on a bone]

(Talmy 2000: 240)

Table 2.1 summarizes Figure, Path, and Ground in motion and change-of-state events.

Table 2.1: Figure, Path, and Ground in motion and change-of-state events

	Figure	**Core-schema**	
		Path	**Ground**
Motion	Moving entity	Path of motion	Object (location)
Change of state	Entity undergoing change	Transition of state	State

Talmy argues that each of the two types of languages is expected to use the encoding pattern of the core schema in the change-of-state expressions parallel to that in the motion expressions. In other words, the core schema is argued to be encoded in the same type of constituent (i.e., the main verb or satellites) in each type of language. For instance, the core schema TO DEATH is expressed by the satellite *to death* in English as in (18a) and (19a), while in Spanish it is encoded in the main verbs *murir* as in (18b) and *matar* as in (19b).

(18) a. He choked **to death** on a bone.

b. ***Murió*** *{atragantado por un hueso / porque se atragantó con un hueso}.*
he.died {choking by a bone / because REFL he.choke with a bone}
'He died {choked by a bone / because he choked himself with a bone}.'

(Talmy 2000: 240)

(19) a. I burned him **to death**.

b. *Lo* ***mataron*** *{con fuego / quemándo-lo}.*
him they.killed {with fire / burning-him}
'They killed him {with fire / by burning him}.' (Talmy 2000: 240)

In English, other satellite-framed expressions are available. For example, some particles can express changes of state. In (20), for example, the change to extinguishment of the candle is expressed by the particle *out* (Talmy 2000: 243).

(20) *V out (NP)* 'V (NP) to extinguishment'/'extinguish (NP) by Ving'

a. [the candle "MOVED" TO EXTINGUISHMENT] WITH-THE-MANNER-OF [it flickered/sputtered]

The candle flickered/sputtered out.

b. [the candle "MOVED" TO EXTINGUISHMENT] WITH-THE-CAUSE-OF [SOMETHING blew on it]

The candle blew out.

c. [I "$_{A}$MOVED" the candle TO EXTINGUISHMENT] WITH-THE-CAUSE-OF [I blew on/waved/pinched it]

I blew/waved/pinched the candle out.

Another construction that Talmy gives is what he calls a bare adjective construction, as in (21).

(21) a. *V Adj* 'become Adj by Ving'

[the shirt "MOVED" TO a STATE [BEING dry]] WITH-THE-CAUSE-OF [it flapped in the wind]

The shirt flapped dry in the wind.

b. *V NP Adj* 'make NP Adj by Ving'

[I "$_{A}$MOVED" the fence TO a STATE [BEING blue]] WITH-THE-CAUSE-OF [I painted it]

I painted the fence blue.

Talmy argues that its constructional meaning encodes a "TO" transition type, because this construction, even though it does not have any forms representing the transition type, semantically parallels a construction with an overt *to* phrase (e.g., *the shirt flapped dry* is parallel to *the man choked to death*).

Talmy's typology of event integration is also founded on the conceptual parallelism between motion and change of state. Indeed, Talmy states that "the organization of conceptualization for linguistic expression sets state change into analogy with Motion. In particular, change or stasis with respect to states parallels motion or stationariness with respect to objects. And state

transition type parallels Path type. This conceptual analogy motivates a syntactic and lexical analogy" (Talmy 2000: 238–239).

2.2 Non-parallelism between spatial and non-spatial expressions and domain-specific properties

So far, we have focused on the parallelism between spatial and non-spatial expressions. However, spatial events and non-spatial events are different events. They have their own specific properties and these properties may hinder the full linguistic parallelism. Indeed, Jackendoff has pointed out influence of domain-specific properties (Jackendoff 1992: 64). His discussion is based on expressions of possession like *John gave an apple to Mary*, which belong to another domain that the TRH takes into account, namely, the possessional domain. He states that physical space is three-dimensional, while the possessional parallel has no dimensions. Thus, an object can move up, down, forward, backward, and sideways, while we cannot give something upward or frontward. Physical space is continuous: something moves from point A to point B, it occupies all the intermediate positions between A and B along the way. By contrast, the possessional is discontinuous: there are no intermediate positions that an object traverses between being owned by X and being owned by Y. Thus, one can move something toward somewhere but one cannot give something toward someone.

Iwata (1999) has also discussed conceptual non-parallels between motion and other fields treated in the TRH (i.e., Temporal, Possessional, and Identificational fields), and how such non-parallels affect linguistic expressions in each field. Let us look at his analysis of *between* in its spatial use and temporal use.[3] For spatial use, he describes three schemas depicted in Figure 2.5.

These schemas represent the meanings of *between* in the following sentences.

[3]Iwata also discusses the use of *between* in the Identificational field, which change-of-state expressions belong to, such as *a feeling between love and bemusement*. However, such an example does not express any change. Indeed, this filed includes expressions concerning the range of categories or properties as in *our clients range from psychiatrists to psychopaths* (Jackendoff 1983: 196). This means that the expressions of the Identificational field do not always involve change of properties or categories. Since this thesis concerns motion and change of state, I will not deal with such non-change cases, and thus I will not go into his analysis of *between* in the Identificational field.

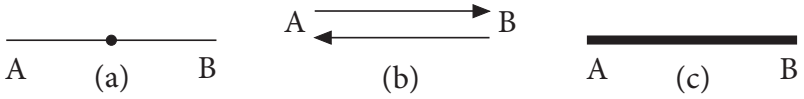

Figure 2.5: Three spatial schemas of *between* (Iwata 1999: 88)

(22) a. Nagoya is located between Tokyo and Osaka. (= schema (a))

b. This train runs between Los Angeles and San Diego. (= schema (b))

c. the distance between the spindle center and the column (= schema (c))

In (22a), *Nagoya* occupies a point of the line connecting the two positions. In this case, the order of the two positions can be reversed without a significant meaning change or a loss of grammaticality.

(23) Nagoya is located between Osaka and Tokyo.

Furthermore, *between* of this schema can extend to take more than two positions in its object.

(24) Switzerland lies between France, Germany, Austria and Italy. (OALD)

In (22b), *between* encodes paths from Los Angeles to San Diego and from San Diego to Los Angeles. The train can run in both directions. This is contrasted with the path encoded by *from* and *to*.

(25) This train runs from Los Angeles to San Diego.

Because *between* can encode both directions, (26a) has the same meaning as (22b), while (26b) is different from (24).

(26) a. This train runs between San Diego and Los Angeles. = (22b)

b. This train runs from San Diego to Los Angeles. ≠ (24)

In (22c), the whole path between two positions are designated.

In the temporal domain, on the other hand, *between* has only the schema (a) and schema (c), whose instantiations are given in (27).

(27) a. at some time between two and three o'clock (= schema (a))

b. the 47 years between 1817 and 1864 (= schema (b))

Since the temporal path is directed from past to future, the schema (b) is not applicable to the temporal domain. In addition, the order of the two temporal positions cannot be freely reversed.

(28) a. You'll have to go between 9 and 10 tomorrow morning.

b. *You'll have to go between 10 and 9 tomorrow morning.

From the discussion above, it is clear that domain-specific properties in the motion domain and the temporal domain results in the different behaviors of *between* in these two domains.

A similar discussion is found in Shinohara (1999). She argues that there are constraints on TIME IS MOTION metaphor. Not all elements in the domain of spatial motion are mapped onto the temporal domain. An example of such constrains is one on manner information. Although English has a large inventory of manner of motion verbs, only some of them can be used in the temporal expressions. The verbs listed in (29) are some of manner verbs she examines. "*," "??," and "?" indicate a degree of unnaturalness as temporal expressions.

(29) ?*amble*, ?*bowl*, **burst*, ?*canter*, **clamber*, **climb*, *crawl*, *creep*, *dash*, **flit*, *fly*, ?*gallop*, *hasten*, **hike*, ?*hobble*, **hop*, *hurry*, ?*inch*, **jog*, **jump*, ??*lag*, **leap*, **limp*, ?*lumber*, ?*lurch*, *march*, *mosey*, *nip*, *pad*, etc.

She accounts for this by Lakoff's Invariance Principle (Lakoff 1993: 215). It states that metaphorical mappings occur in a way consistent with the inherent structure of target domains. In the case of the TIME IS MOTION metaphor, manners of motion involving salient bodily movement such as limping cannot be mapped onto the temporal domain because they are inconsistent with the inherent structure of the target domain of time; time does not have body parts. This is why the verb *limp* cannot be used in temporal expressions. Her account suggests that domain specific properties of the temporal domain hinder the full linguistic parallelism between motion and temporal expressions. Some motion verbs cannot be used in temporal expressions because of domain specific properties.

Talmy admits that there can be a certain degree of non-parallelism between motion expressions and change-of-state expressions. He states that in change-of-state expressions English exhibits a characteristic of a "mixed" language,[4] which is defined as a language using

[4]Talmy calls such a mixed pattern a "parallel system of conflation" (Talmy 2000: 240). However, the term of

different encoding patterns with roughly same colloquiality (Talmy 2000: 66). Although English dominantly exhibits the satellite-framed pattern for encoding of motion events, both satellite-framed and verb-framed patterns are colloquial for encoding of change-of-state events in English (Talmy 2000: 240). This point is exemplified in (30) and (31).

(30) a. He choked to death.

b. He died from choking on a bone.

(31) a. The hunter shot the deer dead.

b. The hunter killed the deer by shooting it.

In (30), the event of his death that is brought about by choking on a bone can be expressed both by the verb-framed pattern (30a) and by the satellite-framed pattern (30b). Similarly, the event of the hunter's killing of the deer by means of shooting can be expressed by both patterns. Moreover, only the verb-framed pattern is available in some cases as in (32).

(32) a. I **broke** the window with a kick.

b. *I kicked the window **broken**. (Talmy 2000: 241)

These examples clearly show that the linguistic parallelism between motion and change-of-state expressions does not completely hold. If motion and change-of-state expressions are completely parallel, these expressions should exhibit the same encoding pattern, namely, the satellite-framed pattern. However, this is not the case.

Although he points out linguistic non-parallels, he does not give any reasons for them. Similarly to other events discussed so far, change-of-state events have some domain-specific properties and they may preclude full linguistic parallelism. In order to see what domain-specific properties are involved and how they affect the linguistic parallelism, it is necessary to take an entire range of change-of-state expressions into account. I will compare event structures of motion events and change-of-state events and reveal domain-specific properties in Section 3.1.

"parallel" is confusing in the context of this thesis. In this thesis, it refers to that between motion and change-of-state expressions/events. In order to avoid confusion, I use the term "mixed language" adopted from Ibarretxe-Antuñano and Hijazo-Gascón (2012: 351).

2.3 Summary

In this chapter, I addressed the issues in the parallelism between motion and change-of-state expressions. I described previous studies that are founded on the idea of localism. They argue that the linguistic parallelism is rooted on the conceptual parallelism. However, the linguistic parallelism does not always hold because of domain-specific properties in each event.

Chapter 3

Present study: Issues, framework, and methodology

3.1 Issues: Similarities and differences between motion and change-of-state events

In the previous chapter, we have seen that the full linguistic parallelism are precluded due to domain-specific properties of events. In this section, I will discuss similarities and differences between motion and change-of-state events, which may preclude the full linguistic parallelism. First, I will look at event structure of these two events in Section 3.1.1, and discuss similarities and differences between them in Section 3.1.2.

3.1.1 Event structures of motion and change-of-state events

Motion events

First, I will present event structures of motion events and change-of-state events. Let me begin with motion events. Here I adopt the event structure proposed by Talmy (1985, 2000). Taking an event described by (1) for example, I will describe the event structure of the motion events.

(1) The bottle floated into the cave.

A Motion event consists of a moving object (the Figure) which follows a certain Path that is often specified with respect to another object called Ground. In the example, a Figure is represented by *the bottle*, and a Ground is represented by *the cave*. A Path, which is expressed by *into*, is specified with respect to 'cave'. That is, the location the Figure ends up is inside the cave.

A motion event may involve manners. Talmy defines a manner as an additional activity that "directly pertains to the Motion event" "by interacting with it, affecting it, or being able to manifest itself only in the course of it" (Talmy 2000: 45).

In addition, a motion event can be brought about some external cause, or some intentional act of an agent (means). They are encoded as in (2).

(2) a. The paper blew off the table.

b. John kicked the ball into the goal net.

(2a) expresses the cause of blowing (by a wind for example), and (2b) describes the means of kicking.

Change-of-state events

Let us turn to change-of-state events. A change-of-state event consists of one entity that undergoes change in some respect. I will call such entities "Figure." In addition, it crucially involves two states of the Theme at different two points of time. In the event of melting, for example, an object (a chocolate bar for example) is in a state of being not melted at a time point t_1, and after a certain amount of time, the object gets in a state of being melted at a time point t_2. I call the state at t_1 the "Initial state" and the state at t_2 the "Final state."

Let us look at three more examples.

(3) a. A chocolate bar melted.

b. John grew into a respectful man.

c. John ran into difficulty.

In (3a), a property of the chocolate bar changed from not being melted to being melted. In (3b), a category or type that John belongs to changed from not being in the category of a respectful

man to being in it. In (3c), a situation that John is in changed from not being difficult to being difficult.

There is a series of intermediate states between t_1 and t_2. In the event of melting, an object is solid in the initial state. As time goes, the object gradually lose their solidness and then finally becomes liquid.

Similarly to the motion events, a change-of-state event can be brought about some external cause.

3.1.2 Similarities and differences between the two types of events

Existence of an entity that undergoes change of location or change of state

Both motion and change-of-state events involve an entity (or entities) that undergoes some change: change of location or change of state. They can be regarded as being parallel. Linguistically, they are expressed as a subject or an object.

(4) Motion

a. **The ball** floated into the cave.

b. I kicked **the ball** into the box.

(5) Change

a. **The door** opened.

b. I kicked **the door** open.

This parallel treatment of moving entities and changing entities is the same as Gruber's treatment of them as "theme" or Talmy's treatment of them as "Figure."

Path

In the localistic studies, transition of state in change-of-state events is often treated as the "abstract path," as pointed out above. Let us compare it with "physical" path in motion events. Both types of paths have a source, intermediate points, and goal. In the case of a motion event, source is a point where a moving object starts to move, goal is a place where a moving object

ends up, and intermediate path refers to a series of points between the source and the goal along which a moving entity travels. In a change-of-state event, source corresponds to the Initial state, goal to the Final state, and intermediate path to the transition between the Initial state and the Final state. This parallelism of the event structure between the motion and change-of-state event appears as linguistic parallels. For example, we can use the preposition *from* to express the spatial source or the initial state, the preposition *through* or *via* for an intermediate point, and *to* for the goal or the final state.

(6) a. John walked from his house through the forest to the mountain.

b. The signal changed from green via yellow to red.

However, certain types of physical paths do not have their counterparts in the change-of-state events, as we have seen in relation to Iwata's work. In the motion events, an object can move in the three-dimensional space. It can move up, down, forward, backward, and sideways. In the change-of-state events, however, an abstract path is not conceptualized as three-dimensional path but as one-dimensional path, although some changes in fact occur in the three-dimensional space (e.g., change in shape). Examples in (7) and (8) illustrate this point.

(7) a. John walked up/down the hill to the station.

b. John turned left/right to the main street.

(8) a. *John turned up/down into a doctor.

b. *John turned left/right into a doctor.

These suggest that we conceptualize the abstract path in the change-of-state events as one-dimensional horizontal line, which is typically horizontal. Some changes, however, do involve the vertical one-dimensional path. Such cases are limited to changes involving some kinds of scales such as those concerning price and temperature.

The nature of the ground is also different between the two types of events. In the motion events, a trajectory along which a moving entity travels is specified by the combination of path and ground. For example, walking into the house and walking into the park are different trajectories because of the difference in grounds. Similarly, walking into the house and walking out of the house are different trajectories because of the difference in paths. On the other

hand, change-of-state events do not involve different types of paths, because the abstract path in change-of-state events are construed as the one-dimensional horizontal line, as mentioned above. Thus, grounds are relatively important in that different types of change-of-state events are discriminated mostly by grounds. Breaking events and burning events, for example, are different in their grounds.

In addition, what can serve as grounds also differ in motion and change-of-state events. In motion events, grounds are reference objects, while change-of-state events, they are properties or states.

Manner

Both motion and change-of-state events involve manners. However, the nature of the manner differs between these two types of events.

In the motion events, manners have several types listed below.

(9) a. Agentive action of the Figure (generally, human beings or animals) caused by some internal cause (Figure's intention)

e.g., walking, running, skipping

b. Non-agentive action of the Figure caused by some external cause

e.g., floating, slipping, swinging

c. Vehicle used in motion

e.g., bicycle, bus, car, taxi

d. Sound caused by motion

e.g., roaring, rumbling, whistling

These types of manners are often encoded by manner verbs in English. Matsumoto lists the following verbs (Matsumoto 1997: 131).

(10) a. *amble*, *bowl*, *canter*, *clamber*, *climb*, *crawl*, *creep*, *dance*, *dash*, *flit*, *fly*, *gallop*, *glide*, *hasten*, *hobble*, *hop*, *hurry*, *inch*, *jog*, etc. ∈ (9a)

b. *drift*, *float*, *revolve*, *roll*, *slide*, *slip*, *swing*, *whirl* ∈ (9b)

c. *bicycle*, *bike*, *boat*, *bus*, *cab*, *canoe*, *chariot*, *cycle*, *dogsled*, *ferry*, *helicopter*, *jeep*, *jet*, *raft*, etc. ∈ (9c)

d. *rattle*, *roar*, *rumble*, *screech*, *shriek*, *whistle*, *zoom* ∈ (9d)

Manners are sometimes encoded by adverbs or prepositional phrases as well.

(11) a. He went into the house {**slowly / in a hurry**}.

b. He went to Tokyo {**by train / by plane / by car**}.

In changes of state, there is a less variety of manners than in motion. This may be attributed to the fact that change-of-state events include abstract events such as change in emotion or change in price of something. It is difficult to imagine that such events are associated with additional action or movement of the body like motion events. Possible manners in change-of-state events are the following. First, they include speed of change.

(12) The milk gradually/slowly/quickly/instantly turned sour.

Some change-of-state events are accompanied by sound as in (13).

(13) a. The cup shattered with a noisy sound.

b. The door creaked open.

Such sound emission is limited to some types of change-of-state events: physical change. Sound is a physical phenomenon. If change is in an abstract domain (e.g., change in emotion), sound does not occur. These differences in manners between motion and change-of-state events may contribute to differences in linguistic realization of manners between motion and change-of-state expressions and thus result in non-parallelism between them.

The lack of other types of manners may be attributed to the fact that change-of-state events include abstract events such as change in emotion or change in price. It is difficult to imagine that such events are associated with additional action or movement of the body as in motion events.

Cause and Means

Both motion events and change-of-state events can be brought about by some external cause. For example, a motion event of a ball's moving into a box can be brought about by someone's action of

kicking. Similarly, a change-of-state event of a door's opening can result from someone's action of kicking. Thus, there seem to be no differences between motion and change-of-state events in terms of possibility of the external cause that bring about these events.

3.1.3 Differences in deixis

Although this is not directly rooted in differences in the nature of two types of events, the nature of deixis is different in motion and change-of-state expressions, and this difference can contribute to different encoding patterns in these expressions. In the case of motion expressions, deictic expressions are sensitive to the spatial location of a deictic center. For example, *come* refers to movement to a location of the speaker or hearer at coding time or reference time, and *go* refers to movement to a location where the speaker is not located at the time of utterance (Fillmore 1997). However, change-of-state events are not spatially deictic processes (except perhaps for examples like *resemble me*). Thus, it is expected that deixis is not found in change-of-state expressions as much as motion expressions.

This does not mean deictic verbs are not used in change-of-state expressions at all. Clark (1974) discusses use of deictic verbs in change-of-state expressions in English and argues that the deictic verbs *come* and *go* are sensitive to two things: normality of states and evaluative viewpoints of speakers, and they function as a deictic center. In the change-of-state expressions, the deictic center of *come* and *go* is a normal state of being. The verb *come* refers to change to some normal state, while *go* expresses change away from a normal state. The contrasts in (14) and (15) clearly indicate the sensitivity of *come* and *go* to the normal state, being conscious in these cases.

(14) a. John went into a coma.

b. *John came into a coma.

(15) a. John came out of a coma.

b. *John went out of a coma.

In addition to the uses where the deictic center is a normal state of being, *come* and *go* expresses evaluative viewpoints of speakers: *come* has a positive connotation, and *go* has a neutral or

occasionally negative connotation.

(16) a. Look at all he came through.

b. Look at all he went through.

In saying (16a), the speaker implies that the achieved state is positive one, while in (16b), the speaker is neutral on the evaluation of the achieved state.

However, her account does not account for all uses of deictic verbs in change-of-state expressions. Radden (1996) points out that there are many counter-examples to her account, as shown in (17).

(17) a. *to come to harm*, *to come into conflict*, *to come loose*

b. *to go free*, *to go straight* (in the sense of becoming honest)

The verb *come* can be used to express a change to negative or abnormal states, and the verb *go* can be used for positive states. This suggests that *come* and *go* are not always sensitive to the normal state of being or the evaluative viewpoints of speakers. In this thesis, I treat deictic verbs in change-of-state expressions as encoding non-deictic transitions.

3.1.4 Research questions in the present study

So far, we have seen that there are similarities and differences between motion and change-of-state events. A question that arises here is how similarities and differences are related to the linguistic parallelism and non-parallelism. In order to explore this issue, I set up the following research questions:

(18) a. How pervasive is the linguistic parallelism in English?

b. Where does and does not the linguistic parallelism hold?

c. How can similarities/differences in the structures of the two types of events account for linguistic parallels/non-parallels?

The first question concerns how much motion and change-of-state expressions are (or are not) parallel. There have been no researches coping with this question. The previous studies have focused primarily on cases where the parallelism in fact holds, namely, change-of-state

expressions with spatial verbs or prepositions as in *the traffic light went from green to red*. They do not take into account ones without spatial expressions such as *John broke the vase*.

The first question is also crucial for evaluating the importance of the conceptual parallelism. If the conceptual parallelism is fundamental to our experience, then the linguistic parallelism holds in a wide range of change-of-state expressions.

The second question is necessary to answer the third question. We first have to describe where the linguistic parallelism does and does not hold. By doing this, we can investigate influences of the event structures of the two types of events.

3.2 The present framework

In order to answer the research questions presented in the previous section, I will investigate motion expressions and change-of-state expressions adopting a modified version of Talmian typology. As we have seen in Section 2.1.4, his typology looks at how speakers encode events. This means his typology enables us to see to what degree speakers use the conceptual parallelism for encoding these two types of events. If the conceptual parallelism is of importance to the conceptualization of two types of events, it is reasonable to assume that the conceptual parallelism is reflected in the encoding of these events as the linguistic parallelism.

One advantage of Talmy's typology is that it provides a framework to compare motion and change-of-state expressions through consistent criteria. Typological researches based on Talmy's framework investigate motion expressions in terms of the encoding positions of the core-schema and semantic types of the main verb. Since Talmy has extend the scope of his typology to change-of-state expressions, these criteria can be applicable to change-of-state expressions as well. This enable us to evaluate similarities and differences between motion and change-of-state expressions using these criteria.

