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Transfer and Causation:

A Cognitive Construction Grammar Approach to English Ditransitive Constructions

（所有変化と使役：英語二重目的語構文への認知構文論的アプローチ）

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TRANSFER AND CAUSATION:

A COGNITIVE CONSTRUCTION GRAMMAR APPROACH TO ENGLISH DITRANSITIVE CONSTRUCTIONS

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My studies leading to chapter 4 originated from a comment I received from Seizi Iwata in personal communication after the abovementioned symposium. His comment that verbs of refusal (*refuse* and *deny*) seem somehow different from other ditransitive verbs instigated my research into the verbs that are scrutinized in

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Chapter 1. Introduction

1.1 Ditransitive constructions

This dissertation explores the ditransitive (or double-object) construction in English. The ditransitive construction has the sentence pattern consisting of a ditransitive (dtr) verb with a subject (Subj) and two grammatical objects, i.e., the direct object (DObj) and the indirect object (IObj). The pattern is illustrated in (1):

(1)	Example:	John	gave	his wife	a diamond ring
	Syntactic categories:	NP_1	V_{dtr}	NP_2	NP_3
	Grammatical functions:	Subj	Verb	IObj	DObj

Typical ditransitive constructions express transfer of possession. I call this type of ditransitive construction the caused-possession ditransitive construction when I need to distinguish it from other types of ditransitive constructions. The noun phrase in the Subj position (NP_1) is understood as a person who causes a change of possession. The NP in the IObj position (NP_2) refers to the person who receives the transferred object that is referred to by the NP in the DObj position (NP_3).

Different facets of this construction have been studied in various linguistic frameworks. Previous studies of the English ditransitive construction include Allerton (1978), Cattell (1984), Colleman and De Clerck (2011), Dixon (1991), Fillmore (1965), Goldberg (1992, 1995, etc.), Green (1974), Gropen et al. (1989), Hawkins (1981), Iwata (2006, 2012), Jackendoff and Culicover (1971), Jackendoff (1990), Kaga (2007), Kawase (2004), Kay (1996, 2005), Koenig and Davis (2001), Langacker (1987, 1991a, 1991b, etc.), Langendoen et al. (1974), Larson (1988), Mukherjee (2005), Nemoto (1998), Newman (1996), Oehrle (1976), Ohashi (2004), Pinker (1989), Rappaport Hovav and Levin (2008), Takami (2003), Thompson and Koide (1987), Ueda (2001, 2004, 2005, etc.), Van Der Leek (1996) and Wierzbicka (1988). Some of the issues discussed in these studies are (i) the polysemous aspects of the construction, (ii) the verb classes that can and cannot enter into the construction, (iii) semantic differences between the ditransitive construction and the corresponding prepositional dative construction, (iv) the metaphorical senses conveyed by the ditransitive construction, and (v) the information structure affecting the construction choice. This thesis deals mainly with

(i), (ii) and (iv) and briefly touches on (iii). Issue (v) is outside the scope of this thesis. I give an overview of issues (i) to (iv) below.

The first issue is the polysemous aspects of the construction. The ditransitive construction is associated with a variety of meanings. It is widely held that the prototypical caused-possession ditransitive construction entails successful transfer of possession (cf. Green (1974) and Goldberg (1995)). The example in (2) is infelicitous because the successful transfer entailment is canceled:

(2) * My aunt gave/lent/loaned my brother some money for new skis, but he never got it.[1]

(Rappaport Hovav and Levin (2008: 146))

Not all ditransitive sentences have the successful transfer entailment, as exemplified in (3):

(3) a. Sarah promised Catherine her old car, but then gave it to her son instead. (Rappaport Hovav and Levin (2008: 146))

b. We baked you a cake, but we ate it! (https://www.youtube.com/watch?v=VO7dBXkTbJI; Accessed September 6, 2019)

Among researchers, there has been a debate over the successful transfer entailment. Some previous studies (Jackendoff (1990), Kay (1996, 2005), Oehrle (1976, 1977) and Rappaport Hovav and Levin (2008)) doubt the view that the successful transfer entailment stems from the constructional meaning. Rappaport Hovav and Levin (2008) provide examples such as those in (4) and state that the successful transfer entailment is not attributable to the constructional meaning but rather depends on each verb's semantic property. Compare the sentences in (4) with the sentences in (2) and (3a):

1. Rappaport Hovav and Levin (2008) use the hash mark (#) instead of the asterisk (*) in front of the example, which indicates that the sentence is semantically anomalous even though it is syntactically good. I will use the asterisk for the sake of simplicity. See footnote 5.

(4) a. * My aunt gave/lent/loaned some money to my brother for new skis, but he never got it.
b. Sarah promised her old car to Catherine, but then gave it to her son instead.

(Rappaport Hovav and Levin (2008: 146))

Then, the following research questions arise as to the first issue:

i. Given the semantic varieties of the ditransitive construction, how are the senses related to each other? Do the varieties stem from the constructional polysemy (Goldberg (1995)) or the idiosyncratic features of the verbs that appear in the ditransitive construction?
ii. Can the successful transfer entailment be a feature that characterizes the prototypical ditransitive construction?

The second issue is the distinction between the verb classes that can and cannot enter into the ditransitive construction, as exemplified in (5):

(5) a. John gave/donated/presented a painting to the museum.
b. John gave/*donated/*presented the museum a painting.

(Pinker (1989: 45))

Even though the verbs *give, donate* and *present* appear similar in meaning, some of them cannot be permitted in the ditransitive construction. The third question concerns this fact:

iii. What distinguishes the verbs that can appear and cannot appear in the ditransitive sentence?

The third question is about the dative alternation. It seems that the ditransitive sentences and their prepositional dative counterparts in (2) through (4) have the same semantic values. As the pairs of examples in (6) and (7) show, however, there are some semantic differences between the two constructions:

(6) a. He sent his sweetheart the package. (ditransitive)
b. He sent the package to his sweetheart (dative)

(Nakau (1994: 334))

(7) a. * He sent Boston the package. (ditransitive)
b. He sent the package to Boston. (dative)

(Nakau (1994: 335))

The fourth question refers to the relation between the ditransitive construction and the prepositional dative construction:

iv. If the ditransitive construction and the prepositional dative construction are semantically different, how different are they?

The last issue is the metaphorical senses associated with the ditransitive construction. The ditransitive construction can designate different types of events that are extended by metaphor from transfer of possession. Some examples are provided in (8):

(8) a. My secretary will be able to give you more details.
b. No one gave the woman in the grey uniform a second glance.
c. Luke, take Emma out and give her a look at the ranch while I clean up in here.
d. He has given me permission to use his library.
((a) and (b) from *LDOCE;* (c) from *Hope Flames,* p. 137; (d) from *Kenkyusha*)

Although this thesis does not deal with the type of sentence in (a), the example is cited to show how metaphor is involved in the ditransitive construction. The sentence illustrates the conduit metaphor (Reddy (1979)), by which the concept of communication is described as a conduit conveying ideas from the speaker to the addressee. It is widely accepted that metaphor structures our conceptual systems (cf. Lakoff and Johnson (1987)). The conduit metaphor helps us understand communication in terms of the transfer of an object. The conveyed messages are viewed as

objects traveling from the sender to the receiver.

The types of sentences that fall within the scope of this thesis are the sentences in (8b) to (8d). Each sentence exemplifies a subtype of the causative ditransitive construction. The (b) sentence is an example of direct causation. The DObj entity *a second glance*, which refers to an act of looking, is understood as the object that was directly transferred to the IObj entity *the woman in the grey uniform*, and the woman is interpreted as the entity that was looked at. This thesis calls this type of causation the driving-force type of causation. The (8c) sentence is an example of indirect causation, which I call the barrier type of causation. The DObj entity *a look at the ranch* is metaphorically understood as an object, but unlike in the (b) sentence, it is not interpreted as moving from the Subj entity to the IObj entity. The addressee in the example (i.e., the Subj entity) made it possible for Emma to look at the farm by taking her to a place that afforded a good vista. The (8d) sentence illustrates the third type of causation: permission. The concept of permission is understood as a moving object, as in the (b) sentence denoting direct causation. The permission type of sentence is also similar to the indirect causation type of sentence in that the Subj entity makes it possible for the applicant to perform the act that she has been permitted to do. The permission type of ditransitive construction exhibits hybrid characteristics of the driving-force type and the barrier type of causation.

If the permission type can be analyzed by combining the features of the two types of causation, it is sufficient to study the driving-force type and the barrier type of causation. Given that the three causation senses are grasped through some metaphors, just as the understanding of (8a) is based on the conduit metaphor, the fifth research question can be posited as follows:

v. If the ditransitive construction designates the two types of causation, what metaphor motivates each causation? What experiential basis is provided for the metaphors?

The ditransitive constructions with *allow, deny, grant*, *permit* and *refuse* show characteristics similar to the barrier type and the permission type of causative ditransitive construction. Since the permission type of causation is partially analogous to the barrier type of causation, this thesis deals with the verbs listed above together

under a single broad category: verbs of permission/enablement. Some examples are provided in (9):

(9) a. The airline allows passengers two pieces of luggage.
b. The goalkeeper denied him a hat trick.
c. I was granted permission to visit the palace.
d. They refused him a visa.
((a) and (b) adapted from information cited on the Internet; (c) and (d) from *OALD*)

In (9a), for example, the DObj entity luggage is not transferred to the airline passengers. Similarly, sentence (9b) does not mean that the goalkeeper did not transfer the metaphorical object hat trick. The remarkable feature of this type of ditransitive construction is that the DObj entity is in an intrinsic relation to the IObj entity in the sense that the DObj entity does not originate from the Subj entity.

Sentences (9c) and (9d) are examples of the permission type, as indicated by the DObj nouns *permission* and *visa* (a kind of permission granted by a country). While the profiled scene in which the concept of permission is understood as a movable object from the Subj entity to the IObj entity is akin to the scene described by the driving-force type of causation, the process just after the profiled scene is similar to the barrier type of causation. The granted permission makes it possible for the IOBj entity to do what she wants to do.

1.2 Objectives of the thesis

This thesis takes a Cognitive Construction Grammar approach to study caused-possession ditransitive constructions and causative ditransitive constructions. It adopts an introspection-based method that exploits intuitions solicited from native speakers of English to conduct a qualitative examination of contrastive pairs of examples and contextual information. The method makes it possible to reveal the nature of the possessional domain and other related domains, and on the basis of it, I characterize the prototypical caused-possession ditransitive construction and its family members with a usage-based view. This thesis also sheds light on the key metaphor that motivates two types of causative ditransitive construction. I discuss

the common experiential basis on which we understand the two types of causal relations designated by the construction. This thesis also adopts quantitative research methods to examine the semantic relationships among the verbs of permission/ enablement and *give*, using data collected from the British National Corpus (BNC). The methods make clear the similarity and difference among the target verbs. I interpret the results provided by the statistical tests and explore the semantic properties of the verbs by scrutinizing collocating nouns in the DObj. The following six claims are made:

1. Since verbs and constructions cannot be divided due to the usage-based nature of grammar, it does not make sense to discuss the division of labor between constructions and verbs. Each verb's semantic structure is characterized in relation to the frame in which its semantic elements participate. Thus, the verb's semantic structure is complicated enough to be construed as an instance of the construction. The polysemous nature of the caused-possession ditransitive construction is the consequence of generalizations over the idiosyncratic properties of the ditransitive verbs.
2. The successful transfer entailment should be characterized in terms of the discontinuous nature of the possessional domain. Due to this discontinuous nature, transfer of possession is always successful. What matters is that transfer of possession is successful even though the transferred object is not physically with its Recipient. The successful transfer entailment seems to hold only with change-of-possession verbs such as *give*, but the notion of successful transfer is involved even in the meanings of verbs of change of possession accompanying physical transfer, such as *throw*. It is an important feature that characterizes the prototypical ditransitive verbs and their constructional schema.
3. The ditransitive construction forms a network consisting of lower-level specific constructions (i.e., ditransitive uses of verbs) and higher-level abstract constructions. The network of constructions that share a family resemblance is organized by the schema-instance relationship. The prior intentionality that embraces the transfer-of-possession component and the "precondition" component is ascribed to the superschema of caused-possession ditransitive

constructions. The superschema can be instantiated in three ways: First, the prototypical constructions elaborate the transfer-of-possession component; second, verbs of creation/obtaining instantiate the "precondition" component; and last, verbs such as *promise* give details of the prior-intention component.

4. The English ditransitive construction can designate two types of causation—the driving-force type and the barrier type of causation. Both types of causation share the same experiential basis: the hand-to-hand transfer. The two types of causation are characterized by salient different functions of the hand. If the "push" function is highlighted in the base structure, the event structure is construed as the driving-force type of causation; if the "grasp" function is profiled, the focus is on the hand as the barrier that prevents an object in the hand from going out.
5. The quantitative research reveals that the row frequencies of the DObj nouns used with the verbs of permission/enablement exhibit similar collocation patterns. They tend to take as DObj nouns abstract concepts such as "permission," "opportunity" and "moral or legal entitlement." Moreover, correspondence analysis, a statistical technique, indicates that *allow, deny* and *permit* form one cluster and *grant* and *refuse* are located in another cluster. When we compare these verbs with *give*, it is obvious that *give* behaves differently in terms of the frequencies of the DObj noun types and the results of the correspondence analysis.
6. The ditransitive construction with the verbs of enablement, *allow, deny* and *permit*, is probably an instance of the barrier type of causation. DObj entities tend to be in Experiencer-oriented relations, which can be defined as intrinsic relations of DObj entities to IObj entities. The verbs of permission, *grant* and *refuse*, can be characterized in terms of the PERMISSION frame. The phase profile by the verbs is the process of granting permission, the event structure of which is an instance of the driving-force type of causation. The verbs also entail the subsequent phase in which the Experiencer (or the Applicant), gaining permission, has the opportunity to do some action. This phase is similar to the barrier type of causation. I conclude therefore that the verbs of permission have the hybrid characteristics of the driving-force type and the barrier type of causation.

While seeking a generalization that accommodates a broader range of aspects of human language is essential to linguistics, studies of grammar specific to a language, such as this thesis, are required to describe precise details of particular phenomena—in my case, the English ditransitive construction. However, if such studies focus on describing only trivial details of the phenomena, they cannot achieve the wider generalization required for linguistic studies. This thesis devotes most of its pages to elaborate details of the caused-possession and causative ditransitive constructions, but what is described herein has a theoretical basis, that is, Cognitive Construction Grammar (Boas (2003) and Goldberg (1995, 2005)), which takes a usage-based, symbolic view of language (Langacker (1987, 1991a, 1991b, etc.)) with the cognitive commitment (Lakoff (1990)). I hope that what this thesis tries to reveal can contribute to the development of the theoretical framework.

This thesis emphasizes the description of lower-level specific constructions more than the extraction of higher-level abstract constructions. This is significant because lower-level constructions bear some marked characteristics that are observable only at the level of low specificity. Such characteristics bring to light the hidden properties of the target linguistic expressions.

1.3 Language and human cognition

"A theory is like a window" (Pike (1982)). Just as different windows frame different scenes in different ways, any theory provides a certain way of viewing data. Through the windows opened by Cognitive Linguistics and the branch of Construction Grammar that is influenced by Cognitive Linguistics, this thesis looks at the English ditransitive constructions that designate transfer of possession and causation. Here I detail what general view can be seen through the windows.

Cognitive Linguistics is a broad movement that has developed as a school of approaches to language as an indispensable part of cognition (Fillmore (1982, 1984), Johnson (1987), Lakoff (1987), Lakoff and Johnson (1987), Lakoff and Turner (1989), Langacker (1987, 1991a, 1991b), Sweetser (1990), Talmy (1978, 1988a, 1988b), etc.). This school takes a skeptical view of the emphasis of Chomsky's Generative Grammar on extremely formalistic syntactic analyses and its assumption that

language is independent of other forms of cognition.[2]

Generative Grammar is a linguistic theory whose ambitious enterprise is to reveal the nature of human language. Chomsky (1957) challenges structural linguistics, which was influenced by the overall approach of structuralism, which attempts to understand human behavior by means of structures in relation to a larger encompassing system. He argues that the aim of studying language is not simply to classify corpora of utterances but to unveil the grammar of languages with respect to human cognition. (In this sense, the Chomskyan Generative Grammar is also cognitive linguistics, but not Cognitive Linguistics!) Chomsky's revolution in linguistics opened the door to the development of modern linguistics, including Cognitive Linguistics.

While Chomsky argues that the study of language is a branch of cognitive science and supposes that the specific properties of a language are determined by "the nature of the mind/brain" (cf. Chomsky (1988)), his view of the relationship of language with the whole cognitive system is totally different from that of Cognitive Linguistics. The Chomskyan Generative Grammar hypothesizes that humans are innately equipped with learning mechanisms exclusive to language, i.e., a universal grammar (or UG). It is believed to be independent of other cognitive "modules" under the strongest interpretation of the autonomy of language (see footnote 2). The goal of Generative Grammar is to reveal the internal structure of the UG, which provides an adequate account of the acquisition of a particular language. Basic assumptions behind the UG stem from the poverty of the stimulus hypothesis. It is a fact that children can acquire grammar in very short periods. Based on this fact, Generative Grammar hypothesizes that children cannot access a great enough quantity of linguistic inputs to build up their systematic knowledge of a first language and therefore rejects empiricism, the idea that a language is acquired

2. As is pointed out in the introduction section to Chomsky (2004), written by Naoki Fukui and Miho Zushi, the autonomy of the linguistic faculty is controversial even within the Generative Grammar community. The strongest interpretation of this autonomy is that "various essential properties of the language faculty are truly specific to language and cannot be found in any other cognitive domain outside of language" (p. 10). Under the weaker interpretation, "one might derive the fundamental features of human language (which had been assumed to be specific to this cognitive capacity) from more general principles that are more or less independent of language" (p. 11).

through experience only. This does not mean that Generative Grammar denies that experience plays an important role in language acquisition, especially the acquisition of the idiosyncratic properties of a language. As Rosalind (2016) summarizes, "[k]nowledge of language cannot be learned through experience alone but is guided by a genetic component."

Cognitive Linguistics, which has developed as the antithesis of Generative Grammar, rejects the Generative Grammar hypothesis about the autonomy of language. From a Cognitive Linguistics view, language is inseparable from general cognitive mechanisms, as in the following quotation from Langacker (1987: 12-13):

> Language is an integral part of human cognition. An account of linguistic structure should therefore articulate with what is known about cognitive processing in general, regardless of whether one posits a special language "module" (Forder (1983)), or an innate *faculté de langage*. If such a faculty exists, it is nevertheless embedded in the general psychological matrix, for it represents the evolution and fixation of structures having a less specialized origin. Even if the blueprints for language are wired genetically into the human organism, their elaboration into a fully specified linguistic system during language acquisition, and their implementation in everyday language use, are clearly dependent on experiential factors and inextricably bound up with psychological phenomena that are not specifically linguistic in character.

In this quotation, Langacker states that the Generative Grammar hypothesis about the innateness of language may or may not hold. Thus, even if we are innately endowed with the faculty for language, it is not a self-contained system but is open to other cognitive faculties. As Langacker (2000) illustrates, many cognitive abilities are crucial to our language use. Our cognitive faculties, such as directing and focusing attention, imposing figure/ground organization and invoking a reference point, structure the scenes that we describe with language.

Suppose that our linguistic competence is not isolated from other cognitive abilities. Then, a question may be posed immediately by Generative Grammarians: How does Cognitive Linguistics deal with the hypothesis of the poverty of the stimulus? Remember that this hypothesis is based on the fact that children master grammar in

a very short period. The fundamental premise of the hypothesis is that the amount of linguistic inputs available to children during that period is small and not well balanced. Seeming evidence in support of this hypothesis is that every child learning a particular language is capable of understanding sentences she has never heard before (cf. Chomsky (1988: 12-17)). Before discussing the question concerning the poverty of the stimulus, however, we should consider the quality and quantity of the inputs to which children are exposed from the fetal period to the end of the "critical" period, not only consciously but also unconsciously. We cannot judge whether the amount and type of inputs are truly poor for language acquisition until comprehensive qualitative and quantitative studies of the linguistic stimuli to children are conducted.[3]

Furthermore, the poverty of the stimulus hypothesis is implicitly based on the view that our learning mechanisms are not powerful and thus that our cognitive load of learning should be restricted. Recent studies in cognitive psychology, neuropsychology and artificial intelligence, however, have suggested that our learning mechanisms are more powerful than was previously believed. Our cognitive capacity is highly developed and complicated enough to process vast amounts of inputs of any kind, from linguistic inputs to visual inputs to any other kind. From an AI researcher's viewpoint, for example, Kurzweil (2012) demonstrates that our mind learns and recognizes patterns from vast amounts of inputs in redundant but slightly different ways and organizes recursive patterns within patterns.

Moreover, studies in developmental psychology and cognitive science have contemplated the possibility that children can acquire language without recourse to the UG. Tomasello (2003) challenges Generative Grammar's Continuity Assumption that the child grammar has basically the same formal system as the adult grammar developed from the UG (cf. Pinker (1984)) and states that the adult grammar is assumed to comprise a structured inventory of constructions and displays characteristics similar to children's item-based learning. I do not claim that our knowledge of language originates only in experience. (If so, every animal that has been given vast

3. Choi et al. (2017), for example, study how the knowledge of language is affected by the linguistic environment of adoptees in the fetal period. Though their study is not directly connected to the poverty of the stimulus hypothesis, it enables us to obtain a glimpse of the rich linguistic environment surrounding children. See also Klass (2017).

amounts of linguistic inputs could use a language![4]) However, I believe that experience contributes far more to language acquisition than Generative Grammar assumes. I am not sure whether we are innately equipped with what Chomsky calls the faculty of language, but even if our brain incorporates such a faculty, it is integrated and interconnects with the general cognitive faculties, as Langacker argues in the above quotation.

1.4 Theoretical assumptions

"The natural condition of a language is to preserve one form for one meaning, and one meaning for one form" (Bolinger (1977: x)). The one-meaning-one-form principle emphasizes the pairing of form and meaning. The idea of linguistic units as form-meaning pairings is the central principle that governs Construction Grammar enterprises and the symbolic view of grammar in Cognitive Linguistics, particularly Langacker's Cognitive Grammar (Langacker (1987, 1991a, 1991b, etc.)).

A classic example in favor of the one-meaning-one-form principle is the morning star and the evening star. Both stars were named by the ancient Greeks, who noticed the bright stars showing up shortly before sunrise and after sunset. At present, both names are known to refer to the same planet, Venus. Given that the meaning of a word is based on reference, both words have the same semantic value (cf. Frege (1982)). The morning star and the evening star should be defined with reference to the context in which they are found.

The one-meaning-one-form principle also applies to sentences. Early models of Generative Grammar attempted to relate two sentence patterns, or constructions, that are syntactically different but truth-conditionally the same by transformation because of the (partial) denial of empiricism and the assumed limited memory capacity of the brain. Many data have refuted this transformational view of grammar, however. Well-known pairs of examples are provided by Bolinger:

(10) a. The stranger approached me.
b. I was approached by the stranger.

(Bolinger (1975: 68))

4. This statement is based on Yoshikiyo Kawase (in personal communication).

(11) a. The train approached me.
b. * I was approached by the train.

(ibid.)

The contrast in (11) proves that the passive construction has a semantic feature that is distinguishable from the active counterpart. Therefore, each form should be explained on its own terms.

This thesis advocates the one-meaning-one-form principle. In current linguistic theories, Construction Grammar approaches that incorporate the cognitive commitment (Boas (2003), Goldberg (1995, 2005), Iwata (1998, 2008) and Croft (2001, 2012), among others) and Cognitive Grammar (Langacker (1987, 1991a, 1991b, etc.)) implement the principle in full. This thesis draws on the ideas and spirit of those theories and is based on the following underlying assumptions (cf. Boas (2013: 248-249) and Goldberg (2013)):

- Grammar is nonmodular and nonderivational.
- Grammar is symbolic and meaningful. Thus, grammar accounts for the continuum of regularity from fully idiomatic expressions to general syntactic patterns. There is no distinction between syntax and lexicon.
- Grammar is usage-based. Constructional schemas, or constructions, are generalizations over actual expressions. A higher-level construction is a general representation that abstracts from a collection of lower-level constructions. The existence of constructions is motivated by more general properties of human cognition and experience.
- Meaning is empirical. The meaning of a word is defined with reference to our knowledge and experience. "Meanings are relativized to scenes" (Fillmore (1977/2003: 209)).

When I refer to my theoretical strand throughout this thesis, I use the name Cognitive Construction Grammar.

1.5 Methodology

The usage-based model takes a bottom-up approach to data analysis. In Cognitive Linguistics and Construction Grammar with a usage-based view, grammar is modeled on actual usage events, i.e., "actual utterances in the full richness of their phonetic detail and contextual understanding" (Langacker (1991b: 2)). This view makes the theories compatible with quantitative data analyses. Since the occurrence of the quantitative turn in the journal *Cognitive Linguistics,* Janda (2013) reports that the number of articles using quantitative data is increasing.

An advantage of quantitative research methods is that they allow linguists to describe data objectively. Although the introspection-based analysis on which linguists have long depended is useful in revealing meaningful contrasts between minimal pairs of sentences and finding clues to conditions for differentiating between felicitous and infelicitous linguistic expressions, analysis using linguists' intuitions has caused some problems: there are disagreements between linguists, and linguists' intuitions may be biased by their theoretical commitments (cf. Janda (2013)).

However, some care is required in conducting quantitative research. First, no corpus provides negative evidence. The nonexistence of a certain sequence of words in a corpus does not support the ungrammaticality of the sequence. Second, corpus data may include "wrong" data, i.e., wrongly tagged data and instances uttered or written mistakenly. A third issue is representativeness. Representativeness means whether a corpus is representative of the language variety in that it consists of a wide range of text categories (cf. Biber (1993)). Before conducting research, we must determine whether a corpus is suitable for our intended research.

For this project, I use the BNC as the main data source because of its representativeness. I also used the Corpus of Contemporary American English (COCA) only to find examples that make my points easy to understand. In addition, I cite some examples from dictionaries, novels and the Internet when no examples that illustrate the points at issue appear in the corpora. Most of the examples cited from the novels are found in Google books (https://books.google.co.jp).

"There should be a healthy balance between introspection and observation in any scientific inquiry" (Janda (2013: 6)). This thesis adopts introspection-based research methods as well as quantitative research methods. It contains the datasets for which

native speakers of English judged the acceptability; in addition, the results of their intuitions were solicited. The datasets include the examples I constructed, but many of the data consist of corpus attestations.

In chapter 4, I report the results of my quantitative research. The research was conducted on the BNC. The BNC is "a 100 million word collection of written and spoken English from a wide range of sources, designed to represent a wide cross-section of British English from the later part of the 20th century, both spoken and written" ("What is the BNC?" http://www.natcorp.ox.ac.uk/corpus/index.xml?ID=intro). I used different interfaces to access the BNC. I used SARA, provided on the BNC World Edition (2001), for *refuse* in Ueda (2005) and XAIRA, provided on the BNC XML Edition (2007), for *deny* in Ueda (2014). The data for the verbs *allow*, *grant*, *give* and *permit* were obtained through BNCweb (http://corpora.lancs.ac.uk/BNCweb).

I used the chi-square test (X^2 test) to determine whether there is a significant difference in distribution between the active form and the passive form of the verbs of permission/enablement (*allow, deny, grant, refuse* and *permit*) and the prototypical ditransitive verb *give*. The chi-square test can be used for a matrix of data to explore the relationship between two variables. It "evaluates the distribution of observations in relation to what would be expected in a random distribution given the totals for the rows and the columns" (Janda (2013: 9)). Another statistical model used in this thesis is correspondence analysis. Correspondence analysis is a statistical technique "that allows the user to graphically display row and column categories and provide a visual inspection of their 'correspondences,' or associations, at a category level" (Beh and Lombardo (2014: 20)). I conducted these statistical analyses on R, a language for statistical computing and graphics available in source-code form as free software under the terms of the Free Software Foundation's GNU General Public License (for more details, see the official R webpage at https://www.r-project.org), through the user-friendly interface MacR, offered by Yasuhiro Imao. I used MacR because I have little knowledge of writing scripts for R. As Janda (2013) argues, we are required to share the data and the statistical codes used to analyze them. The data are included in the appendix, although the codes are not made public because MacR processed the data for me.

1.6 Overview

I have thus far described the theoretical framework and the methodology that I adopt in this thesis. The subsequent chapters are organized as follows.

Chapter 2 presents the theoretical framework and presuppositions on which this thesis is based. Section 2.1 presents basic ideas on which the theoretical framework of this thesis is founded—models of saliency, categorization, reference points and metaphor on the basis of the Cognitive Linguistics view of language as an integral part of cognition (Langacker (1987, 1991a, 1991b, 2000, 2008), Lakoff (1987, 1990, 1993), Lakoff and Johnson (1987), Johnson (1987) and Taylor (2003)). Section 2.2 reviews two approaches to the dative alternation in Generative Grammar and argues that the target construction should be analyzed on its own terms, not in relation to other semantically related constructions. In the Generative Grammar framework, the transformational approach accounts for the alternation with transformational rules at the syntactic level; the lexical rule approach relates the alternating structures by modifying the verb's semantic structure at the lexical level. Both approaches fail to explain individual cases satisfactorily. Another problem is that such approaches seek to relate the alternating syntactic forms while they belittle the commonalities shared by instances in the same syntactic form (i.e., the surface generalization (Goldberg (2006)). Following the Construction Grammar view, I conclude that each of the polysemous syntactic patterns should be dealt with independently. I pursue the strong semanticist hypothesis that meaning determines form and emphasize a precise, exhaustive analysis of verb semantics. Section 2.3 presents the grammatical framework for this thesis. This thesis adopts a Cognitive Construction Grammar approach that provides a symbolic and usage-based view of language. In the symbolic view, every linguistic unit is assumed to be a form-meaning pairing (i.e., a symbolic structure). Thus, a linguistic theory with the symbolic view accommodates the spectrum of regularity from idiomatic expressions to general analyzable patterns. The usage-based view takes a bottom-up approach in which generalizations emerge from actual usage. I argue that it is important to focus on lower-level generalizations and their instances and conduct an in-depth study of verb meanings. Section 2.4 deals with Langacker's idea of role archetypes, which are defined in relation to the scenes in which they participate. Then, I unify the ideas of role archetypes and reference-point relationships to define the meaning of the prototypical caused-

possession ditransitive construction. Section 2.5 provides the basis for analyzing causative ditransitive constructions, which are discussed in chapter 4. On the basis of Talmy's force dynamics, I use the action/causal-chain model to characterize the two types of causation that can be designated by ditransitive constructions—the driving-force type of causation and the barrier type of causation.