In the following sections, I will describe some recent modifications to Talmy's typology.

3.2.1 head-coding vs. head-external coding languages

Matsumoto (2003, 2011, 2017b) points out some problems in Talmy's typology. The first one is on

the term "verb." According to Matsumoto, Talmy's intended meaning for the term "verb" is "the head of a clause," not a grammatical category. This is clear from Talmy's treatment of Spanish.

(19) *La botella entró a la cueva (**flotando**).*
the bottle MOVED-in to the cave (**floating**)
'The bottle floated into the cave.'

In (19), the path of motion is encoded in the main verb, while the manner of motion is encoded in the gerund form of a verb. When Talmy says that Spanish is a verb-framed language, he means that Path is encoded in the main verb, not the subordinate verb, which is not the head of the sentence. In spite of Talmy's intention, some scholars interpret "verb" as a grammatical category (Wienold 1995, for example), and understand Talmy's typology in terms of the difference in the repertoire of path verbs and manner verbs. That is, manner languages have a relatively large inventory of manner verbs and path languages have a large inventory of path verbs. However, Matsumoto (2003) argues against this view, showing that the richness of each type of verb is independent of Talmy's typology to some extent. Even though it is reasonable to assume that verb-framed languages have a rich set of path verbs, satellite-framed languages may or may not have a large inventory of path verbs (for more detail, see Matsumoto 2003). Thus, Matsumoto proposes using the term "head" instead of "verb" in order to clarify Talmy's intention.

In addition, Matsumoto discusses limitations of the definition of the satellite in Talmy's typology. As mentioned above, Talmy defines the satellite as "the grammatical category of any constituent other than a noun-phrase or prepositional-phrase complement that is in a sister relation to the verb root" (Talmy 2000: 102). However, Matsumoto shows data in which Path is encoded by other constituents than the satellite (and the verb). For example, Path is encoded in a preposition as in (20).

(20) John walked **through** the building. (Matsumoto 2003: 408)

Moreover, a Finnish sentence in (21) shows that Path is indicated in a case marker.

(21) *Elina käveli koti-**in**.*
Elina walked home-ILL
'Elina walked home.' (Nikanne 1990, cited in Matsumoto 2003: 408)

From these data, Matsumoto argues that, since case markers are not sisters of the verb, Finnish should not be considered to be a satellite-framed language though Talmy (2000: 222) treats Finno-Ugric languages as satellite-framed languages. Finally, Matsumoto demonstrates that a part of Path (i.e., Conformation) is encoded in "locative nouns" in Japanese as in (22), or "locative particles" in Chinese as in (23).

(22) *Taro-wa booru-o hako-no* ***naka****-ni ire-ta.*
Taro-NOM ball-ACC box-GEN inside-LOC put.in-PST
'Taro put the ball in the box.'

(23) *Wǒ bǎ píngguǒ fàng-dào wǎn-****lǐ****.*
I OM apple put-arrive bowl-in
'I put the apple in the bowl.'

These three types of elements are not included in Talmy's definition of the satellite.

In order to solve these problems, Matsumoto (2003) proposes an alternative typology in which languages are divided into two types in terms of whether Path is encoded in the head or not. The languages in which Path is encoded in the head are called "head framed languages," whereas the languages in which Path is encoded in constituents other than the head (i.e., nonhead constituents) are called "nonhead-framed languages." In this typology, English and Finnish are properly classified as nonhead-framed languages, because prepositions and case markers are nonhead constituents. In Matsumoto's definition of nonheads include satellites in Talmy's terminology, and thus Matsumoto's alternative typology keeps Talmy's original classification.[1] In addition, Matsumoto's typology makes it possible to treat constituents that Talmy's definition does not include.

Another modification in Matsumoto (2017b) is on the notion of "framing." Talmy's typology is based on the assumption that Path "frames" the temporal contour of the event. This point is exemplified by the following sentences.

(24) a. Bill walked across the border.

b. Bill walked across the river.

[1]As Matsumoto states, it is important to note that all the satellites are head-external constituents, but not vice versa.

c. Sally walked toward New York. (Matsumoto 2017b)

In (24a) and (24b), the event has an endpoint (i.e.,telic), but not in (24c). In addition, the event in (24a) is instantaneous, while the event in (24b) and (24c) is continuous. Thus, the temporal contour of the motion event is determined by the characteristic of the path (and ground object).

However, Matsumoto argues that the temporal contour of the event is not determined only by its path. For example, Jackendoff (1991) argues that the temporal contour of the event is determined by the characteristics of the subject. Matsumoto gives the following sentence to illustrate this point.

(25) The procession walked across the border. (Matsumoto 2017b)

This event is continuous even though the same preposition as (24a) is used. In addition, Path can be expressed more than once in a sentence. Sinha and Kuteva (1995) point out that in Japanese Path can be expressed by a locative noun, a postposition, and the main verb, as shown in (26).

(26) *Sensei-wa hon-o hako-no naka-ni ire-ta.*
Professor-TOP book-ACC box-GEN inside-LOC put.in-PST
'The professor puts the book in the box.' (Sinha and Kuteva 1995: 186)

Matsumoto argues that these data are contrary to Talmy's assumption that the temporal contour of the event is framed by only one constituent of a clause.

Therefore, Matsumoto (2017b) proposes that Talmy's typology should be understood in terms of the "coding" of Path rather than "framing," and he calls the two types of languages "head-coding languages" and "head-external coding languages." Following Matsumoto, this study examines whether core-schemas are encoded in the head or not.

3.2.2 Constructional types of event descriptions

In this study, I will divide motion expressions into two types with respect to the position where Figure is encoded (i.e., subject or object). Sentences where the Figure is coded in the subject position of the sentence are called a "subject-figure construction," and those where the Figure is coded in the object position are called an "object-figure construction." They are exemplified in (27). Figures are indicated in boldface.

(27) a. **John** walked into the room. (Subject-figure construction)

b. John put **the apple** into the box. (Object-figure construction)

Note that this classification concerns types of linguistic expressions, not types of events. A caused motion event can be expressed by the subject-figure construction as in (28).

(28) The napkin blew off the table.

This distinction is important because recent studies of motion expressions have revealed that languages exhibit language-internal (or "intra-language") variations. For example, Choi and Bowerman (1991) demonstrate that Korean shows different encoding patterns in spontaneous motion and caused motion, as in (29).

(29) a. *John-i pang-ey (ttwui-e) tul-e* ***o****-ass-ta.*
John-NOM room-LOC (run-CONN) enter-CONN **come**-PST-DEC
'John came running in(to) the room (running).' (Choi and Bowerman 1991: 88)

b. *John-i yelswey-lul shelhap-an-ey tency-ess-ta.*
John-NOM key-ACC drawer-inside-LOC throw-PST-DEC
'John threw keys into the drawer.' (Choi and Bowerman 1991: 93)

In the expressions of spontaneous motion as in (29a), the main verb encodes [Motion + Deixis], while in the expressions of caused motion as in (29b), the main verb encodes [Motion + Path].

In the same way as motion expressions, I will distinguish cases in which a figure (i.e., an entity undergoing change) is encoded in the subject position of a sentence and those in which it is encoded in the object position. I will use the terms subject-figure construction and object-figure construction for change-of-state expressions as well. (30) gives examples of the two types of constructions in change-of-state expressions.

(30) a. **The door** opened. (Subject-figure construction)

b. John opened **the door**. (Object-figure construction)

It is important to note that the terms "subject" and "object" here refer to the "logical subject/object" of a sentence. Thus, the passivized version of (30b) is treated as a object-figure construction.

3.2.3 Treatment of deixis

Recently, some scholars have discussed the status of deixis. Talmy treats deixis as a subcategory of path components (Talmy 2000: 53). However, recent studies have revealed that deixis is different from other types of path. It is often encoded in a morphologically and syntactically different slot from other types of paths. In Kathmandu Newar, for example, non-deictic path is generally encoded in case markers, postpositions, locational adverbs, and verbal affixes, while deixis is encoded in the main verb.

(31) *syām rām-yā-gu kwathā-e du-hõ: wan-a.*
Syam Ram-GEN-ADN room-LOC in-ADD go-PD
'Syam went into Ram's room.' (Matsuse, to appear)

In (31), deictic path is encoded by the main verb *wane* 'go', while non deictic path is encoded by a case marker and a path adverb. Thus, deixis should be considered to be a distinct category from other non-deictic paths.

3.3 Methodology

In order to investigate the research questions presented in Section 3.1.4, I adopt a corpus-based approach in this study. I examined the data from the British National Corpus, which is a large balanced corpus representing the contemporary British English. The BNC consists of 100 million words of written (90%) and spoken (10%) texts.

This approach is adequate for our purposes for the following reasons. First, a quantitive approach is necessary to assess pervasiveness of the linguistic parallelism. In addition, it is suitable for Talmy's typology. This typology concerns what pattern is predominantly used in a language for encoding motion or change-of-state events. Adopting this approach enables us to compare the frequencies of each pattern and evaluate predominance. In addition, the previous researches on Talmy's typology have discussed predominance by examining a relatively small set of data collected from novels or by elicitation tasks using video clips (except for Matsumoto's corpus studies on English and Japanese (Matsumoto 2017a,c), which will be discussed below).

They have limitations in terms of the number of data and their representativeness. Using a large balanced corpus overcomes these limitations.

However, a corpus-based approach has some limitations. It is difficult to see directly what events are linguistically encoded. Thus, it is uncertain as to whether expressions collected really encode the events we intend to investigate. In addition, since what we can search for in corpora is linguistic expressions, not events, we have to choose words or expressions in advance to collect event descriptions. However, it is practically impossible to choose all possible words/expressions that can be used for encoding an event in question.

In spite of these limitations, corpus data do reflect typological characteristics of a language. Matsumoto (2017a) and Matsumoto (2017c) examined motion expressions taken from the Bank of English and the Balanced Corpus of Contemporary Written Japanese, and demonstrate that typological characteristics of English and Japanese reported in the previous studies can be seen in the corpus data. Thus, corpus data are useful to see typological characteristics of languages. Matsumoto's corpus study on English will be reviewed in detail in Chapter 4.

3.4 Summary

In this chapter, I have described the issues, framework, and methodology of the present study. First, we have seen similarities and differences between motion and change-of-state events. The question that arises from this is how they are related to linguistic parallels/non-parallels. In order to investigate this, I have introduced a modified version of Talmy's typology. Finally, I have discussed the validity of a corpus-based approach.

Chapter 4

Previous quantitative studies on English

In this chapter, I will review previous studies on the encoding patterns in motion and change-of-state expressions, and point out their limitations and problems.

4.1 Motion

4.1.1 Basic characteristics of motion expressions in English

In the literature, English has been said to be a satellite-framed language or head-external coding language (Talmy 1991, 2000, Matsumoto 1997, 2017a, among others). That is, path of motion is generally encoded in satellites or head-externals, such as particles (1a) and prepositions (1b).

(1) a. John came **in**.

b. John ran **into** the house.

Although English has path verbs like *enter* and *exit*, their use is not colloquial, except for *fall* and *climb*. This is in contrast with head-coding languages such as Spanish, which generally encodes path in the main verb, as in (2).

(2) *La botella **entró** a la cueva flotando.*
the bottle entered to the cave floating
'The bottle floated into the cave.' (Talmy 2000: 224)

Because path is mainly expressed in head-externals, the main verb encodes co-events such as manner, cause, and means (Slobin 2000), or deixis (Matsumoto 2017a), as in (3).

(3) a. John **ran** into the house. (Manner)

b. John **kicked** the ball into the box. (Means)

c. John **came** into the house. (Deixis)

4.1.2 Matsumoto's corpus study

The basic characteristics of motion expressions in English summarized above are reflected in corpus data. Matsumoto (2017a) conducted a corpus research in order to examine whether those characteristics can be seen in a large corpus. He examined motion expressions taken from the "usbooks" subcorpus of the cobuild corpus, which contains texts from American fiction and non-fiction books published between 1990–1998.

We first look at his findings on the basic pattern in the subject-figure construction. Table 4.1 shows where the path is expressed in the subject-figure construction.

Table 4.1: Encoding position of path in the subject-figure construction (Matsumoto 2017a: 29)

	H-ext. only	**Head only**	**H + H-ext.**	**Not encoded**	**Total**
Frequency	844 (51.3%)	253 (15.4%)	161 (9.8%)	386 (23.5%)	1644 (100%)

The numbers in the table represent frequencies of the following cases: (i) path is coded only in head-externals ("H-ext. only"), (ii) only in the main verb ("Head only"), (iii) both in head-externals and the main verb at the same time ("H + H-ext."), and (iv) no path is expressed. They are exemplified in (4). Expressions that encode path are bold-faced.

(4) a. John walked **into** the house. (H-ext. only)

b. John **entered** the room. (Head only)

c. John **fell into** the pond. (H + H-ext.)

d. John walked. (Not encoded)

It clearly shows that the path is predominantly encoded in head-externals (51.3%). If we look at only the cases where path is expressed, it is encoded in the head-external positions in 67.1% of the

data (844 out of 1258). These results show that the head-external coding pattern is predominant in the subject-figure construction in English.

The distribution of the meanings encoded in the main verb are presented in Table 4.2.

Table 4.2: Semantic types the main verb in the subject-figure construction (Matsumoto 2017a: 29)

	Manner	**Path**	**Deixis**	**Others**	**Total**
Frequency	514 (31.3%)	414 (25.2%)	595 (36.2%)	121 (7.4%)	1644 (100%)

Deictic verbs (*come* and *go*) are most frequently used in the subject-figure construction, followed by manner verbs (e.g., *run*, *step*, *walk*) and path verbs (e.g., *arrive*, *enter*, *fall*). Matsumoto argues that this result is in contrast to the characterization found in the literature that the main verb generally encodes manner of motion in English (Talmy 1985, 1991, Slobin 1996). That is, path verbs and deictic verbs are also used as the main verb very often.

Now let us move on to the object-figure construction. In Matsumoto's study, the object-figure construction is further divided into three subtypes: co-motional, controlled, and ballistic (Matsumoto 2017b). These three events are distinguished by two factors: (i) duration of causation and (ii) movement of the causer. The co-motional caused-motion event refers to the event where a causer acts on the figure object continuously (i.e., not only onset) and at the same time moves along with the figure. In the controlled caused-motion event, a causer acts on the figure continuously, but the location of the causer does not change. In the ballistic caused-motion event, a causer acts on the figure only at the beginning of motion (i.e., onset), and the location of the causer does not change. Examples of descriptions of these three event subtypes of caused motion are given in (5).

(5) a. Maria led the child to the school. (Co-motional)

b. Peter picked up a book from the floor. (Controlled)

c. Andrew threw a ball into the net. (Ballistic)

The encoding position of path in the sentence is indicated in Table 4.3. In this table, the head-coding and double coding pattern are subdivided into two types according to types of the main verb: put/take verbs and other path verbs. The put/take type verbs are those describing

Table 4.3: Encoding position of path in the object-figure construction (Matsumoto 2017a: 34)

	H-ext. only	**Head only**		**H + H-ext.**		**Not encoded**	**Total**
		Path verb	*put/take*	Path verb + H-ext.	*put/take* + H-ext.		
Co-motional	103 (53.6%)	0 (0%)	3 (1.%)	1 (0.5%)	2 (1.0%)	83 (43.2%)	192 (100%)
Controlled	98 (36.0%)	28 (10.3%)	31 (11.4%)	23 (8.5%)	56 (8.5%)	36 (13.2%)	272 (100%)
Ballistic	93 (52.5%)	9 (5.1%)	0 (0%)	5 (2.8%)	0 (0%)	70 (39.5%)	177 (100%)
Total	294	37 (5.8%)	34 (5.3%)	29 (4.5%)	58 (9.0%)	189 (29.5%)	641 (100%)

placement/displacement of object, which include *put*, *take*, *set*, *place*, and so on (Matsumoto 2017a: 28). The table clearly shows that the head-external coding pattern is predominant in all three event subtypes of caused motion. This is more apparent when only the examples with path are considered: 94.50% (103 out of 109) for the co-motional caused-motion events, 41.53% (98 out of 236) for the manipulative caused-motion events and 86.91% (93 out of 107) for the ballistic caused-motion events. The manipulative caused-motion events show a slightly different behavior in that the head-coding pattern is relatively higher than the other two types of events. This may be attributed to the frequent use of put/take verbs which are classified as path verb. Still, the most frequently attested pattern is the head-external coding pattern.

The semantic types of the main verb in the object-figure construction are given in Table 4.4.

Table 4.4: Meaning encoded in the main verb in the object-figure construction (Matsumoto 2017a: 33)

Event subtype	**Means**	**Path**	**Manner**	***put/take***	**Deixis**	**Others**	**Total**
Co-motional	64 (33.3%)	1 (0.5%)	15 (7.8%)	5 (2.3%)	97 (50.5%)	10 (5.2%)	192 (100%)
Controlled	100 (36.8%)	51 (18.8%)	17 (6.3%)	87 (32.0%)	1 (0.4%)	16 (5.9%)	272 (100%)
Ballistic	148 (83.6%)	14 (7.9%)	13 (7.3%)	0 (0%)	0 (0%)	0 (0%)	177 (100%)
Total	312 (48.7%)	66 (10.3%)	45 (7.0%)	92 (14.4%)	98 (15.3%)	28 (4.4%)	641 (100.0%)

In the co-motional caused-motion expressions, the deictic verbs *bring* and *take* are most frequently used as the main verb (50.5%), followed by the means verbs such as *drag* and *carry* (33.3%). In the manipulative caused-motion expressions, the use of the means verbs such as *push* is most frequent (36.8%). The verbs *put* and *take* are frequently employed as well (32.0%). In the ballistic caused-motion expressions, the use of the means verbs such as *throw* and *send* are dominant. Although the manipulative caused-motion expressions behave differently in that path verbs such as *put* and *take* are frequently used, main verbs in the caused-motion expressions

of the other two types are characteristically the verbs encoding means, manner, and deixis, but not path, in the same way as main verbs in the spontaneous motion expressions.

From the results presented above, Matsumoto concludes that the corpus data reflect characteristics of English as a head-external coding language. That is, path is generally encoded in prepositions and adverbs. However, the distribution of meanings encoded in the main verb is slightly different from the previous studies. Not only manner and means verbs but also deictic and path verb are used as the main verb to some extent.

4.1.3 Limitations of Matsumoto's corpus study

One of the limitations of his corpus study is that he does not take into account differences in patterns among types of paths. Some previous studies have pointed out that the predominant patterns differ among types of paths (Aske 1989, Matsumoto et al. 2013, Matsumoto 2017b). For example, UP/ DOWN path tends to be expressed by the path verbs, which forms the head-coding pattern. However, such differences are not taken into account in his corpus study. The distinction of paths is important for our purposes because as I have discussed in Chapter 2 the abstract paths (= transition) in change of state do not correspond to all types of paths, but some of them. Thus, in order to make a fair comparison between motion and change-of-state expressions, paths of motion investigated should be ones that are counterparts in change-of-state events.

In addition, occurrence of co-events in motion expressions is not considered in Matsumoto's corpus study. This is also important for our purposes. I have pointed out in Chapter 2 that the nature of manner is different between motion and change-of-state events. The motion events involve a wide variety of manners while the change-of-state events include only a limited range of manners such as speed or sound co-occurring change. Such difference may affect how often co-events are expressed in a sentence. In order to compare occurrences of co-events, the frequencies of co-events should be take into account.

4.2 Change of state

4.2.1 Ono (2004) and Saito (2014)

Ono (2004) examines change-of-state expressions taken from English and Japanese novels and their translations (from English to Japanese and from Japanese to English) by adopting the methodology used in Slobin (1996). He argues that the change-of-state expressions in these two languages reflect typological characteristics of each language.[1] Satellite-framed patterns are predominant in English data, and verb-framed patterns are more frequently employed in Japanese data.

He collected change-of-state expressions from 4 English novels and their Japanese translations, and from 5 Japanese novels and their English translations. A total of 40 change-of-state event descriptions were considered. The collected data were classified into the four patterns listed in (6), and token frequencies of each pattern were counted.

(6) a. [Verb of change] + [satellite denoting transition type (and result)]

b. [Verb of manner or cause] + [satellite denoting transition type (and result)

c. [Verb denoting transition type (and result)]

d. [Verb of manner and cause] + [verbs denoting transition type (and result)]

He does not give example of the type (6a) (= type A), but since he states that this type corresponds to motion expressions such as *go into* or *go to*. Thus, this class seems to include expressions like *turn into green*, or *become red*. The second type (6b) (= type B) includes expressions such as *blow out*, or *explode into sound* (these are his examples). The third type (6c) (= type C) includes expressions where the main verb represents change-of-state such as *John opened the door*. The forth type (6d) (= type D) includes compound verbs in Japanese such as *fuki-kesu* (blow-erase,

[1]He also examines motion expressions and argues that typological characteristics of English and Japanese can be seen in data of motion expressions. However, his evidence for this is problematic in that it relies on type frequencies of manner verbs and path verbs in each language. His argument goes like this: type frequency of manner verbs are higher than that of path verbs in English, and thus English shows the characteristic as a satellite-framed language. Even though English shows higher type frequency of the manner verbs than of the path verbs, there is possibility that the path verbs are more frequently used. The type frequency only shows how large the inventory of manner/path verbs is, and the richness of manner/path verbs is independent of the characteristics of verb- and satellite-framed languages (Matsumoto 2003). Thus, I will not look at the data of motion expressions here.

'blow out'). There are no expressions that fall into this category in English. He considers the types A and B to be satellite-framed patterns, and the types C and D to be verb-framed patterns.

Now let us look at his results. Figure 4.1 shows the ratio of each pattern in the data from English novels and their Japanese translations, and Figure 4.2 shows the ratio of each pattern in the data from Japanese novels and their English translations.[2] (S) and (V) stand for the satellite-framed pattern and the verb-framed pattern respectively.

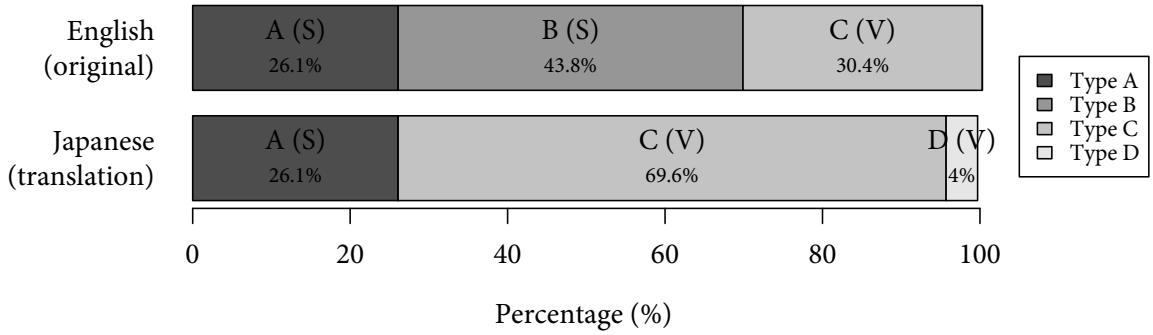

Figure 4.1: Distribution of each pattern in English original texts and their Japanese translations

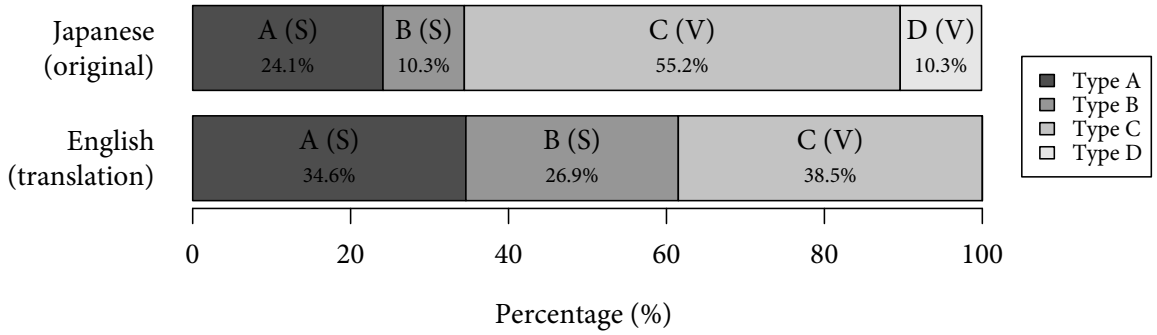

Figure 4.2: Distribution of each pattern in Japanese original texts and their English translations

Figure 4.1 shows, he claims, that English original texts show the characteristic of a satellite-framed language. The percentages of the satellite-framed pattern (i.e., types A and B) are higher than the verb-framed pattern (i.e., type C). On the other hand, the ratio of the verb-framed pattern increases in Japanese translations. They exhibit the characteristic of Japanese as a verb-framed language. Figure 4.2 shows, he claims, that Japanese original texts exhibit the characteristic of a verb-framed language. That is, the percentages of the verb-framed pattern (i.e., types C and D) are higher than the satellite-framed pattern (i.e., types A and B). On the other hand, in English translations, the ratio of the satellite-framed pattern increases. This

[2]He does not give raw frequencies of each pattern.

means the translation texts exhibit the characteristic of English as a satellite-framed language. From the data above, Ono claims that the descriptions of change-of-state events in the data reflect each language's typological characteristic.

Similarly to Ono's study, Saito (2014) investigates whether typological characteristics of English and Japanese can be seen in the data collected from novels. The data consist of 208 pairs of change-of-state expressions in English and Japanese (total 416 sentences), which are instances found in English novels and their Japanese translations (83 pairs), instances found in Japanese novels and their English translations (148 pairs), and in Japanese and English translations of French novels (26 pairs).[3] The results are shown in Table 4.5.

Table 4.5: Distribution of each encoding pattern of change-of-state events in Japanese and English (Saito 2014: 28)

	Satellite-framed	**Verb-framed**	**Total**
Japanese	36 (17%)	172 (82%)	208 (100%)
English	106 (51%)	102 (49%)	208 (100%)

It shows that Japanese exhibits the characteristic of a verb-framed language. The frequency of the verb-framed pattern is higher than the satellite-framed pattern. By contrast, English does not predominantly show the characteristic of a satellite-framed language. The frequency of the satellite-framed pattern is almost same as the verb-framed pattern.

4.2.2 Problems and remaining issues in the previous studies

Although the previous studies mentioned above provide us insightful data on expressions of motion and those of change-of-state, they have still problems and remaining issues.

The first problem pertains to differences in the results of the two studies. Ono argues that English shows the parallel pattern to the motion expressions, while Saito demonstrates that both verb- and satellite-framed patterns are used to almost the same extent. Thus, we cannot decide from these two studies which pattern is predominant in change-of-state expressions in English.

The difference of results between the two studies may stem from the lack of representativeness in the data they examined. First, these studies are based on a limited

[3] She does not give a reason why the translations from French novels are included.

number of examples. Ono's study is based on 40 descriptions of change-of-state events and their translations (total 80). Saito collected more data than Ono's study, but still the number of examples examined is limited: 416 descriptions of change-of-state events in total.

Third, they analyze the pattern where verbs like *become* and *turn* occur with adjectives encoding a resultant state as a satellite-framed pattern. However, such a pattern should be analyzed as a verb-framed pattern, because such verbs encode transition to a certain resultant state. In *the light turned red*, for example, the adjective after the verb *turn* expresses not Initial states but Final states.

4.3 Summary

In this chapter, I have described the previous quantitative studies on motion and change-of-state expressions, and pointed out limitations and problems in these studies.

Chapter 5

Motion expressions in English: the INTO-path

In the previous chapter, we have looked at Matsumoto's corpus study on motion expressions. However, he includes various types of paths that do not corresponds to transition in change-of-state events. In addition, he does not look at the occurrence of co-events in motion expressions. In this chapter, I will examine corpus data of motion expressions in English involving a certain type of path that corresponds to transition of change, with taking into account co-occurrence of co-events. The findings are as follows:

(1) a. Path of motion is predominantly encoded in head-externals in both subject-figure and object-figure constructions

b. The main verb generally encodes deixis and manner in the subject-figure construction, and means and path in the object-figure construction

c. Co-events are often expressed within a sentence.

d. Deixis is often expressed with in a sentence.

The results presented in this chapter will serve as a good reference for comparison with change-of-state expressions, because the method adopted in this chapter is comparable to that in Chapter 6, where corpus data of change-of-state expressions will be discussed.

The organization of this chapter is as follows. In Section 5.1, I will describe my research questions. I will present results of our corpus investigation in Section 5.2. Finally, Section 5.3

concludes this chapter.

5.1 Research questions and method

The aim of this corpus study is to investigate the following four characteristics in motion expressions: (i) encoding positions of path of motion; (ii) semantic types of the main verb; (iii) occurrence of co-events in a sentence; (iv) occurrence of deixis in a sentence.

This study investigates motion expressions whose path is INTO, as in (2). I will call such expressions the "INTO-path motion expressions" throughout this thesis.

(2) a. John ran into the house.

b. John entered the house.

c. John put an apple into the box.

d. John inserted a key into the hole.

The INTO-path was chosen because the preposition *into* is often employed to describe change of state as in (3).

(3) The water turned **into** ice.

Research questions in this corpus investigation are summarized in (4).

(4) a. What is the general encoding pattern in the INTO-path motion expressions?

Specifically...

i. Where is the predominant coding position of the INTO-path?

ii. What is the most frequent semantic type of the main verb?

iii. How often and what kinds of co-events are expressed?

iv. How often is deixis expressed?

b. Do the INTO-path motion expressions show the pattern different from Matsumoto's findings?

The data examined in this section were collected by the following procedure. First, I retrieved all sentences that contain the verbs *enter* and *insert*, the preposition *into*, and the particle *in* from

the whole of the BNC. [1] Then, I randomly extracted 500 sentences that meet the following two criteria: (i) they describe physical motion events (i.e., metaphorical motion and fictive motion cases are excluded) and (ii) *enter*, *insert*, or verbs occurring with *into*/*in* are in the head position.

Each sentence was analyzed with respect to (i) encoding positions of the INTO-path, (ii) semantic types of the main verb, (iii) occurrence of co-event expressions in a sentence and (iv) occurrence of deixis in a sentence. As of encoding positions of the INTO-path, the data was analyzed in two ways: types of sentences according to where the INTO-path is expressed and types of path elements encoding the INTO-path. There are three sentence types: (i) head only, (ii) head-external only, and (iii) both head and head-externals.

(5) a. John **enter** the room. (Head only)

b. John ran **into** the room. (Head-external only)

c. John **inserted** the key **into** the keyhole. (Both head and head-externals)

In the head-coding pattern in (5a), the INTO-path is coded only in the main verb *enter*. In the head-external coding pattern in (5b), the INTO-path is expressed by the preposition *into* alone. The main verb *ran* does not encode it. In (5c), both main verb *insert* and *into* encode the INTO-path. Note that I have regarded as the head-external coding pattern cases where the main verb encodes paths other than the INTO-path and the preposition *into* expresses the INTO-path as in (6).

(6) I fell into the pond.

In (6), the main verb *fall* encodes the DOWNWARD-path, not the INTO-path. These types of sentences are treated as the head-external coding pattern even though the main verb is a path verb. Frequencies of each sentence type will be presented. In addition, all path elements coding the INTO-path in the 500 sentences are classified into two types: the head and head-externals, and the frequency of path elements of each type will be presented.

The semantic types of the main verb were classified into the following types:

(7) a. Path verbs: verbs encoding path of motion

[1] I excluded the preposition *in* because it is difficult to distinguish a location reading and a goal reading in some cases. The distinction between the particle *in* and the preposition *in* in the data collection was made by grammatical tags. Since particles are tagged as an adverb in the BNC, I collected *in* that is tagged as an adverb.

e.g., *enter*, *fall*, *sink*, *insert*, *put*, *take*,[2]etc.

b. Deictic verbs: verbs encoding deictic motion

e.g., *come*, *go*, *bring*, *take*

c. Manner verbs: verbs encoding manner of motion

e.g., *run*, *walk*, *skip*, etc.

d. Means verbs: verbs encoding means by which a motion is caused

e.g., *kick*, *throw*, etc.

e. Cause verbs: verbs encoding cause of motion

e.g., *blow* as in *the paper blew off the table*

f. Others: verbs that do not fit into the categories above (verbs that encode the fact of motion like *move* are also included)

Co-events are expressed by the main verb, adverbs, participles, and prepositional phrases. Some examples are given in (8).

(8) a. Main verb

John **ran** into the room.

b. Adverbs

John entered the room **quickly**.

c. Prepositional phrases

John entered the country **by plane**.

d. Participles

John entered the room **pushing a cart**.

In English, Deixis is expressed by deictic verbs such as *come* and *go*, adverbs like *hither* and *thither*, and prepositional phrases with a pronoun like *toward me*. In our corpus data, however, they are encoded only by deictic verbs.

(9) gives some examples and illustrates how they are annotated. Expressions encoding the INTO-path are boldfaced.

[2]I included put/take verbs in this category, because the distinction of path verbs and put/take verbs made in Matsumoto (2017a) is irrelevant to our discussions.

(9) a. They soon left the estate, crossed the highway, and **entered** the park around Maran Hill. (BNC-HP0)

i. Coding position of path: head

ii. Semantic type of the main verb: path

iii. Occurrence of co-event: no

iv. Occurrence of deixis: no

b. When I ran **into** the kitchen the oven was lying on the ground and thought she had done it. (BNC-K35)

i. Coding position of path: head-external

ii. Semantic type of the main verb: manner

iii. Occurrence of co-event: yes (manner; by the verb *run*)

iv. Occurrence of deixis: no

c. The door opened and his mother came **in**. (BNC-ALL)

i. Coding position of path: head-external

ii. Semantic type of the main verb: deixis

iii. Occurrence of co-event: no

iv. Occurrence of deixis: yes (by the verb *came*)

5.2 Results

5.2.1 Encoding position of path in the INTO-path motion expressions

Table 5.1 shows the frequencies and percentages of each type of sentence in the INTO-path motion expressions. In the subject-figure construction, sentences with the head-coding pattern are frequently observed, while those with the head-external pattern are not frequently observed. Some examples of these two patterns are given in (10) and (11).

(10) head-external coding

Table 5.1: Frequencies of each sentence type in the INTO-path motion expressions

	Head only	**Head-external only**	**Both**	**Total**
Subject-figure	18 (5.00%)	342 (95.00%)	0 (0%)	360 (100%)
Object-figure	2 (1.43%)	108 (77.14%)	30 (21.43%)	140 (100%)
Total	20 (4.00%)	450 (90.00%)	30 (6.00%)	500 (100%)

a. But just then Nettie walked **into** the room, carrying a silver tray piled with coffee things. (BNC-JXS)

b. The door opened and his mother came **in**. (BNC-ALL)

(11) head coding

When they **entered** the kitchen May's voice came from another room, calling, 'I'll be there in a minute, Frank.' (BNC-HWE)

There are not any sentences where the INTO-path is encoded both in the head and head-externals in this construction. In the object-figure construction, expressions with the head-external coding pattern are frequently used while the head-coding pattern or sentences encoding the INTO-path in both head and head-external at the same time as is not frequently observed. Some examples of each type are given in (12)–(14).

(12) Head-external only

a. A nurse takes me down a corridor **into** a white room with painted-shut windows and a hot-air vent. (BNC-HGL)

b. Patrick smiled at the woman as she brought **in** the tea. (BNC-FAB)

(13) Both

She **inserted** the key **into** the ignition. (BNC-JY9)

(14) Head only

She took a silver pin and **inserted** it where a dart was marked with a black V and a dot. (BNC-GUK)

Now let us look at what type of path element encodes the INTO-path. In the INTO-path

motion expressions, there are 530 expressions encoding the INTO-path. Table 5.2 shows the frequencies of each type.

Table 5.2: Frequencies of path elements coding the INTO-path

	Head	**Head-external**	**Total**
Subject-figure	18 (5.00%)	342 (95.00%)	360 (100%)
Object-figure	32 (18.82%)	138 (81.18%)	170 (100%)
Total	50 (9.43%)	480 (90.57%)	530 (100%)

In the subject-figure construction, the INTO-path is more frequently encoded in head-externals than in the head. The difference is significant ($\chi^2 = 291.6$, $df = 1$, $p < .001$). This suggests that the INTO-path is generally expressed by head-externals (i.e., the preposition *into* or the particle *in*) in this construction. In the object-figure construction, too, the INTO-path is more frequently expressed in head-externals than in the head ($\chi^2 = 33.029$, $df = 1$, $p < .001$). Thus, the INTO-path is primarily encoded in head-externals in the INTO-path motion expressions.

In sum, the predominant encoding position of the INTO-path is head-externals: the INTO-path is more frequently encoded in the preposition *into* or the particle *in* than in the main verb. This suggests that characteristic of English as the head-external coding language is reflected in the data of the INTO-motion expressions. These results are consistent with the previous researches.

5.2.2 Semantic types of the main verb

Table 5.3 shows that semantic types of the main verb in the subject-figure INTO expressions and a list of verbs for each type. It indicates that the most frequent semantic type encoded in the main verb is manner (36.39%), followed by deixis (32.22%), and path (21.88%). (15) gives examples of each type of verb.

(15) a. Deixis

He **came** further into the room. (BNC-H8F)

b. Manner

She **ran** into her bedroom to phone an ambulance. (BNC-FAB)

Table 5.3: Semantic types of the main verb (subject-figure construction, total 360 hits)

Manner		**Deixis**		**Path**		**Others**	
Verb	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**
walk	14	come	75	get	19	move	16
climb	5	go	56	enter	18	disappear	6
slip	5			turn	7	break	4
step	4			follow	7	crash	3
creep	4			fall	5	bump	3
travel	4			cross	3	vanish	1
pop	4			rise	2	throng	1
jump	4			pass	2	push	1
march	3			escape	2	migrate	1
burst	3			climb	2		
run	3			sink	2		
pull	3			head	2		
fly	3			⋮			
smash	2						
wander	2						
drive	2						
gallop	2						
slump	2						
lead	2						
spread	2						
plunge	2						
sail	2						
⋮							
Total	131 (36.39%)		116 (32.22%)		77 (21.39%)		36 (10.00%)

c. Path

She **entered** the lit passage and there was the window in the elbow of it, dark now as then, a crowd of pictures on the walls, paintings beneath paintings. (BNC-GUM)

d. Motion only

He **moved** into the farthest room, which had a tiny square of window set in its far wall and overlooking the rear driveway. (BNC-ACW)

e. Others

He scampered up the outer staircase and **disappeared** into the hall. (BNC-HH1)

Table 5.4 shows the results of the object-figure constructions. In this construction, means is most frequently encoded in the main verb (37.86%) followed by path verbs (28.57%), and deictic verbs

(14.29%).

Table 5.4: Semantic types of the main verb (object-figure construction, total 140 hits)

Means		**Path**		**Deixis**		**Manner**		**Others**	
Verb	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**
pour	6	put	16	bring	12	swing	3	let	9
throw	5	insert	7	take	8	slip	2	mix	2
push	4	get	4			mix	2	release	2
usher	4	inject	2			bundle	1	stir	1
lead	3	sink	1			fly	1	invert	1
call	2	jam	1			thump	1	hunch	1
shoot	2	incorporate	1			jerk	1	help	1
send	2	inhale	1			parachute	1		
carry	2	dip	1						
force	2	stuff	1						
pump	2	infiltrate	1						
drive	2	tuck	1						
pull	2	bury	1						
⋮		introduce	1						
Total	53 (37.86%)		40 (28.57%)		20 (14.29%)		10 (7.14%)		17 (12.14%)

(16) Object-figure

a. Means

She **pulled** a straight-backed dining chair into the middle of the room, and sat on it. (BNC-FPX)

b. Path

Insert a curtain pin hook into the back of each pleat and at sides. (BNC-GUB)

c. Deixis

A nurse **takes** me down a corridor into a white room with painted-shut windows and a hot-air vent. (BNC-HGL)

d. PUT/TAKE

Put the icing sugar into another bowl. (BNC-G24)

e. Manner

On a distant comer two small boys tittered into their unwashed hands and one **slipped** a tube of Superglue into the back pocket of his ragged pantaloons. (BNC-HWN)

f. Others

'**Mix** the eggs...into the flour...not too frothy now...sprinkle the nutmeg to taste...whisk lightly...' (BNC-FR0)

To sum up, our results suggest that the meanings encoded predominantly in the main verb are deixis and manner in the subject-figure construction, and means in the object-figure construction. These results are consistent with the results in Matsumoto's corpus study.

5.2.3 Occurrence of co-events

Table 5.5 indicates how often co-events are expressed in a sentence. There are no cases where more than two types of co-events are expressed at the same time. Thus, the total frequency of co-events is equal to the number of the sentences investigated.

Table 5.5: Occurrence of co-events in the INTO-path motion expressions

	Manner	**Means**	**Cause**	**Not expressed**	**Total**
Subject-figure	116 (32.22%)	0 (0%)	0 (0%)	244 (67.78%)	360 (100.00%)
Object-figure	10 (7.14%)	53 (37.86%)	0 (0%)	77 (55.00%)	140 (100.00%)
Total	126 (25.20%)	53 (10.60%)	0 (0%)	321 (64.20%)	500 (100.00%)

In the subject-figure construction, 32.22% express co-events, and in almost all cases they are Manner. There are no cases where Cause or Means are expressed. Examples are given in (17).

(17) a. Grégoire **marched** into the house like a small marionette. (BNC-C8S)

b. Then I nearly fell over when Hywel **walked** in because I met him on the mountain and he gave me the eye.' (BNC-G0X)

In all cases, co-events are expressed in the main verb. There are no instances where other expressions such as adverbs encode manners. This means when manners are encoded, the head-external coding pattern is employed.

In the object-figure construction, co-events are frequently expressed as well (44.68%). Examples are given in (18).

(18) a. She **pulled** a straight-backed dining chair into the middle of the room, and sat on it. (BNC-FPX)

b. Lizzy turned to the kettle and **poured** boiling water into the mug. (BNC-FAB)

5.2.4 Occurrence of deictic verbs

Table 5.6 shows frequencies of deictic verbs. Some examples with deictic verbs are given in (19).

Table 5.6: Occurrence of deixis in the INTO-path motion expressions

	Encoded	**Not encoded**	**Total**
Subject-figure	131 (36.39%)	229 (63.61%)	360 (100%)
Object-figure	20 (14.29%)	120 (85.71%)	140 (100%)
Total	151 (30.20%)	349 (69.80%)	500 (100%)

(19) a. Battler looked at him eagerly as he **came** back into the room. (BNC-FAP)

b. A nurse **takes** me down a corridor into a white room with painted-shut windows and a hot-air vent. (BNC-HGL)

5.2.5 Summary

I have examined the INTO-motion expressions taken from the BNC, and have demonstrated that they exhibit characteristics proposed in the previous studies. Specifically, the INTO-motion expressions show the following characteristics:

(20) a. Path of motion is predominantly encoded in head-externals in both subject-figure and object-figure constructions.

b. The main verb generally encodes deixis and manner in the subject-figure construction, and means in the object-figure construction.

c. Co-events are encoded in 32% of the subject-figure construction and 45% of the object-figure construction.

d. Deixis is encoded in 36% of the subject-figure construction and 14% of the object-figure construction.

These tendencies of the INTO-path expressions are similar to those found in Matsumoto's work, which looked at all types of paths.

5.3 Conclusion

In this chapter, I examined the nature of motion expressions in English. English has been said to be a head-external coding language. This characteristic is confirmed by our corpus examination. The results of the examination also confirmed Matsumoto's observation that not just manner but also deixis and path are very often encoded in the main verb, especially deixis in the subject-figure construction, unlike what Talmy's work might have suggested. The results of this corpus investigation will be compared with change-of-state expressions in the following chapters.

Chapter 6

Encoding patterns in descriptions of four change-of-state events

The central questions in this study are what encoding patterns are employed to express change-of-state events, and how different their predominant pattern is from that in motion expressions. In this chapter, I will examine expressions describing certain change-of-state events, which are taken from the BNC, and describe their characteristics in terms of (i) the coding positions of changes of state, (ii) the semantic types of the main verb, (iii) co-occurrence of co-events and their types and (iv) use of deictic verbs. Then I will compare the results with those of motion expressions Chapter 5.

Based on the results of the corpus investigation, I will demonstrate that descriptions of the change-of-state events examined in this chapter show the following tendencies:

(1) a. Changes are predominantly encoded in the head. Changes are rarely encoded in head-externals alone.

b. The predominant semantics of the main verb is change. Co-events are rarely expressed by the main verb.

c. Co-events are not frequently mentioned. Co-events that are expressed concern various types of means and causes that can bring about the change in question, while manners are restricted to certain types.

d. Deictic verbs are rarely used except for the subject-figure construction of the

EXTINGUISHING events.

I will show that these characteristics are different from those observed in motion expressions.

On the other hand, I will also show that certain types of change-of-state events show the pattern closer to motion expressions. I will argue that such events are those related to motion.

The organization of this chapter is as follows. Section 6.1 will describe research questions and the method this study employs. Section 6.2 will present the results of the corpus investigation. Section 6.3 will discuss the predominant pattern in change-of-state expressions in English, and compare them with motion expressions. Intra-linguistic variations in encoding patterns are also discussed. Finally, Section 6.4 will conclude this chapter.

6.1 Research questions and method

The aim of this chapter is to investigate change-of-state expressions in a way comparable to motion expressions. In this corpus investigation, I will focus on four points, which are parallel to the issues dealt with in the investigation of motion expressions in Chapter 5: (i) encoding positions of changes of state, (ii) semantic types of the main verb, (iii) co-occurrence of co-events in a sentence, and (iv) use of deictic verbs. If change-of-state expressions are completely parallel to motion expressions, it is expected that change-of-state expressions would exhibit similar tendencies in terms of the above-mentioned characteristics; (i) change of state tends to be encoded in head-external positions, (ii) the main verb tends to encode co-events or deixis, and (iii) co-events are often mentioned in a sentence, and (iv) deictic verbs are often used. In order to examine these questions, I will look at the descriptions of four types of change-of-state events, namely, BREAKING, DYING, EXTINGUISHING, and OPENING events. (2) gives definitions and some examples of each event.