Chapter 3 focuses on the caused-possession ditransitive construction. Section 3.1 reviews the family of senses denoted by the caused-possession ditransitive construction. Section 3.2 explores the semantic properties of the ditransitive construction vis-à-vis the verbs that appear in the construction. I argue that since verbs and constructions are in a schema-instance relationship, ditransitive constructions, whether higher-level schematic constructions or lower-level specific constructions, are no more than generalizations over their instances. The ditransitive construction does not include the additional elements that are not found in the instances. Thus, the ditransitive construction should not be granted the power to augment the valency of a two-place predicate (i.e., the number of grammatical elements that a verb takes). I also discuss the notion of successful transfer. I argue that the notion is the natural consequence of the discontinuous nature of the possession domain and that it should be attributed to an important feature that characterizes the prototypical caused-possession ditransitive construction. I demonstrate that the cancelability of the notion is influenced by another factor involved in the spatial domain. Section 3.3 presents a part of the network structure of the caused-possession ditransitive construction, based on the usage-based view. I present the highly abstract schema of the caused-possession ditransitive construction. It specifies intentionality on the part of the Giver.

Chapter 4 concerns the causative ditransitive construction. Section 4.1 presents the semantic structures of the two types of causation designated by the ditransitive construction—the driving-force type and the barrier type of causation. I argue that both types of causation can be motivated by the CONTROL IS HOLDING metaphor and that the metaphor has an experiential basis in the hand-to-hand transfer. Two functions of the hand are the key to relating both types of causation to the single ditransitive form. Section 4.2 applies the causation analysis to the verbs of permission/enablement *allow, deny, grant, permit* and *refuse.* I introduce the notions of Causer-oriented and Experiencer-oriented relations and describe the difference

between the verbs of enablement, *allow, deny* and *permit*, and the verbs of permission, *grant* and *refuse*. The verbs of enablement are instances of the barrier type of causation, and their DObj entities tend to be Experiencer oriented. On the other hand, the event structure profiled by the verbs of permission is captured by the driving-force type of causation, and the DObj entities of the verbs of permission tend to be Causer oriented. However, the phase subsequent to the profiled portion shows similarities to that of Experiencer-oriented relations found with the barrier type of causation. I conclude that the permission type has features of both the driving-force type and the barrier type of causation. In section 4.3, I employ quantitative methods to reveal the lexical properties of the verbs of permission/enablement and the prototypical ditransitive verb *give*. First of all, I report the raw frequencies of the target verbs and the DObj nouns. I find two things: First, the variation of DObj nouns taken by *give* is greater than that of the verbs of permission/enablement; second, the verbs of permission appear more frequently in the passive voice. The first finding is due to the semantic nature of *give*. *Give* is generally assumed to be a schematic verb whose meaning fits various scenes properly, while the verbs of permission/enablement, as the name indicates, refer to specifically defined scenes. The second finding can be accounted for by our frame-semantic knowledge of PERMISSION. In the PERMISSION frame, the Applicant for Permission exists before the Permission is granted. The verbs prefer to choose the passive voice, probably because the Applicant is more likely to be introduced in the preceding discourse. I also present the results of the correspondence analysis performed in Ueda (2018b) and Ueda (2019). They indicate that *give* and the verbs of permission/enablement are differentiated and that the verbs of permission *grant* and *refuse* are distinguished from the verbs of enablement *allow, deny* and *permit*. The results confirm two things: First, *give* should be characterized independently of the verbs of permission/enablement; second, the verbs of permission and the verbs of enablement should be distinguished. The division between the two verb classes is newly identified in my study.

Chapter 5 makes concluding remarks and indicates some still unsolved problems for future work.

Chapter 2. Theoretical Framework and Assumptions

Language is not an abstract computational system installed independently of other cognitive faculties. It is inseparable from our general cognitive mechanisms. Our experience and knowledge rooted in culture, customs and society are indispensable to language. Language is part of a highly complicated system of our cognition and reflects our way of seeing and understanding our surroundings.

This chapter presents the theoretical framework and assumptions on which this thesis is premised. The underlying principle governing my linguistic analyses stem from the central claim of Cognitive Linguistics: Language is an integral facet of cognition. This principle guides us to approach language in terms of our cognitive systems and abilities.

Section 2.1 gives general ideas of how our cognitive mechanisms manifest themselves in language. We see mainly the relationship of cognitive saliency and linguistic structures, the choice of linguistic variants based on the alternative construals of a scene, the prototype theory of categorization, and metaphors and their experiential basis (Langacker (1987, 1991a, 1991b, 2000, 2008), Lakoff (1987, 1990, 1993), Lakoff and Johnson (1987), Johnson (1987) and Taylor (2003), among others).

From sections 2.2 to 2.5, our focus shifts more to linguistic aspects. Section 2.2 reviews two approaches to the dative alternation—the transformational approach and the lexical rule approach—in Generative Grammar. Both approaches attempt to relate the two syntactic forms by derivation but fail to explain individual cases satisfactorily. Another problem is that such approaches seek to relate the alternating syntactic forms while they overlook the commonalities shared by the instances with the same syntactic form (i.e., the surface generalization (Goldberg (2006)). I advocate the Construction Grammar view that each of the polysemous syntactic patterns should be dealt with independently. Furthermore, I argue that a minutely detailed analysis of verb meaning is necessary for the study of the ditransitive construction.

Section 2.3 provides the details of the theoretical framework upon which this thesis is founded, following the ideas and conditions in sections 2.1 and 2.2. The framework makes the cognitive commitment (Lakoff (1990)) and assumes that constructions are motivated by human cognition and experience. It is also required to

accommodate the continuum from idiomatic expressions to general analyzable patterns. This thesis therefore adopts a Cognitive Construction Grammar approach that regards every linguistic unit as a form-meaning pairing (i.e., symbolic structure) (Boas (2003), Goldberg (1995, 2005), and Iwata (1998, 2006), among others, and additionally, Langacker's Cognitive Grammar). It takes the usage-based view and emphasizes that verb meanings must be defined with reference to our rich, complicated background knowledge.

Section 2.4 deals with semantic roles, which play a central role in defining verbs' meanings and accounting for the verbs' syntactic behavior. I follow Langacker's idea of role archetypes. He assumes that semantic roles are relativized to the scenes in which they participate. This assumption is consistent with my position that verbs' semantics should be analyzed in more detail. The definition of the prototypical ditransitive construction is given in terms of role archetypes and a reference-point relationship.

Section 2.5 presents how language encodes causal relationships. My focus is on the two types of causation that can be designated by ditransitive constructions—the driving-force type of causation and the barrier type of causation. The driving-force type of causation is a kind of direct causation and can be easily captured by the causal/action-chain model. On the other hand, the barrier type of causation is not straightforward because this type of causation has more than one causal chain. I show how the driving-force type of causation and the barrier type of causation are structured in terms of force dynamics (Talmy (1988, 2000)).

2.1 Language as a reflection of our views and construals

Language is part of cognition. Linguistic expressions are not the products of mathematical computation with abstract rules and principles. They reflect how we view and construe the world around us.

To illustrate this general idea, let us consider binding, the distribution of anaphoric elements. Compare the following pair:

(12) a. John painted him.
b. John painted himself.

The pronominal *him* cannot refer to the subject nominal *John*, but its antecedent is found outside the sentence in (12a), say, *Jack*. On the other hand, the anaphor *himself* should be coindexed with *John* in (12b). Generative Grammarians assume that these relations are purely syntactic. Conditions A and B of the Binding Theory are defined by Chomsky (1986: 166) as follows:

(A) an anaphor is bound in a local domain
(B) a pronominal is free in a local domain

The precise definition of the local domain is needed, but for the sake of argument, I read it as a clause. Condition A says that *himself* should be bound (i.e., find its antecedent) in a clause in (12b); thus, it refers to the subject *John*. Condition B applies to (12a) with the result that *him* refers to a person other than *John*.

In an out-of-the-blue context, the Binding Theory works well with such examples as those in (12). However, things are not always so simple. Compare the examples in (13) and (14), both of which are quoted from *Harry Potter and the Prisoner of Azkaban*:

(13) 'Come on!' he muttered, staring about. 'Where are you? Dad, come on—'

But no one came. Harry raised his head to look at the circle of Dementors across the lake. One of them was lowering its hood. It was time for the rescuer to appear—but no one was coming to help this time—

And then it hit him—he understood. He hadn't seen his father—<u>he had seen *himself*</u>—

(p. 442, emphasis original; underline added)

(14) Hermione listened to what had just happened with her mouth open yet again.

'Did anyone see you?'

'Yes, haven't you been listening? <u>*I* saw me</u> but I thought I was my dad! It's OK!'

(p. 443, emphasis original; underline added)

In the scene described in (13), the present Harry, using a magical item, went back to the past and saw his past self being helped by a person whom the present Harry had believed to be his dead father. The past Harry could not identify who helped him, but he believed his father came and helped him. In reality, the person who helped the past Harry was the present Harry. The present Harry noticed later that he had helped his past self. The underlined sentence *he had seen himself* meets condition (A). The reflexive pronoun is bound to the subject.

The quotation in (14) refers to the scene described in (13). In this quotation, Hermione, one of Harry's close friends, asked whether anyone had seen him because Harry had to avoid being seen by anybody while he was in the past. The underlined sentence *I saw me* refers to the underlined sentence in (13), and the subject *I* and the object *me* are coreferential. Then, this example violates condition (B) because the object *me* is a pronominal but is bound to the subject *I*.

To understand the two sentences properly, we have to figure out how to view the described scene. In (13), we understand that the present Harry saw himself through the eyes of his past self. The anaphora *himself* is bound within a single domain formed from the individual viewpoint. On the other hand, in (14), we comprehend that the subject *I* refers to the past Harry, while the object *me* refers to the present Harry. That is, the past Harry and the present Harry are construed as different individuals. As the sentence that follows suggests, the past Harry did not notice that the person he saw was himself and believed that he saw his father. The object *me* is interpreted as someone other than Harry from the past Harry's vantage point. Therefore, the subject *I* and the object *me* are not coreferential. Without taking into consideration the characters' vantage point from which the story is narrated, we cannot fully comprehend the examples in (13) and (14). (For details of the theoretical background, see Fauconnier (1997), Hirose (1997), Van Hoek (1997), Zribi-Hertz (1989), and so forth.)

Some may think that the Harry Potter cases are special. However, there are plenty of ordinary sentences that reflect our ways of viewing and construing a situation. The following examples, cited from Langacker (2008: 71), illustrate this point:

(15) a. The lamp is above the table.
b. The table is below the lamp.

The argument below follows Langacker (2008). When we view a scene, our attention is focused on a portion of the scene. Both sentences in (15) refer to the same spatial relationship between the two objects with respect to the vertical axis. In (15a), we put the primary focus on the lamp, thereby conceptualizing it as salient. In (15b), we view the table as a salient entity. The sentences in (15) impose different construals on the conceptualization of the relationship. The difference can be made clear by giving a discourse context:[5]

(16) Where is the lamp?
  a. The lamp is above the table.
  b. * The table is below the lamp.

(17) Where is the table?
  a. * The lamp is above the table.
  b. The table is below the lamp.

The examples in (16)-(17) illustrate that the sentences describe different objects as being located. Put another way, each sentence puts the primary focus on a different entity. Langacker defines the most prominent participant within a relationship as the trajector (tr). Another entity that is given secondary focus is called a landmark (lm). The prepositions *above* and *below* have the same content, but they make different choices of trajector and landmark. The preposition *above* chooses the entity that is located higher, i.e., *the lamp,* as the trajector, whereas the trajector of *below* is the entity located lower, i.e., *the table*. A similar relationship is true of *before* and *after*. See Langacker (2008: 70-73) for more details.

In the following subsections, I present some theoretical assumptions within the Cognitive Linguistics framework. Section 2.1.1 explains the distinction between the notions of profile and base. These notions are closely related to alternate construals of the same scene. The profile and base alignment plays an important role in relating two causative ditransitive constructions, as we see in section 4.1.

Section 2.1.2 presents the prototype theory. This theory explains how the category

5. The asterisk before the sentences in (16b) and (17a) indicates that the sentences are not grammatically and/or semantically appropriate. I also use the symbols *?*, *??* and *?** to indicate that appropriateness varies from relatively high (?) to relatively low (?*).

is structured. Unlike the classical view of category, the prototype theory assumes that the members of a category are not equal in status and that the boundaries between categories are fuzzy. We see in chapter 3 that the category of caused-possession ditransitive constructions includes the prototypical members that entail successful transfer of possession and the nonprototypical members without such an entailment.

Section 2.1.3 provides an overview of metaphor. Metaphor helps us comprehend an abstract concept by mapping the elements in the more concrete domain onto those in the target domain. The mapping relationship is motivated by our perceptual, physical or cultural experience. In my discussion, the premise that metaphor is grounded in our experience is the key to revealing the relationship between two different types of causative ditransitive constructions, as we see in chapter 4.

Section 2.1.4 outlines reference-point relationships. These relationships are used to describe possessive relations among participants. They characterize the transfer of possession that is designated by the caused-possession ditransitive construction.

Finally, in section 2.1.5, I will cite my research on "bouncing *off*," a usage of the preposition *off*, and argue that a lower level of specificity is essential to the study of word meanings. This argument suggests the importance of studying lower-level constructions.

2.1.1 Profile and base

The trajector/landmark alignment is a reflection of how we construe a scene and structure it with language. The alignment chooses salient participants in a scene. There is another way of conceptualizing a portion of a scene as salient. It is the profile/base organization (aka the figure/ground organization in gestalt psychology). The organization implies that the conceptualization of a part needs to refer to the whole. The meaning of a linguistic expression cannot be defined without recourse to the whole background information. Textbook examples are the set of words *elbow, hand*, *arm* and *body* (Langacker (2008: 63-64)). The word *elbow* evokes (i.e., "bring in the speaker/hearer's mind broader background knowledge associated with the meaning of a word") the arm and the whole body. The definition of *elbow* in an English dictionary illustrates this point. The following definition is cited from *LDOCE:*

(18) elbow: the joint where your arm bends

(*LDOCE*, s.v. *elbow*)

The definition in (18) suggests that we need to mention the arm to define *elbow*. Similarly, the definition of *hand* in (19) mentions the arm:

(19) hand: the part of your body at the end of your arm, including your fingers and thumb, that you use to hold things

(*LDOCE*, s.v. *hand*)

Our lexical knowledge about the body parts is organized in terms of part-whole relationships. The fingers and thumb are the parts of the hand, which is part of the arm, which is part of the body. A similar organization exists for *elbow.*

As the definitions in (18) and (19) indicate, the body part relevant to characterizing *elbow* and *hand* is the arm. The whole body bears direct relevance to the arm and indirect relevance to the elbow and the hand. In Langacker's terms, for *hand* and *elbow,* the whole body functions as maximal scope, and the arm functions as immediate scope. These relations are diagrammed in Figure 1:

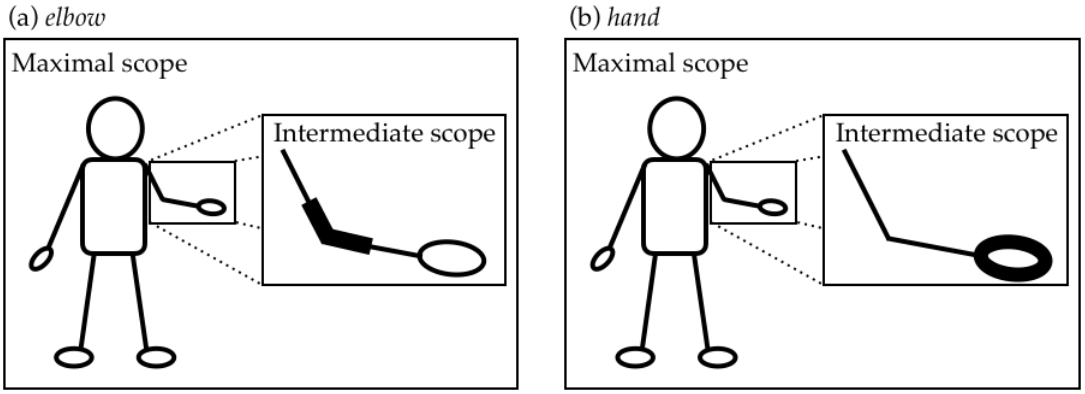


Figure 1: Schematic representations of the relations between *elbow, hand, arm* and *body* (after Langacker (2008: 64))

Let us compare *elbow* and *hand*. Their maximal scope extends to the body. Within the maximal scope, the arm is defined as the immediate scope, or the "onstage" region (i.e., "foregrounded in relation to the maximal scope") on which our general

attention is focused. The words *elbow* and *hand* are characterized in the same base. In the immediate scope, each word singles out a different part as its profile. The profiled portions are indicated by the heavy lines in Figure 1.

The profile/base organization is also relevant to linguistic units larger than words. The dative alternation, as illustrated in (20), can be explained in terms of the profile/base organization:

(20) a. Bill sent a walrus to Joyce.
b. Bill sent Joyce a walrus.

(Langacker (1991a: 13))

Following Langacker (1991a), the event structure described by each sentence is diagrammed in Figure 2:

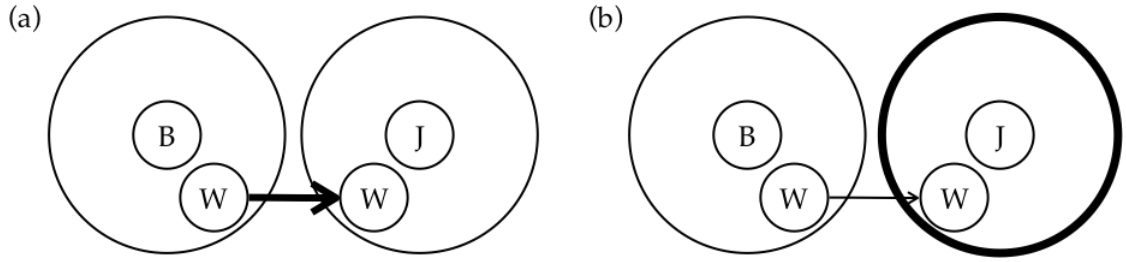


Figure 2: Different construals of the interaction among Bill, Joyce and a walrus (after Langacker (1991a: 14))

In Figure 2, the small circles labeled *B*, *J* and *W* represent the event participants, Bill, Joyce and a walrus, respectively. The large circles represent the regions over which Bill and Joyce can exert control, i.e., Bill's and Joyce's dominions (section 2.1.4). The two diagrams (a) and (b) portray the same event in which the walrus is transferred from Bill's dominion to Joyce's dominion while the profiled portions are different. In Figure 2(a), the preposition *to* profiles the process of moving the walrus, which is indicated by the bold arrow; Figure 2(b) profiles the resultant state of the walrus being with Joyce. The profiled state is indicated by the bold circle. In short, the two constructions share the same base but profile different aspects of the base. This "reflects our ability to construe a conceived situation in alternate ways" (Langacker

(1987: 138)), which is a linguistic representation of "a gestalt shift" (Pinker (1989: 79)).

2.1.2 Prototype

One of our general cognitive abilities is categorization. It is our mental process of arranging entities into categories. The prototype theory assumes that a category is formed with members that center around the most representative member, or the prototype. According to the theory, the boundaries between categories are fuzzy; the members placed peripherally share a small number of features with the prototype; the peripheral members of a category have characteristics close to those of the proximate category. This view is contrasted with a classical, Aristotelian view of categorization. In a classical view, categories should have clear boundaries and be mutually exclusive. In a category, all members have essential features that define the category. All members of a category are equal in status; there are no central members or peripheral members.

Previous studies have revealed that the classical view does not hold in many cases. For example, Berlin and Kay (1969) and Rosch (1973), among others, reveal that there is no clear boundary between colors because of the nature of human perception. As Rosch (1973) shows in her experiments, some colors, called "focal colors" (Berlin and Kay (1969)), are more salient in perception than are nonfocal colors. The category of a color is formed around the focal color, and membership in the category is determined with reference to the focal color. The focal color is viewed as a "good example" of the category, while the colors around the boundary are seen as "poor examples."

Furthermore, the prototype effects can be observed with natural organisms and artificial substances. Rosch (1975) points to an example of the category of BIRD as empirical evidence to support the prototype theory. The category includes good examples such as robins, sparrows and bluejays and poor examples such as ostriches, penguins and bats. Note that the classification of the bat as a poor example indicates the fuzziness of the boundary between BIRD and its neighborhood. Rosch's experiments confirm that artificial substances such as furniture and vehicles show the prototype effects. See Rosch (1975) for details. (See also Taylor (2003).)

Grammatical constructs also show prototype effects. Lyons (1968) argues that the categories verb and adjective are not clearly distinguished in terms of inflectional

properties. Ross (1973) presents "Nouniness Squish" to indicate that grammatical gradations are observed between nominals and sentences. Another example is found in the passive ditransitive construction. Fillmore (1965) and Kay (2005) treat the passive sentences formed from benefactive ditransitive sentences (such as ditransitive sentences with verbs of creation/obtaining) uniformly as ungrammatical, disregarding the subtle differences in acceptability, conceivably for theoretical reasons. Some linguists observe that the grammaticality of passive ditransitives varies. Jackendoff and Culicover (1971: 400) compare the sentences in (21) and judge that the (a) sentence is grammatical, while the (b) sentence is not acceptable (see also Langendoen et al. (1974)):

(21) a. Mary was bought a new wardrobe by John.
b. ?* Mary was played a tune by John.

Pinker (1989: 221) makes careful observations on the passivizability of benefactive ditransitive sentences. He states that some are marginally acceptable, while others are completely unacceptable. The data in (22) are provided by Pinker:

(22) a. ? Bob was bought a present by Sam.
b. ? Bob was baked a cake by Sam.
c. ?? Bob was cut a slice of pie by Sam.
d. ?* Bob was knit a sweater by Sam.
e. *? Bob was built a house by Sam.
f. *? Bob was played the trombone by Sam.
g. * Bob was gotten a watch by Sam.

As far as the verbs *buy* and *play* are concerned, Jackendoff and Culicover's acceptability judgment accords closely with Pinker's. Jackendoff and Culicover suggest in a footnote that the difference in acceptability results from whether the IObj entity "has" the DObj entity. It is possible to "have" a new wardrobe, while we cannot "have" a tune. Jackendoff and Culicover mention that other factors may be involved in acceptability, adding that the sentence *Mary was bought a book by John* is "somewhat less acceptable than [21a]" (fn. 2).

Furthermore, Goldberg (1995) assumes that semantic variation among ditransitive instances manifests prototype effects. According to Goldberg, the caused-possession ditransitive construction is a case of constructional polysemy, i.e., the pairing of a syntactic form with distinct but related meanings. She characterizes the prototypical sense of the construction as involving "successful transfer of an object to a recipient, with the referent of the subject agentively causing this transfer" (p. 33). (See sections 2.3.3 and 3.2.1 for Goldberg's framework.) Other senses extend radially from the prototypical sense. (See Figure 26 in section 3.2.1.)

2.1.3 Metaphor

Metaphor structures the way we think. Metaphor is not just a figure of speech used in poetic language. A major breakthrough in studying metaphor as our cognitive process was made by Lakoff and Johnson (1987). Metaphor, specifically, conceptual metaphor, is defined as understanding one conceptual domain in terms of another. The conceptual domain with which we are familiar is used to understand the other domain, which consists of abstract concepts and is difficult to comprehend as it is. The familiar domain is called the source domain; the domain to be understood is called the target domain. The elements constituting a source domain are mapped onto, or correspond to, the elements in the target domain. The way of mapping is systematic. For example, the LOVE IS A JOURNEY metaphor helps us understand how a romantic relationship progresses in terms of a journey. The mapping relation between the source domain and the target domain can be expressed as follows:

Table 1: The mapping relationship between JOURNEY and LOVE (KÖVECSES (2010: 9))

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

The LOVE IS A JOURNEY metaphor licenses the following expressions provided by Lakoff and Johnson (1987: 44-45):

(23) a. Look how far we've come.
b. We're at a crossroads.
c. We'll just have to go our separate ways.
d. I don't think this relationship is going anywhere.
e. Where are we?
f. We're just spinning our wheels.
g. Our marriage is on the rocks.

In the examples in (23), the expressions associated with a journey are used to describe romantic relationships. For example, the subject *we* refers to the lovers; the distance covered by the lovers means the length of time that the lovers have spent together; and the *crossroads* represents the time when the lovers make an important decision about their future.

The fact that metaphors map concrete domains onto abstract domains does not mean that no constraints are placed on creating metaphorical mapping relations. Metaphors are grounded in our experience. For example, the ANGER IS HEAT metaphor allows us to use the following expressions, all of which are cited from *LDOCE*:

(24) a. Lewis was boiling with rage and misery. (s.v. *boil*)
b. He was seething with anger. (s.v. *seethe*)
c. I don't understand why people are getting so hot under the collar about it. (s.v. *hot*)

The ANGER IS HEAT metaphor is motivated by the recurring experience in which anger makes the body temperature rise.

The LOVE IS A JOURNEY metaphor also has an experiential basis. This metaphor is a special case of the LIFE IS A JOURNEY metaphor, which is an instance of the more general metaphor PURPOSES ARE DESTINATION. According to Kövecses (2010), the PURPOSES ARE DESTINATION metaphor is grounded in our experience because if "we want to do something, we often have to go to a particular place to do that thing" (p. 80). This experiential basis applies to the specific cases, the LIFE IS A JOURNEY metaphor and the LOVE IS A JOURNEY metaphor.

In Chapter 4, I argue that at least two metaphors are involved in two types of causative ditransitive constructions: CAUSATION IS TRANSFER and CONTROL IS HOLDING. Of the two metaphors, the CONTROL IS HOLDING metaphor is the key to explaining why English has two types of causative ditransitive constructions and how they are related. My point is that the metaphor provides a single experiential basis that motivates the two constructions in different ways.

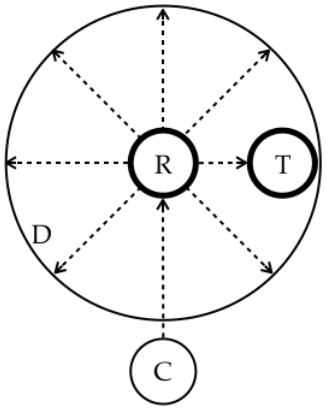
2.1.4 Reference-point relationship

The use of cognitive reference points is also a fundamental cognitive ability. A famous example is locating the polestar (cf. Langacker (1991b: 170)). The polestar has been used to find direction because it remains fixed in the northern sky. Since it is not the brightest star, we often use the prominent group of seven stars called the Big Dipper to locate it. The polestar is five times the distance between the two outermost stars in the bowl of the Big Dipper. In this case, we use the Big Dipper as a reference point for locating the polestar. The target object should be in the vicinity of the reference.

The linguistic example in (25) illustrates the use of our reference-point ability:

(25) Do you see that boat out there in the lake? There's a duck swimming right next to it. Langacker (2008: 83)

In the described scene, the speaker judges that the boat is easier to find than the duck. She directs the addressee's attention to the boat first and then has the addressee search for the duck around the boat. The boat serves as the reference point for locating the duck. This relationship is diagrammed in Figure 3:



C = conceptualizer
R = reference point
T = target
D = dominion
---> = mental path

Figure 3: Reference-point relationship (after Langacker (2008: 84))

In Figure 3, the conceptualizers (i.e., the speaker and the addressee) trace the mental path to the reference point (i.e., the boat), from which they establish mental contact with the target (i.e., the duck). The target is located within the dominion, the region around the reference point.

Langacker observes that the category of possession cannot be defined clearly because it embraces a wide variety of relationships between two entities. Langacker proposes that possession is characterized by reference-point relationships. For example, the possessive expression *my book* can be interpreted as "the book I own," "the book I read," "the book I bought," and so forth. Langacker cites the contrastive pairs of examples in (26) and considers that possession is a highly abstract notion that describes asymmetrical relations between the "possessors" and the "possessed" entities:

(26) a. the girl's neck vs. *the neck's girl
b. the boy's knife vs. *the knife's boy

According to Langacker, the asymmetry illustrated in (26) can be clearly explained by the reference-point relationship. The possessor-possessed construction can be modeled on the reference-point configuration, as shown in Figure 3, and the possessor NP functions as the reference point through which the conceptualizer follows the mental path to the target. The referent of the possessor NP is assumed to be salient. When we compare the two entities used in each possessive expression in (26), the more salient entity is chosen as the reference point. The girl and her neck are in a part-whole relation, where the whole is cognitively more prominent. The boy is more salient than the knife because humans are more likely to be recognized individually than inanimate things. (For the cognitive saliency of humans and objects, see also Talmy (1983, 2000).)

Other constructions associated with possession can also be analyzed in terms of reference-point constructions. The ditransitive construction has two object NPs juxtaposed in the postverbal position. They are "linked by correspondences involving an implicit reference point relationship" (Langacker (2000: 191)). As we have seen in Figure 2(b), the ditransitive construction profiles the resultant state of the Mover being in the Recipient's dominion. Figure 4 shows the more detailed semantic structure of the ditransitive construction:

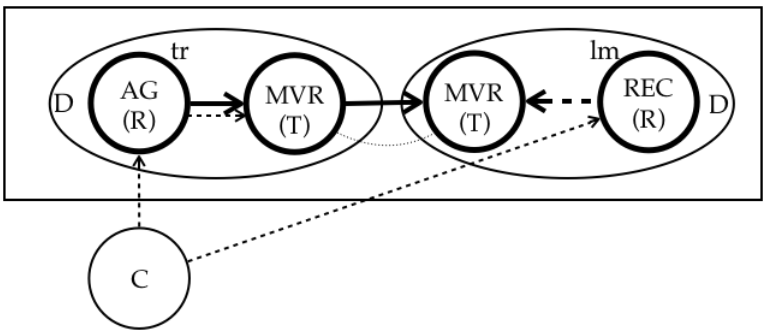


Figure 4: Reference-point relationships involved in the prototypical caused-possession ditransitive construction (the information on the semantic roles and the reference-point relationship added to the semantic structure of *send* provided in Langacker (2008: 242))

The resultant state profiled in Figure 2(b) corresponds to the reference-point relationship of the Recipient to the Mover, which is indicated by the two heavy circles

labeled with MVR (=the Mover) and REC (=the Recipient) connected with the dashed arrow in Figure 4. The dotted line connecting the two Movers indicates that they are identical. The letters *C, R, T* and *D* represent the conceptualizer, the reference point, the target and the dominion, respectively. The abbreviations *tr* and *lm* indicate the trajector (=the Subj) and the landmark (=the IObj). The typical ditransitive construction involves another dominion in which the Giver serves as a reference point. The conceptualizer views the relation between the Giver and the Mover first and makes mental contact with the Recipient and then the Mover. Thereafter, the conceptualizer locates the Mover in each dominion along the sequence of time. This process enables the conceptualizer to follow the movement of the Mover from one dominion to the other.

For the sake of simplicity, I do not include every piece of information given in Figure 4 in the remainder of this thesis. The relevant elements for my discussion below are the interaction between the participants and the dominions around the salient participants.

2.1.5 Levels of specificity

One of the principal objectives of studies in linguistics is finding patterns among linguistic data and making generalizations from the patterns. (See Lakoff (1990) for the generalization commitment.) This objective is motivated by the cognitive mechanism called schematization. Langacker (2008: 56) states that "[s]chematization is fundamental to cognition, constantly occurring in every realm of experience." Schematization is the process of making a generalization, or a schema, abstracting from idiosyncratic details of actual instances. Once a schema is extracted and well established, it can structure the regular configurations found in our experience and furnish a guide to new experience showing the same configuration. Schematization can continue to form a higher-level schema. In the Generative Grammar framework, only general rules and universal principles at the highest level of specificity have been considered to be significant. In Cognitive Linguistics, by contrast, generalizations at every level of specificity (or schematicity) are of vital importance to linguistic analyses. If we endorse Langacker's (2000) statement that "lower-level schemas, expressing regularities of only limited scope, may on balance be more essential to language structure than high-level schemas representing the broadest generaliza-

tions" (pp. 92-93), it is worth exploring instances of a lower-level schema.

In Ueda (2017a), I demonstrate that lower-level image schemas can contribute to studies of word usage. Let us observe the sentence in (27), an example of what I call "bouncing *off*":

(27) Simply throw the ball off the wall, field it and throw it again.
("How to Practice Fielding Ground Balls Alone." http://www.ehow.com/how_4452322_practice-fielding-ground-balls-alone.html; Accessed June 24, 2012)

"Bouncing *off*" is used to express the Mover's trajectory away from the point where it has rebounded, as illustrated in Figure 5:

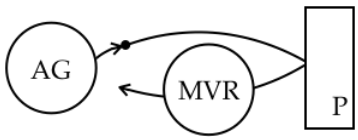


Figure 5: Schematic representation of the Mover's trajectory designated by the sentence in (27)

In Figure 5, *AG* represents Agent, the one who throws the ball, and *MVR* and *P* represent Mover and Place, respectively. The Mover here refers to the ball thrown by the Agent and the Place refers to the wall from which the ball ricochets. The Mover's trajectory is described by the line with the dot and the arrowhead. The dot represents the place from which the Mover started moving (henceforth, the starting point) and the arrow indicates the direction of the Mover's movement.

Let us observe another image schema of *off*. The sentence in (27) is identified as an instance of the caused-motion construction, as illustrated in (28):

(28) Pat sneezed the foam off the cappuccino. (Goldberg (2006: 73))

Figure 6 represents the causal link between the Causer (CS, i.e., Pat), who unintentionally blew air out, and the Mover (i.e., the foam). As a result of the sudden air flow to the Mover, the Mover went away from the Place, the cappuccino.

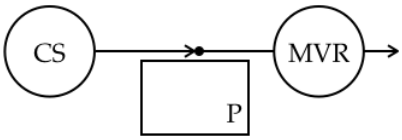


Figure 6: Schematic representation of the participants' interaction described in (28)

In both (27) and (28), the preposition *off* designates the departure from the Place. The difference between the two sentences lies in the Mover's directions of movement and starting points. Regarding the direction, in (27), the ball came back toward the energy source, while in (28), the foam went away from the source. The starting point of the Mover in (27) does not coincide with the point of contact from which the Mover went away. On the other hand, in (28), the starting point and the point of contact coincide.

The image schema that abstracts from the instances of "bouncing *off*" filters out the directions followed by the Mover. The sentences in (29) were found in the captions of videos, which show that the Mover can go in every direction:

(29) a. Ian Madigan fails to get the Leinster score board up and running with this missed penalty which rebounds off the crossbar into play.
("Ian Madigan Missed Penalty Hits Crossbar — Connacht v Leinster." *Guinness PRO 12*. https://www.youtube.com/watch?v=rx2R7NNHAlI; Accessed January 4, 2016)

b. GOAL: Darwin Jones smashes a shot off the crossbar and in.
(http://www.soundersfc.com/post/2016/02/17/goal-darwin-jones-smashes-shot-crossbar-and; Accessed February 17, 2016)

c. Tyson Barrie rings his shot off the crossbar and out of play, narrowly missing his second goal of the period
("Barrie's shot off the crossbar." https://www.nhl.com/ video/ barries-shot-off-the-crossbar/t-277350912/c-41650703; Accessed February 20, 2016)

Figure 7 summarizes the directions followed by the balls (abbreviated to B) in (29) after they ricocheted off the crossbars (abbreviated to CB):

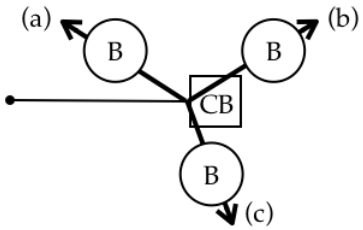


Figure 7: Schematic representation of the ball's trajectory

The topological relation between the ball and the crossbar is the same if the directions are ignored.

Let us add other examples with the common use of *off*. They illustrate that the starting point of the Mover is identical to the Mover's point of contact with the Place:

(30) a. MOMENTS LATER JESSICA's frantically looking for something—opening drawers, throwing books off shelves, scattering papers.
(COCA: FIC: *Dumb and Dumberer*, 2003)

b. I fell off the ladder. (*OALD*: s.v. *off*)

In contrast to (27) and (28), the location of the energy source is also at the Mover's starting point and the point of contact.[6] The difference between (30a) and (30b) is that the Mover in (30a) is set in motion by the external force, while the Mover in (30b) moves autonomously. The trajectory of the Movers (the thrown books in (30a) and the speaker in (30b)) can be diagrammed as shown in Figure 8:

6. Strictly speaking, the location of the Agent and the starting point of the Mover in (30a) are not identical, but we can say that the Agent's location is almost the same as where the Mover was originally located. (30a) is strikingly different from (27) and (28) in that the Mover is some distance from the energy source in (27) and (28). I argue soon that such differences are removed from a higher-level schema.

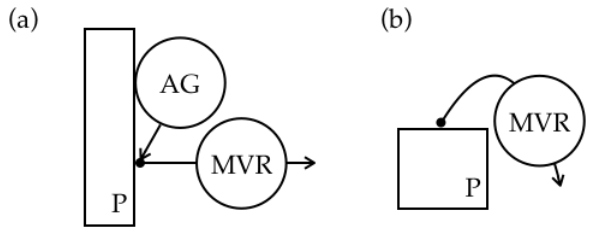


Figure 8: Schematic representations of cases in which the starting point of the energy flow and the point of contact are identical

Figure 9 below presents the higher-level schema of *off* that is extracted from the instances we have seen. In the figure, the bold parts indicate the relations profiled by *off*. The arrows from the higher-level schema, located at the top, to their instances indicate schema-instance relationships. The common image schema shared by the instances in the lower boxes portrays the Mover going away from the Place, and other different details, such as the Mover's direction of movement, the Mover's starting point and point of contact, and the location of the energy source, are filtered out.

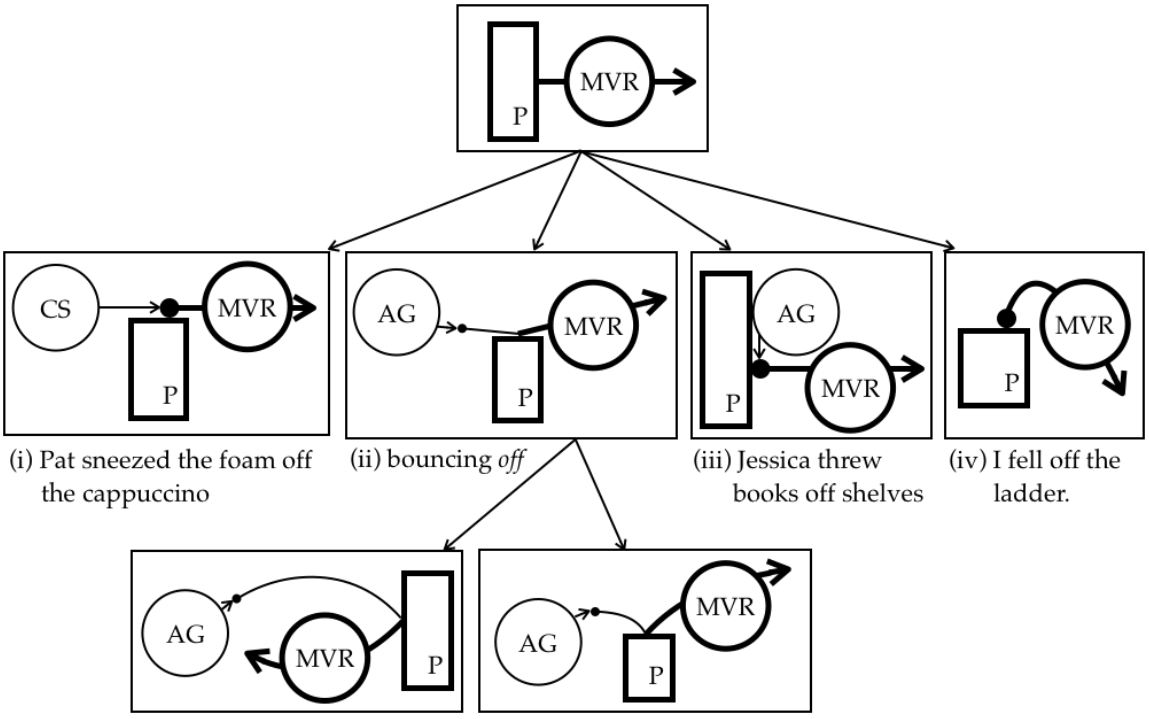


Figure 9: A higher-level schema of the preposition *off* and its instantiating schemas

The discussion thus far suggests that "bouncing *off*" is one of the instances from which the abstract image schema generalizes. Although the higher-level schema is vital to the analysis of the polysemous senses of *off*, I emphasize that "bouncing *off*" is significant for the study of *off*. For example, bouncing is a kind of change of location, and thus "bouncing *off*" cannot be used with the verbs that imply a change in state of the Mover. The sentence in (31a) produces the "bouncing" reading, while such a reading is not available to (31b):

(31) a. He smashed the ball off the wall.
b. * He smashed the bottle off the wall.
(cf. He smashed the bottle against the wall.)

Furthermore, "bouncing *off*" can be used as part of a compound expression, as in (32):

(32) a. Off The Wall Squash
(http://www.offthewallsquash.co.uk; Accessed May 22, 2016.)
b. How to Do an Off-the-Backboard Dunk in Basketball
(http://www.howcast.com/videos/499807-how-to-do-an-off-the-backboard-dunk-basketball/; Accessed September 1, 2016.)

The examples in (32) suggest that the preposition itself evokes the bouncing reading.

The theoretical implication of Ueda (2017a) is that there is a case in which specific levels of schematization contribute to the study of word usage. The study of "bouncing *off*" reveals that the image schema of *off* can be fleshed out with the Mover's starting point, point of contact and direction of movement. This type of study is important because lower-level schemas bear some marked characteristics that are exhibited only at the level of low specificity. Such characteristics bring to light hidden aspects of higher-level schemas of the target linguistic expressions. The lower-level constructions that are focused on in this thesis serve to furnish the detailed semantic structures of the caused-possession and causative ditransitive construction.

2.1.6 Summary

Throughout section 2.1, I have presented the theoretical basis of this thesis. Based on the idea that language reflects our understanding and conceptualization, we have seen the following theoretical models:

- the trajector/landmark alignment
- the profile/base organization
- scope of predication
- alternate construals of the same conceptual content (aka gestalt shift)
- prototype
- metaphors and their experiential bases
- reference-point relationships and possession

2.2 Syntax and lexicon: toward a view of lexicon as determining syntactic patterns

A theoretical issue that has been debated among linguists is how to deal with the pair of different sentence patterns that can refer to the same scene, i.e., syntactic alternation. The dative alternation, which refers to the relation between the ditransitive construction and the prepositional dative construction, is relevant to this thesis. Linguists working in the Generative Grammar framework uncontroversially assume that lexical knowledge (knowledge associated with particular words) and general grammatical knowledge (knowledge about abstract systems of language) should be distinguished (cf. Rappaport Hovav and Levin (2015: 593)). They have explored which type of knowledge is relevant to syntactic alternation. Early modes of Generative Grammar attempted but failed to relate two synonymous sentence patterns by syntactic transformational rules because it turned out that their relations could not be defined without reference to meaning. Instead, lexicon has acquired greater importance (cf. the Lexicalist hypothesis in Chomsky (1970)). The Projection Principle (Chomsky (1981)) assigns the privilege of changing argument structure to lexicon. Lexical semanticists (Levin and Rappaport Hovav (1991, 1993, 2005, etc.), Pinker (1989), Rappaport and Levin (1988), etc.) press ahead with the Projection Principle and endeavor to relate synonymous sentences by lexical rules, which change verbs' meanings to produce alternating sentence patterns.

This section considers how the dative alternation has been dealt with in the Generative Grammar framework and address two problems. The first problem is that neither transformations nor lexical rules can fully account for the distinction between the verbs that can and cannot participate in the dative alternation. Second, if we place too much emphasis on the relationship between the two syntactic forms, we may miss important generalizations over the instances of each syntactic form, as Goldberg (2006) argues. Although I agree with the idea that verbs' lexical meanings play a central role in determining syntactic patterns, each construction should be defined on its own terms and dealt with independently of the other construction. Furthermore, I pursue the strong semanticist hypothesis that meaning determines form and claim that even verbs' minute semantic features can be influential in syntactic realization.

2.2.1 Syntactic account of dative alternation

One of the central concerns in early Generative Grammar models is to relate syntactically different but semantically equivalent structures in an economical way. Behind this idea is the premise that individual speakers know a finite set of rules that generate an infinite set of sentences. Based on this premise, early Generative Grammar models attempt to establish syntactic rules to produce an infinite set of output sentences from a limited number of input sentences. A classic example is passivization, a transformation of a sentence from the active form to the passive form.

Another example is a Dative Movement formulation at the syntactic level, as in (33), adapted from Hawkins (1981: 2), who refers to Emonds (1976):

(33)

	X	– V –	NP –	prep –	NP –	Z
SD:	1	2	3	4	5	6
SC:	1	2	5	ø	3	6

Given the sentence *John sent a package to Mary*, the Dative Movement transformation converts it to the sentence *John sent Mary a package*. This type of transformation is associated with some empirical and theoretical problems. First, not every ditransitive sentence has a prepositional dative counterpart. This means that some ditransitive

sentences are outputs of the Dative Movement transformation while others are supposed to be generated without any input structures.

Another problem is the "autonomy of syntax." Generative Grammar presupposes that syntactic rules should not be restricted by semantic conditions because syntax is independent of semantics. If the formulation in (33) automatically applied to any sentence structure that meets the condition of the structural description (SD), the structural change (SC) would wrongly produce a sentence such as **John sent the place a package* (which could be generated from *John sent a package to the place*). To prevent overgeneration, the formulation would need to access information about the semantic type, or semantic role, of each noun phrase (NP). This option violates the tenet of autonomous syntax.

Furthermore, if the prepositional dative construction (i.e., the input sentence) and the ditransitive construction (i.e., the output sentence) were truly synonymous, their relation could be dealt with by a transformational rule, as in (33). However, the two constructions prove to be different in meaning (e.g., **John sent the place a package* vs. *John sent a package to the place*). Therefore, the syntactic rules without recourse to semantics have difficulty in giving an adequate explanation of the relation between the two constructions.[7]

2.2.2 Verbs' meanings at center stage

Lexicon was once seen as a simple repository of words with their idiosyncratic lexical properties. Early models of syntax in Generative Grammar presume that lexicon provides each verb with information about the number of its complements and the relative order and syntactic categories of the complements, i.e., subcategorization frames, and that lexicon inserts words into the open slots of the syntactic tree generated by phrase structure (PS) rules. The PS rule in (35) and the subcategorization frame in (36) produce the sentence in (34):

(34) John sent a package to Mary.

---

7. A syntactic account of the prepositional dative construction and the ditransitive construction is revived in Larson (1988). He posits the so-called Larsonian VP-shell structure and derives the two variants of the dative alternation from a single underlying structure.

(35) a. S --> NP VP
b. VP --> V NP PP
c. PP --> P NP
...

(36) *send* [_ NP PP]

The subcategorization frame in (36) provides the idiosyncratic property of c(ategorial)-selection, which specifies that *send* takes an NP as the DObj and a PP as the prepositional dative.

As previous studies have pointed out, this model has some problems. First, PS rules and subcategorization frames have redundant information. Second, PS rules are not so restricted as to be banned from making unreal syntactic configurations. Later, as developed in the Generative Grammar theory, X-bar theory and the Projection Principle take the place of PS rules and the subcategorization frame (cf. Chomsky (1970, 1986)).

What is important to my discussion is that the lexical properties of lexical items, especially verbs, are recognized as playing an important role in sentence formation. The Projection Principle requires that "lexical structure must be represented categorially at every syntactic level" (Chomsky (1986: 84)). The idea behind this principle is that a verb's meaning determines the syntactic environment in which the verb occurs. This is the starting point for lexical information having gained importance even in Generative Grammar.

2.2.3 Lexical rules and syntactic realization

Pushing the idea of the Projection Principle forward, lexical semanticists explore the relationship between the semantic structures of verbs and the syntactic patterns in which they appear. The central concern is the valency of verbs and the syntactic realization of argument structure (i.e., the mapping relation of arguments onto syntactic positions). It is assumed that not every piece of semantic information of verbs is relevant to syntax. It is sufficient to isolate syntactically relevant facets of verbs' lexical meanings. Rappaport Hovav and Levin (2015: 594-595) state that "[a]ll research on argument realization is predicated on the assumption that a small number of broad-ranging semantic components, each shared by a large number of

verbs, are relevant to the statement of argument realization regularities."

As studies in lexical semantics have progressed, lexical semanticists have revealed more precise semantic characteristics of each verb class and tried to give a systematic account of the relationship between the meaning of a verb class and the argument realization of the class (cf. Levin (1993)). Furthermore, they have attempted to relate the meaning of a verb class to syntactic alternation. A seminal study in this fashion is conducted by Pinker (1989). He assumes that syntactic realization patterns are sensitive to the semantic structures of verbs. He thus hypothesizes that when a verb's meaning changes, its argument structures change correspondingly. In his framework, lexical rules change verbs' meanings to produce the "output" verbs from the "input" verbs. Linking rules map different semantic structures of a verb onto their corresponding argument structures. The outline sketch of Pinker's framework is shown in Figure 10:

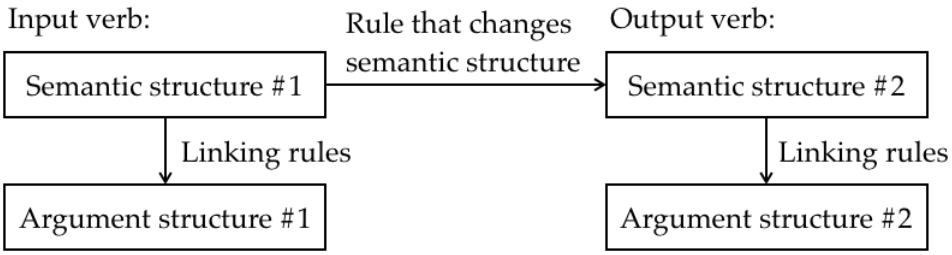


Figure 10: Outline sketch of how lexical rules account for syntactic alternations (Pinker (1989: 63))

Take the dative alternation to see how Pinker's system works. According to him, "[d]ativization, on this view, converts a predicate meaning 'to cause X to go to Y' into a second predicate, meaning 'to cause Y to have X'" (p. 63). Pinker provides the contrast in (37) as evidence for his theory:

(37) a. drive the car to Chicago
b. * drive Chicago the car

The dativization rule does not apply to a verb whose meaning is not consistent with "cause to have." The verb *drive* falls outside the rule because its meaning does not evoke change of possession.

Although, as Pinker himself states, he is "interested only in the process that converts from the prepositional form to the double-object form" (p. 213), he recognizes that not every ditransitive expression has a prepositional dative form. Some idiomatic expressions illustrate his point.

(38) a. Jack gave his daughter a bath.
b. Jack gave his daughter an inferiority complex.

(Pinker (1989: 212))

The sentences in (38) do not have prepositional dative counterparts because the "cause to go" meaning is not suitable to describe the scenes. The sentences do not express transferring a bath or an inferiority complex from John to his daughter. The sentences only imply that Jack's daughter had a bath or an inferiority complex.

Similarly, Pinker observes the contrast between the double-object forms and the prepositional dative forms:

(39) a. Janice gave John an idea.
b. Janice gave an idea to John.

(ibid.)

(40) a. Janice's behavior gave John an idea.
b. * Janice's behavior gave an idea to John.

(ibid.)

The prepositional dative construction is possible only with (39b) because the "cause to go" sense is compatible with the scene in which Janice's idea was conveyed from Janice to John, but not with the scene where Janice's existence caused John to conceive the idea. On the other hand, the ditransitive construction works with both scenes. Pinker concludes that "this difference is captured nicely by the distinction between the GO and the HAVE substructures" (p. 212).

Another set of data enables us to consider Pinker's argument further. Green (1974) and Wierzbicka (1988) observe that verbs such as *deny, refuse* and *allow* are

usually used only in the ditransitive construction:[8]

(41) a. Ted denied Kim the opportunity to march.
b. * Ted denied the opportunity to march to Kim.

(Green (1974: 173))

(42) a. The brass refused Tony the promotion.
b. * The brass refused the promotion to Tony.

(ibid.)

The data in (40) through (42) suggest that some ditransitive sentences can be generated without derivation. Furthermore, although Pinker's interest focuses on the one-way conversion from the prepositional dative form to the ditransitive form, he seems to suppose that the dative rule makes a bidirectional conversion between the prepositional dative construction and the ditransitive construction, as indicated in the lexical rule for the *to* dative alternation in Figure 11. In this figure, the upper diagram represents the thematic core (i.e., "a schematization of a type of event or relationship that lies at the core of the meanings of a class of possible verbs" (Pinker (1989: 73))) for the prepositional dative construction, and the lower diagram represents the thematic core for the ditransitive construction:[9]

---

8. Exceptional cases include sentences with contrastive stress and cases in which the so-called heavy-NP shift is involved, as in the following examples given by Wierzbicka (1988: 381-382):
   (i) Dr Brown allowed two cigarettes a day to John, and five cigarettes a day to Sebastian.
   (ii) Dr Brown allowed two cigarettes a day to patients who were on antibiotics or who were undergoing chemotherapy.
9. I will not go into the details of the diagrams, but I will add a few words in explanation here. The real names are inserted into the diagrams for the sake of readability. The diagram for the *to* dative construction is read as follows: Bob acted on the ring, thereby transferring it to Sue. The diagram for the ditransitive construction means that Bob acted on Sue with the result that Sue had the ring. The square brackets represent the arguments that are supposed to be linked to certain syntactic positions. See Pinker (1989) for more details.

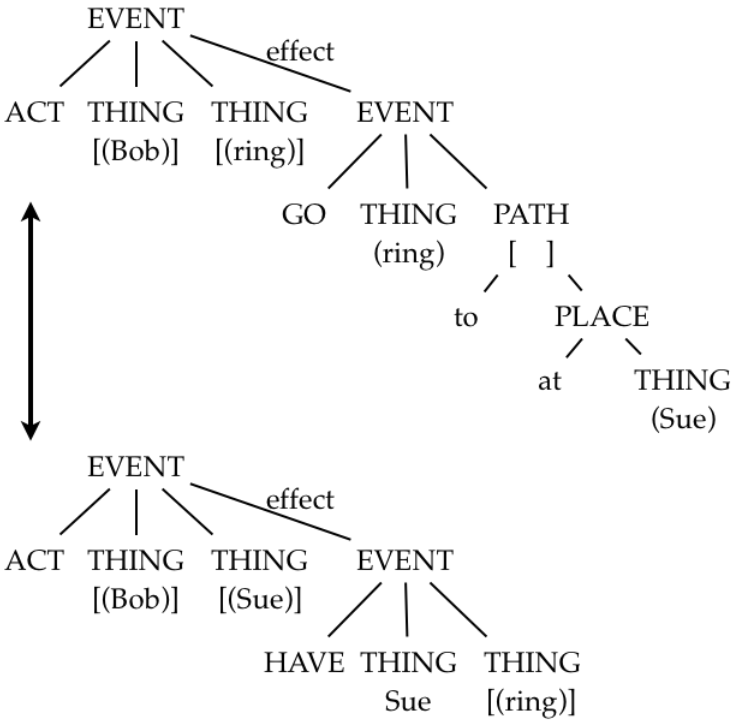


Figure 11: A lexical rule for the *to* dative alternation (Pinker (1989: 211))

Judging from Pinker's argument and the linguistic facts given here, we can say that his analysis probably faces the old theoretical problem raised by Chomsky (1970), who argues that syntax should not use derivation more than necessary. Pinker's analysis would predict that some ditransitive constructions are derivatives of the prepositional dative counterparts and that some other ditransitive constructions are "base-generated."[10] Furthermore, if some *to* dative expressions are generated as a result of converting the ditransitive form to the prepositional dative form, as suggested in Figure 11, the story would be more complicated. Pinker would have to postulate at least four types of construction: (i) the ditransitive form that is converted from the prepositional dative form; (ii) the prepositional dative form that

10. I admit that my argument here simplifies Pinker's system of lexical representations. However, even if we take into consideration a morphological constraint that prevents Latinate verbs from entering into the ditransitive construction (see section 2.2.4 for details) and narrow-range lexical rules that apply to narrowly defined semantic classes of verbs, both of which are essential components of Pinker's framework, the problem remains unsolved.

is converted from the ditransitive form; (iii) the base-generated ditransitive form, which does not have the corresponding prepositional dative form; and (iv) the base-generated prepositional dative form, which does not have the corresponding ditransitive form. In addition, some ditransitive expressions are known to alternate with *for* dative expressions. Within Pinker's framework, this type of ditransitive construction would be assumed to have been converted from the *for* dative construction by another lexical rule. This analysis would increase the number of ditransitive construction types. Furthermore, although the lexical rules help us grasp the relationship between the ditransitive and the *to* dative construction and the relationship between the ditransitive and the *for* dative construction, we may overlook some commonalities shared by the ditransitive expressions that Pinker's lexical rules deal with separately (see section 2.2.5). I conclude that Pinker's analysis makes the facts more complicated than they need to be.

2.2.4 Ditransitivizable verbs and nonditransitivizable verbs

Pinker's lexical rule account presumes that verbs with similar meanings exhibit similar syntactic patterns. Such an account attempts to explain argument realization by making semantic generalizations over verbs with seemingly similar meanings. For instance, verbs such as *carry, push* and *pull* are not acceptable in the ditransitive construction:

(43) * I carried/pulled/pushed/schlepped/lifted/lowered/hauled John the box.

(Pinker (1989: 111))

These verbs share a meaning such as "continuous causation of accompanied motion in some manner" (Gropen et al. (1989: 244)). (See also Pinker (1989: 111).) They are unintelligible in the ditransitive construction because they denote only change of location and not change of possession.

On the other hand, "verbs of instantaneous causation of ballistic motion" (Gropen et al. (1989: 243)) such as *throw, toss* and *flip* denote possessional transfer. Hence, they can occur in the ditransitive construction:

(44) Lafleur throws/tosses/flips/slaps/kicks/pokes/flings/blasts him the puck; he shoots, he scores!

(Pinker (1989: 110))

The lexical rule account faces an issue of near-synonymy. It expects a set of verbs with similar meanings to occur in the same syntactic form. As observed in previous studies (Green (1974), Oehrle (1976), Pinker (1989), etc.), however, not all near-synonyms are licensed by a certain construction in the same way. Well-known examples are provided in (45):

(45) a. John gave/donated/presented a painting to the museum.
b. John gave/*donated/*presented the museum a painting.

(Pinker (1989: 45))

Pinker (1989) presupposes that the difference between the ditransitivizable verb *give* and the nonditransitivizable verbs *donate* and *present* lies in the verbs' morphological features. The verbs *donate* and *present* have Latinate stems. The verb *donate* is a back-formation from *donation*, which originated from the Latin *dōnātiōn-em* and was imported into English via Old French. The verb *present* is adopted from the Old French *presenter,* developed from the Latin *præsentāre*. Latinate verbs tend to be unacceptable in the ditransitive construction. Based on this tendency, Pinker argues that the morphological constraint on Latinate verbs (henceforth, the Latinate constraint) interacts with the semantic properties of verbs' argument structure to produce the difference in acceptability shown in (45b).