(2) a. BREAKING

Definition: (Cause something to) lose physical intactness

e.g., *The window broke. John broke the glass.*

b. DYING

Definition: (Cause someone/something to) stop living.

e.g., *He died of cancer. The hunter killed the deer.*

c. EXTINGUISHING

Definition: (Cause something to) stop burning or shining.

e.g., *I put out the fire. The firemen extinguished the flame.*

d. OPENING

Become or make accessible to the inside of a container-like space by the removal of some barrier preventing entry.

e.g., *The gate opened. John opened the door.*

In addition, I will look at what type of manner, cause, and means are expressed. This is especially important for manner. As discussed in Chapter 2, manners in the change-of-state events tend to be of certain types involving speed or sound. If this is true, types of manners expressed in a sentence should tend to be of these types. I will also look at means and causes, but there should not be such a restriction in them. It is expected that any causes and means that can bring about the change in question can be expressed.

Research questions in this corpus investigation are summarized in (3).

(3) a. What is the general encoding pattern in descriptions of four types of change-of-state events? Specifically...

i. Where is the predominant coding position of changes of state?

ii. What is the most frequent semantic type of the main verb?

iii. How often and what kinds of co-events are expressed?

iv. How are deictic verbs used?

b. Is the pattern different from motion expressions?

The descriptions of the BREAKING, DYING, and OPENING events were collected in the following way. Let us take the OPENING event for example. This event can be generally expressed by the change-of-state verb *open*; in addition, it can be expressed by the resultative construction as in *John kicked the door open*. I collected all instances of the verb *open* and the resultative construction whose resultative phrase is the adjective *open*. In searching for the verb

open, I used grammatical tags[1] to avoid retrieving the same word form belonging to other part of speech such as the adjective. The instances of the resultative construction were collected by searching for the strings of [verb + 0–5 words + resultative phrase]. From the collected data, I randomly extracted a total of 500 instances of the verb *open* and the resultative construction which satisfy the following conditions: (i) describing the OPENING events defined above, (ii) the verb *open* and the verb in the resultative construction stand as the main verb. Here, the main verb means the finite verb, following the definition in Matsumoto (2017b). Descriptions of the BREAKING and DYING events were collected in the same way. The searching queries for each event descriptions are summarized in (4), and some examples are given in (5).

(4) a. OPENING

i. The verb *open*

ii. The resultative construction whose RP is the adjective *open*

b. BREAKING

i. The verb *break*

ii. The resultative constructions whose RP is {*in*/*to*/*into*} *[0–3 words] pieces*.

Note that I allow maximum 3 words to be inserted between *in*/*to*/*into* and *pieces* to include examples with *to small pieces*, etc.

c. DYING

i. The verbs *die* and *kill*

ii. The resultative construction whose RP is the adjective *dead* or the prepositional phrase *to [0–3 words] death*.

Maximum 3 words were allowed to be inserted between *to* and *death*, to include examples with *to his death*, etc.

(5) a. OPENING

i. The guard **opened** the gate and Zadak went in. (BNC-FSL)

ii. With a familiar feeling of dread, he pushed the door **open**. (BNC-HR8)

[1]Specifically, I collected *open* with lexical verb tags (i.e., VVB, VVD, VVG, VVI, VVN, VVZ) or ambiguity tags containing the lexical verb tags (e.g., AJ0-VVN, AJ0-VVD, etc.). See `http://www.natcorp.ox.ac.uk/docs/c5spec.html` for more information of grammatical tags.

b. BREAKING

i. Somebody had **broken** the glass door of the shop, but Michael wasn't worried. (BNC-ADM)

ii. But most of the material was falling **to pieces**. (BNC-A6C)

c. DYING

i. The organisation also campaigns for tougher penalties for drivers who **kill** or injure other road users. (BNC-K97)

ii. Revellers watched in horror as James Savva, 43, was knifed **to death** during an argument at his Metrople Hotel at Ventnor, Isle of Wight.

The method of collecting descriptions of the EXTINGUISHING event is different from that for the descriptions of the three events mentioned above. From the BNC, I retrieved all sentences that contain the particle *out* or the verb *extinguish* as well as the nouns that refer to fire, light, or some objects that emit light or burn, which are listed below.

(6) *blaze(s)*, *candle(s)*, *cigarette(s)*, *fire(s)*, *flame(s)*, *match(es)*, *lamp(s)*, *light(s) lantern(s)*, *torch(es)*

From the retrieved data, I further extracted cases satisfying the following two conditions: (i) nouns listed above are the head of a noun phrase that are the subject or object of a verb (e.g., *he blew out birthday cake* ***candles***; *a cooking* ***fire*** *was extinguished immediately*), and (ii) the verb *extinguish* or the verb occurring with *out* are in the main verb position. A total of 373 sentences were analyzed. Some examples are given in (7).

(7) a. The firemen quickly **extinguished** the blaze and the body of the baby girl was discovered in the bedroom. (BNC-K5M)

b. Irina stubbed **out** her cigarette. (BNC-FSF)

The reason why I adopted the different method for the EXTINGUISHING events from that for the BREAKING, DYING, and OPENING events is a practical one: due to the large number of instances of the particle *out*, it takes much time to pick out a relatively small number of instances expressing the extinguishing event. Thus, some additional information (in this case, subjects and objects) is used to exclude instances of *out* that do not express an extinguishing event.

Each sentence was analyzed with respect to (i) encoding positions of change of state, (ii) semantic types of the main verb, (iii) occurrence of co-event expressions in a sentence and their types, and (iv) use of deictic verbs. There are three sentence patterns in terms of where the change of state is expressed: (i) head only, (ii) head and head-external at the same time, and (iii) head-external only.

(8) head coding

a. Head alone

John **broke** the vase.

b. With head-externals

i. John **broke** the vase **to pieces**.

ii. The window **fell to pieces**.

(9) head-external coding

John pulled a flower **to pieces**.

In the head-coding pattern as in (8a), the change to the state of lost physical intactness is coded only in the main verb *break*. Cases where both the head and the head-external element encode changes can be divided into two subtypes. In (8b-i), the main verb *break* encodes a transition of the state and a resultant state of lost physical intactness, while in (8b-ii), the main verb *fall* only encodes a transition to a certain resultant state, and does not encode any specific resultant state. In the head-external coding pattern as in (9), this change is expressed by *to pieces*. Note that if the head and a head-external encode two changes and the change encoded in the head is not the change we examine in this study (i.e., BREAKING, DYING, OPENING, and EXTINGUISHING), such a case is treated as the head-external pattern. An example of such a case is given in (10).

(10) John starved to death.

In (10), the change to the dead state results from another change of starving, which does not always lead someone to death. Thus, the verb *strave* does not encode the change of DYING, and this sentence is treated as the head-external coding pattern. In addition, I will look at types

of linguistic elements (i.e., head vs. head-external) encoding change and the frequency of each type.

The semantic types of the main verb were classified into the following types. The verbs listed in (11) are called "change verbs," and those listed in (12) "non-change verbs."

(11) a. Transition verbs: verbs encoding a transition to a nonspecific state

e.g., *bring*, *come*, *go*, *fall*, *take*, *turn*, etc.

b. Result verbs: verbs encoding a transition to a specific resultant state

e.g., *break*, *kill*, *open*

(12) a. Manner verbs: verbs encoding manners of change (e.g., speeds)

e.g., *swing* as in *the door swung open*

b. Means verbs: verbs encoding means by which a change is caused

e.g., *shoot* as in *the hunter shot the deer dead*

c. Cause verbs:

e.g., *blow* as in *the candle blew out*

d. Others: verbs that do not fit into the categories above

The transition verbs encode transitions to a certain state, which are specified by head-externals.

(13) *go mad*, *fall apart*, *turn red*, *come true*

The adjectives in the examples above denote the final state of the figure, and not the initial state. Thus, it is reasonable to treat the verbs as encoding the transition "TO." They correspond to the path verbs *reach*, and *arrive*. Note that I treated the deictic verbs *come* and *go* as encoding transition, not deixis. This is because change-of-state events are non-deictic processes and thus use of these verbs does not encode any deictic information. The result verbs encode a transition and a resultant state. For example, the verb *break* encodes the transition "TO" and the resultant state "being BROKEN." They are similar to the path + ground motion verbs like *cage*, which encode the path INTO and the ground, a cage.

(14) gives some examples and illustrates how they are analyzed.

(14) a. **She pushed open the door** and went inside. (BNC-JXU)

i. Coding position of change of state: head-external

ii. Semantic type of the main verb: means

iii. Occurrence of co-event: yes (means; by the verb *push*)

iv. Non-deictic use of deictic verbs: no (for the event of opening)

b. **The pilot died of a heart attack in the air** and he was probably dead before his aircraft hit the ground. (BNC-CN2)

i. Coding position of change of state: head

ii. Semantic type of the main verb: change

iii. Occurrence of co-event: yes (cause; by the verb *of a heart attack*)

iv. Non-deictic of deictic verbs: no

c. **The guard opened the gate** and Zadak went in. (BNC-FSL)

i. Coding position of change of state: head

ii. Semantic type of the main verb: change

iii. Occurrence of co-event: no

iv. Non-deictic use of deictic verbs: no (for the event of opening)

d. **The fire in the living-room had gone out**, and the kitchen stove was burning low. (BNC-AC7)

i. Coding position of change of state: head

ii. Semantic type of the main verb: transition

iii. Occurrence of co-event: no

iv. Non-deictic use of deictic verbs: yes

6.2 Results

6.2.1 Coding positions of changes of state

Our results show that changes of state tend to be encoded in the head, but some events somewhat exhibit different patterns from other events. Let us take a look at each event one by one.

BREAKING events

The frequency of each coding pattern in the descriptions of the BREAKING events are shown in Table 6.1.

Table 6.1: Encoding position of changes of state in the BREAKING events

	Head only	**Head-external only**	**Both**	**Total**
Subject-figure	165 (88.71%)	2 (1.08%)	19 (10.22%)	186 (100%)
Object-figure	253 (80.57%)	7 (2.23%)	54 (17.20%)	314 (100%)
Total	418 (83.60%)	9 (1.80%)	73 (14.60%)	500 (100%)

Some examples of each pattern are given in (15)–(17). Expressions encoding changes of state are boldfaced.

(15) BREAKING: head coding

a. It was opened so forcefully that one of the straps **broke**. (BNC-ASN)

b. She **breaks** the window of the black car—and the car alarm goes off! (BNC-H93)

In (15), the change to the state of being broken is encoded in the main verb, and there is no information of cause or means that lead to the change or manner of the change.

(16) BREAKING: head + head-external coding

a. **Cut** the red pepper **into small pieces** and grate the onion. (BNC-BPG)

b. **Break** the lettuce leaves **into small pieces** and use to line a large salad bowl or individual salad plates. (BNC-ABB)

In (16), the change of state that the figure undergoes is encoded both in the main verb and the prepositional phrase. A prepositional phrases serves to further specify the resultant state of the figure.

(17) BREAKING: head-external coding

a. With an ear-shattering explosion, that bowled the CI5 men backwards, the van blew **to pieces**, black smoke billowing out to fill the kitchen yard! (BNC-CE5)

b. Slowly he pulled a flower **to pieces** with his long fingers. (BNC-GUS)

In (17), change of state is encoded in the prepositional phrase *to pieces* and the main verb specifies cause (blowing) and means (pulling), which lead to the resultant state encoded in *to pieces*.

Now let us look at which type of linguistic element encodes the change. Table 6.2 shows the frequency of each type of linguistic element encoding the change.

Table 6.2: Frequencies of each type of element coding the change BREAKING

	Head	**Head-external**	**Total**
Subject-figure	184 (89.76%)	21 (10.24%)	205 (100%)
Object-figure	307 (83.42%)	61 (16.58%)	368 (100%)
Total	491 (85.69%)	82 (14.31%)	573 (100%)

In both constructions, the change is more frequently encoded in the head than in head-external elements. The differences are significant (subject-figure, $\chi^2 = 129.6$, $df = 1$, $p < .001$; object-figure, $\chi^2 = 164.45$, $df = 1$, $p < .001$). Thus, the change BREAKING is predominantly encoded by the head.

DYING events

Descriptions of the DYING events show a similar tendency. Table 6.3 indicates the frequency of each coding pattern in the descriptions of the DYING events.

Table 6.3: Encoding position of changes of state in the DYING events

	Head only	**Head-external only**	**Both**	**Total**
Subject-figure	320 (97.56%)	7 (2.13%)	1 (0.30%)	328 (100%)
Object-figure	155 (90.12%)	17 (9.88%)	0 (0%)	172 (100%)
Total	475 (95.00%)	24 (4.80%)	1 (0.20%)	500 (100%)

Some examples of each pattern are given in (18)–(19).

(18) DYING: head coding

a. Merrick **died** suddenly in the London Hospital 11 April 1890. (BNC-GSY)

b. He **killed** Lily to save her the pain of taking her own life, he had told police. (BNC-CBF)

(19) DYING: head + head-external coding

Linkworth **went to his death** with a calm, expressionless face. (BNC-H9U)

(20) DYING: head-external coding

a. Mrs Oram's three-year-old son Charles almost choked **to death** in thick fumes after the £30 Safe and Sound monitor 'spontaneously ignited'. (BNC-EWB)

b. SAVAGE raiders battered a disabled woman **to death** in her sheltered home. (BNC-CH2)

Table 6.4 shows the frequency of each type of linguistic element encoding the change DYING.

Table 6.4: Frequencies of each type of element coding the change DYING

	Head	**Head-external**	**Total**
Subject-figure	321 (97.57%)	8 (2.43%)	329 (100%)
Object-figure	155 (90.12%)	17 (9.88%)	172 (100%)
Total	476 (95.01%)	25 (4.99%)	501 (100%)

In both constructions, the change is more frequently encode in the head than in head-external elements. The differences are significant (subject-figure, $\chi^2 = 297.78$, $df = 1$, $p < .001$; object-figure, $\chi^2 = 110.72$, $df = 1$, $p < .001$). Thus, the change BREAKING is predominantly encoded by the head.

OPENING events

Table 6.5 indicates the frequency of each coding pattern in the descriptions of the OPENING event. Some examples of each pattern are given in (21) and (22).

Table 6.5: Encoding position of changes of state in the OPENING events

	Head only	**Head-external only**	**Both**	**Total**
Subject-figure	65 (58.56%)	46 (41.44%)	0 (0%)	111 (100%)
Object-figure	323 (83.03%)	63 (16.20%)	3 (0.77%)	389 (100%)
Total	388 (77.60%)	109 (21.80%)	3 (0.60%)	500 (100%)

(21) OPENING: head coding

a. The door **opened**, and Mrs Syms steered a tray into the room. (BNC-GVT)

b. I **open** the door and burst into the warm night air. (BNC-HH0)

(22) OPENING: head-external coding

a. The front door swung **open** and Mrs Vigo came in, holding the child. (BNC-A73)

b. She pushed **open** the door and went inside. (BNC-JXU)

Table 6.6 shows the frequency of each type of linguistic element encoding the change OPENING.

Table 6.6: Frequencies of each type of element coding the change OPENING

	Head	**Head-external**	**Total**
Subject-figure	65 (58.56%)	46 (41.44%)	111 (100%)
Object-figure	326 (83.16%)	66 (16.84%)	392 (100%)
Total	391 (77.73%)	112 (22.27%)	503 (100%)

In the object-figure constructions, the change is more frequently encode in the head than in head-external elements. The difference is significant (χ^2 = 172.45, df = 1, p < .001). Thus, the change OPENING is predominantly encoded by the head in this construction. On the other hand, there is no significant difference between the frequency of the head and head-externals in the subject-figure construction (χ^2 = 3.2523, df = 1, p = .07133).

EXTINGUISHING events

Finally, the frequency of each coding pattern in the descriptions of the EXTINGUISHING events are shown in Table 6.7.

Table 6.7: Encoding position of changes of state in the EXTINGUISHING events

	Head only	**Head-external only**	**Both**	**Total**
Subject-figure	1 (0.88%)	12 (10.62%)	100 (88.50%)	113 (100%)
Object-figure	45 (17.31%)	118 (45.38%)	97 (37.31%)	260 (100%)
Total	46 (12.33%)	130 (34.85%)	197 (52.82%)	373 (100%)

Some examples of each pattern are given in (23)–(25).

(23) EXTINGUISHING: head-external coding

a. Boyd ground **out** his cigarette. (BNC-CDN)

b. He waved **out** the match, gazed at it thoughtfully for a moment, dropped it into the ashtray and then looked at Herr Nordern. (BNC-A7A)

(24) EXTINGUISHING: head coding

a. Filled with scented citronella oil, a proven insect repellent, the lamps have pre-set wicks with 50 or 100 burning hours and will **extinguish** automatically if accidentally tipped over. (BNC-G2F)

b. Firemen **extinguished** a rubbish fire in a corridor at Spencerbeck House, Spencerbeck, Middlesbrough. (BNC-K4W)

(25) EXTINGUISHING: head + head-external coding

a. Paraffin heaters sold in shops must now, by law, be designed so that if they're tipped over, the flame is automatically **snuffed out**. (BNC-K24)

b. He **snuffed out** the candle and, putting his face over the glass chimney of the lamp, blew out the flame. (BNC-B1X)

Table 6.8 shows the frequency of each type of linguistic element encoding the change EXTINGUISHING.

Table 6.8: Frequencies of each type of element coding the change EXTINGUISHING

	Head	**Head-external**	**Total**
Subject-figure	101 (47.42%)	112 (52.58%)	213 (100%)
Object-figure	142 (39.78%)	215 (60.22%)	357 (100%)
Total	243 (42.63%)	327 (57.37%)	570 (100%)

In the subject-figure construction, there is no significant difference between the frequency of the head and head-externals encoding the change (χ^2 = 0.56808, df = 1, p = .451). This is similar to the object-figure construction of the OPENING events. On the other hand, the frequency of head-externals is higher than that of the head, and the difference is significant (χ^2 = 14.942, df = 1, p < .001). Thus, the change is more frequently encoded in head-externals in this construction.

6.2.2 Semantic types of the main verb

BREAKING events

Table 6.9 shows the frequency of the main verb of each semantic type in the subject-figure construction of the BRAKING event descriptions.

Table 6.9: Semantic types of the main verb in the BREAKING event descriptions (subject-figure construction)

Semantic type	Frequency	Examples of verb
Transition + Result	181 (97.31%)	*break*, *explode*, *split*, *shatter*
Transition	4 (2.15%)	*drop*, *fall*
Cause	1 (0.54%)	*blow*
Total	186 (100%)	

In the subject-figure construction (Table 6.9), the most frequently coded meaning by the main verb is change, followed by transition and cause. Some examples of each type are given in (26)–(28).

(26) Change of state

a. Because the cup fell off the table, it **broke**. (BNC-EF8)

b. He waved weakly at the plaster dust which billowed at him, did not flinch when a tangle of wire, metal and concrete **shattered** to pieces against the far wall and dropped into the tangled wreckage on the ground floor below. (BNC-G0E)

(27) Transition

a. But most of the material was **falling** to pieces. (BNC-A6C)

b. When creating a stencil design, it is essential to remember to leave a space between each leaf or flower shape, otherwise the stencil card will **drop** to pieces when it is cut out. (BNC-CE4)

(28) Cause

With an ear-shattering explosion, that bowled the CI5 men backwards, the van **blew** to pieces, black smoke billowing out to fill the kitchen yard! (BNC-CE5)

[1]Note that those uses of the verbs *drop* and *fall* do not encode spatial meanings.

Table 6.10 shows the frequency of the main verb of each semantic type in the object-figure construction.

Table 6.10: Semantic types of the main verb in the BREAKING event descriptions (object-figure construction)

Semantic type	**Frequency**	**Examples of verb**
Transition + Result	306 (97.45%)	*break*, *chop*, *cut*, *divide*, *hack*, *rip*, *slice*, *smash*, *snip*, *split*, *wear*
Means	6 (1.91%)	*blow*, *dash*, *flog*, *pull*
Transition	2 (0.64%)	*take*
Total	313 (100%)	

In this construction, the most frequently coded meaning by the main verb is change, followed by transition and cause. Some examples of each type are given in (29)–(31).

(29) Change of state

a. Somebody had **broken** the glass door of the shop, but Michael wasn't worried. (BNC-ADM)

b. Their car had hardly turned the corner when the mob arrived and **smashed** the house to pieces. (BNC-H7E)

(30) Means

a. Slowly he **pulled** a flower to pieces with his long fingers. (BNC-GUS)

b. But hardly had General von Gallwitz arrived at Verdun before he was forcibly impressed by the potency of the French artillery; it had just **blown** to pieces one of his divisional commanders in his car. (BNC-K91)

(31) Transition

'Let's **take** it [=stone] to pieces.' (BNC-F9X)

DYING events

A similar tendency can be seen in the DYING event descriptions. Table 6.11 shows the frequency of the main verbs of each semantic type in the subject-figure construction.

Table 6.11: Semantic types of the main verb in the DYING event descriptions (subject-figure construction)

Semantic type	**Frequency**	**Examples of verb**
Transition + Result	326 (99.39%)	*bleed*, *choke*, *die*, *starve*
Cause	1 (0.30%)	*fall*
Transition	1 (0.30%)	*go*
Total	328 (100%)	

In this construction, change of state is most frequently encoded in the main verb. In 320 out of 323 cases, the verb *die* is used, and the verb *starve* is used in the rest of the cases.

(32) Change

a. Four victims **died** from smoke and flames. (BNC-CR8)

b. Mrs Oram's three-year-old son Charles almost **choked** to death in thick fumes after the £30 Safe and Sound monitor 'spontaneously ignited'. (BNC-CH2)

Co-events such as manner, and cause are rarely expressed by the main verb. One example is given in (33).

(33) Cause

Gareth Roberts, from Basingstoke, Hants, son of nurse Mabel Roberts, 46, formerly of Mochdre who **fell** 60ft to her death; and Jean Manners, of Cheltenham, Glos, whose son Andrew, 29, also fell. (BNC-K4E)

Transition verbs are also though their use is strictly limited.

(34) Transition

Linkworth **went** to his death with a calm, expressionless face.[2] (BNC-H9U)

Table 6.12 shows the frequency of the main verb of each semantic type in the object-figure construction.

In this construction, the meaning predominantly encoded in the main verb is change of state.

(35) Change

a. The I R A said they **killed** John Gibson because his company did work for the security services. (BNC-K6H)

Table 6.12: Semantic types of the main verb in the DYING event descriptions (object-figure construction)

Semantic type	Frequency	Examples of verb
Transition + Result	161 (93.60%)	*kill*, *crush*, *burn*, *starve*, *bleed*
Means	10 (5.81%)	*batter*, *beat*, *bayonet*, *bludgeon*, *bully*, *knife*, *stone*
Transition	1 (0.58%)	*lead*
Total	172 (100%)	

b. British cows, who might be bled to death for kosher meat, had no such guarantee and were morose and sullen as a result. (BNC-CS6)

(36) Means

a. SAVAGE raiders **battered** a disabled woman to death in her sheltered home. (BNC-CH2)

b. He was **bayoneted** to death by a soldier in front of two priests who had tried to protect him. (BNC-CFH)

OPENING events

The OPENING event descriptions show a slightly different pattern. Table 6.13 shows the frequency of the main verb of each semantic type in the subject-figure construction.