As far as the dataset in (45) is concerned, the Latinate constraint appears to work. As Pinker intensively argues, however, the constraint does not apply to all members of some ditransitivizable subclasses. Among these subclasses are verbs of future having (e.g., *bequeath, refer* and *permit*), malefactive verbs (e.g., *envy, deny* and *refuse*) and verbs of instrument of communication (e.g., *radio, telegraph* and *telephone*). Pinker posits the question of "why any of the subclasses should care about morphology in the first place" (Pinker (1989: 119)). Although he does not answer the question definitively, he makes two assumptions to offer a possible account:

1. Morphological rules can be selective in their application to different morphological classes.
2. Rules that alter argument structures count as morphological rules, even if they do not effect an overt morphological change.

(Pinker (1989: 122))

Attention should be paid to the first assumption. It is applicable not only to the dative alternation but also to a variety of morphological processes. According to the first assumption, the Latinate constraint is imposed on some verb classes but not on others. Verbs of giving such as *give* and *donate* are sensitive to the constraint, whereas such subclasses as verbs of future having (e.g., *refer* and *recommend*) and verbs of instrument of communication (e.g., *radio* and *telephone*) are not. This distinction suggests that Pinker's first assumption needs to utilize verbs' semantics in determining which verb classes are subject to the morphological constraint.

I do not deny that the distinction between Latinate and native verbs may be involved, but I wish to emphasize that such a distinction probably interacts with the distinction in the semantic field, or the division of semantic labor of a semantically related set of words, as a consequence of language borrowing. When new vocabulary is borrowed into a language, there are some cases in which the borrowings and native words overlap semantically. In such cases, there are two outcomes. Either one word replaces the other, or both words survive in the language. In the latter case, the meanings of those words eventually begin to differ. For example, the Old English *cow* and the French *beef*, originally meaning "cow," no longer mean the same thing.

Returning to the Latinate verbs in (45), we may say that the verbs *donate* and *present* are similar to *give* with respect to coarse-grained thematic relations, or the "thematic core" in the sense of Pinker (1989). This similarity does not mean, however, that the three verbs are identical in every semantic detail. It is possible to suppose that some differences, albeit subtle, in meaning lead to the difference in argument realization. (See section 3.2.6.c.) It is by chance that the native/Latinate distinction corresponds to the difference in argument realization between *give*, on the one hand, and *donate* and *present*, on the other. In this case, the morphological distinction and the semantic differences coincidentally overlap. This leads to the logical possibility that some Latinate verbs are semantically compatible with the ditransitive construc-

tion and therefore are free from the constraint.

I call the idea that meaning determines form the strong semanticist hypothesis. It approaches the issue of ditransitivity from the perspective of verb semantics—the rich, complicated semantic structures that differentiate between seemingly synonymous verbs. The hypothesis supports the Lexical-Constructional view and Wierzbicka's (1988: 373) claim that "the alleged 'synonyms' are never fully synonymous." If this hypothesis is on the right track, it follows the idea of Occam's razor, or the law of parsimony, which says that among competing hypotheses, the hypothesis with the fewest assumptions should be selected. The strong semanticist hypothesis says that verb semantics is the only determining factor for the dative alternation, while Pinker's hypothesis uses verbs' semantic information in addition to their morphological information. If both hypotheses work properly on the same set of data, then, according to Occam's razor, the strong semanticist hypothesis is preferable. Whether a verb can appear in the ditransitive construction is determined only by the verb's complex meaning, and the construction choice is not sensitive to morphological information. I pursue the strong semanticist hypothesis throughout this thesis.

2.2.5 Alternations as gestalt shift, not semantic change

A question arises in regard to a pair of semantically related constructions, say, the ditransitive construction and the prepositional dative construction: How does a linguistic theory relate the two constructions? A widely accepted view of syntactic alternations in Cognitive Linguistics and Cognitive Construction Grammar is that alternations are linguistic representations of different construals of the same conceptual content, or a gestalt shift, as argued in section 2.1.1.[11] This view assumes no derivation or input and output structures. The ditransitive construction profiles the resultant state of the Mover being in the Recipient's dominion while the preposi-

11. Pinker (1989) tries to motivate syntactic alternations with respect to a gestalt shift, as we can understand from his statement about the locative alternation. He says, "Basically, [the locative alternation] is a gestalt shift: one can interpret *loading* as moving a theme ... to a location ..., but one can also interpret the same act in terms of changing the state of a theme ..." (p. 79). Pinker's insight is on the right track, but his actual implementation of the analytic insight has problems, as I have discussed.

tional dative construction profiles the process of the Mover being transferred to the Recipient. Cognitive Linguistics and Cognitive Construction Grammar assume that two "alternating" constructions share the same base structure but put different profiles on it.

Following this line of reasoning, a pair of paraphrasable constructions should be dealt with independently of each other. To quote Goldberg (2006: 25), each of the paraphrasable constructions "is best analyzed on its own terms, without relying on explicit or implicit reference to a possible alternative paraphrase." This is what Goldberg calls the Surface Generalization Hypothesis. The hypothesis is stated as follows:

> [T]here are typically broader syntactic and semantic generalizations associated with a surface argument structure form than exist between the same surface form and a distinct form that it is hypothesized to be syntactically or semantically derived from. (Goldberg (2006: 25))

Goldberg (2006: 27) provides the set of examples in Table 2 to illustrate the case in point. In Table 2, the (a) examples have paraphrases corresponding to the *for* dative construction; the paraphrases of the (b) examples correspond to the *to* dative construction. Even though prepositional dative constructions can be used as paraphrases of their ditransitive counterparts, the implications of the two constructions are different. Both ditransitive sentences in (i) evoke the notion of giving, while the paraphrase of (i)a can express more. The paraphrase possibly implies that Mina bought the book intended for Mel's mother in the place of Mel because he was too busy to buy it. Such an implication is not available to the paraphrase of (i)b. The other examples in Table 2 demonstrate that the ditransitive sentences behave in a uniform way and that the prepositional dative sentences show different behavior. As the Surface Generalization Hypothesis predicts, the instances with the same form show similar characteristics, while those with different forms should be grouped into different categories.

Table 2: Ditransitives pattern alike (left) and differently than their prepositional paraphrases (right) (Adapted from Goldberg (2006: 27))

Ditransitives		Paraphrases
(i)	a. Mina bought Mel a book.	Mina bought a book for Mel.
	b. Mina sent Mel a book.	Mina sent a book to Mel.
(ii)	a. ??Who did Mina buy a book?	Who did Mina buy a book for?
	b. ??Who did Mina send a book?	Who did Mina send a book to?
(iii)	a. *Mina bought Mel yesterday a book.	Mina bought a book yesterday for Mel.
	b. *Mina sent Mel yesterday a book.	Mina sent a book yesterday to Mel.
(iv)	a. ??Mina bought Mel it.	Mina bought it for Mel.
	b. ??Mina sent Mel it.	Mina sent it to Mel.
(v)	a. ??Mina bought that place a box.	Mina bought a box for that place.
	b. ??Mina sent that place a box.	Mina sent a box to that place.

2.2.6 Summary

In section 2.2, I have made two main points. First, I have argued, following Goldberg (1995, 2006), that the ditransitive construction should be studied on its own terms independently of the prepositional dative construction. Second, a detailed description of verbs' meanings is essential for explaining the integration of verbs into the ditransitive construction.

Regarding the first point, I have critically reviewed the transformational approach and the lexical rule approach to the dative alternation and argued that these two approaches are associated with two problems. First, both approaches attempt to relate one construction to the other by derivation, but the derivational account makes the facts more complicated than they are because it is difficult to give a comprehensive account of the paradigm that contains the case in which ditransitive constructions have their prepositional dative counterparts and the case in which ditransitive constructions have no such counterparts. Second, the derivational account may miss the surface generalization (Goldberg (2006)), which stresses that instances with the same form share more features than instances with a different

form. I take the Construction Grammar approach to the dative alternation and agree with the idea that the two semantically related constructions should not be related by derivation but each construction should be dealt with on its own terms.

Second, the Latinate constraint, which is widely assumed to constrain Latinate verbs from entering into the ditransitive construction, can be semantically motivated. This possibility is based on the strong semanticist hypothesis that meaning determines form.

2.3 Constructions and Construction Grammar

"Language is symbolic in nature" (Langacker (1987: 11)). This is one of the central tenets of Cognitive Linguistics. Construction Grammar also assumes that constructions are symbolic structures of form and meaning. Since Cognitive Linguistics and Construction Grammar do not make a clear division between lexicon and syntax, constructions are assumed to be ubiquitous at every linguistic level. Even words can be regarded as constructions in the sense that they link their meanings and sounds; for example, Saussure (1916) insisted that the object of study in linguistics is the linguistic sign, which links sound and meaning. Idioms are also constructions because they are not fully analyzable and need to be stored as linguistic units in our mental lexicon (i.e., our knowledge of language). An influential study of argument structure constructions by Goldberg (1995) reveals that even abstract sentence patterns such as [NP_{Subj}-V-NP_{IObj}-NP_{DObj}] are paired with certain meanings, no matter how abstract the meanings are. The symbolic view of language holds for linguistic units larger than words. As Langacker (1987: 12) states, "grammar itself, i.e. patterns for grouping morphemes into progressively larger configurations, is inherently symbolic and hence meaningful."

The enterprise of Construction Grammar is to bring the status of constructions back to the center of grammar. Early models of Generative Grammar provided a rule-based account for every construction. The construction was the object of syntactic study and thus occupied the central place in grammar. As the Generative Grammar framework was developed to a highly abstract system, common features prevailing across constructions were generalized as principles, and language-specific features were assumed to result from the values of parameters. As a consequence, constructions lost their places in grammar and were seen as "epiphenomena"; for

example, Chomsky (1995: 170) states that "the notion of grammatical construction is eliminated, and with it, construction-particular rules."

Generative Grammar posits lexicon independently of syntax. In fact, Rappaport Hovav and Levin (2015) state that the need for the distinction between lexical knowledge and general grammatical knowledge "may be uncontroversial" (p. 593). Chomsky (1995) supposes that a computational system (CS) integrates lexical information "to form linguistic expressions—(PF, LF) pairings [=sound-meaning pairings]" (p. 6) and continues, "the lexicon should provide just the information that is required for CS, without redundancy and in some optimal form, excluding whatever is predictable by principles of UG or properties of the language in question" (ibid.). The theory supposes that the entire meaning of a sentence is the result of adding up the meanings of its constituents. There is thus no room to assume that the meaning of a sentence includes the extra semantic components that are not found in its constituents.

For the linguistic theory with such a building-block view, idiomatic expressions are difficult to analyze. Idiomatic expressions consist of more than a word with special meanings that cannot be predicted from their component parts. Furthermore, the continuum from pure idioms to compositional idioms makes it more difficult to analyze idioms. An example of pure idioms is *red herring*, which means "an unimportant, distracting fact/idea." It does not undergo morphological changes, and thus **redder herring* and **reddest herring* are not possible. This kind of idiom causes no problem for Generative Grammar because it can be processed as if it were a lexical entry. However, the flexibility in analyzability among compositional idioms is problematic. Take passive formation, for example. If we compare the three verb phrases in (46), *lay down the law* can be easily passivized, while *kick the bucket* cannot. Some native speakers accept *spill the beans* in the passive form, but others question the expression:

(46) a. lay down the law
the law was laid down
b. spill the beans
? the beans were spilled

c. kick the bucket
   * the bucket was kicked

Syntax is prohibited from operating on the internal structures of words. If *lay down the law* were stored as a word, it could not undergo any structural change. If it were treated as an ordinary composite phrase, it would be difficult to explain how the overall meaning is composed of its constituents.

Furthermore, syntactically productive idioms are also difficult to handle. The *the* X-*er*, *the* Y-*er* construction is a case in point (Fillmore et al. (1988)). This construction expresses a correlation between dependent and independent variables. Some examples are given below:

(47) a. The bigger, the better.
b. The darker the roast, the stronger the taste.
c. The more carefully you do your work, the easier it will get.

(Hilpert (2014: 7))

The examples in (47) present difficulty in formulating the construction with regular grammar rules. The example in (47a) simply instantiates the schematic pattern *the* X-*er*, *the* Y-*er* by filling the two slots X and Y with adjectives. In (47b), each adjective is followed by a nominal. In (47c), the X slot is filled with an adverb, while the Y slot is filled with an adjective. Furthermore, the comparative parts are linked to syntactically different positions. The first *-er* phrase is "extracted" from the adverbial phrasal position, while the second *-er* phrase comes from the complement of the verb. These examples suggest that the schematic pattern *the* X-*er*, *the* Y-*er* is not listed as a fixed expression; rather, it is fully productive and possibly creates an infinite number of instances.

The data we have seen here indicate that there is a continuum from fully fixed idioms to syntactically productive idioms. If we dealt with fully fixed idioms as being listed in lexicon, we would have vague cases that are difficult to categorize as lexical phrases or syntactic composites. This argument suggests that it is difficult to draw a sharp line between lexicon and syntax. An adequate linguistic theory should accommodate the gradience from idioms to composite structures.

2.3.1 Construction Grammar

Construction Grammar is a family of linguistic approaches to language with the central claim that constructions are conventional form-meaning pairings at every level of specificity. Construction Grammar approaches account for irregular grammatical patterns and canonical grammatical patterns in the same way. The phenomena we have just observed, from fully idiomatic expressions to partially analyzable expressions, have been dealt with along the same lines (cf. Fillmore et al. (1988), Kay and Fillmore (1999), and so forth).

Although the theories in Construction Grammar share the same central claim, each theory presents a different model and emphasizes different aspects of language. Berkeley Construction Grammar (BCG) (Fillmore and Kay (1993), Kay and Fillmore (1999), Fillmore (2013), etc.), construction-based Head-Driven Phrase-Structure Grammar (HPSG) (Ginzburg and Sag (2001), Sag et al. (2003), etc.) and Sign-Based Construction Grammar (SBCG) (Sag (2012), Michaelis (2013), etc.), for instance, emphasize formalization. Unlike Generative Grammar, they share the idea that constructions are directly constrained by meaning and use. SBCG, for example, assumes that "grammar is an inventory of *signs*—complexes of linguistic information that contain constraints on form, meaning, and use—and that constructions are the means by which simpler signs are combined into more complex signs" (Michaelis (2013: 133)).

Some theories explicitly make a cognitive commitment (Lakoff (1990)). Among them, Goldberg's Construction Grammar, known as Cognitive Construction Grammar (Goldberg (2006)), has a close connection to Langacker's Cognitive Grammar, Cognitive Linguistics in general and Croft's Radical Construction Grammar, according to Boas (2013: 248-249). The Lexical-Constructional approach (Iwata (2008)) is also included here. It is based on Cognitive Construction Grammar but puts more focus on lower-level, or verb-class-specific/verb-specific, constructions.

The theoretical framework I assume in this thesis has the same spirit as the abovementioned theories, sharing the following base ideas that are listed by Boas (2013: 248-249):

- The architecture of language is nonmodular and nonderivational.

- Constructions are learned on the basis of input.
- Grammar and usage are inextricably linked (i.e., the theory takes a usage-based view).
- The existence of constructions is motivated by more general properties of human cognition and experience.

In addition to these ideas, as Boas (2003), Iwata (2008) and Nemoto (1998), among others, emphasize, I attach greater importance to verbs' meanings that are characterized with reference to frame-semantic knowledge.

2.3.2 Frame Semantics

Frame Semantics (Fillmore (1982), Fillmore (1984), Fillmore and Atkins (1992) and so on) complements the semantic components of the Construction Grammar framework and emphasizes the cognitive, semantic and pragmatic aspects of language. Frames are our structured background knowledge of experience, beliefs or practices and are presupposed for understanding the meaning of a word. As Fillmore (1982: 111) states:

> By the word "frame" I have in mind any system of concepts related in such a way that to understand any of them you have to understand the whole structure in which it fits; when one of the things in such a structure is introduced into a text, or into a conversation, all of the others are automatically made available.

The notion of frame is equivalent to an abstract domain, in the sense of Langacker (1987), or an idealized cognitive model, in the sense of Lakoff (1987). It is similar to Fillmore's own term *scene*, which is used in the famous slogan "Meanings are relativized to scenes" (Fillmore (1977/2003: 209)). In this thesis, I use the term *frame* particularly to define verbs' meanings. Throughout this thesis, I also use the word *scene*, but it is not intended to refer to Fillmore's *scene*. I use it as an everyday word that means "a situation" or "an event."

Let us see how frames work for understanding verbs' meanings. A well-known example is the commercial transaction frame, as illustrated in Figure 12:

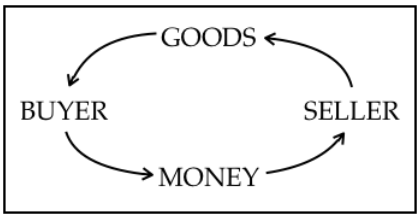


Figure 12: Commercial transaction frame

Fillmore (1977/2003) demonstrates how the frame is structured and in what way native speakers of English use this knowledge to describe commercial events. He deals with the nouns and verbs associated with this frame, including *buy* and *sell*. The difference between *buy* and *sell*, for instance, lies in the perspective from which an event of transaction is described. The examples in (48) illustrate the difference:

(48) a. John bought the ball from the toy shop.
b. The toy shop sold the ball to John.

The verb *buy* describes the commercial event from the BUYER's point of view, while *sell* structures it from the SELLER's point of view. *Buy* profiles the relation between the BUYER (=*John*) and the GOODS (=the ball) and chooses the BUYER as a trajector and the GOODS as a landmark. The SELLER (=the toy shop) is viewed as the source of the GOODS and thus is encoded with the source preposition *from*. The verb *sell*, on the other hand, profiles the relation between the SELLER and the GOODS. For the SELLER and the GOODS, the BUYER is located at the destination of the GOODS and is encoded with the goal preposition *to*. These examples clarify that our mental lexicon stores the structured knowledge of lexical entries in relation to a scene composed of frame elements.

We have seen in section 2.2.3 that the lexical-semantic approach in Generative Grammar exploits only the syntactically relevant information of verb meaning to account for argument realization in syntax. This approach makes little account of the relatedness of the frame elements, including the "peripheral" elements, in a given scene. The advantage of the frame-semantic account over the lexical-semantic account is that, as the case of the commercial transaction frame suggests, our reference to semantic frames enables us to grasp the systematic relationship among

semantically related verbs such as *buy*, *sell*, *charge* and *cost* in terms of the conceptualizer's point of view.

Another advantage of the frame-semantic approach is that semantic frames can deal with language-specific or culture-specific information. A case in point is the Japanese commercial transaction frame. The Japanese commercial transaction frame basically has the same structure as the English one. Ueda (2009a) argues, however, that the frame includes business-practice-specific elements associated with the concept of "service" in Japanese. Service in English is defined as compensation for the money paid by the customer. While this concept has taken root in the Japanese business community, the folk concept of "service" in Japanese takes on a different characteristic. It can be observed in the use of the word *saabisu*, 'service,' a loanword from English. "Service" in Japanese can be characterized as being provided free of charge, in contrast to the original concept in English. It is offered for the purpose of satisfying customers. The examples in (49) reflect this characteristic:

(49) a. A shopkeeper, referring to a complimentary gift, says:
"Kore saabisu ne."
this service is
'This is a free gift.'

b. A customer asks for a discount:
"takai kara, sukosi saabisu site-yo."
expensive because a.little service do
'It's expensive; bring the price down a little more.'

The "service" refers to a complimentary gift in (49a) and a discount in (49b). In traditional Japanese business practice, shops and companies try to satisfy their customers by adding "service" to their commodities so that they seem to be worth more than the MONEY paid by their BUYERs, with the result that the SELLER can earn a good reputation. "Service" can be paraphrased as extra value added to a commodity. The scenario can be represented as the following model:

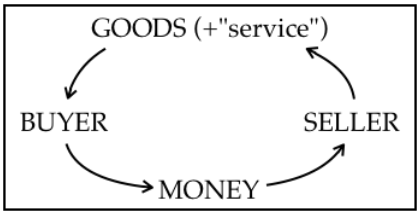


Figure 13: Japanese commercial transaction frame

There is another way of giving "service" to BUYERs. To satisfy BUYERs, SELLERs treat them politely. The conceptualizer places the BUYER at a higher status level when she or he uses honorific expressions. For example, when a store clerk makes out a receipt to a customer, she or he may write on it the noun *ue,* 'up,' instead of the customer's name, to address the receipt to the customer. Another example is *okaiage*, which is a polite nominal expression to refer to the customer's act of buying. It is formed from three morphemes: the initial letter *o-* is the beautification prefix, *kai* is a nominalization of the verb *kawu,* 'buy,' and *-age* literally means "to raise." The point to notice is that the third morpheme, *-age,* means the upward direction. This suggests that an object bought by a customer figuratively moves "up" to the customer. These two examples suggest that the BUYER is figuratively placed in a higher position, as illustrated in Figure 14, in which the placement of the BUYER is indicated by the dotted arrow:

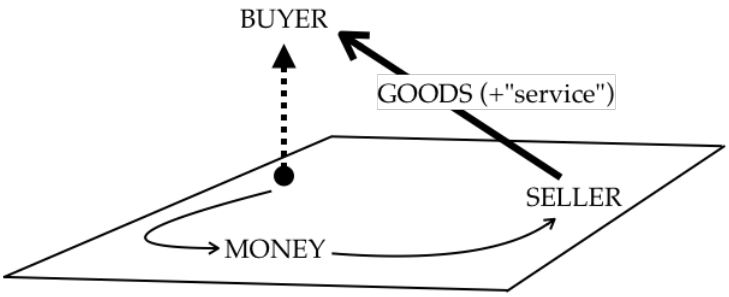


Figure 14: The BUYER located at a higher position in the transaction frame

Our knowledge about the SELLER/BUYER relation in Japanese business practice enables us to explain why the verb *kawu* cannot occur in the object honorific construction, *o*-verb-*suru*, as exemplified in (50):

(50) * Boku-wa sensei-ni sinbun-o o-kai-sita
I-TOP teacher-DAT newspaper-ACC *O*-buy-*SURU*.PAST
'I bought the teacher a newspaper.'
(key: TOP = topic case marker; DAT = dative; ACC = accusative)

The object honorific construction expresses the speaker's politeness by downgrading the status of the referent of the Subj NP, with the result that the honored person, or the "target of honorification" in the sense of Matsumoto (1997), becomes relatively higher in status. Take (51), for example:

(51) Watasi-ga sensei-ni sono koto-o o-hanasi-sita.
I-NOM teacher-DAT that matter-ACC O-tell-SURU.PAST
'I told the teacher that matter.'
(key: NOM = nominative)

The teacher as the target of honorification "triggers the object honorification process," according to Shibatani (1994). Thus, the speaker, realized as the Subj NP, lowers her own status to show politeness to the teacher.

In (50), the speaker in the Subj NP is interpreted as the BUYER role in the transaction frame. The object honorific construction requires the BUYER's status to be downgraded, while the Japanese business practice elevates the BUYER's status. This conflict leads to the ineligibility of (50).

Interestingly, we find in the novel *Kesi-no naka*, written by Yokomitsu Riichi, an example in which the verb *kawu* is used in the object honorific construction, as shown in (52), where the underline is mine:

(52) Ano ouma-wa, watasi-ga koko-no bokuzyoo-de o-kai-site sasiagemasita.
'I bought that horse at this ranch for the Emperor of Japan.'

In this story, Johan, a Hungarian interpreter who was fluent in Japanese, conducted Kaji, a Japanese visitor, around Budapest, Hungary. He uttered the sentence in (52) when he and Kaji were talking about a horse named *Sirayuki*, owned by the Emperor of Japan. Since the Emperor is the head of state, everyone should be polite to him. This factor overrides our frame-semantic knowledge of the BUYER's status. Hence, the verb *kawu* is coerced into the object honorific construction. Therefore, the sentence in (52) becomes feasible.

The comparison of the commercial transaction frame between English and Japanese shows how complicated our frame-semantic knowledge is and how the knowledge is applied. For more discussion, see Ueda (2009a).

2.3.3 Goldberg's (1995) Construction Grammar approach to argument structure

Goldberg's Construction Grammar (Goldberg (1995, 2006)) features argument structure constructions. If, as Fillmore et al. (1988) and Kay and Fillmore (1999), among others, convincingly argue, every linguistic unit from the word level to the sentence level is the form and meaning pair, it is natural to extend the Construction Grammar approach in the direction of basic sentence patterns. Goldberg (1995) argues that basic sentence patterns are paired with particular meanings independently of the constituent elements. She defines constructions as follows:

(53) C is a CONSTRUCTION iff$_{def}$ C is a form-meaning pair <F_i, S_i> such that some aspect of F_i or some aspect S_i is not strictly predictable from C's component parts or from other previously established constructions. (p. 4)

Goldberg illustrates her point with several major sentence patterns, such as ditransitive, caused motion and resultative constructions. Some examples of the sentence patterns paired with the conventionalized meanings are provided in Table 3:

Table 3: Examples of argument structure constructions (Goldberg (1995: 3))

Construction	**Meaning**	**Syntactic form** (example)
Ditransitive	X causes Y to receive Z	Subj V IObj DObj (Pat faxed Bill the letter.)
Caused motion	X causes Y to move Z	Subj V Obj Obl (Pat sneezed the napkin off the table.)
Resultative	X causes Y to become Z	Subj V Obj X_{comp} (She kissed him unconscious.)
Intransitive motion	X moves Y	Subj V Obl (The fly buzzed into the room.)
Conative	X directs action at Y	Subj V Obl_{at} (Sam kicked at Bill.)

An advantage that Goldberg claims for her approach is that a verb is not the only determinant of the sentence patterns in which it can appear, and thus there is no need to posit implausible verb senses. The verb *kick*, for instance, can appear in at least eight sentence patterns:

(54) a. Pat kicked the wall.
b. Pat kicked Bob black and blue.
c. Pat kicked the football into the stadium.
d. Pat kicked at the football.
e. Pat kicked his foot against the chair.
f. Pat kicked Bob the football.
g. The horse kicks.
h. Pat kicked his way out of the operating room.

(Goldberg (1995: 11))

The lexical rule account would assume that *kick* has eight distinct senses that govern its syntactic configurations. The senses are related to each other by the lexical rules

that alter one sense into another, and each sense is linked to a different argument structure.

Although Goldberg acknowledges that her Construction Grammar approach and the lexical rule approach "share the emphasis on semantic differences among different complement configurations" (p. 9), she points out that some theoretical problems are associated with the lexical rule approach. The approach would have to augment implausible verb senses according to the variety of sentence patterns that a verb takes without giving any motivation for such ad hoc senses. The cases that Goldberg adduces to illustrate her points are provided in (55):

(55) a. He sneezed the napkin off the table.
b. She baked him a cake.
c. Dan talked himself blue in the face.

(Goldberg (1995: 9))

According to Goldberg, the lexical rule approach would postulate a special sense for the verb *sneeze*, such as 'X causes Y to move Z by sneezing,' which is derived from the intransitive use since the verb cannot take the DObj without a directional phrase (e.g., **he sneezed the napkin*). She makes a similar point regarding the other verbs. She states that "such a theory would need to claim that there exists a special sense of *bake* that has three arguments" (p. 9). The verb *talk* would be provided with a special sense, such as 'X causes Y to become Z by talking.' The problem is that the lexical rule approach does not explain why verbs such as those listed in (55) take those special senses.

Goldberg argues that her Construction Grammar approach can solve the above-mentioned problems. Her central claim is that constructions carry their own meanings independently of their constituent words. According to her, the ternary relation is brought about by the ditransitive construction, while the verb is associated with "one or a few basic senses which must be *integrated* into the meaning of the construction" (p. 11). The verb *bake* in (55b), for instance, contributes only the "creation" part of the whole process, and the "transfer" part is provided by the ditransitive construction. Similarly, in (54f), the "kicking" component brought by the verb and the "transfer" component provided by the construction interact to produce

the sentence's entire meaning. An advantage of the Construction Grammar approach that Goldberg cites is that there is no need to posit implausible verb senses.

In addition, Goldberg presumes that the scenes designated by constructions are grounded in human experience, as in the Scene Encoding Hypothesis, described as follows:

> Scene Encoding Hypothesis: Constructions which correspond to basic sentence types encode as their central scenes event types that are basic to human experience.
>
> (Goldberg (1995: 39))

This hypothesis reasonably explains the number of arguments required by a given construction. The ditransitive construction takes three arguments because it denotes a basic scene of transfer in which a person gives a thing to another.

In Goldberg's Construction Grammar framework, the relations between verbs and constructions are determined by the following two principles:

(56) a. The Semantic Coherence Principle: the participant role of the verb and the argument role of the construction must be semantically compatible. In particular, the more specific participant role of the verb must be construable as an instance of the more general argument role. General categorization processes are responsible for this categorization task and it is always operative.

b. The Correspondence Principle: the semantically salient profiled participant roles are encoded by grammatical relations that provide them a sufficient degree of discourse prominence, i.e. by profiled argument roles. An exception arises if a verb has three profiled roles; in this case, one can be represented by an unprofiled argument role (and realized as an oblique argument). The Correspondence Principle can be overridden by specifications of particular constructions.

(Goldberg (2005: 226). See also Goldberg (1995: 50))

The Semantic Coherence Principle implements Langacker's idea of role archetypes

(section 2.4). Widely assumed semantic roles such as Agent and Patient are the established generalizations over the individual participant roles associated with verbs' semantics. It is possible to say that the participant roles are instances of the argument roles with which they fuse.

The Correspondence Principle determines which participant roles are linked to which syntactic positions. The profiled roles are encoded as symbolically salient entities such as the trajector (the Subj) and the landmark (the DObj) (cf. section 2.1). According to Goldberg (2005: 226), the Corresponding Principle is a default principle. It can be overridden by specific constructions, such as topicalization, which increases the prominence of an argument in discourse, and the implicit theme construction, which de-emphasizes an argument.

Furthermore, Goldberg (1997) presupposes that the ways in which verbs are integrated into constructions follow conventional semantic patterns, as in (57), and the patterns are hierarchically organized:

(57) Elaboration [=instance, in the sense of Goldberg (1995)] >
Force-dynamic relation (means, instrument, result, denial) >
Precondition, Co-occurring activity

(Goldberg (1997: 396))

Let us take the resultative construction and see how the verb and the construction interact in Goldberg's system. The resultative construction expresses that an entity has undergone a change in state as the result of an event, as illustrated by the sentences in (58):

(58) a. He wiped the table clean.
b. He talked himself blue in the face.

(Goldberg (1995: 189))

Sentence (58a) describes the table's resultant state caused by the act of wiping. Similarly, in (58b), the Subj entity turned blue after he talked too much. Goldberg supposes that the resultative construction has the following form-meaning pair:

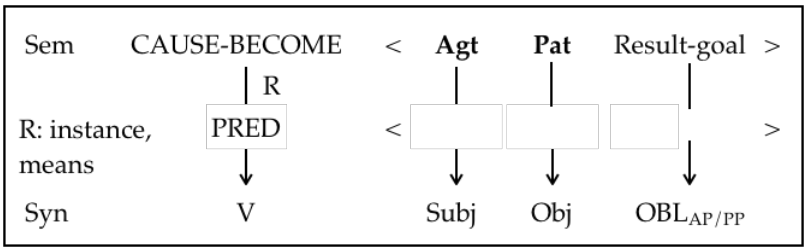


Figure 15: Resultative construction (based on Goldberg (1995: 189))

The construction has three argument roles, Agent, Patient and Result-goal, and their relations are defined as "CAUSE-BECOME." The three argument roles are linked to the Subject, the Object and the Oblique position (realized as either an adjectival phrase (AP) or a prepositional phrase (PP)), respectively. PRED indicates an empty slot that is filled with a verb. The meaning of the verb that can appear in this construction should be interpreted as either an instance or a means of CAUSE-BECOME. In the case of (58a), the verb *wipe* is understood as a means of making the table clean. We can paraphrase the sentence as "He made the table clean by wiping it," and the *by* phrase indicates that the act of wiping serves as the means of causing the resultant state. The verb *talk* in (58b) is also construed as a means of making the speaker blue, as the paraphrase sentence "the speaker made himself blue in the face by talking too much" indicates.

The composite structures of the resultative construction and the verbs *wipe* and *talk* are provided in Figures 16 and 17, respectively:

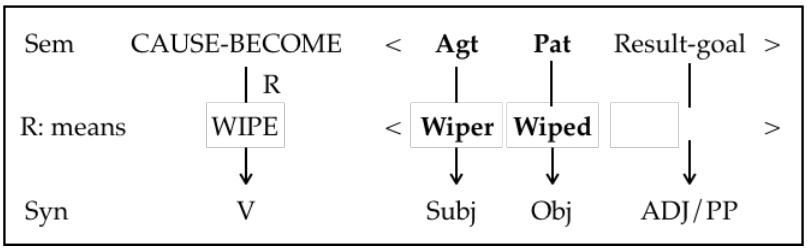


Figure 16: Composite structure: resultative + *wipe* (after Goldberg (1995: 190))

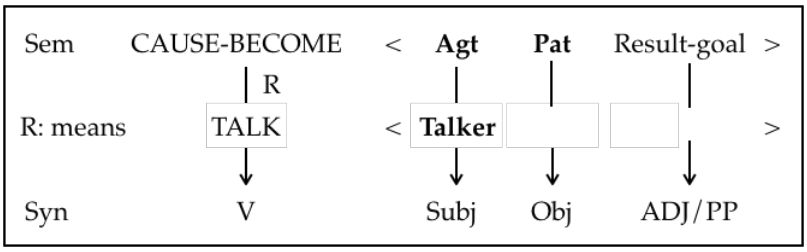


Figure 17: Composite structure: resultative + *talk* (after Goldberg (1995: 190))

Under the Semantic Coherence Principle, the participant roles can be fused with their respective general argument roles. In addition, under the Correspondence Principle, all the participant roles must be fused with the profiled argument roles since they are lexically profiled. The Wiper role and the Talker role are regarded as instances of the construction's Agent role, and the Wiped role is viewed as an instance of the Patient role. In addition, these three participant roles are lexically profiled. They must thus be integrated with the corresponding argument roles. Goldberg (1995) assumes that the resultative phrase *clean* in (58a) and the Obj NP *himself* and the resultative phrase *blue* in (58b) are added by the construction.

In sum, in Goldberg's framework, the overall meaning of a sentence is rooted in our experience and determined by the interaction between the verb and the construction. Goldberg assumes that if the meaning of a sentence is more than the sum of the meanings of the components, such an extra aspect of the meaning is attributed to the argument structure, not the verb.

2.3.4 Theoretical problems with Goldberg's Construction Grammar approach

It appears that Goldberg's approach makes the verbs' semantics slim and neat. However, her approach may face some problems. The problems are related to the strict division between verbs and constructions. (See Boas (2003, 2008, 2013), Iwata (1998, 2008), Kay (2005) and Nemoto (1998), for example.)

By dividing the verb and the construction, Goldberg assumes that the construction works independently of the verb. This assumption enables the construction to contribute argument roles. Thus, if a verb's valency does not match the number of arguments of a construction, the construction can provide an argument. Previous studies have noted that Goldberg's analysis may cause constructions to become bloated. As I argue in section 3.2.6.a, it is difficult to clearly distinguish between the

meaning contributed by the verb and the meaning provided by the construction. For instance, Goldberg assumes that the ditransitive construction contributes the Recipient argument when it is integrated with a verb such as *bake*, which is a seemingly two-place predicate. There is no evidence, however, that *bake* has no participant role that is construable as the Recipient argument.[12] Our frame-semantic knowledge about cooking possibly evokes a flame element (i.e., an event participant) that enjoys the food prepared by someone else. (For detailed discussion, see section 3.2.3.) I advocate the usage-based approach that is thoroughly argued by Langacker and claim that if a verb can be used in a certain construction, then the verb's semantic structure matches the construction's semantic structure in a fully consistent way. If we delve more deeply into both the noticeable and unnoticeable traits of each verb, the conclusion can be drawn that the construction is not so powerful as to augment the valency of verbs.

Another problem stems from the architecture of Goldberg's Construction Grammar. Boas (2008) argues that Goldberg's model of the interaction between verbs and constructions is problematic. Her model posits two distinct linguistic levels: the lexical verb level, which stores the knowledge of each verb's valency and meaning, and the argument structure level, which concerns the pairing of each sentence pattern with its meanings; the integration of the two levels (i.e., verbs and constructions) produces actual instances of sentences. This architecture is not desirable because it does not follow the tenet of the continuum between lexicon and syntax.

Goldberg's architecture also faces some empirical problems, as Boas points out. Goldberg attempts to reduce the amount of semantic information peculiar to a syntactic form from the verb meaning. Her architecture predicts that the verbs of a semantic class that are sanctioned by one construction can be integrated into other constructions. Take the examples in (59):

---

12. Kay (2005) distinguishes between arguments and adjuncts in terms of the passivizability of the IObj and concludes that the IObj of *bake* is an argument added by the construction. As we have seen in section 2.1.2, the acceptability among verbs of creation/obtaining varies. I suppose that the passivizability reflects other factors such as transitivity (cf. Bolinger (1975) and Rice (1987)).

(59) a. Miriam talked (to Joe).
b. Miriam spoke (to Joe).
c. Miriam whispered (to Joe).

(Boas (2008: 121))

The verbs *talk, speak* and *whisper* are classified as communication verbs with one participant role that can be construed as the type of person who speaks (cf. Figure 17). The Semantic Coherence Principle permits each verb's participant role to be fused with the construction's Agent role. They are thus expected to exhibit the same syntactic pattern as that shown in (59). Then, the verbs are also expected to be licensed equally by other constructions. This prediction is not borne out, however, as (60) and (61) indicate:

(60) a. Miriam talked herself blue in the face.
b. * Miriam spoke herself blue in the face.
c. ? Miriam whispered herself blue in the face.

(ibid.)

(61) a. * Miriam talked Joe a fairy tale.
b. * Miriam spoke Joe a fairy tale.
c. Miriam whispered Joe a fairy tale.

(ibid.)

The sentences in (60) are examples of the resultative construction: those in (61) are examples of the ditransitive construction. These examples show that the distribution of the verbs is not uniform.

The sets of examples in (59) to (61) suggest that it is not clear what factors allow, or disallow, a construction to be fused with which verbs and that it is necessary to define each verb's semantic structure more precisely.

2.3.5 Constructions and verbs in the usage-based model of language

To solve the problems with Goldberg's Construction Grammar, as Boas (2008) argues, a bottom-up approach to linguistic description should be adopted. Boas argues that instead of the construction-verb interaction model, a unification notation

that links form with meaning should be used, following Croft's Radical Construction Grammar (cf. Croft (2001)). Boas's proposals are consistent with Langacker's Cognitive Grammar and basic ideas in Cognitive Linguistics. We see below Langacker's usage-based view of linguistic representations.

Cognitive Linguistics postulates that speakers' knowledge of language is built on their experience in actual language use. The usage-based model of language (Langacker (1987, 1991a, 1991b, 2000, etc.), Kemmer and Barlow (2000), Bybee (2006, 2013), etc.) emphasizes "specific expressions and the extraction therefrom of low-level schemas as well as those representing higher levels of abstraction" (Langacker (1991b: 6)). In the usage-based view, a construction is understood as an abstraction from repeated occurrences of some patterns. A more schematic abstraction can be drawn from the collection of low-level abstractions. Therefore, "a high-level schema describing a broad generalization does not exist in isolation; rather it is one node in a network that also includes subschemas corresponding to special cases of the general pattern, which may in turn have subschemas, and so on" (Langacker (1991b: 7)).

I briefly explain the usage-based view of categorization proposed by Langacker (1987, 1991a, 1991b, 2000), using the verb *throw* in the ditransitive construction instead of Langacker's (2000) example of *send*. A generalized pattern such as [*throw-me*-NP], paired with a meaning such as "a person other than me passes X to me," emerges from recurring stimulus sentences such as *throw me the ball* and *throw me the towel*. Other related types of stimuli facilitate the progress of generalization to produce a schema with the specific lexical entry, such as [NP_{Subj}-*throw*-NP_{IObj}-NP_{DObj}]. As generalizations go further, a higher-order generalization, such as [NP_{Subj}-V-NP_{IOBJ}-NP_{DObj}], paired with "the Giver transfers the Recipient to the Mover," emerges from a broader range of ditransitive sentences. These processes of making generalizations are schematically presented in Figure 18:

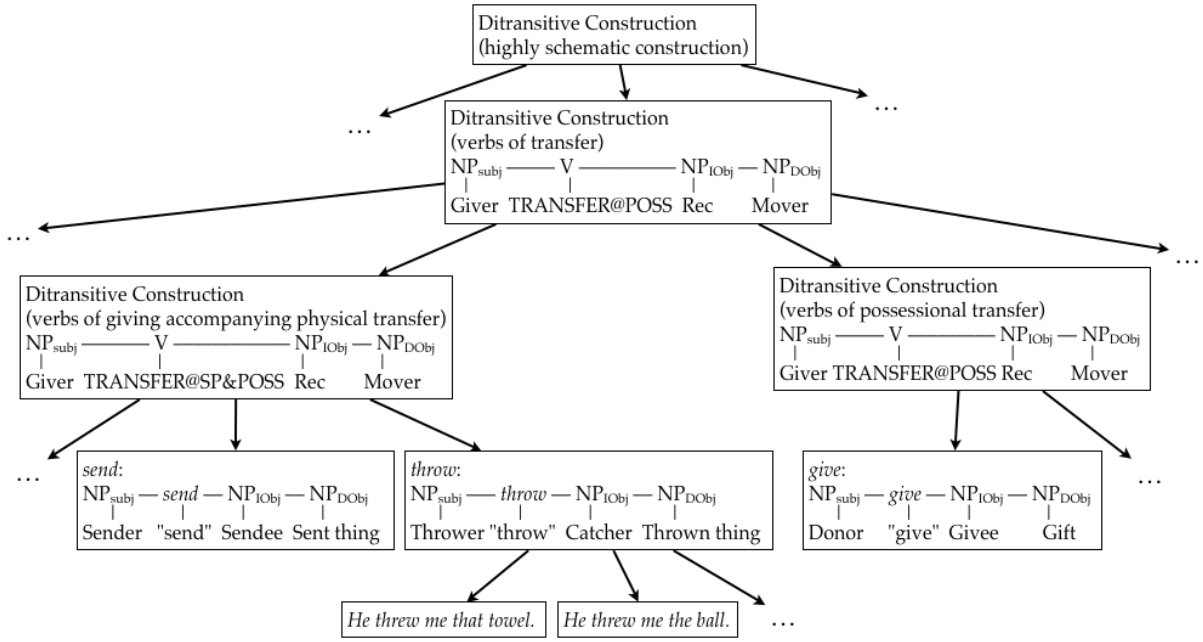


Figure 18: Network structure from lower-level constructions to higher-level constructions

Note that Figure 18 does not describe every detail of the network links from lower-level instances to higher-order generalizations. Each box represents the form-meaning pair. The vertical axis represents levels of schematicity. The uppermost box is the most abstract generalization in this figure. The arrow indicates that the upper box is instantiated by, or generalizes from, the lower boxes. The box with the header *throw*, for example, shows that the ditransitive *throw* pairs the syntactic frame [NP_{Sub}-*throw*-NP_{IObj}-NP_{DObj}] with the semantic frame "the Thrower 'throws' the Catcher the Thrown thing."[13] The box with the header *Ditransitive Construction (verbs of giving accompanying physical transfer*), generalizing from *throw*, *send* and so forth, describes a more abstract relationship between the ditransitive sentence pattern and its semantic frame. In the semantic frame, TRANSFER@SP&POSS means that the verb designates the transfer characterized in the SPatial domain and the POSSessional domains. (See

13. The semantic structure of the ditransitive *throw* is more complicated and is characterized in terms of the spatial and the possessional domain. It is defined as "the Thrower propels the Thrown thing through the air toward the Catcher by pushing the hand and arm forward quickly." Transfer of possession is completed when the Thrown thing crosses the boundary of the Catcher's dominion. See section 3.2.5.

section 3.2.5 for a more detailed discussion.)

The network in Figure 18 represents generalizations on the basis of the ditransitive sentence pattern. There is another way of generalization. Generalizations about a lexical item that appears in different types of constructions can be made through a process of "progressive decontextualization" (Langacker (2000: 124)). Each sense of a polysemous verb is connected with its syntactic context. Figure 19 focuses on three of *throw*'s senses: $Throw_1$ designates transfer of possession, which is paired with the ditransitive construction; $throw_2$ profiles the process of the Thrown thing's movement, which is paired with the caused-possession dative construction; $throw_3$ describes the body part's movement to a destination, which is paired with the self-caused body movement construction:

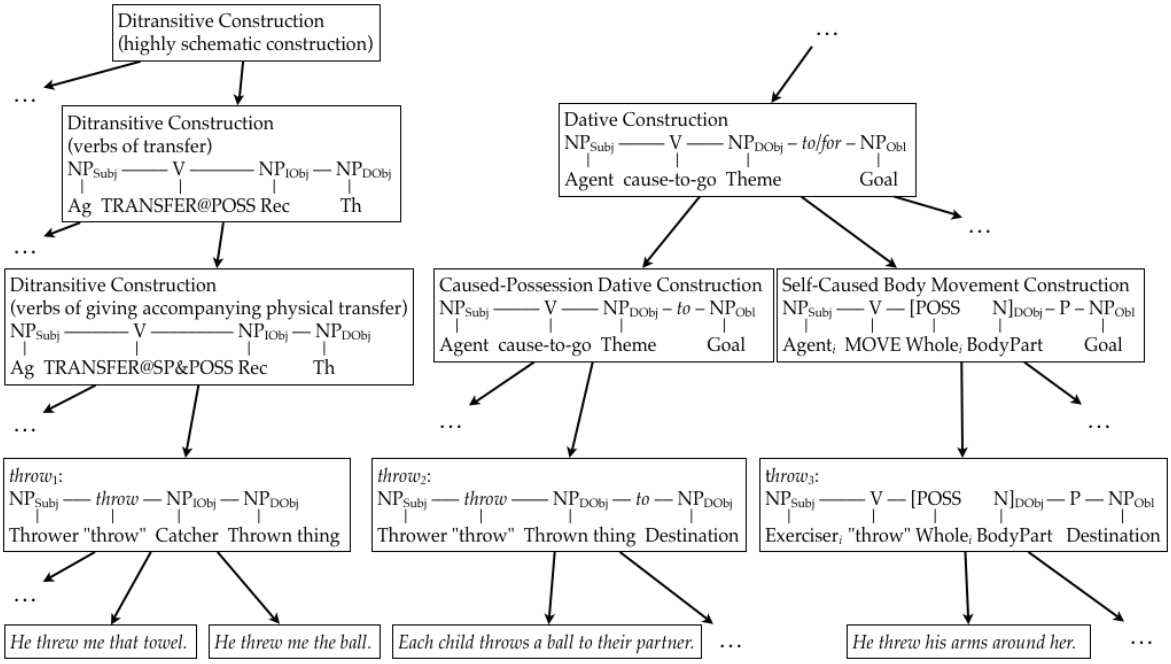


Figure 19: Three senses of *throw* paired with different syntactic frames

A common semantic component, roughly defined as "Agent performs by a forward motion of her hand and arm," can be extracted from these instances, indicated by the red lines in Figure 20:

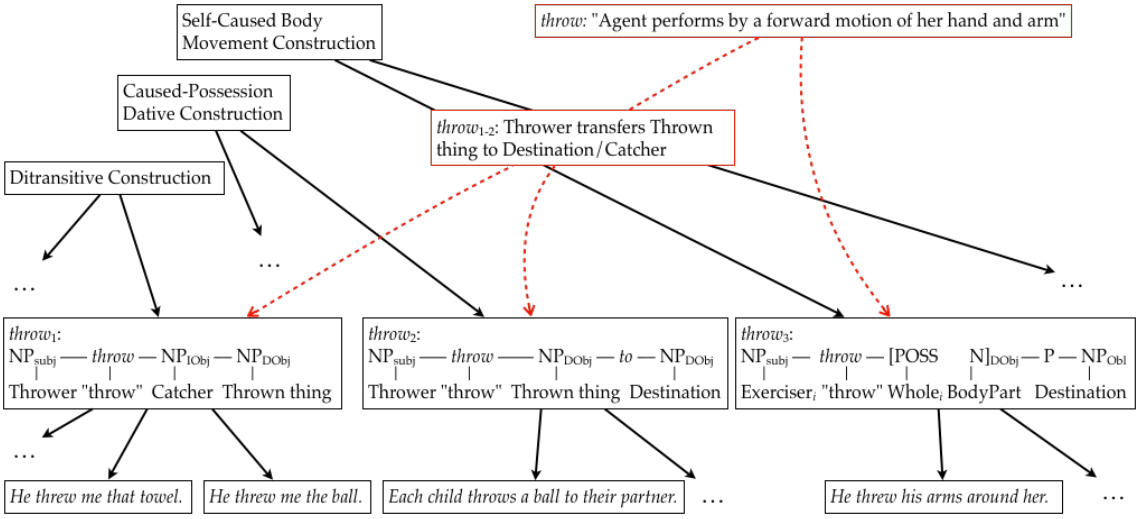


Figure 20: Multiple networks in which single nodes instantiate the general grammatical patterns and the schematic lexical item

In Figure 20, the subschemas *throw*$_1$, *throw*$_2$ and *throw*$_3$ instantiate the more abstract constructional schemas, the ditransitive construction, the caused-possession dative construction and the self-caused body movement construction, respectively. They also instantiate the context-neutral lexical item *throw* with an abstract sense.

Goldberg's (1995) Construction Grammar features only the three levels in the networks in Figure 20. The featured levels are indicated by the blue circles and rectangle in Figure 21:

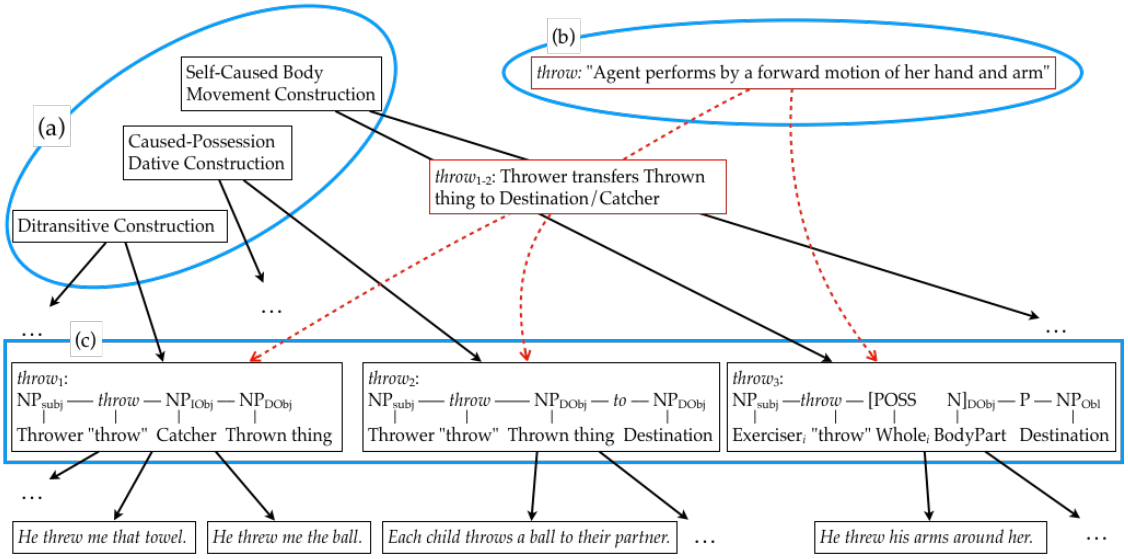


Figure 21: The three levels highlighted by Goldberg (1995)

The circle in (a) is equivalent to Goldberg's argument structure constructions; the circle in (b) corresponds to the verb's semantic structure. The rectangle in (c) represents the fused structure of the verb and each construction. As Langacker (2000: 92) argues, "[h]owever far ... abstraction may proceed, the schemas that emerge spring from the soil of actual usage." Hence, the two schemas in Figure 21, circled in blue, cannot exist independently of more specific constructions. The network model of the usage-based framework constrains the relationship between argument structure constructions and the verbs that instantiate the constructions. The argument structure construction and the verb, in the sense of Goldberg, cannot be divided clearly because verbs and constructions grade into one another. Therefore, the fused structure of the verb and the construction assumed by Goldberg should not be the composites of two independent components, i.e., the verb and the construction. Rather, the structure should be regarded as an instance of the more abstract schemas, and its internal structure cannot be decomposed into the verb and the construction. It is hence evident from the usage-based nature that the construction does not increase the valency of the verb.

2.4 Semantic roles and role archetypes

Semantic roles (or thematic roles or theta-roles) such as Agent, Experiencer and Patient are exploited for studying verb semantics and the syntactic realization of argument structure in many linguistic frameworks, from Generative Grammar to Construction Grammar. Semantic roles describe the roles of the entities in the event structure designated by a verb. They are assumed to be systematically mapped onto certain syntactic positions. Although they play a central role in structuring verbs' meanings and determining syntactic realization, their theoretical status differs among theories. In section 2.4.1, I follow Levin and Rappaport Hovav (2005) and Croft (2012) and provide an overview of how semantic roles have been defined. Section 2.4.2 reviews Langacker's idea of role archetypes. He considers that semantic roles are grounded in our experience and defined in relation to the scenes in which they participate. Thus, each semantic role has different conceptual content.

2.4.1 The semantic range covered by semantic roles

Many studies in lexical semantics make use of semantic roles such as Agent,

Experiencer and Patient, to define verbs' meanings. In some frameworks of Generative Grammar, thematic roles, aka semantic roles, have been considered to be fundamental linguistic categories. Croft (1991) critically reviews what he calls a "reductionist" approach, which refers to a thematic-role-based approach to verb semantics in Generative Grammar, and addresses some important points at issue. The reductionist approach assumes as small a finite set of thematic roles available to grammar as possible.

As the focus has been placed on the relationship between semantic aspects of lexical entries and syntactic realization, detailed studies in semantics have shown the limitations of the reductionist approach. Thematic roles were once presumed to be semantic primitives and used without clear definitions. In addition, it was not clear how many thematic roles are (or should be) necessary to account for linguistic data. Take the sentence in (62), for instance:

(62) John bought Mary a book.

Sentence (62) has three arguments: the Subject *John*, the IObj *Mary*, and the DObj *a book*. Different linguists give different role labels in these arguments. The semantic role assigned to the Subject is Agent, Actor, Donor or Giver. The IObj is linked to Recipient, Goal, Beneficiary, or (intended) Possessor. The DObj is connected to Theme, Patient, or Gift. (Compare Jackendoff (1990: 269), Goldberg (1995: 49), Newman (1996) and Dixon (1991: 113), for example.)

According to Croft (2012), because it assumes as small a number of thematic roles as possible, the reductionist approach necessarily places distinct but related notions under a single thematic role. The reductionist approach then faces difficulty in identifying different syntactic realization patterns. Let us see the examples in (63), provided by Croft (1991: 157):

(63) a. I gave my ticket to the girl. [recipient]
b. I walked to the church. [allative]
c. Carol sewed up the pocket for me. [benefactive]

Croft argues that the reductionist approach assigns the Goal role to the NP in the *to*/

for phrase in each example, although the three NPs are known to be linked to different semantic subtypes, as given in the square brackets in (63), under a finer-grained analysis. The reductionist approach cannot sufficiently account for the preposition selection. From a typological perspective, the three NPs are encoded in different ways in different languages. English differentiates between (63a, b) and (63c). Russian marks (63a) and (63c) with the same case and (63b) with a difference case. Mokilese has the same form for all the NPs. These facts require finer-grained analyses that differentiate the three different roles.

There is a case in which the NPs to which the same semantic role is assigned behave in syntactically different ways. According to Croft (1991) and Levin and Rappaport Hovav (2005), some of the Instrument roles, which are usually linked to *with* phrases in English, appear in the Subj position, but not all of them can. Compare (64) and (65), both of which are provided by Levin and Rappaport Hovav (2005: 39):

(64) a. The cook opened the jar with the new gadget.
b. The new gadget opened the jar.
(65) a. Shelly ate the sliced banana with a fork.
b. * The fork ate the sliced banana.

The difference in grammaticality needs a more detailed explanation. A coarse-grained semantic characterization of *with* phrases is not sufficient.[14]

Semantic roles cannot be defined without reference to verbs' meanings. Previous studies have determined implicitly or explicitly which thematic roles are assigned to a verb with reference to the verb's meaning. In an early model of Generative Grammar, one of the pioneering studies that proved that semantic roles and verb semantics are inseparable was conducted by Fillmore. Fillmore (1970), for instance, carefully examines subtle differences in meaning between *break* and *hit* and assign different sets of cases to those verbs. Apparently, the two verbs have similar meanings, showing the same syntactic behavior.

14. The required explanation for (64b) and (65b) is as follows: Those Instrument roles that can be construed as acting autonomously can be the Subj NP, as in (64). In (65), no one regards the fork as an autonomous tool; therefore it fails to stand in the Subj position.

(66) a. John broke the stick with a rock.
b. A rock broke the stick.

(Fillmore (1970: 122))

(67) a. John hit the tree with a rock.
b. A rock hit the tree.

(Fillmore (1970: 123))

The (a) sentences in both examples take the instrument *with* phrase. As the (b) sentences show, the instrument can be the Subj NP.

There are some differences between the two verbs, however. First, the contrast in (68) demonstrates that only *break* allows the affected object to appear in the Subj position.

(68) a. The stick broke.
b. * The tree hit.

(Fillmore (1970: 122))

A second difference lies in the interpretation of passive sentences, as given in (69):

(69) a. The window was broken. (eventive and stative reading available)
b. The window was hit. (only eventive reading available)

(Levin and Rappaport Hovav (2005: 37))

The sentence in (69a) can be read in two ways: a stative reading and an eventive reading.[15] In a stative reading, the sentence refers to the resultant state after the window underwent a change of state; in an eventive reading, the sentence describes the process of the window's deformation. The sentence in (69b) evokes only an eventive reading.

Fillmore attributes such observed differences to different sets of semantic (case) roles. He proposes that *break* and *hit* take in common Agent and Instrument roles,

15. I adopt Levin and Rappaport Hovav's (2005) terms of stative reading and eventive reading. Fillmore originally distinguishes the two readings as "stative adjective" vs. "passive."

while distinct roles are linked to the DObj position. *Break* takes an Object role; *hit* takes a Place role. Fillmore presupposes that these different semantic role lists reflect the verbs' semantic difference. He distinguishes the two verbs by naming a change-of-state verb and a verb of impact. Appropriate context makes the verbs' semantic difference clear, as in (70):

(70) a. * I *broke* the window with a hammer; it didn't faze the window, but the hammer shattered.
b. I *hit* the window with a hammer; it didn't faze the window, but the hammer shattered.

(Fillmore (1970: 125), Italics original)

An important point underlying Fillmore's discussion is that the sets of semantic roles are characterized in relation to the verbs' semantic properties. Semantic roles cannot be defined independently of verb semantics.

Semantic roles were once viewed as primitive notations (Fillmore (1971), but this view is now denied by many studies. For instance, Jackendoff (1990: 47) argues that thematic roles can be defined in structural configurations in the conceptual structure, and he continues that "the names for [semantic roles] are just convenient mnemonics for particularly prominent configurations." He clearly states that "the terms *Theme, Agent,* and so on, are not primitives of semantic theory" (p. 47).