Table 6.13: Semantic types of the main verb in the OPENING event descriptions (subject-figure)

Semantic type	Frequency	Examples of verb
Transition + Result	65 (58.56%)	*open*, *crack*, *break*
Manner	40 (36.04%)	*swing*, *fly*, *burst*, *slide*, *gape*, etc.
Cause	5 (4.50%)	*blow*, *fall*, *drop*
Transition	1 (0.90%)	*come*
Total	110 (100%)	

In this construction, the most frequent meaning of the main verb is change, in (37). However, manner verbs are also frequently used as in (38).

(37) Change

a. The station doors **opened** and the sirens started screaming. (BNC-AHA)

b. His limbs bent and snapped, his helmet **cracked** open and there was a stinging pain in his eyes. (BNC-G1M)

(38) Manner

a. The front door **swung** open and Mrs Vigo came in, holding the child. (BNC-A73)

b. After a moment, the door **slid** open. (BNC-G1M)

Note that I have regarded the verbs *drop*, and *fall* as cause verbs, even though these verbs are generally considered to be path verbs in the literature of motion expressions. In *her mouth fell open*, for example, the change that her mouth become open results from the downward movement of her jaw.

Table 6.14 shows the frequency of the main verb of each semantic type in the object-figure construction.

Table 6.14: Semantic types of the main verb of the OPENING event descriptions (object-figure)

Semantic type	**Frequency**	**Examples of verb**
Transition + Result	341 (87.66%)	*open*, *break*, *crack*, *slit*, *tear*, *rip*, *cut*, *slash*
Means	27 (6.94%)	*push*, *pull*, *force*, *swing*, *elbow*, *thrust*, *zip*, *axe*, *blow*, *draw*, *fold*, *punch*, *jolt*
Manner	17 (4.37%)	*throw*, *slide*, *fling*, *flick*
Transition	3 (0.77%)	*get*
Total	388 (100%)	

In this construction, result verbs are most frequent. However, means verbs are not so frequent in this construction as in the object-figure construction of the OPENING event descriptions. Examples of each type are given in (39)–(41).

(39) Change

a. He **opened** a door into a corridor and I followed him down it. (BNC-HTL)

b. The Doctor **broke** open a water pouch. (BNC-FR0)

(40) Means

a. She **pushed** open the door and went inside. (BNC-JXU)

b. She **pulled** the door open, suddenly terrified of finding a solemn-faced policeman standing there, come to give her some terrible news. (BNC-H97)

(41) Manner

a. Zach gave out a yell, **threw** the bedroom door open and almost flung himself down the stairs. (BNC-CAB)

b. He **swung** open the door and said over his shoulder, 'I don't know what you think you're doing, Martin, distracting the coroner's officer in the execution of his duty. (BNC-A73)

EXTINGUISHING events

Finally, the main verb in the descriptions of the EXTINGUISHING events encode several types of meanings. Table 6.15 indicates the distribution of meanings encoded in the main verb of the subject-figure construction. In this construction, the verb *go* is most frequently used.

Table 6.15: Semantic types of the main verb in the EXTINGUISHING event descriptions (subject-figure)

Semantic type	**Frequency**	**Examples of verb**
Transition	100 (88.50%)	*go*
Cause	12 (10.62%)	*blow*, *burn*, *flicker*, *splutter*, *wink*
Transition + Result	1 (0.88%)	*extinguish*
Total	113 (100%)	

(42) Transition

All the candles **went** out. (BNC-HRA)

(43) Cause

a. It was just before Peter enters and the night lights **blow** out. (BNC-FUN)

b. Night fell, the candle flames **flickered** out and the ghosts of the dead came back to their resting place (or so the old wives say), somewhere sacred, a fitting protection against the assaults of the demons. (BNC-HU0)

(44) Change

Filled with scented citronella oil, a proven insect repellent, the lamps have pre-set wicks with 50 or 100 burning hours and will **extinguish** automatically if accidentally tipped over. (BNC-G2F)

Table 6.16 shows the distribution of meanings encoded in the main verb the object-figure construction. In this construction, the most frequently encoded meaning is means.

Table 6.16: Semantic types of the main verb of the EXTINGUISHING event descriptions (object-figure)

Semantic type	**Frequency**	**Examples of verb**
Means	109 (41.92%)	*blow*, *stub*, *grind*, *blot*, *stab*, *pinch*, *crush*, *stamp*, *nip*, *bubble*, *beat*, *clench*, *wave*, *hack*, *suck*, *damp*, *bang*, *flick*
Transition	87 (33.46%)	*put*
Result	56 (21.54%)	*extinguish*, *snuff*, *clean*
Cause	8 (3.08%)	*burn*
Total	260 (100%)	

(45) Means

a. Rose **blew** out the candle. (BNC-AEB)

b. He **stubbed** out his half-smoked cigarette savagely in the ash tray. (BNC-CN3)

(46) Transition

He discovered burning matches close to his barn and **put** out the fire. (BNC-K1Y)

(47) Change

a. Firemen **extinguished** a rubbish fire in a corridor at Spencerbeck House, Spencerbeck, Middlesbrough. (BNC-K4W)

b. He **snuffed out** the candle and, putting his face over the glass chimney of the lamp, blew out the flame. (BNC-B1X)

(48) Cause

When the meal was long finished and the fire **had burnt** itself out, we retreated to our tents, unaware of how our luck would have changed by the morning. (BNC-KA1)

6.2.3 Occurrence of co-events in a sentence

Now let us look at how many sentences encode co-events and what kinds of co-events are expressed. We will see that co-events are not frequently expressed in a sentence, except for the subject-figure construction of the OPENING events and the object-figure construction of the

EXTINGUISHING events. In addition, we will see that there are various types of means, while manners are restricted mainly to certain types: the speed of a change and sounds associated with a change.

BREAKING events

Table 6.17: Occurrence of co-events in expressions of the BREAKING events

	Not expressed	**Expressed**			**Total**
		Cause	**Manner**	**Means**	
Subject-figure	179 (96.24%)	6 (3.23%)	1 (0.54%)	0 (0%)	186 (100%)
Object-figure	304 (96.82%)	1 (0.32%)	0 (0%)	9 (2.87%)	314 (100%)
Total	483 (96.60%)	7 (1.40%)	1 (0.20%)	9 (1.80%)	500 (100%)

In the BREAKING events, co-events are generally not mentioned in a sentence. Table 6.17 shows the frequency of co-events mentioned in a sentence of these events. The frequency of sentences without co-events mentioned are drastically higher than those with co-events both in the subject-figure construction ($\chi^2 = 159.05$, $df = 1$, $p < .001$) and in the object-figure construction ($\chi^2 = 275.27$, $df = 1$, $p < .001$). The difference between them is significant.

Now let us look at what kind of co-event is encoded in a sentence. In the BREAKING events, there is only one instance expressing a manner, which is the sound associated with a change.

(49) However, Rennison came off, and as Botterill tried to hold him, 'the rope **broke** *with a loud snap*.' (BNC-CCP)

On the other hand, means and causes have variations in their types. Various types of events or actions that can bring about the change to the broken state are observed, as shown in (50) and (51). Thus, there seems to be no restriction on types of means or causes.

(50) Means

a. Main verb

dash, *flog*, *hack*, *pull*

b. Prepositoinal phrase

by means of a heavy hammer, *by laying the slab on a bed sand*

(51) Cause

a. Main verb

blow

b. Others

when he struck with it, *by careless handling and assembly*, *it [=satchel] was opened so forcefully that ...*, *because the cup fell off the table*, *under the weight*, *if you hit that hard with your hammer*

DYING events

Table 6.18 indicates the frequency of co-events mentioned in sentences describing the DYING events. Note that "Manner + Cause" in the table refers to the cases in which a manner and a cause are expressed at the same time in a sentence. The reason for this separate treatment of such cases from the cases with a cause or a means alone lies in my interest in how many sentences encode co-events, not in how many each type of co-event is expressed.

Table 6.18: Occurrence of co-events in expressions of the DYING events

	Not expressed	**Expressed**				**Total**
		Cause	**Manner**	**Means**	**Manner + Cause**	
Subject-figure	251 (76.52%)	65 (19.82%)	8 (2.44%)	2 (0.61%)	2 (0.61%)	328 (100%)
Object-figure	124 (72.09%)	26 (15.12%)	5 (2.91%)	16 (9.30%)	1 (0.58%)	172 (100%)
Total	375 (75.00%)	91 (18.20%)	13 (2.60%)	18 (3.60%)	3 (0.60%)	500 (100%)

In the DYING events, the frequency of sentences without co-events mentioned are higher than those with co-events both in the subject-figure construction ($\chi^2 = 92.305$, $df = 1$, $p < .001$) and in the object-figure construction ($\chi^2 = 33.581$, $df = 1$, $p < .001$). Thus, co-events are generally not mentioned in sentences describing the DYING events.

When co-events are mentioned, causes are the most frequent type of co-events. Causes expressed include a wide range of diseases (e.g., heart attack, cancer, AIDS, sudden infant death syndrome, etc.), starvation, injuries, and accidents (e.g., car crash, car bomb incident, etc.). They are mainly introduced by prepositional phrases as in (52).

(52) a. Four victims **died** *from smoke and flames*. (BNC-CR8)

b. A 13-year-old boy **was killed** *in a road accident* in Newtownards last night [...]. (BNC-HJ3)

c. Temperate species of vascular plants that invade the low Arctic **are** often damaged or **killed** *by frosts in summer*; [...]. (BNC-G1E)

d. Steen **had died** *of a heart attack*. (BNC-GUF)

Causes are introduced by the subject too, as in (53).

(53) a. *Blaze* **kills** four brothers as they sleep (BNC-K5D)

Manners found in the data are listed in (54) and (55). They tend to be speed of changes.

(54) Speed

a. Adverbs

faster, *instantaneously*, *slowly*, *suddenly*

b. Prepositional phrases

in seconds, *in a heartbeat*

(55) Others: *courageously*, *peacefully*, *painfully*

Some examples are given in (56).

(56) a. Merrick **died** *suddenly* in the London Hospital 11 April 1890. (BNC-GSY)

b. Plants, unwatered, **died** *painfully* in the drawing-room. (BNC-HA2)

OPENING events

Table 6.19 indicates frequency of co-events mentioned in expressions of the OPENING events. They exhibit different tendencies between the two types of constructions. In the object-figure construction, co-events are generally not expressed like the BREAKING and DYING events. The difference between expressed cases and not-expressed cases are significant ($\chi^2 = 188.79$, $df = 1$, $p < .001$). In the subject-figure construction, on the other hand, although the frequency of sentences without co-events mentioned are higher than those with co-events mentioned ($\chi^2 = 3.973$, $df = 1$, $p < .05$), a difference between them are smaller than in the object-figure construction of the

Table 6.19: Occurrence of co-events in expressions of the OPENING events

	Not expressed	**Expressed**			**Total**
		Cause	**Manner**	**Means**	
Subject-figure	66 (59.46%)	3 (2.70%)	42 (37.84%)	0 (0%)	111 (100%)
Object-figure	330 (84.83%)	1 (0.26%)	27 (6.94%)	31 (7.97%)	389 (100%)
Total	396 (79.20%)	4 (0.80%)	69 (13.80%)	31 (6.20%)	500 (100%)

OPENING events, or both constructions of the BREAKING and DYING events. This small difference between them results from frequent mention of manners.

Expressions encoding co-events are listed in (57) and (58). We can see a wide variety of means that can bring about the change to the state of being open as in (57).

(57) Means

a. Main verb

axe, *draw*, *elbow*, *fold*, *force*, *jolt*, *pull*, *punch*, *push*, *thrust*

b. Others

switch (noun as a subject), *by slipping his thumb in at the side*

In addition, there are various types of manners used. What is peculiar about the descriptions of the OPENING events is that various manner-of-motion verbs are used to encode manners of movement of a barrier that occupies an entrance.

(58) *flick*, *flung*, *slide*, *swing*, *throw*, *burst*, *clang*, *crash*, *creak*, *creep*, *flash*, *flick*, *flutter*, *fly*, *gape*, *judder*, *pop*, *sag*

Frequent use of these manner-of-motion verbs contributes to the increase of the head-external coding pattern in descriptions of the OPENING events.

Adverbs and prepositional phrases are also used to encode the speed of change and sounds associated with change, as well as other types of manners.

(59) Speed

a. Adverb

slowly, *suddenly*, *hastily*, *immediately*, *gradually*

b. Prepositional phrase

like a thunderclap

(60) Sound

a. Adverb

noisily

b. Prepositional phrase

with a loud clatter, *with a soft click*

(61) Others

a. Adverb

carefully, *gingerly*

b. Prepositional phrase

with her usual clumsiness

The lists above show that manners in change-of-state events tend to be the speed of change and sounds associated with change.

EXTINGUISHING events

Descriptions of the EXTINGUISHING events show different behaviors between the two constructions. Table 6.20 indicates the frequency of co-events mentioned in a sentence of the EXTINGUISHING events. In the subject-figure construction, sentences without co-events are

Table 6.20: Occurrence of co-events in expressions of the EXTINGUISHING events

	Not expressed	**Expressed**			**Total**
		Cause	**Manner**	**Means**	
Subject-figure	102 (90.27%)	8 (7.08%)	3 (2.65%)	0 (0%)	113 (100%)
Object-figure	134 (51.54%)	9 (3.46%)	6 (2.31%)	111 (42.69%)	260 (100%)
Total	236 (63.27%)	17 (4.56%)	9 (2.41%)	111 (29.76%)	373 (100%)

more frequent than those with co-events (χ^2 = 73.283, df = 1, p < .001). However, there are no significant difference between sentences with co-events and ones without co-events (χ^2 = 0.24615, df = 1, p = .6198), due to many occurrences of means.

There are many types of means and causes found in the data. Expressions of them are given in (62) and (63).

(62) Means

a. Main verb

blow, *stub*, *grind*, *blot*, *pinch*, *stab*, *stamp*, *crush*, *nip*, *bubble*, *beat*, *clench*, *wave*, *hack*, *suck*, *damp*, *bang*, *flick*

b. Prepositional phrase

by dropping sand mixed with boron

(63) Cause: *blow*, *burn*

On the other hand, manners are restricted to certain types as illustrated in (64)–(66).

(64) Speed

a. Adverb

quickly, *rapidly*, *immediately*

b. Prepositional phrase

in a short time

(65) Sound: *splutter*

(66) Others: *automatically*

In summary, we have seen that co-events are not frequently expressed in a sentence, except for the subject-figure construction of the OPENING events and the object-figure construction of the EXTINGUISHING events. When means are expressed, they are various types, while manners are restricted to certain types: the speed of a change and sounds associated with a change.

6.2.4 Use of deictic verbs

In the descriptions of four change-of-state events examined, deictic verbs are rarely used. Indeed, there are no instances containing these verbs in the descriptions of the BREAKING

and DYING events. In the expressions of the OPENING events, there is only one instance of *come*, exemplified in (67).

(67) The hatch trap-door into the caisson would not **come** open and fire was coming from all sides, including the north where three ships were moored beyond the caisson on the Penhouet Basin's south quay. (BNC-CCS)

This use of the verb *come* does not express any deictic information.

In the descriptions of the EXTINGUISHING events, deictic verbs are not found in the object-figure construction. In the subject-figure construction, however, the verb *go* is frequently used (100 out of 113, 88.5%). Some examples are given in (68).

(68) a. All the candles **went** out. (BNC-HRA)

b. The match **went** out, and he lit another and began to count. (BNC-H9U)

These uses of *go* do not encode any deictic information. They just express a transition to the state of being extinguished.

6.3 Discussion

6.3.1 General patterns in change-of-state expressions

Table 6.21 summarizes characteristics presented in this previous section. Percentages in the table refer to the ratio in each construction (rounded off to the closest whole number). It is clear from the table that the change-of-state expressions examined in this chapter show the following characteristics.

(69) a. Changes are predominantly encoded in the head. Changes are rarely encoded in head-externals alone.

b. The predominant semantics of the main verb is change. Co-events are rarely expressed by the main verb.

c. Co-events are not frequently mentioned. When expressed, their semantic types are generally cause and means (except for the subject-figure construction of the

Table 6.21: Summary of characteristics in the change-of-state expressions investigated

Event type	Construction type	Coding position of change	Semantic types of the main verb	Occurrence of co-events	Non-deictic use of deictic verbs
BREAKING	Subject-figure	Head (90%)	Transition + Result (97%)	4%	none
	Object-figure	Head (83%)	Transition + Result (98%)	3%	none
DYING	Subject-figure	Head (98%)	Transition + Result (99%)	23%	none
	Object-figure	Head (90%)	Transition + Result (93%)	28%	none
OPENING	Subject-figure	Head (59%) / Head-ext. (41%)	Transition + Result (60%) / Manner (38%)	41%	1%
	Object-figure	Head (83%)	Transition + Result (87%)	15%	none
EXTINGUISHING	Subject-figure	Head (53%) / Head-ext. (47%)	Transition (89%)	10%	89%
	Object-figure	Head-ext. (60%)	Means (42%) / Transition (33%)	48%	none

OPENING events). In addition, types of manners are restricted to certain types.

d. Deictic verbs are rarely used except for the subject-figure construction of the EXTINGUISHING events.

The frequent use of the deictic verb *go* in the EXTINGUISHING events can be attributed to the spontaneous occurrence of the change. The fire can go out without any external causes. This matches the meaning of the verb *go* as a change-of-state verb. Quirk et al. (1985: 1174) points out that *go* tends to refer to changes that happen in spite of human agency. In addition, a resultant state is specified by the particle *out*. This allows the main verb slot to encode meanings other than the result such as causes or means. However, due to the natural occurrence of the change, there are no apparent causes or means involved. This may contribute to the use of the verb *go*.

6.3.2 Comparison with the INTO-path motion expressions

In this section, I will compare our results of change-of-state expressions to those of motion expressions. First, I will summarize the results of the INTO-motion expressions presented in Chapter 5. In the subject-figure construction, the predominant coding position of path is head-external. The most frequent semantic type of the main verb is Manner (37.50%),

followed by Deixis (about 36.39%). Co-events are expressed in about 30% of this construction. In the object-figure construction, the predominant coding position of path is head-external too. The most frequent semantic type of the main verb is Means (37.86%), followed by Path (28.57%). Co-events are mentioned in about 45% of this construction. These characteristics are summarized in Table 6.22.

Table 6.22: Summary of characteristics in the INTO-path motion expressions

Construction type	**Coding position of change**	**Semantic types of the main verb**	**Occurrence of co-events**	**Occurrence of deixis**
Subject-figure	Head-external (95%)	Manner (36%) / Deixis (32%)	32%	36%
Object-figure	Head-external (81%)	Means (38%) / Path (29%)	46%	14%

Now let us look at change-of-state events. First, the descriptions of the BREAKING and DYING events show different patterns from that of the INTO-path motion expressions in terms of all three characteristics in question. In the descriptions of these events, the predominant coding positions of change is the head, and the most frequent semantic type in the main verb is Change. Co-events are rarely expressed in them. Deictic verbs are not used.

In the OPENING events, the object-figure construction exhibits a different pattern from the INTO-path motion expressions. The predominant encoding position in this construction is the head. The main verbs tend to encode Results. Co-events are less expressed than the INTO-path motion expressions. However, the subject-figure construction of the OPENING events shows a pattern closer to the INTO-path motion expressions. Although the most frequent coding position of change is the head, the head-external coding pattern is frequently used. In addition, the semantic type of the main verb is similar to that in the INTO-path expressions in that Manner is often encoded in the main verb, although the most frequent one is Transition + Result. Finally, co-events are as often expressed in a sentence. These suggest that the subject-figure construction of the OPENING events are closer to the INTO-path motion expressions than expressions of other change-of-state events.

In the EXTINGUISHING events, the subject-figure construction exhibits a different pattern from the INTO-path motion expressions. Its preferred coding position of change is both head and head-external, the most frequent semantic type is Transition, and co-events are not encoded as often as the INTO-path motion expressions. However, the object-figure construction of the

EXTINGUISHING events is similar to the INTO-path motion expressions. Its preferred coding position of change is head-externals, the most frequent semantic type of the main verb is Means followed by Transition, and co-events are frequently expressed. Indeed, the ratio of co-events mentioned are higher than that in the INTO-path expressions. This can be attributed to the fact that there is no Deixis in the change-of-state expressions, while the motion expressions involve Deixis, and they compete with co-events for the main verb slot, where Deixis is typically encoded in English.

To sum, the change-of-state events investigated show different patterns from the INTO-path motion expressions in terms of the coding positions of core-schema, semantic types of the main verb, occurrence of co-events, and occurrence of deixis. On the other hand, patterns found in the subject-figure construction of the OPENING events and the object-figure construction of the EXTINGUISHING events are closer to that in the INTO-motion expressions.

6.3.3 Implications for Talmy's typology

The predominance of the head-coding pattern in change-of-state expressions and differences between motion expressions and change-of-state expressions are obviously inconsistent with Talmy's claim that languages show parallel coding patterns in these two types of expressions. Talmy argues for the linguistic parallelism showing the following examples as evidence (Talmy 2000: 240), as discussed in Chapter 2.

(70) a. He choked to death.

b. I burned him to death.

In the examples above, change of state is encoded by head-externals, and the main verb encodes a cause and a means that bring about the change to death. This is parallel to the predominant pattern in motion expressions given in (71).

(71) a. The paper blew off the table.

b. I threw the garbage into the trash can.

However, cases like (70) are not frequently found in our corpus data. In our data, changes of state are predominantly encoded by the head. Thus, Talmy's claim that motion and change-of-state

expressions are linguistically parallel does not hold in many cases.

Our results also contradict Talmy's suggestion that English is more like a mixed language, in which both head-coding pattern and head-external coding pattern are characteristic types (Talmy 2000: 240), even though it shows the satellite-framed pattern as its characteristic type in the motion expressions, as discussed in Section 2.2. However, our corpus investigations into change-of-state expressions clearly demonstrate the predominance of the head-coding pattern in the change-of-state expressions. The head-coding pattern and the head-external coding pattern are not used to the same extent.

6.3.4 Intra-linguistic variations in coding patterns

Another finding of our corpus investigation is that there are intra-linguistic variations in the encoding patterns in the change-of-state expressions. That is, English does not show a single coherent pattern in the change-of-state expressions. This is obvious from Table 6.21. The object-figure construction of the OPENING events and the subject-figure construction of the EXTINGUISHING events show higher frequency of the head-external pattern than the other change-of-state events.