2.4.2 Role archetypes

Langacker (1991b: 284-285) argues that traditionally assumed semantic roles are conceived of as the highest abstractions from individual participant roles that are defined in the semantic structure profiled by each verb. He says that "every verb defines a distinct set of participant roles that reflect its own unique semantic properties" (p. 284). Instead of the term semantic role, Langacker uses role archetypes to define his stand on semantic roles. According to him, role archetypes are not "linguistic constructs, but rather pre-linguistic conceptions grounded in everyday experience" (pp. 284-285). Thus, role archetypes incorporate related but distinct instances that are characterized at different levels of schematization.

Let us take a careful look at his point, using a set of concrete examples. Langacker

(1991b) describes each role archetype as follows:

(71) a. Agent: a person who volitionally initiates physical activity resulting, through physical contact, in the transfer of energy to an external object.
b. Experiencer: a person engaged in mental activity (be it intellectual, perceptual, or emotive)
c. Theme: the participant in a thematic relationship. The notion is schematic with respect to a number of role archetypes, including patient, mover, (non-initiative) experiencer, and zero.

((a) and (b) from p. 285; (c) from p. 554)

The descriptions in (71) are schematic generalizations over concrete instances whose properties are expounded in different situations.[16] In the giving-receiving situation that can be denoted by ditransitive expressions, the three archetypes can be instantiated in different ways. Compare the pair of sentences in (72):

(72) a. Could you give me that pen? (*MEDAL*, s.v. *give*)
b. The most wealthy landowner in the city gave the city a site to build a new library on. (*Kenkyusha*, s.v. *site*)

The Subj entities in (72) can be identified as the Agent role because they refer to the sentient, volitional people who somehow exert influence over the DObj entities, which are construed as the Theme role. The Agent's way of affecting the Theme is different between (72a) and (72b). In (72a), the Agent physically manipulated the Theme and moved it within the Experiencer's dominion; in (72b), on the other hand, the landowner did not exercise physical power over the site, nor did the site undergo change of location. What changed in (72b) was the right of ownership. The examples in (72) suggest that even one verb may take different sets of semantic roles.

This thesis adopts the following views regarding semantic roles:

16. We will soon see that the Agent, the Experiencer and the Theme roles are the schematic role archetypes of the Giver, the Recipient and the Mover roles.

- Semantic roles are not linguistic constructs but are based on our experience and our cognition of the world. They are equivalent to role archetypes in the sense of Langacker (1991b).
- Widely assumed semantic roles such as Agent and Theme are the names of the generalizations over the participant roles that are characterized with reference to verbs' frame semantics (cf. Langacker (1991b: 284-285)). (See section 2.3.2.)

2.4.3 Defining the prototypical ditransitive construction

I am now in a position to integrate semantic roles with other notions to define the prototypical caused-possession ditransitive construction. Given the role archetype model, it is not surprising that previous studies have used many role names for the Subj, the IObj and the DObj of the ditransitive construction. This thesis employs the set of semantic roles *Giver, Recipient* and *Mover*. Strictly speaking, since the Subj entities of both sentences in (72) are slightly different in their semantic nature, the roles should be understood to cover their instances. Giver, Recipient and Mover are understood as instances of Agent, Experiencer and Theme. The three roles are roughly defined as follows:

(73) a. Giver: a person who volitionally acts on the Mover and transfers it to the Recipient
b. Recipient: a person who actively makes some contact with the Mover (cf. Langacker (1991b: 327-328))
c. Mover: an inanimate object that is transferred to the Recipient's domain of possession (cf. Langacker (1991b: 287))

In a quite possible scene after the sentence in (72a) is uttered, the addressee (Giver) will hold the pen (Mover) and put it into the speaker's (Recipient's) hand. Similarly, in (72b), the landowner (Giver) transferred the ownership of the site (Mover) to the city (Recipient). Hence, the site was under the ownership of the city. In this case, the site itself underwent no change of location, but the ownership is interpreted as the

active zone of the site with respect to the change of ownership.[17]

I define the meaning of the prototypical ditransitive construction as in (74):[18]

(74) The Giver causes the Recipient to have control of the Mover.

This definition is similar to the central sense of the ditransitive construction provided by Goldberg (1995: 38):

(75) Agent successfully causes Recipient to receive Patient.

There are two reasons why I prefer to adopt my own definition. First, although terminology is trivial, semantic roles such as *Agent* and *Patient* are frequently used to define different constructions. In her monograph, Goldberg uses *Agent* and *Patient* for the ditransitive construction and the resultative construction (e.g., *He painted the door blue*). When we compare the resultative sentence with the ditransitive sentence in (72), the term *Agent* may not be so problematic because both subject entities share many features described in (71a). The features of the DObj entities in each construction differ, however. In the case of the resultative sentence, the door's state was changed by acquiring a new appearance. In contrast, the pen and the site did not undergo any change of state, though the pen's location and the site's ownership were changed. Whether the name of *Patient* suitably describes the DObj of both constructions depends on the definition of the Patient role, to be sure, but it is safer to say that the roles of the two constructions' DObj are not identical. Therefore, I use the terms exclusively in reference to the ditransitive construction.

Second, I use "to have control of" in the definition instead of "to receive." In prototypical cases, the Mover is understood as being received by the Recipient. As

17. The discrepancy between the linguistic form and its active zone is found in many cases. For example, in the sentence *She heard the piano*, the Subj entity did not listen to the physical object referred to by *the piano* but rather listened to the sound emitted by the piano. The sound in this case serves as the active zone with regard to the process of hearing. See Langacker (1987) for active zones.
18. Yoshikiyo Kawase (in personal communication) directed me to the analysis based on the notion of control.

Oehrle (1976) observes, however, in some cases, the Mover is not interpreted as such. Observe the example in (76):

(76) John gave Harry his bicycle for the day: but the bicycle just sat there the whole day. I guess Harry didn't need it.

(Oehrle (1976: 24)

The example in (76) illustrates that the Mover (the bicycle) remained in the same physical place and the Recipient (Harry) did not physically receive it. Nevertheless, the ditransitive construction is felicitously used. This example suggests that the physical movement of the Mover is not a necessary condition for the ditransitive construction to work. We should note, however, that the sentence implies that the custody of the bicycle was transferred to the Recipient. After he obtained the custody, Harry had the option to use the bike or leave it there. The phrase "to have control of" can cover a wid range of situations describable by the ditransitive construction.

The definition in terms of the notion of control is preferable, given the reference-point relationship between the Recipient and the Mover (section 2.1.4). Langacker (1991b: 331) states that the canonical act of transfer is composed of "the [R]ecipient's involvement and the [M]over's transition into its dominion." He continues that after perceiving the transition and establishing mental contact with the Mover, the Recipient "exercises subsequent control over it" (pp. 331-332).

2.5 Two types of causation

Chapter 4 is concerned with causative ditransitive constructions, which are metaphorically extended from the caused-possession ditransitive construction. Causative ditransitive constructions designate two types of causation. This section gives a basic idea of causation and presents the causal relations associated with the ditransitive construction.

Causation refers to the causative relationship between an event and a subsequent event. It is classified roughly into two types: direct causation and indirect causation. As Shibatani (2002: 11) points out, "the relevant notion has not been satisfactorily defined" in spite of the fact that the terms "direct causation" and "indirect causation" are often used in the literature. Here, I briefly discuss some characteristics of the two

notions. I attempt to characterize them in terms of energy transfer in section 2.5.1.

In a typical direct causation, an event participant named a Causer acts on the other event participant named a Causee to produce a change of state on the part of the Causee. In this relation, the Causer directly manipulates the Causee, and the causing event in which the Causer acts on the Causee is immediately followed by the caused event in which the Causee's state is altered. The Causee is interpreted as a noncontrolling undergoer, or a "patient causee" (Shibatani and Pardeshi (2002: 89)). The second type of causation, indirect causation, involves no direct contact between the Causer and the Causee. In many cases, the Causer directs the Causee to do something. The caused event does not overlap with the causing event. The Causee is viewed as an Agent of the caused event. Shibatani and Pardeshi (2002: 89) label this type of Causee an "agentive causee." This differentiation between the two types of causation is a rough approximation of the characterization of direct and indirect causation, as Shibatani and Pardeshi (2002) say.

Although the ditransitive construction can designate direct and indirect causation, I focus more on indirect causation because it has not been well studied. It is widely recognized that indirect causation is often encoded by periphrastic causative expressions, but we will see that indirect causation, which I call the barrier type of causation, can be conveyed by lexical causative expressions, specifically, the ditransitive construction. We will see that the barrier type of causation encoded by the ditransitive construction appears not to fit the characteristics described by previous studies, but I re-examine the force-dynamic relations designated by the construction and delineate how the participants and the barrier interact in the barrier type of causation in terms of energy transfer.

2.5.1 Causal/action-chain model

A conceptual model that describes the interactive relationship of one object to another is the billiard-ball model (Langacker (1991b)). This model gives a basis for understanding grammatical constructs such as nouns and verbs. The billiard-ball model regards causation as a force-dynamic relation between participants (cf. Talmy (1988, 2000)). One participant exerts force on another participant, which results in some change in the participant that is acted on. This is similar to billiards, in which a ball that is hit with a cue moves into another ball, which pushes others. Langacker's

(1991b) action-chain model and Croft's (1991) causal-chain model are both used to describe force-dynamic relations.

To take an example from Croft (2012: 198), let us see how the causal-chain analysis explains the force-dynamic relations between participants (see also Croft (1991)):[19]

(77) a. Sue broke the coconut for Greg with a hammer.

b. Sue ——> hammer ——> coconut - - - -> Greg
Subj A.Obl Obj S.Obl

The causal relations in the event described by (77a) are shown schematically in (77b). The chain in (77b) represents the sequential interactions among the event participants. First, Sue transmitted her energy to the hammer. Then, the energy was conveyed to the coconut through the hammer and caused a change of state in the coconut. Finally, Greg gained the benefit from the result of this event. "The causal chain is a directed, acyclic and non-branching structure" (Croft (2012:198)).

Croft (1991: 186) proposes the Causal Order Hypothesis and attempts to explain the mechanism of argument realization. The 2012 version of the hypothesis (Croft (2012: 221)) is stated as in (78):

(78) [A] simple verb in an argument structure construction construes the relationship among participants in the event it denotes as forming a directed, acyclic, and non-branching causal chain.

He adds to this hypothesis four argument realization (liking) rules, listed in (79):

19. For consistency of notations, I adopt *Subj*, *Obj* and *Obl* instead of Croft's original notations *SBJ*, *OBJ* and *OBL*. The abbreviations represent the grammatical functions *subject*, *object* and *oblique*, respectively.

(79) a. The verbal profile is delimited by Subject and Object (if any)
b. Subject is antecedent to Object in the causal chain:
Subj ——> Obj
c. An Antecedent Oblique is antecedent to the Object in the causal chain; a Subsequent Oblique is subsequent to the Object in the causal chain:
A.Obl ——> Obj ——> S.Obl
d. Incorporated arguments are between Subject and Object in the causal chain

According to the hypothesis, grammatical functions and case markings are determined in relation to the location on the causal chain. The initiator and the endpoint (or the head and the tail, in the sense of Langacker (1991a)) of the segments profiled by a verb are realized as the Subj NP and the Obj NP, respectively. A.Obl and S.Obl are defined in relation to the position of Object.

Let us see how the hypothesis works. In (77b), Sue, located at the starting point of the chain, is linked to the Subj and the coconut, located at the endpoint of the profiled portion, is selected as the Obj. The hammer is placed between the Subj and the Obj and is thus construed as an Antecedent Oblique due to (79b). The rule in (79c) also defines Greg, subsequent to the Obj, as a Subsequent Oblique.

Croft (2012) reviews his earlier version of the causal-chain model (Croft (1991)) and proposes a refined model that integrates the causal relations between participants and the aspectual properties of events. His refined model can accommodate not only the four major aspect classes—state, activity, achievement and accomplishment—but also their subdivided classes and newly found classes, such as cyclic achievement. Croft himself points out that the earlier model distinguishes only between dynamic and stative subevents and cannot capture those complicated aspect types. He also points out that

> The [revised] model itself will probably need further refinement. It only distinguishes causal and noncausal relations on the causal dimension (arrow vs unheaded links). It does not differentiate Talmy's causal types... (p. 219)

Although Croft's (2012) three-dimensional representation of the causal chain can

precisely describe the sequential change from one subevent to another and the internal structure of each subevent, his model still assumes linear associations between subevents and a linear change within a subevent, as is suggested in the phrase "directed, acyclic, and non-branching causal chain" in (78).

We will soon see that Talmy's letting causation has branching chains. I suggest that a small modification allows the causal-chain model to accommodate causal structures with branching chains. I partly use the modified model in chapters 3 and 4 but leave out three-dimensional representations. The simplified model illustrated in (77) suffices for the purpose of this thesis.

2.5.2 The driving-force type and the barrier type of causation

The causal/action-chain approach can well describe which participant acts on which other participants from a force-dynamic point of view, but it is not fine-grained enough to describe how a participant acts on another participant. The reason is probably that the causal/action-chain approach is modeled on the chronological basis of events. The chain merely reflects the order of the sequential events. Compare the following pair of sentences:

(80) a. I made the lamp topple by hitting it with the ball.
b. I let the water flow out by pulling the plug loose.

(Talmy (2000: 422))

The sequence of events designated by sentence (80a) can be described as shown in Figure 22. The circles represent the event participants. The arrows show that the left participant exerts a causal influence on the right participant. The rectangle represents the table. The causal relation given in Figure 22 means that the force applied by the participant "I" to the ball caused the ball to crash into the lamp, which toppled from the table.

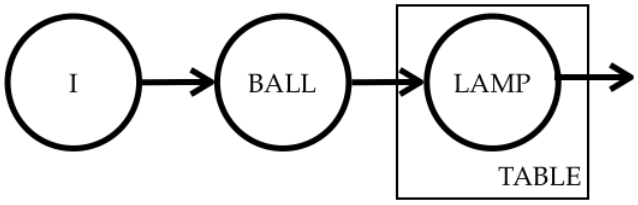


Figure 22: Causal link between the speaker, the ball and the lamp in (80a)

According to the argument realization (liking) rules in (79), the initiator of the chain, i.e., *I*, is linked to the Subj of both *make* and *hit,* and the endpoint, *the lamp*, is linked to the Obj of both verbs. *The lamp* is construed as the head of the last portion of the chain and thereby is the "semantic Subj" of the predicate *topple*. *The ball* is located at an intermediate position on the chain and thus is marked with *with*.

In Figure 22, the force exerted by the speaker drove the ball through the air to the lamp. In the relation between the ball and the lamp, the ball's propulsion force drove the lamp off the table. In this thesis, I call this type of force that influences the causal relationship between the participants "the driving-force type of causation."

Note that in Talmy's force-dynamic model, the causal relation described in (80a) can be classified as onset causation, represented in Figure 23:

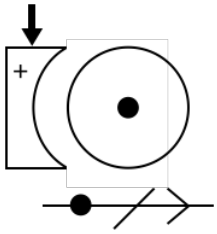


Figure 23: Onset causation

Figure 23 portrays the force-dynamic relation between the Agonist (the lamp), indicated by the circle, and the Antagonist, indicated by the concave figure, which pushed the Agonist off the table. The Agonist and the Antagonist are the action-reaction force pair. The Agonist has an intrinsic tendency toward rest, indicated by the black dot in the center of the circle. The Antagonist's stronger force overrode the Agonist's tendency and the Agonist was set in motion. The line with the dot and the arrowhead at the bottom indicates the Agonist's change from a stationary state (•)

to a moving state (>). Intuitively, it seems easier to determine how the three participants *I, the ball* and *the lamp* interact in Figure 22 than in Figure 23, although the information about the participants' tendency is left out. Thus, I use the model presented in Figure 22.

To return to our main subject, the relation described by sentence (80b) seems similar to that of (80a) in that the speaker was responsible for the DObj entity moving. On the other hand, they are different in that in (80b), the plug that was directly manipulated by the speaker did not convey the energy to the water. Figure 24 illustrates how the speaker intervened in the water flowing out. Technically, the water stored gravitational potential energy. After the speaker loosened the plug and made room for the water to run out of the container, as indicated by [1] and [2] in Figure 24, the potential energy caused the water to flow out of the container, as indicated by [3].

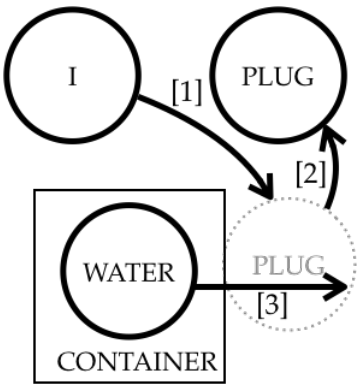


Figure 24: Causal link between the speaker, the water and the plug in (80b)

The barrier type of causation is intended to refer to the event in which the removal of barrier makes it possible for another event to happen. In (80b), the plug functioned as the barrier that prevented the water from going out of the container.

In the billiard-ball model of causal relationship, an energy flow is described as a one-way continuous flow. As Figure 24 illustrates, however, the barrier type of causation contains two energy sources: the first source is the speaker, who exerted force on the plug, and the other source is the water, which pushed itself out of the container. The second force does not work unless the force stored in the water is released by removing the plug. In this case, we cannot see the direct link between the speaker

and the water.

The pattern in Figure 24 is equivalent to "letting" causation in Talmy's (1988, 2000) model, as portrayed in Figure 25:

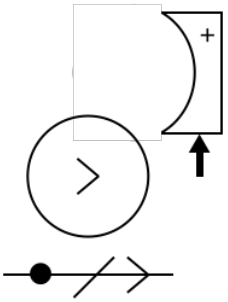


Figure 25: "Letting" causation

The Agonist, i.e., the water, indicated by the circle, has a tendency toward motion, indicated by the arrowhead. The stronger Antagonist, i.e., the plug, indicated by the concave figure, had blocked the Agonist's motion. This steady state is represented by the dot on the line at the bottom. Once the Antagonist was moved away, the Agonist pulled itself outside the container.

The causative configuration in Figure 24 is similar to letting causation in that the Causee is not under the direct influence of the Causer, i.e., the speaker's physical manipulation. The caused event can be conceptualized as having a certain degree of autonomy. On the other hand, it is difficult to construe the moving water as being agentive because water does not move of its own volition. It is difficult to apply Shibatani and Pardeshi's (2002) approximate characterizations of indirect causation, as we have seen at the beginning of section 2.5, to the causative configuration in Figure 24.

Shibatani and Pardeshi (2002), after re-examining their approximate characterizations, account for the difference between direct causation and indirect causation with respect to spatiotemporal configuration. According to them, direct causation refers to "conceptualization of causative situation involving the same spatiotemporal profile for the causing event segment and the caused-event segment" while indirect causation is conceptualized as involving "two relevant sub-events that have two distinct temporal profiles and two potentially distinct spatial profiles" (p. 90).

It seems difficult to clearly distinguish between (80a) and (80b) with respect to

spatiotemporal configuration if we interpret Shibatani and Pardeshi's terms "distinct temporal and spatial profiles" literally. We normally see that the entire series of events depicted in both examples in (80) occurs in a certain spatial dimension within a single limited temporal dimension. The point to consider is, however, under what condition we consider two sequential events to be located in a single spatiotemporal profile or two distinct profiles. A possible solution to this problem is to give a definition of spatiotemporal profiles with respect to continuity of energy flow. I assume that whether two sequential events form a single spatiotemporal domain or two distinct domains depends on our construal of energy flow. The relationship between spatiotemporal domains and energy flow can be stated as follows:

(81) If we can construe two sequential events as a continuous flow of energy, the two events form a single spatiotemporal domain. If we regard two related events as distinct flows of energy, each event forms a different spatiotemporal domain.

In light of (81), we can classify the sequence of events depicted in (80a) and (80b) as having different characteristics. In (80a), we can view the flow from the speaker to the lamp as occurring consecutively, and hence, the flow forms a single spatiotemporal profile. In (80b), on the other hand, two different energy flows are involved: the flow from the speaker to the plug, the process labeled by [1] and [2] in Figure 24, and the water flowing out, indicated by [3]. Thus, the event structure of (80b) is composed of two spatiotemporal dimensions.

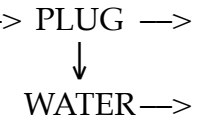
The definition given in (81) is motivated by the law of conservation of energy in physics. The law says that the total energy of the system is conserved in a system that is isolated from its surroundings. This law entails that energy cannot be created or destroyed but can merely be transformed or transferred from one form to another. Figure 22 illustrates a simple case of the law. The energy released by the speaker is transformed to the ball and then to the lamp.

Figure 24 provides a complicated case. It contains two closed systems. In one system, the kinetic energy released from the speaker moved the plug away; in the other system, the potential gravitational energy stored in the water was transformed to kinetic energy that moved the water out of the container. The point of contact of

the two systems was at the plug, but the plug's ways of involvement in the two systems were different. In the speaker-plug relation, the plug's stationary condition was changed to its moving condition because the speaker's kinetic energy overcame the plug's energy that kept it in place. In the water-plug relation, the action force exerted by the water and the opposite reaction force exerted by the plug were balanced, and thus the water stayed in the container. After the speaker's kinetic energy in the first system moved the plug's location, which then weakened the reaction force against the water's force, the water's potential energy turned to kinetic energy and pushed itself outside. However, the total energy of the water, i.e., the energy source, in the second closed system was preserved. Similarly, the total energy of the speaker in the first system was the same, although some part of the energy was transformed to the plug's movement.

How does the causal/action-chain model explain the syntactic realization of the arguments? The simplified diagram of Figure 24 is provided in (82):

(82)



The causal structure consists of the two closed systems, which are presented by the two horizontal lines. The downward arrow from the PLUG to the WATER indicates that the stable force balance between the PLUG and the WATER changed. This diagram indicates that the barrier type of causation forms branching causal chains, which seems to violate Croft's definition in (78), which is reproduced as (83):

(83) [A] simple verb in an argument structure construction construes the relationship among participants in the event it denotes as forming a directed, acyclic, and non-branching causal chain.

Note that the definition starts with "a simple verb." The sentence described by (82), *I let the water flow out by pulling the plug loose*, includes three verbs. Each verb profiles a different portion of the causal structure. The verb *let* describes the relation between the speaker and the WATER; *flow (out)* designates the WATER's movement; and *pull* highlights the interaction between the speaker and the PLUG. If this analysis

is on the right track, the causal-chain model may account for (80b), although the argument realization (liking) rules need some modification.

The sentence in (84) may cause a problem for Croft's model. It expresses the situation described by (80b) with a single verb:

(84) I let the water out (of the tank).

The causal-chain structure of (84) can be represented as in (85):

(85) **I** —> (PLUG —>)
↓
WATER—>

The boldfaced *I* and *WATER* intend the profiled arguments of the verb *let*, and the parenthesized *PLUG* and the arrow that follows are backgrounded. As with (80b), the scene described by (84) includes two closed systems of energy transfer. Although, as (85) shows, the entire structure has branching chains, the causal relation profiled by the verb is the one between the speaker and the WATER. This suggests that the straight linear structure is not sufficient to capture the letting type of causation. However, if Croft's model allows nonlinear structures, as given in (85), it can accommodate a wider range of Talmy's causal types. I wish to examine more data to pursue this possibility further in my future research.

In sum, the barrier type of causation has two distinct but related energy flows. The two energy flows run in different spatiotemporal dimensions, and the two flows intersect at a point.

2.6 Summary of chapter 2

This chapter has presented the theoretical premises assumed in this thesis. This thesis follows the basic tenet of Cognitive Linguistics. Language is an integral part of our cognition. Linguistic expressions reflect our way of viewing and understanding the world around us and our physical, perceptual and/or cultural experience. The causal relationships encoded by linguistic expressions are structured by our cognitive faculties. This thesis adopts a Cognitive Construction Grammar approach (Boas (2003), Goldberg (1995, 2005), Iwata (1998, 2006), and Langacker (1987, 1991a, 1991b,

etc.), among others). The approach takes a Construction Grammar view that does not relate the two patterns by derivation but deals with each of the polysemous syntactic patterns on its own terms. It also takes a symbolic, usage-based view of grammar, assuming that constructions are conventional pairings of form and meaning and learned from actual instances. It emphasizes that verb meanings must be defined with reference to our rich, complicated background knowledge. Frames are rooted in our experience, society and culture and present systematic structures of their constituent elements.

This thesis also follows the role archetype model, which claims that semantic roles are relativized to the scenes in which they participate. Given the reference-point relationship, I have defined the prototypical caused-possession ditransitive construction as "the Giver causes the Recipient to have control of the Mover." In this definition, "to have control of" intends that the Recipient serves as the reference point for the Mover.

Finally, I have provided an overview of the causal relationships that can be designated by the ditransitive construction. One type of causal relationship is a kind of direct causation, which I call the driving-force type of causation. The structure is organized as a unidirectional causal chain and can be easily captured by the causal/action-chain model. Another type is the barrier type of causation, a kind of indirect causation. This type of causation comprises two closed causal-chain systems, and thus, it is not straightforward to account for the structure in terms of the conventional causal-chain model. I have suggested that non-linear chains should be introduced to account for the barrier type of causation.

Chapter 3. Ditransitive Constructions and Transfer of Possession

This chapter deals mainly with the caused-possession ditransitive construction, as illustrated in (86):

(86) a.		John	gave	his wife	a diamond ring
b.	Syntactic categories:	NP_1	V	NP_2	NP_3
c.	Grammatical functions:	Subj	Verb	IObj	DObj
d.	Semantic roles:	Giver		Recipient	Mover

The prototypical caused-possession ditransitive construction is associated with transfer of possession. The event frame designated by the construction involves three arguments, and, as I have defined in section 2.4.3, their relation can be described as follows:

(87) The Giver causes the Recipient to have control of the Mover

Many previous studies have clarified the semantic characteristics of ditransitive constructions. The definition in (87) results from the accumulated efforts of previous studies.

The pioneering semantic work of the English ditransitive construction is done by Green (1974). She divides ditransitive verbs into five *to*-classes and five *for*-classes, both of which encompass the verbs alternating between the ditransitive construction and the prepositional dative construction and non-alternating verb classes. She assumes that if a verb alternates between the ditransitive construction and the prepositional dative alternation, the IObj NP and the DObj NP are in a 'have' relationship. That is, we can paraphrase the two juxtaposed NPs as "the first NP 'has' the second NP." If we say that John gave his wife a diamond ring, the 'have' relation holds between *his wife* and *a diamond ring* (i.e., *his wife 'has' a diamond ring*). Green further assumes that the alternation between the two constructions is constrained by three conditions. First, alternating verbs must have animate dative NPs. Second, the subject NP must also be animate. Third, the referents of the Subj NP, IObj NP and

DObj NP must exist at the same time.

However, Green's analysis has some problems. There are disagreements among linguists over the grammaticality of some of her examples (e.g., *John pushed George a ball* (p. 119)). As Green herself admits, the three constraints allow exceptions. Since the 'have' relationship is not defined clearly, previous studies (e.g., Oehrle (1976, 1977)) argue about the relationship by providing some counterexamples to Green's generalizations. Nevertheless, Green's observations on the meanings of ditransitive expressions and classification of ditransitive verbs are so influential that many previous studies (Goldberg (1992, 1995), Gropen et al. (1989), Oehrle (1976), Pinker (1989) and so on) have developed based on her. This thesis is also influenced by Green and her followers.

The central issue in this chapter is the semantics of the family of ditransitive constructions. Given the common assumption concerning the successful transfer entailment, an adequate theory should explain the variety of meanings that deviate slightly from the prototypical case of the successful transfer entailment. This chapter sheds light on the relationship between verbs and ditransitive constructions. While I demonstrate that semantic differences among ditransitive constructions reflect the semantic differences among individual lexical verbs, this conclusion does not deny that the ditransitive construction has its own meaning. The usage-based model assumes a continuum from lower-level constructions with specific meanings to higher-level constructions with schematic meanings. Constructions at every level of specificity are significant to linguistic analyses (section 2.1.5). The semantic variety of the family of ditransitive constructions is the issue to be addressed at a lower level of specificity. At that level, each instance of the construction carries a specific meaning, although it cannot be decomposed precisely into the constructional meaning and the verb meaning. Thus, it is not meaningful to debate whether the semantic variety of ditransitive constructions results from constructional polysemy or the constituent verb's semantic property.

I also consider the successful transfer entailment and argue that the notion of successful transfer is an essential attribute of lower-level constructions. I make the following points:

- Transfer of possession occurs in the possessional domain, not in the spatial domain. By the nature of the possessional domain, once possession is transferred, it is always successful. There are no intermediate stages in the process of change of possession.
- If change of location is involved in transfer of possession, we construe possession as being transferred successfully when the speaker conceptualizes a transferred object as being under the Recipient's control, i.e., in the Recipient's dominion.

From these two points, I arrive at the conclusion that the notion of successful transfer is a common feature generalized over the members of the prototypical caused-possession ditransitive construction.

I also consider the possibility of further generalization over the prototypical case and verbs of obtaining/creation and intentional verbs such as *promise*. My conclusion is that prior intentionality is a common feature shared by a wider range of members of the caused-possession ditransitive construction, including verbs of obtaining/creation and intentional verbs.

Finally, I present the network structure exhibited by caused-possession ditransitive constructions. I show the three instantiation patterns of the superschema of the caused-possession ditransitive construction: First, the prototype constructions instantiate the transfer-of-possession component of the schema; second, verbs of obtaining/creation elaborate the "precondition" component; and third, intentional verbs, as the name indicates, flesh out the prior-intention component.

3.1 The variety of meanings conveyed by ditransitive constructions

The ditransitive construction is associated with related but different meanings, as exemplified in (88):

(88) a. John gave his wife a diamond ring.
b. John threw his son a ball.
c. John baked his wife a cake.
d. John promised his daughter a toy.

The meaning conveyed by the prototype in (88a) is the transfer of possession of the Mover from the Giver to the Recipient. The other sentences in (88) also evoke transfer of possession, although their implications differ with respect to whether the Recipient actually received the Mover.

Let us look at the details provided by Goldberg (1995). According to her, the prototypical verb class implies "actual successful transfer," by which she means that "the agent argument [i.e., the Giver] acts to cause transfer of an object [i.e., the Mover] to a [R]ecipient" (p. 32). Not every ditransitive sentence has such an implication. One of the examples that Goldberg adduces is the case of *bake*, a verb of creation, as in (89):

(89) Chris baked Jan a cake.

Sentence (89) does not strictly imply actual successful transfer; it implies that "Chris baked a cake *with the intention* of giving the cake to Jan" (p. 32). This is consistent with the situation in which Chris was robbed of the cake and could not hand it to Jan. The same is true of other subclasses. The meanings of verbs of future having (e.g., *bequeath, leave* and *refer*) are relevant to making arrangements for the future, not actual transfers of possession. Verbs of permission (*allow* and *permit*) imply the enablement of transfer; verbs of refusal (*refuse* and *deny*) imply the negation of transfer.

There are some issues to be considered. First, how are the senses associated with transfer of possession related to each other? This issue arises from the assumption that the ditransitive construction forms a graded category consisting of heterogeneous members. Given that the prototype of the construction entails successful transfer, it is necessary to account for the similarities and dissimilarities of non-prototypical members vis-à-vis the prototype.

This line of reasoning is probably correct, but I have to raise the fundamental question, in connection with the first issue, of where the implication of successful transfer, if any, stems from. There has been lively debate over what mechanism accommodates the semantic differences among ditransitive construction members. The constructionist approach (e.g., Goldberg (1995)) ascribes the differences to the construction's polysemous nature, while the projectionist approach (e.g., Rappaport

Hovav and Levin (2008)) supposes that the differences result from differences in semantics among verbs, not constructions. I add that some linguists (e.g., Jackendoff (1990: 297)) are skeptical about the successful transfer entailment.

In the later part of this chapter, I confront these issues from the Cognitive Construction Grammar viewpoint.

3.2 A Cognitive Construction approach to caused-possession ditransitive constructions

This section starts with the review of Goldberg's Construction Grammar approach to the ditransitive construction (sections 3.2.1 and 3.2.2). Sections 3.2.3 to 3.2.6 argue the relationship between constructional senses and verb meanings and the complexity of verbs' semantic structures. I also argue that the semantic domains characterizing constructional/verb senses, especially the possessional domain and the spatial domain, have different properties and that the notion of successful transfer should be characterized in terms of the possessional domain. Furthermore, I demonstrate that prior intentionality defined in the intentional domain is the key notion to capture the commonality among caused-possession ditransitive constructions.

3.2.1 Goldberg's Construction Grammar approach to caused-possession ditransitive constructions

Goldberg assumes that the ditransitive construction is a case of constructional polysemy. One of the basic tenets of Construction Grammar and Cognitive Linguistics is that there is no distinction between lexical units, phrases and sentences. All linguistic units are pairings of form and meaning. As the form of a lexical unit can be connected with more than a sense, a sentential form can be paired with multiple meanings. Goldberg proposes that the polysemous senses of the ditransitive construction are radially structured from the central, prototypical sense, as shown in Figure 26 and that each constructional sense fuses with a specific verb class. The list of the verb classes and their members is given in (90):

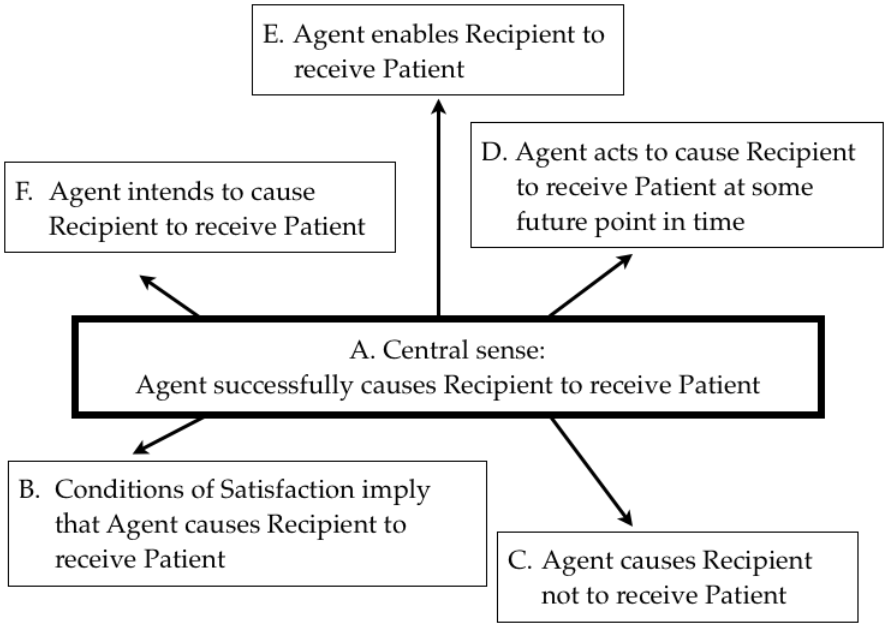


Figure 26: The radial structure of the six senses of the ditransitive construction (after Goldberg (1995: 38))

(90) A. Verbs that inherently signify acts of giving:

give, pass, hand, serve, feed, ...

Verbs of instantaneous causation of ballistic motion:

throw, toss, slap, kick, poke, fling, shoot, ...

Verbs of continuous causation in a deictically specified direction:

bring, take, ...

B. Verbs of giving with associated satisfaction conditions:

guarantee, promise, owe, ...

C. Verbs of refusal:

refuse, deny

D. Verbs of future transfer:

leave, bequeath, allocate, reserve, grant, ...

E. Verbs of permission:

permit, allow, ...

F. Verbs involved in scenes of creation:

bake, make, build, cook, sew, knit, ...

Verbs of obtaining:

get, grab, win, earn, ...

In Goldberg's Construction Grammar framework, the relations between verbs and constructions are determined by the Semantic Coherent Principle and the Correspondence Principle, as we have seen in (56), which is reproduced as (91):

(91) a. The Semantic Coherence Principle: the participant role of the verb and the argument role of the construction must be semantically compatible. In particular, the more specific participant role of the verb must be construable as an instance of the more general argument role. General categorization processes are responsible for this categorization task and it is always operative.

b. The Correspondence Principle: the semantically salient profiled participant roles are encoded by grammatical relations that provide them [with] a sufficient degree of discourse prominence, i.e., by profiled argument roles. An exception arises if a verb has three profiled roles; in this case, one can be represented by an unprofiled argument role (and realized as an oblique argument). The Correspondence Principle can be overridden by specifications of particular constructions.

(Goldberg (2005: 226); see also Goldberg (1995:50).)

Furthermore, the ways in which verbs are integrated into constructions follow conventional semantic patterns, as in (57), reproduced as (92), and the patterns are hierarchically organized:

(92) Elaboration [=instance, in the sense of Goldberg (1995)] >
Force-dynamic relation (means, instrument, result, denial) >
Precondition, Co-occurring activity

(Goldberg (1997: 396))

What is important here is the list of conventional relations, especially elaboration and precondition. Elaboration, in which the verb designates an elaboration of the meaning of the construction, is the most prototypical case. In the case of the ditransitive construction, *give* lexically encodes the construction's meaning "X causes Y to receive Z." On the other hand, *bake* designates the act of creation and is assumed not

to encode change of possession in its lexical meaning. Because the act of creation can be seen as a precondition of transfer, *bake* can be fused with the ditransitive construction.

Now let us see how the verbs *give* and *bake* are fused with the ditransitive construction. The verb *give* is a straightforward case of verb-construction fusion. It is a three-place predicate with the profiled participants *Donor, Givee* and *Gift*.[20] These three participants are construed as instances of the argument roles *Agent, Recipient* and *Patient*, respectively. Under the Semantic Coherence Principle, the participant roles can be fused with the respective general argument roles. In addition, under the Correspondence Principle, all the participant roles must be fused with the profiled argument roles since they are lexically profiled. The relation of the verb with the construction can be diagrammatically represented as shown in Figure 27:

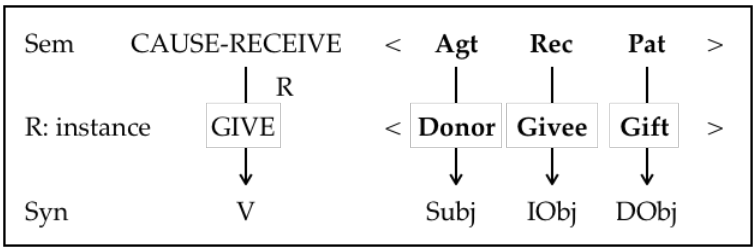


Figure 27: Composite fused structure: ditransitive + *give* (adapted from Goldberg (1995: 51))

In contrast, the verb *bake* illustrates a more complicated case. Goldberg (1995: 65) states that "the baking itself is not causally related to the transfer," thus assuming that the verb *bake* is associated with only two profiled participants, *Baker* and *Baked*. Under the Semantic Coherence Principle, these two participant roles can be integrated with the ditransitive construction's Agent and Patient roles because they are viewed as elaborating those argument roles. Under the Correspondence

20. The participant role *Donor* here is intended to refer to the participant role specific to the verb *give*. I am using the term *Giver* as a cover term for the volitional human who engages in transferring the Mover to the Recipient, i.e., the Subj entity of the caused-possession ditransitive construction. To avoid confusion, I have adopted *Donor* instead of *Giver*. Note also that the role names *Agent* and *Patient* in Goldberg's system correspond to *Giver* and *Mover* in my terminology.

Principle, the profiled participant roles must be integrated with those argument roles. The following question then arises: Where does the IObj come from? Goldberg assumes that "the construction can add roles not contributed by the verb" (p. 54). The Recipient role of ditransitive expressions with *bake* is provided by the ditransitive construction. Figure 28 shows how the construction augments the valency of the verb.

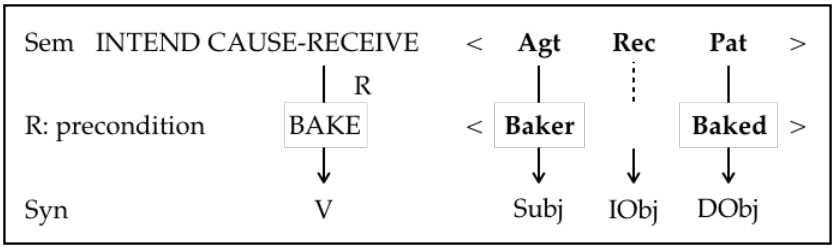


Figure 28: Composite fused structure: ditransitive + *bake* (adapted from Goldberg (1995: 77))

The ditransitive expressions of class F are categorized as what is called the benefactive construction, which "alternates" with the *for* dative construction. This class of construction, unlike the prototypical class A, does not imply that the Patient necessarily comes into the Agent's possession. It is sufficient to imply that the Agent has some intention of giving the Patient what she prepares. Such a semantic aspect is reflected in "INTEND CAUSE-RECEIVE" in the construction's semantic representation in Figure 26. Part of the representation, i.e., CAUSE-RECEIVE, is assumed to be inherited from the prototypical class A.

3.2.2 Problems with Goldberg (1995)

If, as Goldberg claims, argument structure constructions carrying their own senses serve to reduce the number of unnecessary verb senses (section 2.3.3), then Goldberg's Construction Grammar approach seems to bring about a satisfactory solution to the problems with the lexical rule approach. Things are not as simple as Goldberg claims, however. Goldberg posits that the ditransitive construction is polysemous, as shown in Figure 26. As previous studies have pointed out (Kay (1996), Kay (2005), Rappaport Hovav and Levin (2008), and Ueda (2004), among others), each sense of the construction is closely associated with a particular semantic

class of verbs. The Semantic Coherence Principle and the Correspondence Principle specify only which participant roles can be fused with which argument roles. A possibility might exist that a certain verb could be integrated with another construction class if the participant roles and the argument roles were semantically compatible. The verb *buy*, for instance, takes a Buyer and an Article to be purchased and probably a person who receives the Article from the Buyer (cf. section 3.2.3). These participant roles can be regarded as instances of Agent, Patient and Recipient. According to Goldberg's definitions of the constructional senses in Figure 26, *buy* could be integrated with any sense because every sense contains Agent, Patient and Recipient. Nevertheless, *buy* cannot be integrated with any class other than class F.

One might argue that the way to relate a verb and the construction is determined by the conventional patterns given in (92) and that *buy* is not allowed to be fused with, say, class A because the act of buying can be considered to be only a necessary precondition of transfer. This argument may be true, but it begs the question of why the members of a verb class exhibit the same fusion pattern. Although Goldberg does not detail which verb class exhibits which conventional pattern in (92), she sketches the relations of verb classes A and F with the ditransitive construction. Table 4 provides a summary of these relations.

Table 4: Relations of verb classes and construction classes A and F[21]

Construction class	Verb class	Verb-construction relations
A	Verbs that inherently signify acts of giving: *give, serve, ...* *pass, hand, ...*	 elaboration elaboration + means
	Verbs of instantaneous causation of ballistic motion: *throw, toss, ...* *kick, flipped, ...*	 elaboration + means means
	Verbs of continuous causation in a deictically specified direction: *bring, take, ...*	elaboration + means
F	Verbs involved in scenes of creation: *bake, make, ...*	precondition
	Verbs of obtaining: *get, grab, ...*	

Table 4 shows that class A of the ditransitive construction can embrace three verb classes. Of the verb classes in A, verbs that inherently signify acts of giving and verbs of continuous causation in a deictically specified direction are related to the construction by elaboration. These verb classes inherently take three participant roles, each of which is construed as an instance of the construction's argument roles. The fusion between the verbs and the construction is thus straightforward. Some verbs of instantaneous causation of ballistic motion, such as *kick* and *flip*, are cases of mismatch between the numbers of roles contributed by the verb and the construction. As cited in Goldberg (1995: 54), the composite structure of the ditransitive

21. Goldberg does not describe the relation between verbs such as *throw, toss, bring* and *take* and the construction. I infer that the relation of the verbs and the construction is elaboration. The verbs add to the construction's semantic structure the information about how transfer is brought about. If we follow Goldberg's semantic representation, the verb *throw*, for instance, can be roughly defined as "X causes Y to receive Z by throwing Z." Similarly, *bring* can be represented as "X causes Y to receive Z by moving Z to the place where the speaker is." In these representations, the *by* phrase specifies the means of transfer.

construction with *kick*, as shown in Figure 29, is similar to the composite structure with *bake*, as shown in Figure 28.

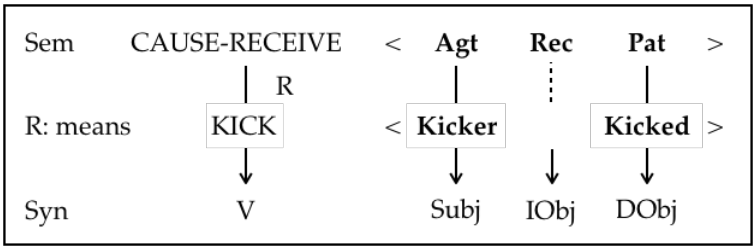


Figure 29: Composite fused structure: ditransitive + *kick* (adapted from Goldberg (1995: 54))

A question to be asked here is whether the single transitive verb *kick* is involved in the ditransitive construction as well as the other constructions exemplified in (54), reproduced as (93):

(93) a. Pat kicked the wall.
b. Pat kicked Bob black and blue.
c. Pat kicked the football into the stadium.
d. Pat kicked at the football.
e. Pat kicked his foot against the chair.
f. Pat kicked Bob the football.
g. The horse kicks.
h. Pat kicked his way out of the operating room.

(Goldberg (1995: 11))

Is the verb *kick* the same in the ditransitive expression in (93f) as in, for example, the transitive construction in (93a)? If the two *kick*s are characterized in different semantic frames, is there room to doubt that the verb in Figure 29 is truly a two-place verb with the Kicker and the Kicked roles? Does the ditransitive construction have the power to augment the verb's valency? Similar questions arise with other cases, including *bake*, as we have seen in Figure 28.

I argue that in the cases of classes A and F, it is not necessary to assume that the argument structure construction contributes a Recipient argument. I demonstrate

that even apparently two-place predicates include in their semantic frame the participant roles that can be construed as instances of Recipient. The conclusion could have the following theoretical implication: If every verb of classes A and F includes the participant role that instantiates Recipient, then elaboration is the primary way to unify the construction and the verb, and precondition can be eliminated from the list of conventional semantic patterns.

3.2.3 Verb meaning and scope of predication

The goal of this subsection is to demonstrate that apparently two-place verbs possibly have the Recipient role in their semantic structures. To achieve this goal, I show that the semantic structures of those verbs are rich and complicated enough to elaborate the event schema of the ditransitive construction. My view of the relationship between verbs and constructions can be summarized as follows:

- The ditransitive construction and the verbs that appear in it are in a schema-instance relationship. If a verb can be used in the construction, then its semantic structure fully elaborates the semantic structure of the construction. Thus, the construction does not augment the valency of a seemingly two-place predicate. Even the verbs that are presumed to be two-place predicates evoke the Recipient role in their inherent semantic structures.
- Our frame-semantic knowledge of verbs' meanings is highly complicated. A single verb may evoke several different semantic frames. It is possible that even if a given verb can enter into more than one construction, it does not always carry the same meaning in different constrcutions.
- We can expand or limit our scope of predication over the complicated structured frame of a verb. A verb can be used in the ditransitive construction if (the portion of) its semantic structure framed by the scope of predication fits the semantic structure of the construction.

These statements imply that a verb can be realized in different syntactic frames according to the semantic frame it evokes and the scope of predication falling over the frame. This means that not every verb is associated with only one semantic frame; some verbs go with several frames.

3.2.3.a *Verbs of instantaneous causation of ballistic motion*

If verbs' meanings should be characterized against the background of frames, as Hirose (1996) argues, then the verbs in (54a) and in (54f), reproduced as (94a) and (94b), respectively, could evoke different frames in which different sets of participants are involved:

(94) a. Pat kicked the wall. (=(54a))
b. Pat kicked Bob the football. (=(54f))

In the scene described in (94a), the wall is understood as the object being hit with the foot. The sentence does not imply that the wall would move as a result of kicking. On the other hand, the sentence in (94b) evokes a competition frame in which "people ... participate in an organized, rule-governed activity (the Competition) in order to achieve some advantageous outcome (often the Prize)" (FrameNet, s.v. *Competition*). Hence, it is reasonable to see a teammate acting as a Recipient of the ball passed to him.

This argument suggests that it is doubtful that the construction contributes an argument, at least in the case of *kick*. A similar argument can hold with other verbs in the same class. The ditransitive use of the verbs *flip, slap, kick, shoot, tap* and *poke* is illustrated in (95):

(95) Pierre flipped / slapped / kicked / shot / tapped / poked him the puck.
(Pinker (1989: 17))

As the direct object *the puck* indicates, a competition frame, more precisely a frame for ice hockey, is evoked in (95). In the ice hockey frame, the scene in which one's teammates pass the puck back and forth recurs, thereby being entrenched. As with *kick*, it is reasonable to assume that the Recipient role is included in the semantic structures of the verbs in (95).

3.2.3.b *Verbs of cooking*

Let us turn to verbs of cooking, a subtype of class F. The point at issue here is the same as I have argued in the previous section: Is the Recipient argument contributed

by the construction or selected by the verbs? I claim that the information on the Recipient argument is included in the verbs' semantic structures. In Ueda (2004), I argue, using the verb *bake* as an example, that the semantic frame evoked by *bake* includes not only cooking food in an oven but also the intention of making it for someone. (For details, see section 3.2.3.c.) Some cooking verbs share this characteristic—English speakers know that the primary purpose of cooking is to prepare food, and they also know that cooking is often done for others. The verbs can be assumed to include this entire structure of knowledge as a base structure. The transitive use places the focus on the relationship between a cook and food in the base structure. The broadest scope of predication extends to the ternary relation among a cook, the food and the intended eater, which is encoded by the ditransitive construction, as in (96):

(96) a. ... he went to the kitchen himself and boiled her an egg with his own hands ... (*Sara's Face*)

b. Cernocky grilled him a steak and handed him a bottle of whiskey ... (*Public Enemies*)

c. She microwaved him a plate of food ... (*South Haven*, p.105)

d. Death-obsessed in-laws, ruining your husband's closest friendship, and charging your friends when you roast them a chicken. (https://slate.com/human-interest/2016/09/dear-prudence-podcast-the-creative-solutions-edition.html; Accessed Dec 12, 2018)

3.2.3.c A case study of bake

Let us take a closer look at the verb *bake*, a verb of cooking/creation, based on my paper (2004). The verb means that a baker creates food (such as bread and cake) from ingredients using heat in an oven. As I have just argued, it is reasonable to postulate that our frame-semantic knowledge also includes an intended recipient. The participant roles involved in baking are BAKER, FOOD, INGREDIENTS, HEAT and RECIPIENT. Their relations are roughly diagrammed in Figure 30:

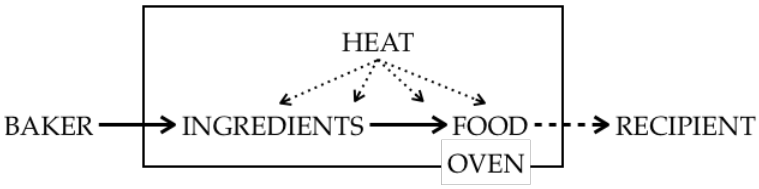


Figure 30: The semantic structure of the verb *bake*

Figure 30 gives the base structure of the verb's semantics. In the figure, the solid arrows indicate force-dynamic relations, i.e., the BAKER acts on the INGREDIENTS, and the INGREDIENTS turn into the FOOD. The dashed arrow from the FOOD to the RECIPIENT represents a possessive relation. The dotted arrows from HEAT to INGREDIENTS and FOOD indicate the process of applying heat.

The verb can refer to the interaction between the BAKER and the object being baked in two ways. The first way of interaction is between the BAKER and the INGREDIENTS; the other way of interaction is between the BAKER and the FOOD. These two interactions are coded by the transitive construction:

(97) a. Bake the cake for 35 to 50 minutes. (*COBUILD*, s.v. *bake*)
b. Bake the mixture for 30 minutes ... (*The Sexy Vegan Cookbook*, p. 165.)

The verb can alternate between the causative and the inchoative construction. When the focus is on the food's/ingredient's change of state, the event is expressed intransitively:

(98) a. I made the icing while the cake was baking. (*CALD*, s.v. *bake*)
b. While the sweet potato mixture is baking, mix together the topping ingredients.
(https://nortonchildrens.com/health-library/article/?url=/en/kids/cf-sweet-potato-casserole.html; Accessed Dec 13, 2018)

The change in state from INGREDIENTS to FOOD can also be made noticeable:

(99) Rye flour does not rise on its own, but may be mixed with wheat in different proportions and can be baked into a variety of tasty breads.

(BNC: ARS 1104)

Figure 30 indicates that the RECIPIENT does not have a direct relationship to the INGREDIENTS. This suggests that the RECIPIENT cannot be construed as a possessor of the INGREDIENTS. Therefore, these two roles cannot participate in the ditransitive construction since no one eats uncooked ingredients. Compare the following examples:

(100) a. I baked him the pancake.
b. * I baked him the pancake mixture.

The data in (101) support the argument here:

(101) a. ?? The chef whisked him egg yolk.
b. * The pâtissier kneaded him the dough.

The verbs *whisk* and *knead* are also cooking verbs. Unlike *bake* and the other cooking verbs we have seen, these verbs' scope of predication falls over the process of cooking ingredients, not the final stage of food being prepared, let alone a possessive relation between a recipient and the food.

Turning aside from the subject, I now consider the participant role HEAT. It is a peripheral role in the cooking frame, but when the verb is used in a different domain, HEAT plays an important role. Observe the following example:

(102) The sun had baked the red earth.

(*MEDAL*, s.v. *bake*)

In (102), *the sun* is the source of heat. When we describe the scene with the causal-chain model, *the sun* comes at the head of the chain and thereby is coded as the subject.

The sentence in (103) highlights the temperature in the oven. Thus, the HEAT role

is viewed as a salient entity.

(103) The lower temperature bakes more evenly—the outer edges of the cake tend to cook faster at higher temperatures than the inside does ...
(*How to Slice an Onion*, p. 216)

In sum, we have seen that the semantic frame evoked by *bake* is complicated in structure, as indicated in Figure 30. Based on this observation, we can infer that the semantic structures of other verbs of this semantic type are also convoluted enough to include the participant roles that can be construed as instances of Recipient. The relationship between the verb and the ditransitive construction can be described by elaboration.

3.2.3.d A case study of get *and* obtain

A similar argument holds for verbs of obtaining. I am certain that some of these verbs can enter into the ditransitive construction because their semantic frame also incorporates information about the Recipient. English speakers know that the purpose of getting something may be to bring it into the possession of the person who gets it. They also know that one may get something for the purpose of giving it to someone else. The entire semantic frame of *getting* can be represented as shown in Figure 31:

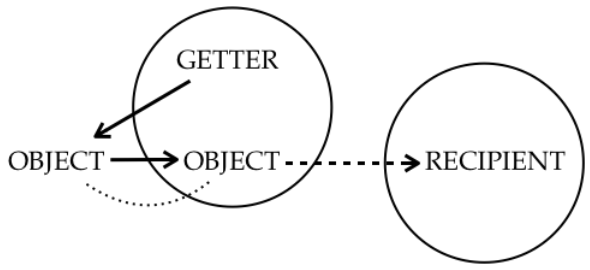


Figure 31: Semantic structure of *get*

In Figure 31, three participant roles are involved in the "getting" frame: GETTER, OBJECT and RECIPIENT. The GETTER exerts a pull force on the OBJECT to bring it into her dominion; then, she moves it to the RECIPIENT's dominion. The first

process is indicated by the solid arrow; the second process is indicated by the dashed arrow. The dotted line connecting the two OBJECTs means that they refer to the same entity. When the scope of predication is broadened over the whole frame, all the participants can be linguistically encoded by the ditransitive construction. An issue to be discussed here is when it is possible to broaden the scope of predication.

To consider this issue, let us compare the verbs *get* and *obtain*. Previous studies (e.g., Levin (1993), Oehrle (1976) and Pinker (1989)) observe that *obtain* cannot be used in the ditransitive construction due to its Latinate feature.

(104) a. John got his wife a ring.
b. * John obtained his wife a ring.

As I have argued in section 2.2.4, the morphological distinction between a native word and its semantically related word of Latinate derivation can be semantically motivated. Those who assume that *get* and *obtain* have the same semantic value except for their morphological features attribute the contrast in (104) to etymology. Admittedly, I do not have strong linguistic evidence for this argument, but the definition of *obtain* in English dictionaries gives a clue in identifying a subtle difference in meaning between *get* and *obtain*. *Get* is a very common verb denoting the act of receiving. *Obtain* is defined as in (105):

(105) a. to get something that you want, especially through your own effort, skill, or work (*LDOCE*)
b. to get something, especially by making an effort (*OALD*)
c. to get something that you want or need, especially by going through a process that is difficult (*MEDAL*)

These definitions indicate that the semantics of *obtain* has additional information about manner. To obtain something, the one who gets it has to make an effort. This means that she is occupied with the aim of getting what she wants or needs since without her effort, she may not be able to gain it and thus has no room to think about giving what she gets to others. In other words, the act of getting the target object is the ultimate goal of obtaining, and the potential difficulty in achieving the goal

leaves no room for her to conceive what she will do after the goal is fulfilled. The verb's maximal scope of predication falls over only the "gaining" part and does not include the "giving" part. Figure 32 shows the schematic representation of the semantic structure of *obtain*:

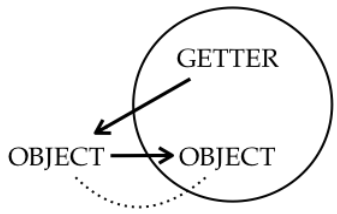


Figure 32: Semantic structure of *obtain*

One might argue against the idea that *obtain* includes only the "gaining" part in its semantic structure because we can identify some cases on the BNC in which the verb is used in the ditransitive construction, as follows:

(106) a. 'I believe,' he said, 'that I can obtain you a position as reader in a publishing house in which I have a certain interest.' (BNC: CD2 1516)

b. Stockmar took care not to get involved in court favours, such as the bribe offered by an MP of £10,000 to obtain him a peerage. (BNC: GT6 1269)

c. Woolmer used his many South African contacts to obtain Smith a winter job with a coloured club in Cape Town. (BNC: BN9 263)

My preliminary investigation on the BNC may provide supportive evidence. I submitted the query *{obtain/V} (_PNP | _PNX | _NP0) _AT0* to find the sequence of the verb *obtain* with either a personal/reflexive pronoun or a proper noun followed by an article, though the query may exclude a ditransitive sentence pattern such as NP_{Subj}-{*obtain*}-[*a/an/the* + $N]_{IObj}$-NP_{DObj}. I found only six cases, including (106). The percentage of the cases is approximately 0.02% of all the 12,664 instances in which *obtain* is tagged as a verb. Under the same conditions, I found 916 cases of *get* out of 213,376, which is approximately 0.42%. This number is much larger than the number

of appearances of *obtain* in the ditransitive use.[22] In terms of the number of appearances, we can say that the ditransitive *obtain* is extremely rare.

In passing, let me mention the possible question of why such cases as that shown in (106), even if the number is extremely small, were found on the BNC. If the verb *obtain* involved only the "gaining" part, as I have argued, we would expect that there would be no cases such as (106). I suppose that there are two reasons involved. The first reason is a prototype effect, or a fuzzy categorization between *obtain* and *get*. Because the semantic "distance" between the two verbs is small, the distinction between them is sometimes unclear. This means that the two categories share many features. The second reason is analogy. Since the two verbs are similar in meaning, one may apply the common verb's usage to the semantically related verb. If this reasoning is correct, it is not surprising that *obtain* is used similarly to *get* and is "mistakenly" employed in the ditransitive construction. (See Iwata (2006) for an analogy-based extension of the category with verbs of refusal in the ditransitive construction. See also Iwata (2012).)