The intra-linguistic variations discussed here raise a question as to what kind of event tends to be described by the head-external pattern. I argue that those described by the head-external pattern are the change-of-state events that co-occur with motion events. First, the OPENING events inherently involve physical movement of some barrier which prevents someone/ something from getting inside through it. When we open the door for example, we move a door board occupying the space of a door frame (see also Iwata 2008). This motion-related characteristic of the OPENING events can lead speakers to use the head-external pattern, which is the predominant pattern in motion expressions. Second, the EXTINGUISHING events can co-occur with movement as well. This is clear from a metaphorical extension of the particle *out*, which is extended from the spatial sense to the sense of disappearance. Tyler and Evans (2004) argue that this metaphorical extension of *out* is motivated by co-occurrence of the movement out of an enclosed space and the state change of disappearance (assuming the viewpoint inside the space (Lindner 1982)). The following example illustrates this point. Suppose that Katie and

her son is in their house.

(72) The moment her son went out, Katie started wondering what he was doing.

(Tyler and Evans 2004: 206)

Here, there is a strong implicature that *her son* is no longer visible to *Katie*. This co-occurrence of movement out of an enclosed space and disappearance motivates *out* to be used in the sense of disappearance. This sense has become conventionally associated with *out*, and as a result it can be used for disappearance without motion such as the EXTINGUISHING events. Here again, the co-occurrence of motion and change of state plays important role in motion expressions to be used in the change-of-state expressions. Thus, the events that show different patterns from other change-of-state events can be accounted for by the co-occurrence of motion and change of state.

One might wonder the subject-figure construction of the OPENING events show the pattern similar to the motion expressions while the object-figure construction does not. The reason for this can be attributed to the fact that we can easily imagine the prototypical means of opening something. When we open the door, for example, we can imagine how to open it, namely, by pushing, pulling, or sliding. Thus, the information of means does not have to be expressed. If non-prototypical means are applied, they may be mentioned, but occurrence of such events does not seem to be frequent.

6.4 Conclusion

In this chapter, I have described characteristics of four change-of-state events using the data from the BNC. I have also demonstrated that these characteristics are clearly different from those in motion expressions. This difference between two types of expressions suggest that the linguistic parallelism that Talmy argues for does not hold in many cases of change-of-state expressions. In addition, I have argued that change-of-state events in which motion can co-occur tend to be encoded in the head-external pattern compared with the other change-of-state events.

Chapter 7

Encoding patterns in the *into*-change expressions

In Chapter 6, I examined the encoding patterns in the descriptions of four change-of-state events, namely, BREAKING, DEATH, EXTINGUISHING and OPENING events. However, these events are only a part of the whole range of change-of-state events. It is necessary to take into account a wide range of change-of-state events to see if the patterns found in Chapter 6 are the general ones in English. In this chapter, I will examine change-of-state expressions that contains the prepositional phrase headed by *into* such as *the water turned* ***into ice***. I will call such expressions "the *into*-change expressions." Since all examples examined has a preposition indicating a change, the issue discussed is how often change is expressed in a head-external element alone, the pattern observed in Subject-figure construction for OPENING events, and Object-figure construction for EXTINGUISHING events.

In this chapter, I will demonstrate that the *into*-change expressions exhibit patterns similar to expressions examined in Chapter 6. Specifically:

(1) a. Changes are rarely encoded in head-externals alone.

b. The predominant semantics of the main verb is change. Co-events are rarely expressed by the main verb.

c. Co-events are not frequently mentioned in the *into*-change expressions.

d. Deictic verbs are not often used in the *into*-change expressions. In addition,

meanings they express are non-deictic.

These are different from motion expressions. From these data, I argue that the linguistic parallelism that Talmy argues for does not hold in change-of-state expressions in general.

This chapter is organized as follows: In Section 7.1, I will describe research questions and the method of the corpus investigation. Section 7.2 will present the results. Based on them, Section 7.3 discusses the linguistic parallelism that Talmy argues for. Then Section 7.4 will conclude this chapter.

7.1 Research questions and method

The *into*-change expressions are suitable to see general patterns of describing change-of-state events in English. They can express a wide variety of change-of-state events, with *into* taking various NPs describing resultant states. This can overcome the limitations of the corpus investigation in Chapter 6, which takes into account only a limited range of change-of-state events. The results can be compared with the INTO-motion expressions discussed in Chapter 5.

I will deal with four issues, which are the same as Chapter 6: (i) coding positions of changes of state, (ii) semantic types of the main verb, (iii) occurrence of co-events, and (iv) use of deictic verbs. Results will be compared with motion expressions. In addition, I will describe types of co-events expressed, and see if differences in manners between motion and change-of-state events are reflected in the corpus data. Especially important is what types of manners are encoded in the *into*-change expressions. As I have discussed in Chapter 2, manners in the change-of-state events are restricted to certain types: speed and sound associated with change (if the change in question is a physical one). If this is correct, manners expressed should also be restricted to certain types. Research questions in this corpus investigation are summarized in (2).

(2) a. What is the general encoding pattern in *into*-change expressions? How often is it expressed in a preposition alone?

Specifically...

i. Where is the predominant coding position of changes of state?

ii. What is the most frequent semantic type of the main verb?

iii. How often and what kinds of co-events are expressed?

iv. How are deictic verbs used?

b. Is the pattern in the *into*-change expressions different from those in the *into*-motion expressions?

The data of the *into*-change expressions were collected in the following way. First, all sentences containing *into* were retrieved from the BNC without using any grammatical tags. Then, I randomly extracted a total of 500 sentences with the schematic pattern in (3). Here *V* stands for the main verb of the sentence.

(3) a. [$_{\text{Clause}}$ [$_{\text{Figure}}$ *NP*] ... *V* ... *into* [$_{\text{Final state}}$ *NP*]]

b. [$_{\text{Clause}}$ [$_{\text{Agent/Cause}}$ *NP*] ... *V* ... [$_{\text{Figure}}$ *NP*] ... *into* [$_{\text{Final state}}$ *NP*]]

Note that these are schematic representations. Other words may come between elements in the sequence. Some instances of these schemas are given in (4).

(4) a. [$_{\text{Figure}}$ *The ice*] *slowly turned into* [$_{\text{Final state}}$ *water*].

b. [$_{\text{Cause}}$ *The heat*] *quickly turned* [$_{\text{Figure}}$ *the ice*] *into* [$_{\text{Final state}}$ *water*].

The Final states include various states such as follows:

(5) Physical properties (color, brightness, size, shape, etc.)

a. *into a ball*, *into a petal shape*, *into a smile*, *into an ellipse*, etc.

b. Cut the butter **into small cubes**. (BNC-EFU)

c. I have, on occasion, bought sticks of pastel which have crumbled **into pieces** when I removed the paper wrapper—this has NEVER happened to me with Schmincke pastels. (BNC-CL0)

(6) Human inner properties

a. *into a rage*, *into a coma*, *into a depression*, etc.

b. He was a gentle man by nature, but he would suddenly fall **into a depression** and lose all confidence in himself. (BNC-FS0)

c. When Zbo interrupted he flew **into a rage** at the violation. (BNC-ANF)

d. Michael was already slipping **into a coma** after three hours in the cold seas. (BNC-CH6)

e. It was her last thought before she drifted **into a deep, satisfying sleep**. (BNC-HA6)

(7) Existence

a. *into being*, *into existence*, etc.

b. That road came into being after the end of the Vietnam war in 1975. (BNC-AA1)

(8) Grouping

a. *into groups*, *into categories*, etc.

b. For the sake of convenience, these are divided **into two groups**: benefits derived directly from the workplace and benefits derived indirectly as a result of workplace participation. (BNC-FR4)

(9) Situation

a. *into play*, *into effect*, *into force*, *into operation*, *into practice*, *into trouble*, *into a scandal*, *into problem*, *into conflict*, etc.

b. Companies may run into cash-flow problems. (BNC-G3H)

Each sentence was analyzed with respect to (i) encoding positions of change of state, (ii) semantic types of the main verb, (iii) occurrence of co-event expressions in a sentence, and (iv) occurrence of deitic verbs in a sentence. There are two encoding patterns according to where a change is expressed: (i) head + head-external and (ii) head-external only. Note that there is no possibility of the head only coding pattern in the textitinto-change expressions, since by definition they contain a prepositional phrase encoding a change. Thus, if the main verb encodes a change, a sentence should form the head + head-external coding pattern.

(10) Head + head-external coding

a. John **cut** the paper **into two pieces**.

b. John **fell into asleep**.

(11) head-external coding

He flew **into a rage**.

In (10a), a change in the shape of the paper is encoded in both the main verb *cut* and the prepositional phrase*into two pieces*. In (10a), the verb *fall* encodes transition to a resultant state, and *into asleep* encodes transition again and a specific resultant state. In (11), on the other hand, the main verb *fly* does not encode transition nor a resultant state, but the manner of change.

The verbs in the head position were classified into the following types, and occurrences of each type were counted. The verbs listed in (12) are called "change verbs," which correspond to path verbs (e.g., *fall*) or path + ground verbs (e.g., *cage*) in motion expressions, and those listed in (13) are called "non-change verbs."

(12) a. Transition verbs: verbs encoding transition to a nonspecific state

e.g., *bring*, *come*, *go*, *fall*, *take*, *turn*, etc.

b. Transition + Result verbs: verbs encoding verb-specific transition + resultant state

e.g., *break*, *translate*, *split*, etc.

(13) a. Manner verbs: verbs encoding the manner of change (e.g., speed)

e.g., *run* as in *the company ran into difficulty*

b. Means verbs: verbs encoding means that causes a change

e.g., *hammer* as in *I hammered the vase into pieces*

c. Cause verbs: verbs encoding cause that brings about a change

e.g., *wash* as in *the sand was washed into patterns*

d. Others: verbs that do not fit into the categories above (fact-of-change verbs included)

e.g., *change*, *convert*

The transition verbs encode transition to a certain state which is specified by a head-external element.

(14) *go mad*, *fall apart*, *turn red*, *come true*

The adjectives in the examples above denote the final state of the figure, not the initial state. Thus, it is reasonable to treat the verbs as encoding the transition "TO." They correspond to the path

verbs *reach*, and *arrive*, which are similarly encode TO. The result verbs encode a transition and a certain resultant state. The fact-of-change verbs such as *change* is not biased to the transition to a result state or from the initial state, as shown in (15).

(15) a. *The traffic light changed red.

b. The traffic light changed (from green) to red.

Co-events can be expressed by adverbs, prepositional phrases, verb phrases (coordinate), noun phrases, and other clauses, as well as the main verb. Examples are given in (16).

(16) a. The old castle **quickly** fell into ruin. (Adverb, manner)

b. The ice turned into water **by the heat**. (PP, cause)

c. I **heard a bad news** and fell into depression. (Coordinated VP, cause)

d. **The extreme heat** melted iron. (NP, cause)

e. **Because he fell off the roof**, he went into a coma. (Clause, cause)

f. He **ran** into difficulty. (Main verb, manner)

I counted the frequency of sentences containing such co-event expressions.

In addition, I will compare our results of the *into*-change expressions to motion expressions. In the comparison, I will use a part of the data of the INTO-path motion expressions presented in Chapter 5. The data of INTO-path motion expressions contain not only cases where the INTO-path is encoded by *into* but also by path verbs and particles. In order to make a direct comparison between motion with *into* and change with *into*, I extracted data with *into*, which consists of 327 sentences. For convenience, I will call such expressions the "*into*-motion expressions." Results of the *into*-motion expressions will be presented in each section below.

7.2 Results

7.2.1 Coding positions of changes of state

Table 7.1 shows the frequency of each coding pattern for the *into*-change expressions. The differences between the head + head-external codingand the head-external codingis significant

both in the subject-figure constructions (χ^2 = 164.72, df = 1, p < .001) and in the object-figure construction (χ^2 = 218.5, df = 1, p < .01). Thus, changes of state are predominantly encoded in both the head and head-externals in a sentence. Some examples of the two patterns are given in (17) and (18). Verb phrases containing *into* in question are boldfaced.

Table 7.1: Coding positions of changes of state in the *into*-change expressions

	Head + head-external	**Head-external only**	**Total**
Subject-figure	218 (91.60%)	20 (8.40%)	238 (100%)
Object-figure	283 (90.84%)	24 (9.16%)	262 (100%)
Total	456 (91.20%)	44 (8.80%)	500 (100%)

(17) Head + head-external

a. He **went into a coma** and died without regaining consciousness. (BNC-K1N)

b. **Cut the ribbon into required lengths**. (BNC-ED3)

(18) Head-external only

a. **The matter was thrown into further confusion**, however, when leave to appeal was granted to the minority shareholders. (BNC-K5D)

b. When Zbo interrupted **he flew into a rage at the violation**. (BNC-ANF)

In (18a), the main verb *go* encodes transition to some resultant state, and *into a coma* specifies a resultant state of being in a coma as well as transition. In (17b), the main verb *cut* encodes transition + a specific resultant state that the ribbon is separated into several parts and the prepositional phrase *into required lengths* specifies the shape of the separated parts as well as the transition. In both cases, the main verb and a head-external element encode transition, and thus they are classified as the H + H-ext. coding pattern. On the other hand, the main verbs in (18) do not encode transition nor specific resultant states. Rather, they encode a manner, that is, suddenness or rapidness of the change.

Now let us compare these results with those of the *into*-motion expression. Table 7.2 indicates the frequency of each coding position in the *into*-motion expressions.

Fisher's exact tests revealed that differences between the *into*-motion expressions and the *into*-change expressions are significant both in the subject-figure construction (p < .001) and

Table 7.2: Coding positions of path in the *into*-motion expressions

	Head + head-external	**Head-external only**	**Total**
Subject-figure	50 (21.93%)	178 (78.07%)	228 (100%)
Object-figure	23 (23.23%)	76 (76.77%)	99 (100%)
Total	73 (90.40%)	254 (9.60%)	327 (100%)

in the object-figure construction ($p < .001$). Thus, these two types of expressions show different patterns with respect to encoding positions of core-schema (i.e., path of motion and transition of state). The motion expressions tend to take the head-external coding pattern, while the change-of-state expressions prefer the head + head-external coding pattern.

7.2.2 Semantic types of the main verb

Let us now look at overall results of semantic types of the main verb. Table 7.3 indicates the frequency verbs of each semantic type in the main verb position in the subject-figure and in the object-figure constructions.

Table 7.3: Semantic types of the main verb in the *into*-change expressions

	Change verb		**Non-change verb**				**Total**
	Transition + Result	**Transition**	**Manner**	**Means**	**Cause**	**Others**	
Sbj.	78 (32.77%)	137 (57.56%)	19 (7.98%)	0 (0%)	0 (0%)	4 (1.68%)	240 (100%)
Obj.	129 (49.24%)	88 (33.59%)	7 (2.67%)	15 (5.73%)	1 (0.38%)	22 (8.40%)	254 (100%)
Total	207 (41.40%)	225 (45.00%)	26 (5.20%)	15 (3.00%)	1 (0.20%)	26 (5.20%)	500 (100%)

It clearly shows that change verbs are used more frequently than non-change verbs. Chi-square tests reveal that the difference between them (i.e., a total of result and transition verbs vs. a total of fact-of-change, manner, means, cause, and other verbs) are significant both in the subject-figure construction ($\chi^2 = 154.89$, $df = 1$, $p < .01$) and in the object-figure construction. ($\chi^2 = 112.92$, $df = 1$, $p < .01$). Thus, the main verb in the *into*-change expressions tend to encode change, and not to encode other elements like manner and means.

Table 7.4 shows the frequency of the main verbs in the subject-figure construction. In this

Table 7.4: Frequencies of the main verbs in the *into*-change expressions (subject-figure construction, 244 hits)

Transition		**Transition + Result**		**Manner**		**Others**	
Verb	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**
come	33	*develop*	8	*run*	5	*change*	3
fall	24	*grow*	6	*slip*	3	*follow*	1
turn	21	*translate*	4	*fly*	2		
go	19	*break*	3	*spring*	2		
get	10	*split*	3	*slide*	2		
enter	7	*deteriorate*	2	*storm*	1		
lapse	7	*mature*	2	*stumble*	1		
⋮		⋮		⋮			
Total	137 (57.56%)		78 (32.77%)		19 (7.98%)		4 (1.88%)

construction, the verb *come* is the most frequently used, followed by *fall*, *turn*, *go*, and *get*. The use of *come* is almost restricted to the following patterns given in (19).

(19) *come into being*, *come into conflict (with ...)*, *come into effect*, *come into existence*, *come into force*, *come into use*, *come into operation*, *come into play*

Some examples are given in (20).

(20) a. Since the Children Act 1989 **came into force** in October 1991 terms such as custody and access are no longer appropriate. (BNC-HAJ)

b. It will apply only to cars registered after the law **comes into effect**. (BNC-J39)

Result verbs are also frequently used in the *into*-change expressions. Result verbs encode transition + a specific resultant state, and *into*-phrases add more specific information of the resultant state the verb encodes.

(21) a. Their patriotic zeal **developed into demonstrations** originating at Beida in September 1985.

b. Since that time, BRAC has **grown into a country-wide development organisation**, remaining independent of the government, and striving to improve the quality of life for the people of Bangladesh.

c. Sizgorić, even though he wrote in Latin, was aware of the rich vernacular folk poetry

of the Slav peoples and himself **translated a volume of folk sayings and proverbs into Latin**.

By contrast, manner verbs are rarely used as the main verb. The verbs used are given in (22).

(22) *throw*, *run*, *slip*, *spring*, *fly*, *slide*, *storm*, *bounce*, *stumble*, *jerk*, *drift*, *boom*

Such verbs describe manner of change like the suddenness or quickness of change (e.g., *run*, *fly*, *spring*, *storm*) gradualness (e.g., *slide*, *slip*), stealthiness (e.g., *slide*, *slip*), and sound (e.g., *boom*). (23) shows examples of each verb.

(23) a. The big in line six cylinder engine **boomed into life**, then settled into a barely audible whisper. (BNC-B3J)

b. HARMONY Leisure, the pubs and hotels group where former GrandMet chairman Sir Stanley Grinstead is to join the board, has **bounced back into the black**. (BNC-AA3)

c. It was her last thought before she **drifted into a deep, satisfying sleep**. (BNC-HA6)

d. When Zbo interrupted he **flew into a rage** at the violation. (BNC-ANF)

e. Companies may **run into cash-flow problems**. (BNC-G3H)

f. He **slid inexorably into despair** over the Church's modernisings and his lack of a knighthood, and feared that he was losing his writing power. (BNC-CAH)

g. He flicked a last switch, and Jason Dommer **slid unknowingly from life into death**. (BNC-G1M)

h. Michael was already **slipping into a coma** after three hours in the cold seas. (BNC-CH6)

i. They are economical, since once bought or raised from seed, plants will **spring into life and flower** year after year. (BNC-ACX)

j. National Express, which **stormed back into the black** in line with its own forecasts at the time of flotation in December, added a penny to 192p. (BNC-HJ3)

k. He had naïvely **stumbled into the middle of a very complicated and dangerous situation**. (BNC-ASN)

Finally, examples of "others" are given below.

(24) a. If one of your friends lost this amount of weight from one Christmas to the next, changed from a fat person into a slim and healthy person, you would certainly notice! (BNC-AD0)

b. At heart, they're no different from the other public school type the rugger-bugger sort, the ones that follow daddy into the services. (BNC-HTR)

Table 7.5 shows the frequency of the verbs of each semantic type used in the main verb position in this construction.

Table 7.5: Frequencies of the main verbs in the *into*-change expressions (object-figure construction)

Transition+Result		**Transition**		**Means**		**Manner**		**Cause**		**Others**	
Verb	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**	**Verb**	**Freq.**
divide	28	*turn*	41	*roll*	2	*throw*	6	*wash*	1	*convert*	17
transform	17	*put*	15	*shake*	1	*jerk*	1			*change*	4
translate	11	*bring*	14	*knock*	1					*follow*	1
cut	9	*make*	7	*batten*	1						
split	8	*send*	2	*work*	1						
break	4	*lead*	2	*drag*	1						
integrate	2	*get*	2	*help*	1						
build	2	*render*	1	*draw*	1						
combine	1	*enter*	1	*push*	1						
parse	1	*plunge*	1	*drink*	1						
inflate	1	*move*	1	*force*	1						
curl	1			*drive*	1						
remake	1			*hammer*	1						
bundle	1			*gorge*	1						
compress	1										
degrade	1										
mould	1										
Total	129 (49.24%)		88 (33.59%)		15 (5.73%)		7 (2.67%)		1 (0.38%)		22 (8.40%)

As the table clearly shows, the result verbs are most frequently used in this construction. (25) gives examples of sentences containing top 5 result verbs.

(25) a. 2 **Divide** dough **into 18 balls** and, on a floured surface, roll each one into a thin pancake to fit a 23cm/9in frying pan. (BNC-C9F)

b. It **transforms** a state of wealth **into a state of penury**. (BNC-EW6)

c. Sizgorić, [...] himself **translated** a volume of folk sayings and proverbs **into Latin**. (BNC-FSU)

d. Newspapers were also **cut into squares** and used for toilet paper. (BNC-D90)

e. Oriental rugs can also be **split into four broad categories** which relate to their overall characteristics and appearance, rather than to where or by whom they were made. (BNC-EX0)

To sum up, the main verb tends to be change verbs (i.e., transition or result verbs) in both constructions. Non-change verbs encoding manner, means, or cause are not frequently used as the main verb. When co-events are expressed, they are various means and causes, while manners are restricted to certain types such as speed (quickness or gradualness), stealthiness, and sound.

Now let us compare the results presented here to those of the *into*-motion expressions. Semantic types of the main verb in the *into*-motion expressions are presented in Table 7.6.

Table 7.6: Semantic types of the main verb in the *into*-motion expressions

	Path verbs	**Non-path verbs**				**Total**
		Manner	**Deixis**	**Means**	**Others**	
Subject-figure	50 (21.83%)	101 (44.10%)	64 (27.95%)	0 (0%)	14 (6.11%)	229 (100%)
Object-figure	23 (23.47%)	10 (10.20%)	14 (14.29%)	45 (45.92%)	6 (6.12%)	98 (100%)
Total	73 (22.32%)	111 (33.94%)	78 (23.85%)	45 (13.76%)	20 (6.12%)	327 (100%)

The *into*-motion expressions, the main verbs more frequently encode non-path meanings than path. In the *into*-change expressions, on the other hand, the main verb mostly encode change, which corresponds to path in the *into*-motion expressions (see Table 7.3). The differences are significant both in the subject-figure construction (Fisher's exact test, $p < .001$) and the object-figure construction (Fisher's exact test, $p < .001$).

7.2.3 Occurrence of co-events

Table 7.7 shows how often co-events are specified in the *into*-change expressions. It indicates that co-events are generally not expressed in the *into*-change expressions. The differences between non-expressed cases and expressed cases (i.e., a total of cause, manner, and means) are significant

Table 7.7: Occurrence of co-events in the *into*-change expressions

	Not expressed	**Expressed**			**Total**
		Cause	**Manner**	**Means**	
Subject-figure	207 (84.15%)	6 (2.24%)	33 (13.41%)	0 (0%)	246 (100%)
Object-figure	220 (86.61%)	5 (1.97%)	13 (5.12%)	16 (6.30%)	254 (100%)
Total	427 (85.40%)	11 (2.20%)	46 (9.20%)	16 (3.20%)	500 (100%)

both in the subject-figure construction (χ^2 = 114.73, df = 1, p < .001) and in the object-figure constructions (χ^2 = 136.2, df = 1, p < .001).

Let us look at what types of co-events are used. (26) gives manner expressions found in all data.

(26) a. Main verb

boom (into life), *bounce (back into the black)*, *drift*, *fly*, *jerk*, *run*, *slide*, *slip*, *spring*, *storm*, *stumble (into situation)*

b. Adverbs

quickly, *straight*, *suddenly*, *gradually*, *by degrees*, *inexorably*, *brilliantly*, *shortly*

Some examples are given in (27). In examples below, verb phrases describing a change with *into* are boldfaced and co-event expressions are italicized. In (27a), the main verb *run* expresses suddenness or unexpectedness of the change of a situation to the cash-flow problems. In (27b), the adverb *suddenly* describes suddenness of the change of emotion.

(27) a. Companies may ***run*** **into cash-flow problems**. (BNC-G3H)

b. He was a gentle man by nature, but he would *suddenly* **fall into a depression** and lose all confidence in himself. (BNC-FS0)

Now let us turn to causes. They are expressed by other clauses, prepositional phrases, and the main verb. (28) gives examples. In (28a), the cause of the change of organic wastes to humus is expressed by the antecedent of the relative pronoun *the natural cycle*. In (28b), the cause of the change in a planarian's shape is expressed by the clause before *and*.

(28) a. *The natural cycle* by which organic wastes are returned to the soil and **broken down into humus** presupposes a balance between soil, plants, and animals. (BNC-ARS)

b. *Touch a planarian firmly with a glass rod* and it will **curl itself into a ball**—its normal response to a threatening situation. (BNC-G14)

Finally, means are expressed by the main verb. All the verbs encoding means are given in (29).

(29) *drag*, *drawn*, *drink*, *drive*, *force*, *hammer*, *help*, *knock*, *push*, *shake*, *work*

Now let us compare these with the *into*-motion expressions. Table 7.8 shows how often co-events are specified within a sentence.

Table 7.8: Occurrence of co-events in the *into*-motion expressions

	Not expressed	**Expressed**			**Total**
		Cause	**Manner**	**Means**	
Subject-figure	128 (55.90%)	0 (0%)	101 (44.10%)	0 (0%)	229 (100%)
Object-figure	40 (40.82%)	0 (0%)	13 (13.27%)	45 (45.92%)	98 (100%)
Total	168 (51.38%)	0 (0%)	114 (34.86%)	45 (13.76%)	327 (100%)

These results are clearly different from our results of the *into*-change expressions. Manners are often specified in a sentence of the subject-figure construction (44.10%). In the object-figure construction, means are often specified (45.92%) and manners are sometimes expressed (13.27%). On the other hand, manners are not often specified in the subject-figure construction of the *into*-change expressions (13.41%). Means and manners are not often expressed in the object-figure construction.

7.2.4 Use of deictic verbs

Now let us look at how deictic verbs are used. Table 7.9 shows how often deictic verbs are used in a sentence. In the subject-figure construction, there are 52 instances of deictic verbs (*come* 33,

Table 7.9: Use of deictic verbs in the *into*-change expressions

	Used	**Not used**	**Total**
Subject-figure	52 (21.85%)	186 (78.15%)	238 (100%)
Object-figure	14 (5.34%)	248 (94.66%)	262 (100%)
Total	66 (13.20%)	434 (86.80%)	500 (100%)

go 19). They account for 21.85% of the subject-figure construction. The verb *come* is used in the following patterns we have seen in (19), which are repeated as (30).

(30) *come into being*, *come into conflict (with ...)*, *come into effect*, *come into existence*, *come into force*, *come into use*, *come into operation*, *come into play*

On the other hand, the verb *go* expresses a wide range of changes taking a variety of prepositional objects. Some examples of the prepositional objects are given in (31).

(31) *go into receivership*, *go into 'play it again' mode*, *go into service*, *go into recess*, *go into pure shoot-em-up mode*, *go into freefall*, *go into coalition*, *go into administration*, *go into stupor*, *go into a kind of a trance*, *go into decline*, *go into liquidation*, *go into a coma*, *go into convulsions*

In the object-figure construction, there are 19 instances of deictic verbs (5.34%), all of which are *bring*.

(32) *bring ... into the open*, *disarray*, *play*, *focus*, *line*, *disrepute*, *contact*, *conflict*, *prominence*

Now let us compare our results with motion expressions. Table 7.10 shows the frequency of deictic verbs in the *into*-motion expressions.

Table 7.10: Use of deictic verbs in the *into*-motion expressions

	Used	**Not used**	**Total**
Subject-figure	64 (27.95%)	165 (72.05%)	229 (100%)
Object-figure	10 (10.20%)	88 (89.80%)	98 (100%)
Total	74 (22.63%)	253 (77.37%)	327 (100%)

Fisher's exact tests reveal no significant differences in occurrences of the deictic verbs between the *into*-motion expressions and the *into*-change expressions in both constructions (subject-figure, $p = .13$; object-figure, $p = .15$).

7.3 Discussion

This corpus investigation aims to see if the predominant encoding patterns discussed in Chapter 6 is observed in the *into*-change expressions. The results show that the encoding

patterns found in them are similar to change-of-state expressions examined in Chapter 6. In the *into*-change expressions, changes are predominantly encoded twice in a sentence: both in the head and in a head-external element. The head-external coding pattern is rarely observed in the corpus data. These results suggest that the patterns found with OPENING and EXTINGUISHING events, in which change is very often expressed in head-externals alone, are exceptional. Since the head + head-external codingis predominant, the preferred semantic type of the main verb is change verbs (i.e., result and transition verbs) in both constructions. Finally, co-events are generally not expressed in the *into*-change expressions (about 15% of use) in both constructions.

The general encoding pattern presented above are clearly different from those in motion expressions. Table 7.11 summarizes the results of the *into*-change expressions and the *into*-motion expressions.

Table 7.11: Results of the *into*-change expressions and comparison to the *into*-motion expressions

Expression type	**Coding position of change**	**Meaning types of the main verb**	**Occurrence of co-events**	**Use of deictic verbs**
Into-change (Sbj)	Head with h-ext. (92%)	Change (90%)	16%	22% (Non-deictic)
(Obj)	Head with h-ext. (91%)	Change (83%)	13%	5% (Non-deictic)
Into-motion (Sbj)	Head-external (78%)	Non-path (78%)	45%	28% (Deictic)
(Obj)	Head-external (77%)	Non-path (77%)	58%	10% (Deictic)

As the tables show, the *into*-motion expressions predominantly exhibit the head-external coding pattern, while the head + head-external coding pattern is predominant in the *into*-change expressions. The main verbs in the *into*-motion expressions tend to encode meanings other than path such as manner and deixis in the subject-figure construction, and means and path in the object-figure construction. On the other hand, the main verbs in the *into*-change expressions are generally change verbs, which correspond to path verbs in the *into*-motion expressions. Co-events are often expressed in the *into*-motion expressions, while they are not in the *into*-change expressions. Finally, although there are no differences in the frequency of deictic verbs, they do not encode any deictic information in the *into*-change expressions.

Of particular importance in the discussion of linguistic parallelism between motion and change-of-state expressions is the limited use of the head-external coding pattern exemplified

in (33).

(33) He choked to death.

In the example above, change is expressed by a satellite *to death*. Such examples are taken as evidence for linguistic parallelism between these expressions in Talmy's typology (Talmy 2000: 240). He argues that the head-external coding pattern, which is the predominant pattern in motion expressions, is colloquially used in change-of-state expressions in English. However, our corpus investigation clearly demonstrates that such expressions are in fact rarely used in English. This limited use of such expressions casts doubt on the linguistic parallelism Talmy argues for.

One might wonder why the results of our corpus investigations are drastically different from those in Ono (2004) and Saito (2014), which are presented in Chapter 4. Ono's results show that change-of-state expressions tend to be the satellite-framed pattern, while Saito demonstrates that the satellite-framed and verb-framed pattern can be observed to almost the same extent in change-of-state expressions (see Section 4.2.1). One possible reason for this lies in their classification of transition verbs such as *become* or *turn*. These two studies have classified expressions with such verbs (e.g., *the traffic light turned red*) as the satellite-framed pattern. This means these verbs are not treated as encoding core-schema. However, I have pointed out that these verbs do encode the schematic transition "TO" because adjectives following the verb are construed as final states. Thus, in our corpus investigations, such verbs are classified as transition verbs.

Indeed, the results of our corpus investigation of the *into*-change expressions show different results if transition verbs are treated as not encoding core-schema. Table 7.12 shows the frequency of each pattern where cases like *the traffic light turned red* are classified as the satellite-framed pattern. It shows that a different treatment of the transition verbs raises the ratio of the head-external pattern (cf. Table 7.1). Thus, the different classification of these verbs accounts for the difference of the results between this study and the previous studies.

Table 7.12: Coding positions of changes of state in the *into*-change expressions (transition verbs are treated not encoding the core-schema)

	Head + head-external	**Head-external only**	**Total**
Subject-figure	78 (32.77%)	160 (67.23%)	238 (100%)
Object-figure	129 (49.24%)	133 (50.76%)	262 (100%)
Total	207 (41.40%)	293 (58.60%)	500 (100%)

7.4 Conclusion

In this chapter, I examined the *into*-change expressions in order to see if the predominant encoding pattern in the descriptions of some change-of-state events presented in Chapter 6 can be also observed in expressions of various change-of-state events. The results of the corpus investigation have shown that the *into*-change expressions exhibit the following characteristics:

(34) a. Changes are predominantly encoded both in the head and head-external in the *into*-change expressions at the same time. Changes are rarely encoded in head-externals alone, suggesting that patterns found with the OPENING and EXTINGUISHING events are exceptional.

b. The predominant semantics of the main verb is change. Co-events are rarely expressed by the main verb.

c. Co-events are not frequently mentioned in the *into*-change expressions.

d. Deictic verbs are not often used in the *into*-change expressions. In addition, meanings they express are non-deictic change.

I have also demonstrated that the pattern observed in the *into*-change expressions are different from motion expressions. The differences in encoding patterns between these two types of expressions are inconsistent with Talmy's claim that these expressions are linguistically parallel with respect to encoding positions of core-schemas.

Chapter 8

General discussion

The aim of this thesis is to see how the conceptual parallelism between motion and change of state are reflected in linguistic encoding of motion and change-of-state events. Based on the findings of our corpus investigations, I will argue the following:

(1) a. The linguistic parallelism holds only in some cases in linguistic encoding of motion and change-of-state events.

b. Linguistic non-parallels between motion and change-of-state expressions are accounted for by differences in domain-specific properties of the two types of events.

c. The partial linguistic parallelism is motivated by (i) the common schematic structure (i.e., source-path-goal) shared by motion and change-of-state events, and (ii) co-occurrence of motion and change of state.

The organization of this chapter is as follows. In Section 8.1, I will discuss (non-)pervasiveness of the linguistic parallelism. Section 8.2 discusses differences in domain-specific properties that preclude the full linguistic parallelism. In Section 8.3, I will present some motivations for the partial linguistic parallelism between motion and change-of-state expressions. In Section 8.4, I will discuss theoretical implications of this thesis. Finally, Section 8.5 concludes this chapter.

8.1 How pervasive is the linguistic parallelism in encoding motion and change-of-state events?

Our findings from the corpus investigations suggest that the linguistic parallelism in encoding motion and change-of-state events holds only in limited cases in English. In other words, motion and change-of-state expressions generally show different encoding patterns. We have seen that change-of-state expressions in English exhibit the following characteristics:

(2) a. Encoding position of changes of state tends to be the head, and it is expressed in head-externals alone only in certain types of events.

b. The most frequent meaning type of the main verb is change.

c. Co-events are generally not expressed.

d. Deictic verbs are frequently used only in some events, and their meanings are not deictic.

These are evident from our corpus investigations in Chapters 6 and 7. In Chapter 6, I have demonstrated that the four change-of-state events examined, namely, BREAKING and DYING events tend to be expressed by the head-coding pattern, and EXTINGUISHING and OPENING events tend to be expressed by the head-external coding pattern. Since the predominant encoding position of change is the head, the most frequent meaning type of the main verb is change. Verbs encoding co-events (i.e., manner, means, and cause) are rarely used as the main verb. Not only are the co-events not expressed in the main verb but they are not even expressed anywhere in a sentence.

In addition, these tendencies have also been observed in the *into*-change expressions examined in Chapter 7, which can express a wide range of change-of-state events. In these expressions, changes are rarely expressed in the head-externals alone (i.e., *into*-phrases). The predominant of the main verb is change. Co-events are generally not expressed. Deictic verbs are often used, but they do not express any deictic information.

These results make a sharp contrast to those of motion expressions. As we have seen in Chapter 5, motion expressions exhibit the following characteristics:

(3) a. Paths of motion are predominantly encoded in head-externals alone.

b. Semantics of the main verb tends to be co-events or deixis.

c. Co-events are often expressed in a sentence.

d. Deixis is also often expressed.

The differences of encoding patterns between motion and change-of-state expressions suggest that the linguistic parallelism between motion and change-of-state expressions are not pervasive in encoding of motion and change-of-state events. It holds only in some cases of the two types of expressions.

8.2 Influences of domain-specific properties

In the previous section, we have seen that there are differences in encoding patterns between motion expressions and change-of-state expressions. In this section, I argue that differences in the event structures of motion and change-of-state events (i.e., domain-specific properties of the two events) hinder the full linguistic parallelism. Specifically, I propose that non-parallels stem from the differences listed in (4).

(4) a. Differences in Path and Ground

b. Differences in Manner

c. Differences in Means and Cause

d. Differences in Deixis

The first difference concerns different nature in Path and Ground. I have pointed out in Chapter 2 that a trajectory of a Figure is specified by the combination of Path and Ground. Since Path inventory is relatively small, Paths can be expressed by head-external elements, which are often closed-class items. On the other hand, the nature of change-of-state events is mostly determined by Ground. This makes it difficult to discriminate full varieties of Grounds by the closed-class elements available for describing motion events such as particles or affixes, and this results in less use of the head-external coding pattern. The closed-class items are by definition limited to a restricted numbers of items. In addition, what closed-class items describe is

schematic or topological (Talmy 2000). This means that closed-class items cannot fully describe rich information of each event. In order to differentiate different types of change-of-state events, it is necessary to use open-class items such as verbs, which encode richer information of events compared with the closed-class items. Indeed, most if not all languages have a large set of change-of-state verbs. This suggests open-class items such as verbs are better suited to express change-of-state events.

One might argue that prepositional phrases like *to pieces* can express a wide range change-of-state events because object nouns are open-class items. However, Grounds in change-of-state events are often properties, as discussed in Chapter 2, and they are prototypically expressed by adjectives, not nouns.

The second difference lies in manner. I have pointed out in Chapter 2 that there are less variety of manners in change-of-state events compared with motion events. In motion events, there are various manner types with respect to (i) agentive action of the Figure (e.g., walking, running), (ii) non-agentive action of the Figure caused by some external cause (e.g., floating, slipping, swimming), (iii) vehicle used in motion (e.g., bicycle, bus), and (iv) sounds caused by motion (e.g., roaring, rumbling). In change-of-state events, on the other hand, manners tend to be restricted to certain types such as speed of change and sounds associated with change. In fact, this tendency can be seen in our corpus investigations. (5) and (6) list manner expressions that are found in our corpus data examined in Chapters 6 and 7 respectively.

(5) a. Speed: *faster*, *instantaneously*, *slowly*, *suddenly*, *hastily*, *gradually*, *immediately*, *quickly*, *rapidly*, *in seconds*, *in a short time*, *in a heartbeat*, *like a thunderclap*

b. Sound: *with a loud snap*,

c. Others: *carefully*, *gingerly*, *with her usual clumsiness*

(6) a. Speed: *quickly*, *straight (into sleep)*, *suddenly*, *gradually*, *by degrees*, *shortly*, *jerk*, *run*, *fly*, *spring*, *storm*,

b. Others: *inexorably*, *brilliantly*, *entirely*, *drift (into sleep)*, *bounce (back into the black)*, *boom (into life)*, *slide*, *stumble (into situation)*

These types of manners are not always mentioned. Speakers do not mention speed if they are

unmarked one. Sounds are also not always mentioned. Some change-of-state events do not involve physical change and thus it is impossible to make a sound. These factors lead to less mention of manners, and as a result, manner is not expressed in the main verb slot, making it easier to use change-of-state verbs as the main verb. This results in the increase in the use of the head-coding pattern.

The third difference pertains to means and cause. Apparently, there are no differences in means and cause between motion and change-of-state events because they can be brought about by various means and causes. However, our corpus investigations have demonstrated that they are rarely mentioned in change-of-state expressions. This raises a question as to why they are not so often expressed as in motion expressions.

A possible reason for this is that speakers do not pay attention to means or causes, because a resultant state seems to be more salient than means or causes. In change-of-state events, a resultant state usually holds for some duration after a change is brought about until another change occurs. On the other hand, an action that brought about the change does not have such duration. For example, when one kicks the door open, the door's resultant state of being open holds after kicking while an action of kicking does not last long. This difference in duration may result in difference in salience between change and means/causes, and speakers may not pay attention to means/causes, which have relatively short duration.

Another possibility is that information about means or causes can be inferable from our encyclopedic knowledge. For example, we can easily imagine prototypical means to open the door: pulling, pushing, or sliding. Thus, it is not necessary to mention means/causes for prototype cases. They can be mentioned in non-prototype cases like kicking open the door. However, such cases may not frequently occur in our experience.

In addition, there is a possibility that means/causes are expressed by a preceding/subsequent sentence, as in (7).

(7) a. John kicked the door. And it opened.

b. The door opened. This is because John kicked it.

However, such cases cannot be seen in our data, because I collected single sentences from the BNC. This is a limitation of our corpus study.

Finally, differences in deixis affect use of deictic verbs. As mentioned in Chapter 2, change-of-state events are not spatially deictic process. This results in the limited use of deictic verbs. As we have seen in Chapter 6, deictic verbs are used only in limited cases of change-of-state events. In addition, deictic verbs do not express any deictic information.

8.3 When does the parallelism hold?

The next question concerns when the linguistic parallelism holds. In this section, I propose two types of parallelisms.

(8) a. Parallelism based on the common schematic structure shared by the two types of events

b. Parallelism based on the co-occurrence of change-of-state events and motion events

Even though encoding patterns are different between motion and change-of-state expressions, still we can see word-level parallelism. Words with spatial meanings (motion verbs or spatial prepositions) can be used in the change-of-state expressions, as localists have pointed out. I argue that this word-level parallelism stems from the parallelism in the common schematic structure shared by the two types of events: the source-path-goal structure. Change-of-state events have an initial state, a final state, and transition between them. Even though change-of-state events have various transition depending on various change, they can be schematically conceptualized as the transition TO. This is why spatial prepositions and motion verbs can be used in the change-of-state expressions.

Another parallelism can be seen when change-of-state events described co-occur with motion events. There are two sub-types. The first type includes change-of-state events that inherently involve movement of an entity to achieve the change. The OPENING events are the case. These events involve movement of the entity that occupy the entrance. When we open the door, we move the door board. In such case, we can describe various manners of motion using manner verbs. This contributes to the increase of the encoding pattern predominantly employed in motion expressions. In fact, our corpus investigation in Chapter 6 has shown that the encoding pattern in the descriptions of the OPENING events is relatively closer to

motion expressions compared with other change-of-state expressions. This supports my claim that change-of-state events involving motion tend to be encoded in a way parallel to motion expressions.

The second type includes changes that can be described by spatial expressions with metaphorical extension. The EXTINGUISHING events are such cases. These events can be expressed by the particle *out*, which express disappearance. This sense of *out* is motivated by the co-occurrence of movement out of the enclosed space and disappearance (Tyler and Evans 2004: 206), as discussed in Chapter 6. This sense has become conventionally associated with *out*, and as a result, *out* can be used for change-of-state events without involving movement out of some enclosed space like the EXTINGUISHING events. In this sense, the EXTINGUISHING events are related to motion events.

The discussions so far are also important in suggesting the existence of multiple motivations for spatial expressions to be used in change-of-state expressions.

8.4 An account based on the conceptual metaphor theory

In this section, we discuss whether the results of this study can be explained by a certain constraint on metaphors. It has been pointed out by many scholars (Lakoff 1993, Grady 1997) that the metaphorical mapping between two domains is partial. Although we can talk about theories in terms of building by the THEORIES ARE BUILDING metaphor (Lakoff and Johnson 1980: 46) as in (9), the sentences in (10) do not make sense.

(9) a. Is that the *foundation* for your theory?

b. The theory needs more *support*.

c. The argument is *shaky*.

d. We need some more facts or the argument will *fall apart*.

(10) a. ?This theory has French windows.

b. ?The tenants of her theory are behind in their rent.

Even though the French windows are one component in the building domain, we cannot talk

about theories in terms of the French windows. This suggests that not all elements in the source domain are mapped onto elements in the target domain.

The partial nature of the metaphorical mapping is explained by the invariance principle (Lakoff 1993). The invariance principle states that "image-schema structure inherent in the target domain cannot be violated" and "inherent target domain structure limits the possibilities for mappings automatically" (Lakoff 1993: 200). This explains why we can give someone a kick, even though that person doesn't have it afterward unlike when we give him/her a book. In the source domain, someone that is given something possesses it after the transfer, but this aspect of giving is not mapped onto the target domain since we know that an action does not exist after it happens. This is because possession after a giving action violates the target domain structure.

Our findings on non-parallels between motion and change-of-state expressions can be interpreted as a reflection of the partial nature of mapping in the CHANGE IS MOTION metaphor, and can be partially explained by the invariance principle. For example, I have argued that manners in change-of-state events tend to be restricted to certain types. This can be restated that not all manners in motion domain maps onto the change-of-state domain. This is why we cannot say *I limped into a problem*. In addition, since change-of-state events are not spatially deictic process, deictic verbs such as *come* and *go* do not express any deictic information. The partial nature of the mapping can be illustrated in (11).

(11)

Source: motion		⇒	*Target*: change
Moving entity		⇒	Entity that undergoes change
Path			Changing process
	Source	⇒	Initial state
	Intermediate path	⇒	Transition of state
	Goal	⇒	Final state
	Deixis	⇒	∅
Manner of motion			Manner of change
	Physical action of Figure	⇒	∅

Vehicle	⇒	∅
Sound	⇒	Sound (in some subdomains)
Speed of motion	⇒	Speed of change
Cause of motion	⇒	Cause of change
Means of motion	⇒	Means of change

However, the invariance principle alone does not explain all non-parallels between motion and change-of-state expressions. For example, even though the source-path-goal structure is mapped onto the change-of-state domain, there are still linguistic non-parallels between encoding of paths and changing processes. The invariance cannot explain why English uses the verb to represent changes. Since the invariance principle poses restrictions on metaphors when a target domain lacks counterparts to components in a source domain, it cannot explain the linguistic non-parallels from differences in components shared by both domains.

8.5 Conclusion

In this chapter, I have argued that the linguistic parallelism between motion and change-of-state expressions holds only in some cases, due to differences in the event structures between motion and change-of-state events. On the other hand, the partial linguistic parallelism has been accounted for by some motivations that associate motion events with change-of-state events.

Chapter 9

Cross-linguistic consideration and reformulation of typology

So far, our discussions are limited to English. In this chapter, I will take into account some other languages and propose some modifications to the treatment of change-of-state expressions in Talmy's typology. Specifically, I will propose cross-linguistic hypotheses as to tendencies in encoding patterns of change-of-state expressions. In addition, I will briefly discuss our hypotheses.

9.1 Cross-linguistic hypotheses

In Talmy's typology, it is claimed that languages show parallel patterns between motion and change-of-state expressions. head-coding languages consistently encode core-schema by the main verb both in motion expressions and in change-of-state expressions, and head-external coding languages consistently express it by head-externals in both types of expressions. However, our corpus investigations demonstrate that English, a head-external coding language in motion expressions, shows the head-coding pattern in change-of-state expressions, employs the head-external coding pattern only in some change-of-state events related to motion events. This is inconsistent with Talmy's claim that languages show parallel encoding patterns in two types of expressions, and suggest the need for modifications to the typology. I propose the

following hypotheses.

(1) a. Cross-linguistically, change-of-state events tend to be encoded in the head-coding pattern even in languages predominantly employing the head-external pattern for encoding motion events.

b. Exceptions to (1a) are seen in a limited way in languages that predominantly employ the head-external coding pattern in motion expressions.

I will discuss these two hypotheses.

9.2 Nature of change-of-state events

The basis for the hypothesis (1a) is the nature of change-of-state events discussed in Chapter 8. I have argued that verbs are better suited to express change-of-state events than head-external elements because of the nature of change-of-state events. Since the event structure of change-of-state events seems to be universal, it is reasonable to hypothesize that they tend to be expressed by verbs in other languages as well. In fact, the literature on causative alternation such as Haspelmath (1993) indicates that change-of-state verbs exist in all languages investigated. This supports the hypothesis (1a).

As far as I know, Chinese may be a language that does not conform to our hypothesis (1a). In Chinese, change-of-state events are often encoded by the resultative verbal compounds (RVC), as in (2).

(2) *Tā qīe-duàn le shénzi*
he cut.with.single.blade-be.broken PFV rope
'He cut the rope.' (Chen 2007: 273)

In (2), V1 in the RVC implies but does not entail changes of state. The verb *qīe* 'cut.with.single.blade' alone does not entail the occurrence of the change to the state of being cut. Rather, it is encoded in V2. If the head in the RVC is V1 (Lamarre 2007), this expression should be the head-external coding pattern. It is reported that such a construction is frequently employed to encode cutting and breaking events (Chen 2007). This suggests that Chinese may

frequently use the head-external pattern for encoding change-of-state events, calling for a corpus based study of such frequencies.

9.3 Cross-linguistic differences in resultative expressions

Evidence that supports our hypothesis (1b) comes from cross-linguistic difference of resultative expressions proposed by Washio (1997).[1] He proposes two types of resultative expressions; strong and weak resultatives exemplified in (3).

(3) a. The horses dragged the logs smooth. (Strong resultative)

b. John painted the wall blue. (Weak resultative)

Strong resultatives refer to those in which the meaning of the verb and the meaning of the adjective are completely independent of each other. "Independent" here means that it is not possible to predict the meaning of the resultative adjective from that of the verb. In (3a), the meaning of *smooth* cannot be predicted from the meaning of the verb *drag*. On the other hand, weak resultatives include those which the meaning of the adjective are (relatively) predictable from the meaning of the verb. In (3b), the use of *blue* can be predicted from the meaning of the verb *paint* because the verb entails the change of color.

Washio argues that languages differ in the possible types of resultative expressions. English and Dutch allow both types of resultative expressions, while languages like Japanese, Korean, French, and Italian do not allow the strong resultatives.

(4) a. She cried her eyes red.

b. *Zij heeft haar ogen rood gehuild.*
she has her eyes red cried (Dutch, Saiki and Washio 2009: 44)

c. **Kanojo-wa me-o aka-ku nai-ta.*
she-TOP eye-ACC red- cry-PST (Japanese, Saiki and Washio 2009: 45)

d. **Kunye-nun nwun-ul ppalkah-key wul-ess-ta.*
she-TOP eye-ACC red-KEY cry-PST-DEC (Korean, Saiki and Washio 2009: 45)

[1] Washio uses the term "resultative constructions." However, I do not use this term on the ground that he does use this term in the sense of Construction Grammar (Goldberg 1995).

e. **Elle a pleuré ses yeux rougis/rouges.*

she has cried her eyes red (French, Saiki and Washio 2009: 45)

f. **Gianni ha martellato il metallo piatto.*

Gianni has hammered the metal flat

'Gianni hammered the metal flat.' (Italian, Napoli 1992: 65)

On the other hand, Japanese and Korean allow the weak resultatives. French and Italian allow only a limited range of the weak resultatives, and resultative phrases should be prepositional phrases, not adjective phrases.[2]

(5) Weak Resultative

a. She dyed her hair black.

b. *Zij verfde haar haar zwart.*

she dyed her hair black (Dutch, Saiki and Washio 2009: 45)

c. *Kanojo-wa kami-o kuro-ku some-ta.*

she-NOM hair-ACC black dye-PST (Japanese, Saiki and Washio 2009: 46)

d. *Kunye-nun meli-lul kem-key multuli-ess-ta.*

she-top hair-ACC black-key dye-PST-dec (Korean, Saiki and Washio 2009: 46)

e. *Elles s'est teint les cheveux en noir.*

she REFL.AUX dyed the heir in black (French, Saiki and Washio 2009: 64)

f. *Ho tagliato la carne in piccoli pezzi.*

have. SG cut the meat in small pieces

'I cut the meat in small pieces' (Italian, Napoli 1992: 60)

---

[2]It is reported that some dialects of French allow the weak resultatives with adjectival resultative phrases denoting color (Saiki and Washio 2009: 65), exemplified in (i).

(i) *J'ai peint le mur rouge.*
I.have painted the wall red
'I painted the wall red'

The adjectival resultative phrases are basically not acceptable in Italian as well. However, some speakers allow them. According to Merlo (1986: 150, cited in Napoli 1992: 65), the sentence in (ii) is acceptable.

(ii) *Ha dipinto la macchina rossa.*
have. SG painted the car red
'He painted the car red'

There seem to be individual differences in the acceptability of the adjectival resultative phrases.

Table 9.1: Distribution of two types of resultative expressions (Saiki and Washio 2009: 49)

	English	**Dutch**	**Japanese**	**Korean**	**French**	**Italian**
Strong resultative	✓	✓	*	*	*	*
Weak resultative	✓	✓	✓	✓	?	?

Table 9.1 summarizes a distribution of resultatives in the languages presented above. "?" in the table means "acceptable in some conditions (in some dialects or for some speakers; see also footnote 2)."

The important point of this typology is that the typological classification of strong/weak resultatives can be associated with encoding patterns in Talmy's typology. In the weak resultatives, the meaning of the adjective is predictable from the meaning of the main verb. This means that the verb encodes change and the adjective add some more information to the change denoted by the verb. Thus, the weak resultatives exhibit the head-coding pattern. For example, examples of the weak resultatives in (5) can be regarded as the head-coding pattern (head + head-external) because in (5a) the main verb *dye* encodes the change in the color of the hair. On the other hand, the strong resultatives can be considered as the head-external pattern. In (5a), the main verb *cry* does not encode change but cause of a change. Thus, what Table 9.1 shows is a distribution of possible encoding patterns in a certain range of change-of-state expressions (i.e., resultative expressions). English and Dutch allow both head-external coding pattern and head-coding pattern, while Japanese, Korean, French, and Italian do not allow the head-external coding pattern. In addition, English and Dutch are said to be satellite-framed (or head-external coding) languages, and others to be verb-framed (or head-coding) languages in motion expressions. This suggests that satellite-framed languages may allow both patterns, while verb-framed languages may allow only the verb-framed pattern in change-of-state expressions.

The discussion above suggests that increase of the exceptional use of the head-external coding pattern in OPENING events and EXTINGUISHING events found in English tends to be seen only in some languages: ones that predominantly employs the head-external coding pattern for motion events.

9.4 Conclusion

In this chapter, I proposed the cross-linguistic hypotheses as to encoding patterns of change-of-state expressions. I argued that cross-linguistic differences in the resultative expressions are consistent with one of our hypotheses. Since our discussions so far are based on the limited data of a small number of languages, our hypothesis should be empirically investigated by taking into account a large number of languages.

Chapter 10

Conclusion

10.1 General conclusion

The linguistic parallelism between motion expressions and change-of-state expressions has been considered as a reflection of parallelism in our conceptualization of motion and change-of-state events. However, the linguistic parallelism is not "full" parallelism. There are non-parallels between two types of expressions due to domain-specific properties in the two types of events. In order to investigate the partial nature of the linguistic parallelism, I set up the following research questions.

(1) a. How pervasive the linguistic parallelism is in English;

b. In what part the linguistic parallelism holds and in what part it does not;

c. What domain-specific properties account for non-parallels.

In this thesis, I investigated these research questions based on a modified version of Talmy's typology of event integration as a theoretical framework.

First, our corpus investigations have shown that motion expressions with the INTO path exhibit the following pattern.

(2) a. Path of motion is predominantly encoded in head-externals in both subject-figure and object-figure constructions.

b. The main verb generally encodes deixis and manner in the subject-figure

construction, and means in the object-figure construction.

c. Co-events are often expressed within a sentence (30% of the subject-figure construction and 47% of the object-figure construction).

d. Deixis is often expressed with in a sentence (36% of the subject-figure construction and 14% of the object-figure construction).

In addition, our corpus investigations into descriptions of the four change-of-state events and the *into*-change expressions revealed the following characteristics of these change-of-state expressions:

(3) a. Changes are predominantly encoded in the head. Changes are rarely encoded in head-externals alone, except for OPENING and EXTINGUISHING events.

b. The predominant semantics of the main verb is change. Co-events are rarely expressed by the main verb.

c. Co-events are not frequently mentioned. When expressed, their semantic types are generally cause and means. In addition, types of manners used are restricted to certain types.

d. Deictic verbs are rarely used in change-of-state expressions. In addition, meanings they express are non-deictic.

These characteristics are distinct from those of motion expressions presented in Chapter 5. The differences between the two types of expressions suggest that the linguistic parallelism that Talmy argues for does not hold in many cases. On the other hand, some events show patterns similar to motion expressions. I have argued such expressions describe change-of-state events in which motion co-occurs with change.

From the findings in our corpus investigations into motion and change-of-state expressions, it is clear that our limited conceptual parallelism in understanding motion and change-of-state events does not motivate the full parallelism in linguistic encoding of the two types of events. This suggests that there are some factors that preclude the full parallelism. I have argued that differences between the two types of events contribute to the partial nature of the linguistic parallelism. Specifically, differences in core-schema, manner, cause, and means in the two

types of events hinder the full linguistic parallelism. In addition, I have argued that there are two types of motivations for the partial parallelism: the schematic structure shared by the two types of events, and co-occurrence of motion with change. The former motivates uses of spatial expressions in change-of-state expressions, but domain-specific properties of the two types of events preclude a full parallelism. The latter explains why some change-of-state expressions show the pattern similar to motion expressions.

Our corpus investigations also suggest the need for reformulation of Talmy's typology. In order to capture the non-parallels in English, I proposed the cross-linguistic hypotheses as to encoding patterns of change-of-state expressions.

10.2 Contributions

This thesis has two contributions. First, as far as I know, this study is the first to empirically examine how pervasively the linguistic parallelism between motion and change-of-state expressions is observed in naturally occurring language data from a large corpus. Previous discussions on the linguistic parallelism were based on a limited range of created examples. In addition, previous studies mainly looked at change-of-state expressions with motion verbs or spatial prepositions like *the traffic light turned from green to red*. They did not pay much attention to those without spatial expressions like *John broke the vase*. The importance of this study lies in taking into account such cases and investigating the linguistic parallelism based on the corpus data.

This study makes an important contribution to typological researches in Talmy's framework. Although Talmy argues that his typology is applicable to expressions other than motion expressions like change-of-state expressions, there have not been so many studies on them from Talmy's typological perspective. This study contributes to Talmy's typology in describing the encoding patterns of change-of-state expressions in English, comparing them with motion expressions, and proposing reformulations. It is hoped that this study stimulates interest into change-of-state expressions among scholars working on typological studies.

10.3 Limitations and future research

This study has some limitations. First, the corpus-based approach has some limitations for investigating encoding patterns of events, which are discussed in Section 3.3. From corpus data, it is difficult to see directly what events are linguistically encoded. In addition, there is room for further consideration as to the appropriateness of words or expressions searched for in collecting descriptions of events we intend to investigate. Thus, the findings in our corpus investigations should be supplemented by researches based on other methods, such as elicitation tasks using video clips.

Second, this study only focuses only on English. It is not clear whether other languages show non-parallels in encoding patterns of motion and change-of-state expressions. This is especially important for Talmy's typology, because there is a possibility that English is only a rare exception to his typology. In Chapter 9, I proposed a hypotheses to test cross-lingusitically. However, the languages that I discussed are still limited. These hypotheses should be empirically tested by looking at data of a large number of languages.

References

Anderson, John M. 1971. *The Gammar of Case: Towards a Localistic Theory*. Cambridge University Press.

Aske, Jon. 1989. Path predicates in English and Spanish: A closer look. In Kira Hall, Michael Meacham, and Richard Shapiro (eds.), *Proceedings of the Fifteenth Annual Meeting of the Berkeley Linguistics Society*, pp. 1–14. Berkeley, CA: Berkeley Linguistics Society.

Chen, Jidong. 2007. 'He cut-break the rope': Encoding and categorizing cutting and breaking events in Mandarin. *Cognitive Linguistics*, 18(2): 273–285.

Choi, Soonja and Mellissa Bowerman. 1991. Learning to express motion events in English and Korean: The influence of language-specific lexicalization patterns. *Cognition*, 41: 83-121.

Clark, Eve. 1974. Normal states and evaluative viewpoints. *Language*, 50(2): 316–332.

Fillmore, Charles J. 1997. *Lectures on Deixis*. California: CSLI Publication.

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

Grady, Joseph E. 1997. THEORIES ARE BUILDINGS revisited. *Cognitive Linguistics*, 8(4): 267–290.

Gruber, Jeffrey S. 1965. Studies in Lexical Relations. Ph.D. dissertation, MIT.

———. 1976. *Lexical Structures in Syntax and Semantics*. Amsterdam: North-Holland Publishing company.

Haspelmath, Martin. 1993. More on the typology of inchoative/causative verb alternations. In Bernard Comrie and Maria Polinsky (eds.), *Causatives and Transitivity*, Amsterdam: John Benjamins.

Ibarretxe-Antuñano, Iraide and Alberto Hijazo-Gascón. 2012. Variation in motion events. In Luna Filipović and Katarzyna M. Jaszczolt (eds.), *Space and Time in Languages and Cultures: Linguistic diversity*, pp. 349–372. Amsterdam: John Benjamins.

Ikegami, Yoshihiko. 1981. *SURU to NARU no Gengogaku [Linguistics of DOING and BECOMING]*. Tokyo: Taishukan.

Iwata, Seizi. 1999. Themaitc parallels and non-parallels: Contributions of field-specific properties. *Studia Linguistica*, 53(1): 68–101.

———. 2008. A door that swings noiselessly open may creak shut: internal motion and concurrent changes of state. *Linguistics*, 46(6): 1049–1108.

Jackendoff, Ray. 1983. *Semantics and Cognition*. Cambridge, MA: MIT Press.

———. 1990. *Semantic Structures*. Cambridge, MA: MIT Press.

———. 1991. Parts and boundaries. *Cognition*, 41: 9–45.

———. 1992. *Languages of the Mind*. Cambridge, MA: MIT Press.

Kövecses, Zoltán. 2002. *Metaphor: A Practical Introduction*. Oxford: Oxford University Press.

Lakoff, George. 1993. Contemporary theory of metaphor. In Andrew Ortony (ed.), *Metaphor and Thought*, pp. 202–251. Cambridge: Cambridge University Press.

Lakoff, George and Mark Johnson. 1980. *Metaphors We Live by*. Chicago: University of Chicago Press.

———. 1999. *Philosophy in the Flesh*. New York: Basic Books.

Lamarre, Christine. 2007. The linguistic encoding of motion events in Chinese: With reference to cross-dialectal variation. In C. Lamarre and T. Ohori (eds.), *Typological Studies of the*

Linguistic Expression of Motion Events, Volume I: Perspectives from East and Southeast Asia, pp. 3-34. Tokyo: Center for Evolutionary Cognitive Sciences at the University of Tokyo.

Lindner, Susan. 1982. What goes up doesn't necessarily come down: The ins and outs of opposites. In *Papers from the Eighteenth Regional Meeting of the Chicago Linguistic Society*, pp. 305–323. Chicago: Chicago Linguistic Society.

Lyons, John. 1977. *Semantics, vol. 2*. Cambridge: Cambridge University Press.

Matsumoto, Yo. 1997. Kukan ido no gengo hyogen to sono kakucho [Linguistic expresssions of spatial motion and their extensions]. In Shigenori Tanaka and Yo Matsumoto (eds.), *Kukan to ido no hyogen [Expressions of space and motion]*, pp. 126-229. Tokyo: Kenkyusha.

———. 2003. Typologies of lexicalization patterns and event integration: Clarifications and reformulations. In Shuji Chiba et al. (eds.), *Empirical and Theoretical Investigations into Language: A Festschrift for Masaru Kajita*, pp. 403-418. Tokyo: Kaitakusha.

———. 2011. Motion typology reconsidered. Presented at the 11th International Cognitive Linguistics Conference, Xi'an, China, July 11–17.

———. 2017a. Eigo ni okeru ido jisho hyogen no taipu to keiro hyogen [On types of motion event descriptions and path expressions in English]. In Yo Matsumoto (ed.), *Ido hyogen no ruikeiron [The typology of motion expressions]*, pp. 25–38. Tokyo: Kurosio.

———. 2017b. Ido hyougen ni kansuru kadai [Issues on motion expressions]. In Yo Matsumoto (ed.), *Ido hyogen no ruikeiron [The typology of motion expressions]*, pp. 1–24. Tokyo: Kurosio.

———. 2017c. Nihongo ni okeru ido jisho hyogen no taipu to keiro no hyogen [The type of motion event descriptions and path expressions in Japanese]. In Yo Matsumoto (ed.), *Ido hyogen no ruikeiron [The typology of motion expressions]*, Tokyo: Kurosio.

Matsumoto, Yo, Kimi Akita, Fabiana Andreani, Kiyoko Eguchi, Noriko Imazato, Kazuhiro Kawachi, Ikuko Matsuse, Takahiro Morita, Naonori Nagaya, Kiyoko Takahashi, Ryosuke Takahashi, and Yuko Yoshinari. 2013. Crosslinguistic tendencies in the intralinguistic

variations of motion descriptions: An experimental study of manner, path, and deixis. Presented at 12th International Cognitive Linguistics Conference, Edmonton, Canada.

Merlo, Paola. 1986. Secondary Predication in Italian and English. Ph.D. dissertation, Universita di Venezia.

Napoli, Donna Jo. 1992. Secondary resultative predicates in Italian. *Journal of Linguistics*, 28: 53–90.

Nikanne, Urpo. 1990. *Zones and Tiers: A Study of Thematic Structure*. Helsinki: Suomalaisen Kirjallisuuden Seura.

Ono, Naoyuki. 2004. Ido to henka no gengo hyogen: Ninchi-ruikeiron no shiten kara [Linguistic encoding of motion and change: A cognitive-typological view]. In Shigeru Sato, Kaoru Horie, and Wataru Nakamura (eds.), *Taisho-gengogaku no shintenkai [New development of comparative linguistics]*, pp. 3–26. Hitsuji shobo.

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svartvik. 1985. *A Comprehensive Grammar of the English Language*. London: Longman.

Radden, Günter. 1996. Motion metaphorized: The case of 'coming' and 'going'. In *Cognitive Linguistics in the Redwoods: The Expansion of a New Paradigm in Linguistics*, Berlin: Mouton de Gruyter.

Saiki, Michiyo and Ryuichi Washio. 2009. Gengo no ruikei to kekka hyogen no ruikei [The types of languages and resultative expressions]. In Naoyuki Ono (ed.), *Kekka kobun no typology [The typology of resultative constructions]*, Tokyo: Hitsuji shobo.

Saito, Tamayo. 2014. Furemu ka ruikeiron to imiteki shoten no kankei [Relationships between the framing typology and semantic focus]. Ph.D. dissertation, Tohoku University.

Shinohara, Kazuko. 1999. *Epistemology of Space and Time*. Japan: Kwansei Gakuin University Press.

Sinha, Chris and Tenia Kuteva. 1995. Distributed Spatial Semantics. *Nordic Journal of Linguistics*, 18(2): 167–199.

Slobin, Dan I. 1996. Two ways to travel: Verbs of motion in English and Spanish. In Masayoshi Shibatani and Sandra A. Thompson (eds.), *Grammatical Constructions: Their Form and Meaning*, pp. 195–219. Oxford: Oxford University Press.

———. 2000. Verbalized events. In Susanne Niemeier and René Dirven (eds.), *Evidence for Linguistic Relativity*, pp. 107–138. John Benjamins.

Talmy, Leonard. 1972. Semantic Structures in English and Atsugewi. Ph.D. dissertation, University of California, Berkeley.

———. 1985. Lexicalization Patterns: Semantic Structure in Lexical Forms. In *Language Typology and Syntactic Description III: Grammatical Categories and the Lexicon*, pp. 57-149. Cambridge: Cambridge University Press.

———. 1991. Path to Realization: A Typology of Event Conflation. In *Proceedings of the Seventeenth Annual Meeting of the Berkeley Linguistic Society*, pp. 480-519. Berkeley, CA: Berkeley Linguistic Society.

———. 2000. *Toward a Cognitive Semantics, Volume II: Typology and Process in Concept Structuring*. Cambridge, MA: MIT Press.

Tyler, Andrea and Vyvyan Evans. 2004. *The Semantics of English Prepositions*. Cambridge: Cambridge University Press.

Washio, Ryuichi. 1997. Resultatives, compositionality and language variation. *Journal of East Asian Linguistics*, 6: 1–49.

Wienold, Götz. 1995. Lexical and conceptual structures in expressions of movement and space: With reference to Japanese, Korean, Thai, and Indonesian as compared to English and German. In Urs Egli, Peter E. Pause, Christoph Schwarze, Arnim von Stechow, and Götz Wienold (eds.), *Lexical Knowledge in the Organization of Language*, pp. 301–340. Amsterdam: John Benjamins.

Corpus

The British National Corpus, version 3 (BNC XML Edition). 2007. Distributed by Oxford University Computing Services on behalf of the BNC Consortium. URL: http://www.natcorp.ox.ac.uk/