3.2.4 Ditransitive construction senses and verb senses

The case studies in section 3.2.3 suggest that even the verbs that are believed to be inherently two-place predicates can include a third argument in their semantic structures within their maximal scope of predication. This suggestion may lead to the possibility that the ways of integrating verbs into constructions can be simpler than the way presented in (92), reproduced as (107):

(107) Elaboration >
Force-dynamic relation (means, instrument, result, denial) >
Precondition, Co-occurring activity

(Goldberg (1997: 396))

A strong hypothesis holds that elaboration is the only way to relate verbs and constructions. This hypothesis follows the usage-based model of language. This

22. If we apply the chi-square test to the observed number of appearances of the ditransitive uses compared to the total number of appearances of the verbs, the ditransitive *obtain* is significantly less frequent than the ditransitive *get* ($X^2(1)=41.99$, $p<.01$, $\phi=0.01$).

model assumes that knowledge of a language is based on actual instances of language use. If one frequently encounters instances of a certain pattern, one can generalize from the instances. The more frequently we are exposed to the generalized pattern, the more entrenched it becomes in our knowledge of language. Entrenched generalizations serve as guides for identifying conventional instances and producing novel expressions.

The usage-based model accepts a bottom-up approach to language. As we have seen in Figures 27 and 28, Goldberg's model appears to assume that each constructional sense, given in Figure 26, and the verb classes that are fused with it exist independently of each other. I have argued, however, that each constructional sense should be considered the constructional schema abstracting away from the members of a certain verb class in a bottom-up way. If so, the notion of successful transfer of possession can also be regarded as a schematic feature embodied by the verbs in class A.

3.2.5 Re-examining successful transfer of possession

This subsection centers on the prototypical ditransitive construction and explores the notion of successful transfer of possession, which has been widely assumed to be a distinctive feature of the prototype. Few linguists have given a clear definition of successful transfer. Oehrle (1977), for instance, gives the examples in (108) to illustrate that what Green (1974) calls a 'have' relationship does not hold between the IObj and the DObj entities:

(108) a. Max handed her a cigarette, but she wouldn't take it.
b. When I took him his mail, I found that he had disappeared.

Oehrle appears to understand the 'have' relationship with respect to whether an object is physically with a Recipient.

Similarly, in reviewing Goldberg (1995), Kay (1996) observes a semantic difference between the two verbs and concludes that *throw*, unlike *give*, does not entail successful transfer. Let us look at the sentence with *throw* that Kay gives in his paper:

(109) I threw {you the ball/the ball to you} but it was intercepted by an opponent.

Implicit in his analysis is the idea that if the Recipient receives the Mover, then the Mover is physically with the Recipient. If so, the sentence in (110), cited by Oehrle (1976: 128), would cause a problem. (The grammaticality judgment of (110) is due to Oehrle.)

(110) ?? John threw the catcher the ball, but the throw went wide.

The sentences in (109) and (110) are truth-conditionally equivalent in that in both cases, the Recipient did not catch the ball. Does the difference in judgment simply reflect differences in individual grammar, or is any other factor involved in the difference between these two sentences? I pursue the second question further below.

3.2.5.a The nature of transfer of possession

Transfer of possession should be characterized with reference to the possessional domain, not the physical domain. Jackendoff (1992) argues that the possessional domain is not three-dimensional. In three-dimensional space, an object can move in every direction; hence, it is possible to say that "[it] moves *up*, *down*, *frontward*, *backward* and *sideways*" (p. 64). In the possessional domain, we cannot "give something *upward* or *frontward*" (ibid.). In the following sentence, all the prepositional phrases but the *to* phrase are thus unintelligible:

(111) Adam gave a book {to Debbie/*out the window/*down the road/*into the fire}.

(Jackendoff (1990: 198))

Furthermore, transfer of possession is discontinuous. There are no intermediate positions that an object can occupy in the process of transfer. Hence, we "cannot *give* a book *toward*, much less *partway toward*, a [Recipient]" (ibid.). (See also Jackendoff (1992: 64) and Rappaport Hovav and Levin (2008).)

On the basis of Jackendoff's argument, we can say that transfer of possession

consists of the following three parts: the initial state of the Giver having an object, the result state in which the object is in the possession of the Recipient, and the instantaneous change from the first state and the second. This can be represented schematically as shown in Figure 33:[23]

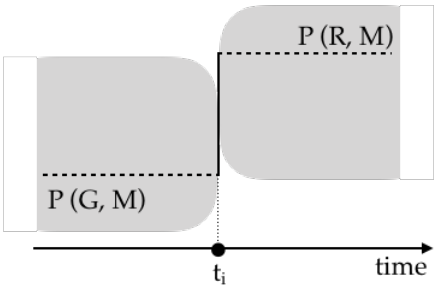


Figure 33: Schematic representation of transfer of possession in the possessional domain

In Figure 33, *P* represents a possessive relation holding between two arguments, and *G, M* and *R* are abbreviations for *Giver, Mover* and *Recipient*, respectively. *P(G, M)* is read as the Giver having a possessive relation to the Mover, or the Mover being within the dominion of the Giver. This state is indicated by the horizontal dashed line. The dark areas show which argument role exerts dominant control over the Mover. Prior to t_i, the Mover is in the Giver's control, while after t_i, the Mover is in the Recipient's control.

The vertical axis is intended to describe the state of affairs. When ownership is transferred from one person to another, there is no gradual change of possession (cf. Jackendoff (1990, 1992)). Since the transition from *P(G, M)* to *P(R, M)* takes place instantaneously in the possessional domain, the duration of time for the transition is

23. I attempt to represent the change of possession in Figure 33 based on Croft's (2012) three-dimensional representations of causal and aspectual structure, but my representations are not faithful to his conventions in three ways. First, I do not include details of aspectual structure. Second, I add information about dominions and several semantic domains to describe the detailed properties of transfer of possession. Finally, my representations are used only to describe the semantic characteristics of the ditransitive construction and not to explain how the verbs' argument/participant roles are syntactically realized.

zero. Hence, the solid line at t_i, which indicates the transition, is drawn vertically with no length of time.

There are some verbs that inherently refer to change in the possessional domain. Rappaport Hovav and Levin (2008) observe that the successful transfer entailment cannot be negated in the case of the ditransitive construction and even the prepositional dative construction, as in (112) and (113):

(112) a. * My aunt gave/lent/loaned my brother some money for new skis, but he never got it.
b. * My brother sold Caroline his old car, but she never owned it.
(Rappaport Hovav and Levin (2008: 146))

(113) a. * My aunt gave/lent/loaned some money to my brother for new skis, but he never got it.
b. * My brother sold his old car to Caroline, but she never owned it.
(ibid.)

Based on these linguistic facts, Rappaport Hovav and Levin conclude that the successful transfer entailment stems from the verbs' intrinsic meanings, not from the constructional meaning. In my 2004 paper, I reach a similar conclusion. I claim that "the characterization of the constructional senses in [Figure 26] is inextricably connected with the verbs listed in each class" (p. 208). However, this claim does not deny that constructions have their own meanings. Since we cannot draw a precise line between constructions and verbs, there is no telling which semantic components come from verbs' meanings and which components come from constructions' meanings. We can still say that the lower-level construction consisting of *give* and *lend* has a semantic component related to the notion of successful transfer, though such a semantic description might be bleached out at a higher level of schematization.

Additionally, change of ownership does not necessarily imply that an object has to undergo change of location. Hence, we can say, as in (114):

(114) John gave Harry his bicycle for the day: but the bicycle just sat there the whole day. I guess Harry didn't need it.

(Oehrle (1976: 24))

In (114), Harry gained the temporary ownership of the bike, but he did not exercise his right to use the bike. Even if he did not use the bike, Harry still had the custody of the bike for the assigned period of time. It is thus necessary to define the successful transfer entailment more precisely.

3.2.5.b Spatial domain and possessional domain

There are some verbs that denote change of possession accompanied by change of location. The verbs in (108) and (109), *hand*, *take* and *throw*, are such examples. Notably, change of possession with change of location does not always imply that the Giver puts the Mover directly in the hands of the Recipient. Crucial for this type of change of possession is a time lag between the points of completion of possessional transfer in the possessional domain and physical transfer in the spatial domain.

Take *throw*, for example. The sentence *I threw you the ball* under a normal interpretation refers to the situation in which the ball flew straight to the Receiver. It is also consistent with the case in which the ball was thrown to an estimated location where the collaborative Receiver was expected to field it even if the ball did not go straight toward the Receiver. The estimated location is the boundary of the Receiver's dominion. It is at the moment that the ball reached the boundary that we can construe the Thrower as administering her responsibility to deliver the ball to the Receiver. We consider that the change of possession of the ball took place at that very moment. In other words, the ball's crossing the boundary of the Receiver's dominion meets a necessary condition for the transfer of possession; it is not necessary for the Receiver to catch the ball. For example, in baseball statistics, the scorer judges that the Receiver, not the Thrower, has committed an error if the ball is within the Receiver's dominion.

The relation between the possessional and the physical transfers can be diagrammed as shown in Figure 34:

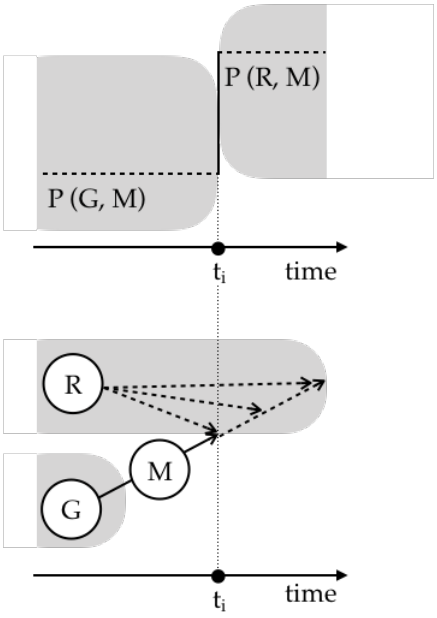


Figure 34: Relation between possessional transfer and physical transfer

The upper diagram in this figure illustrates the possessional transfer in the possessional domain, which is the same as that shown in Figure 33. The lower diagram illustrates the physical transfer in the spatial domain. The Giver (G), whose instance is the Thrower, set the Mover (M), i.e., the ball, in motion by imparting a force, and the M travelled out of the G's dominion, indicated by the gray area. At t_i, it reached the estimated point where the Recipient (R, whose instance is the Receiver) could field it, which is the boundary of the R's dominion. The point t_i is the moment when the change of possession occurred in the possessional domain. In the spatial domain, however, the ball continued to move until it fell into the R's hands. The ball could be intercepted by the R's opponent after it crossed the boundary of the R's dominion, as illustrated in (109).

Turning to (110), the trajectory followed by the ball in (110) is diagrammed in Figure 35:

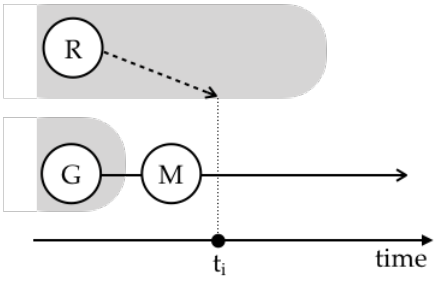


Figure 35: Schematic representation of ??*John threw the catcher the ball, but the throw went wide.*

No one judges from the ball's trajectory that the R could handle the ball. The possession of the ball failed to be transferred, and the scene cannot be described by the ditransitive construction.

It is noteworthy that even with *give*, it is not necessary for the Mover to pass directly into the Recipient's hand, as illustrated by the sentence in (115):

(115) I gave John the paper he wanted: I left it in his mailbox.

(Oehrle (1976: 22))

In (115), the speaker regarded her duty of transferring the paper to John as having been accomplished at the time that she put the paper into the mailbox. We usually consider mailboxes to be within the Recipient's dominion. Thus, in the case of (115), it was sufficient to drop the paper into the mailbox to deliver it to the intended recipient. (Needless to say, the paper may disappear on the way to the intended recipient after being put into the mailbox. That is not the speaker's fault, however.) That is, at the moment that the paper was put into the mailbox, the transfer was successfully finished.

3.2.5.c Redefinition of successful transfer of possession

In sum, transfer of possession should be characterized in three ways. First, transfer of possession occurs in the possessional domain, not in the spatial domain. By the nature of the possessional domain, once possession is transferred, it is always successful; there are no intermediate stages in the process of change of possession. Second, if change of location is involved in transfer of possession, we construe

possession as being transferred when the Mover reaches the boundary of the Recipient's dominion. Finally, transfer of possession is considered to be successful when the speaker conceptualizes a transferred object as being under the Recipient's control. What matters is that something may happen in the spatial domain after possession has been transferred. It is possible that transfer of possession is successful even though the transferred object is not physically with its Recipient. Such a case has misled some linguists to believe that successful transfer is not a common semantic feature of prototypical ditransitive verbs (the verbs in class A in Goldberg (1995)).

The cases from (108) to (110) are all examples of verbs whose meanings are characterized with reference to both the possessional domain and the spatial domain. The apparent cancelability of the successful transfer entailment is the consequence of the difference in nature between the possessional domain and the spatial domain. There is a possibility that a transferred object does not reach its intended Recipient in the spatial domain after the object's ownership is viewed as having been transferred.

The ditransitive verbs in class A can be classified into two types: the *give*-type verbs, which are characterized only in the possessional domain, and the *throw*-type verbs, which are characterized by the interaction of the possessional domain and the spatial domain. While they are different in terms of whether the spatial domain is involved, both types of verb share something in common in terms of the possessional domain. As I argued in section 3.2.4, the ditransitive construction and its subclasses bear a schema-instance relationship. Granted the usage-based nature of language, each subclass of the ditransitive construction is assumed to be a conventionalized linguistic unit with high specificity, expressing regularities of only limited scope. It is reasonable to assume that Goldberg's definition of class A, i.e., "Agent successfully causes Recipient to receive Patient," is a relatively specific schema that has the *give*-type verbs and the *throw*-type verbs as its instances. The relations between the schema in class A and the *give*-type and *throw*-type verbs can be represented as shown in Figure 36:

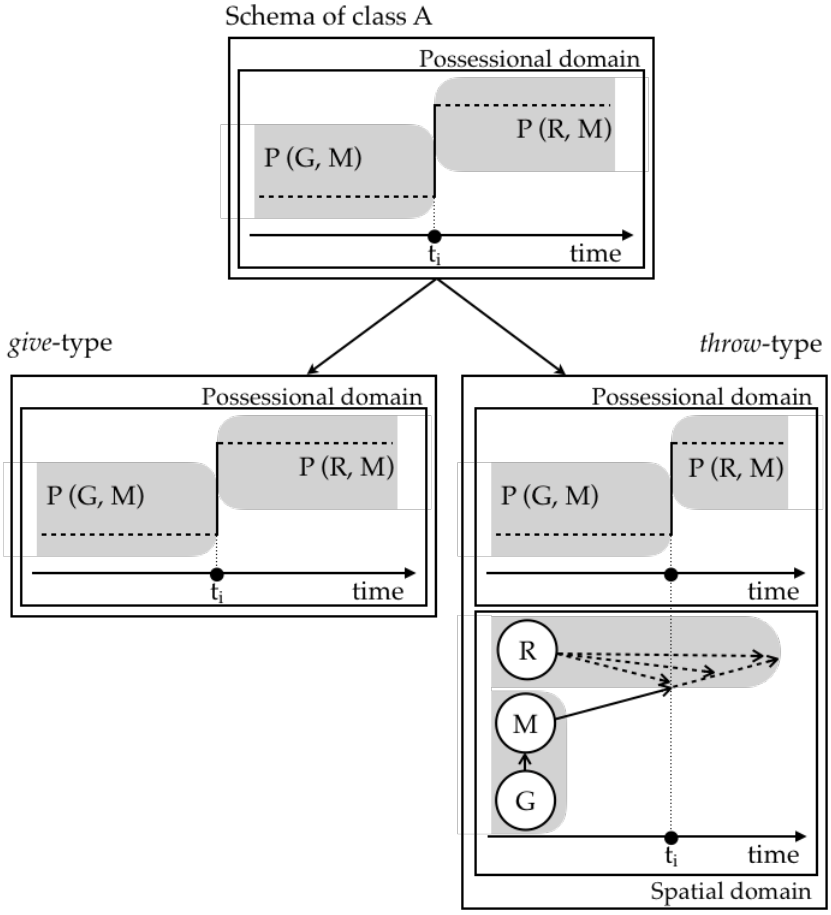


Figure 36: Relationship between the schema of class A and its instances

The semantic structure in the upper rectangle is the schema for the two types of verbs. The notion of successful transfer, an essential feature observed in the possessional domain, is prevalent among the schema and its instances in class A.

There is a debate over whether the notion of successful transfer of possession should be attributed to the specific construction class's meaning or some verbs' lexical meanings (Goldberg (1995) vs. Rappaport Hovav and Levin (2008)). My answer to the debate is that successful transfer of possession is part of the schematic semantic structure of class A and is also found in part of the instances' semantic structures. Because of the Cognitive Linguistics basic tenet, which presumes the existence of a continuum between lexicon and syntax, it does not make sense to distinguish between the construction and the verb in the first place. Given the usage-based model, it is reasonable to assume that some features are found only in lower-level specific constructions and discarded in higher-level schemas. (See section 2.1.5

for "bouncing *off*," which affords an illustration of this point.) The notion of successful transfer is a distinguishing feature that characterizes the schema and the verbs in class A. (For related discussion, see Langacker (2000: 124).)

3.2.6 Commonalities between verbs of classes A and F

Verbs of giving (i.e., class A) and verbs of creation/obtaining (i.e., class F) have been closely investigated in previous studies (Green (1974), Goldberg (1995), Kay (2005), and so forth). Some linguists seem to believe that these verbs should be dealt with separately. Their belief is formed on the basis of different prepositional dative paraphrases and the successful transfer fallacy (see section 3.2.5).

It is well known that verbs of giving and verbs of creation/obtaining alternate with the *to* dative construction and the *for* dative construction, respectively. The ditransitive construction that alternates with the *for*-dative construction may be called the benefactive ditransitive construction to distinguish it from the construction that alternates with the *to* dative construction. As Goldberg (2006) observes (see section 2.2.5), ditransitive expressions and their prepositional dative counterparts are licensed by different constructions. The ditransitive construction is likely to share more features with the benefactive ditransitive construction than with the prepositional dative constructions. It is worth pursuing the matter of commonalities between the prototypical caused-possession ditransitive construction and the benefactive ditransitive construction further.

3.2.6.a Prior intentionality

Let us consider the pair of sentences in (116):

(116) a. John brought Mary a cake.
b. Chris baked Pat a cake.

The observable difference between the sentences in (116) is that the (a) example implies successful transfer of possession while the (b) example need not. It is sufficient for the (b) example to imply intended transfer of possession. While we can recognize such a semantic difference between (116a) and (116b), Goldberg's (2006) surface generalization hypothesis suggests that it is possible to abstract a schema

from the two ditransitive constructions. To do so, I draw attention to the intentionality characteristic of both constructions.

To begin with, I take an in-depth look at a case with *bake*, exemplified by (117):

(117) David baked Elena a cake.

Though I argue that *bake* is a three-place predicate in section 3.2.3.c, suppose that the verb has two participant roles, *baker* and *baked,* and the Recipient role is contributed by the ditransitive construction, as Goldberg (1995) assumes. Then, the verb is integrated into the construction by "precondition," in Goldberg's sense. This could mean that the verb contributes only "a necessary precondition of transfer" when it occurs in the construction. If so, the situation described in (117) can be decomposed into the following two phases:

- Phase I: David caused the cake to come into existence.
- Phase II: David intended to give the cake to Elena.

Phase I is associated with the verb's meaning, and phase II is contributed by the constructional meaning. Furthermore, we can infer from the word "precondition" that phase I precedes phase II.

The interpretation given above, however, does not match the meaning that the sentence in (117) actually conveys. This sentence cannot be uttered in the context in which the intention of giving the cake to Elena was formed either after the cake was baked or while it was being baked. The volitional agent must form the intention of offering the cake *prior to* the relevant action being performed. Hence, it is inappropriate for the sentence in (117) to be uttered in the following contexts:

(118) a. Yesterday, David baked a cake. He then decided to give it to Elena.
b. Yesterday, David baked a cake. While he was baking it, he decided to give it to Elena.

In the contexts given in (118), David's intention of offering the present was formed after or during his act of cooking.

I adopt the term "prior intention" from Searle (1983) to refer to this characteristic of the Giver/Agent.[24] Prior intention refers to the intention that a volitional agent forms prior to performing an intentional action. According to Searle, the Agent can carry out an intentional action with no prior intention. A well-known classic example is Oedipus marrying his mother. Since the act of marrying is intentional, we can say that Oedipus intended to marry Jocasta. He married his mother unintentionally because he did not know Jocasta was his mother. In this sense, Oedipus had no prior intention to perform his intentional action.

The Giver should have a prior intention to perform a series of actions designated by ditransitive sentences with verbs of creation/obtaining. My argument regarding the sentence in (117) and its inappropriate contexts is a case in point. Similarly, the sentence *George bought his mother a book* sounds odd in the following context: George bought a book but found it rather boring; he gave it to his mother.

Importantly, prior intentionality is not only a matter of the benefactive ditransitive construction but also applies to the prototypical ditransitive construction. The sentence in (119), cited from Goldberg (1995: 143), illustrates that the prior intention should be formed before the relevant action is initiated.

(119) * Joe threw the right fielder the ball he had intended the first baseman to catch.

The sentence in (119) does not work because the Thrower's prior intention does not cover the final phase of the series of actions, i.e., Joe's giving the ball to the right fielder.

We are now ready to generalize over ditransitive verbs of classes A and F. Both classes share the commonality of prior intentionality. The Giver/Agent should form a prior intention to transfer the Mover to the Recipient before she begins to perform

24. The notation of *Giver/Agent* is intended to mean "the Giver or its schematic role the Agent." The more general role names come after their instances. I wish to emphasize that when I use such a notation, some features that are observed with an instance role can be found in the trait of the schematic role. This does not imply that some features described only with an instance role such as the *Giver* are not contained in the Giver's schematic role the *Agent*.

the relevant intentional action associated with the main verb.

3.2.6.b *Entailment of* promise

Although solid evidence is not available, prior intentionality seems to apply to other ditransitive verbs. In this section, I focus on the verb *promise*. I consider how this verb instantiates the ditransitive construction's prior intentionality.

Before delving into the main issue, it is helpful to look at the analysis of the speech act verb *promise* by Nakau (1994: 88-91). In discussing the relation of the notion of illocutionary force to his modality theory, Nakau argues that an act of promise entails an intention on the part of the person who makes a promise. He shows that the verbs *promise* and *intend* are linguistically parallel:

(120) a. I *promised* your father that you *should* never know he had been in prison.
b. We *intend* that the bill *shall* become law by the end of the year.
(Nakau (1994: 89), emphasis original)

According to Nakau, the sentence in (120a) seemingly deviates from the prototypical use, exemplified in (121), in two ways: (i) the main clause subject of *promise* does not coincide with the embedded subject, and (ii) the auxiliary *will*, showing the subject's intention, does not appear in the subordinate clause:

(121) a. If you *promise* that you *will* do something, you say to someone that you *will definitely* do it.
b. She *promised* me that she *would* be punctual.
(ibid., emphasis original)

Nakau notes that it is important that the use of *should* and *shall* indicates the speaker's firm intention. The auxiliary *shall* in (122a) can be paraphrased as in (122b) to express the speaker's intention:

(122) a. He shan't come here.
b. I won't let him come here.

(ibid.)

Similarly, the sentences in (120) can be paraphrased with the pronoun *I* with the auxiliary *will*:

(123) a. I promised your father that I would never let you know he had been in prison.
b. We intend that we will let the bill become law by the end of the year.

(ibid.)

Drawing on Nakau's insights, we reach an understanding of the ditransitive *promise*. The ditransitive *promise* inherits the semantic characteristic of the speech act verb *promise*, which expresses the Giver/Agent's firm intention to give an object to the Recipient. Such a semantic property of the ditransitive *promise* can be hinted at in the definition in a dictionary for English learners:

(124) If you promise someone something, you tell them that you will definitely give it to them or make sure that they have it.

(*COBUILD*, s.v. *promise*)

The verb *bequeath* in the ditransitive use also elaborates the Giver/Agent's prior intention:

(125) If you bequeath your money or property to someone, you legally state that they should have it when you die.

(*COBUILD*, s.v. *bequeath*)

Note in passing that if *promise*, which entails intention, appears in the ditransitive construction, we can expect that the verb *intend* can also be used in the construction. Three cases are found on the BNC. In all the cases, the verb takes *no harm* as the DObj. One example is given in (126):

(126) Fernand had completely vanished, giving her a second chance to escape, yet, almost without hesitation, she began to follow. She felt certain that he intended her no harm and her fear began to recede ...

(BNC: GVP 456-457, underline mine)

The number of appearances is extremely low, but the fact that *intend* is used in the ditransitive construction suggests that intention may be associated with the construction.

3.2.6.c A case study of donate

In section 2.2.4, I have put forward the strong semanticist hypothesis that some differences, albeit subtle, in meaning lead to differences in argument realization. I have argued that it is logically possible that the native/Latinate distinction accidentally corresponds to the semantic difference between *give* and *donate*, in the sense of "giving money."[25] Following Ueda (2001) and Ueda (2002b), I demonstrate why *donate* cannot be integrated into the ditransitive construction. The key factor is prior intentionality.

Prior intentionality means that the Giver should form a prior intention to transfer the Mover to the Recipient before she begins to perform the relevant intentional action associated with the main verb. This semantic condition stipulates that the Giver has established the goal that the Mover will reach before the relevant intentional action is conducted. The act of donating money, however, does not specify a specific Recipient. In most cases, donation is made to help an unspecified number of people who are in straitened circumstances but not to save a specific individual. Thus, the goal of donation cannot be an individual name, as shown in the contrast in (127):

(127) a. John donated $10 to the poor.
b. ?? John donated $10 to Mary.

25. The verb *donate* can be used in the sense of transplantation. The argument here basically applies to the verb in this sense, although some details are different.

As Wierzbicka (1988: 373) makes a similar point, the verb *donate* often selects organizations as the goal for donation, as in (128):

(128) a. Her strong anticommunism led her to donate more than $3 million to the National Endowment for the Preservation of Liberty, a conservative fund that aided the Nicaraguan contras. (*TIME* 4/5/1993)

b. At the same venue that saw Bless performing for our benefit, the Albatross Flying Club of Berlin donated £1,750 to the Association. (BNC: A67 778)

In the case of donation, organizations are not considered the ultimate goal. They are not intended to benefit from donation. They serve as the donors' proxy and distribute money and goods to those who need help.[26] When the Giver donates to a charity, she does not conceive who will be the actual Recipients of the donation.

It is worthwhile to point out here that the verb *give* can be used to mean donation, as in (129):

(129) We need your help—please give generously. (*OALD*, s.v. *give*)

In the controlled context, *give* in the donation sense is not compatible with the ditransitive construction, as in (130):

(130) ?? John gave the poor a lot of money.
(cf. John gave a lot of money to the poor.)

The same situation as that of *donate* seems to hold true in this case.

Note that whether donation is one of the inherent senses associated with *give* or whether the verb's schematic semantic structure fits various scenes properly is debat-

26. A possible interpretation of sentence (127b) supports this statement. One of the informants has suggested to me that if *Mary* is understood as a person who engages in helping people in need, then the sentence works. In this case, *Mary* functions in the same way as a charitable organization.

able. In (131), the verb *donate* is followed by *give*. The second verb means the same as the first verb, but the repetition of *donate* is avoided for a stylistic reason:

(131) But evidence from campaign documents shows Johnson's political-action committee donated $78,900 to Bush and other Republicans while giving just $429 to candidate Clinton.

(*TIME* 6/14/1993)

If the order of appearance of the two verbs is reversed, as in (132), the sentence sounds slightly off:

(132) ? ... Johnson's political-action committee gave $78,900 to Bush and other Republicans while donating just $429 to candidate Clinton.

This phenomenon is similar to the phenomena explained by the Novelty Condition in Wasow (1972), which says that an anaphorically dependent element cannot have a more determinate reference than its antecedent. This condition accounts for the contrast in (133):

(133) a. A captain$_i$ walked into the room. The officer$_i$ at first said nothing.
b. * An officer$_i$ walked into the room. The captain$_i$ at first said nothing.

(Williams (1994: 218))

In my framework, the Novelty Condition can be interpreted to mean that the anaphorically dependent element (the second NPs in (133)) should be more schematic in meaning than its antecedent (the first NPs). If something such as the Novelty Condition is applicable, then the contrast between (131) and (132) indicates that *give* has a more schematic sense than *donate*.

3.2.7 Summary

I have argued in section 3.2 that caused-possession ditransitive constructions should be characterized with reference to the meanings of the verbs that appear in the construction, which follows from the usage-based nature of language. I have also

argued that each constructional sense should be defined in terms of the properties of the domains that characterize different aspects of transfer of possession. Thus, the successful transfer entailment is the natural consequence of the discontinuous nature of the possessional domain. When change of location is involved in transfer of possession, the necessary condition for transfer of possession is defined in terms of the spatial domain. It does not mean, however, that the successfulness of transfer in the possessional domain is denied. In addition, I have argued that prior intentionality defined in the intentional domain is a common feature shared by caused-possession ditransitive constructions. I have claimed that prior intentionality should be attributed to a highly abstract schema of the construction.

3.3 Network structure of caused-possession ditransitive constructions

We are now ready to consider what common semantic commonalities are shared among ditransitive subclasses. Although I have not explored every verb and verb class that appear in the ditransitive construction, it is reasonable to posit that a higher-level schema of the construction specifies intentionality on the part of the Giver. As I have discussed in the cases of some members of the *give*-type and the *throw*-type, verbs of creation and verbs of obtaining and the intentional verbs *promise* and *intend* in section 3.2.6, the Giver/Agent forms her intention to transfer the Mover to the Recipient prior to carrying out a series of relevant actions. The superschema can be defined as in (134):

(134) The Giver INTENDS the Recipient to have control of the Mover.

This definition is abbreviated as G INTENDS [P (R, M)] in Figure 37. This relation among the Giver, Recipient and Mover is characterized in the intentional domain. The relations of the higher-order schema and its lower-level instances are sketched in the following way:

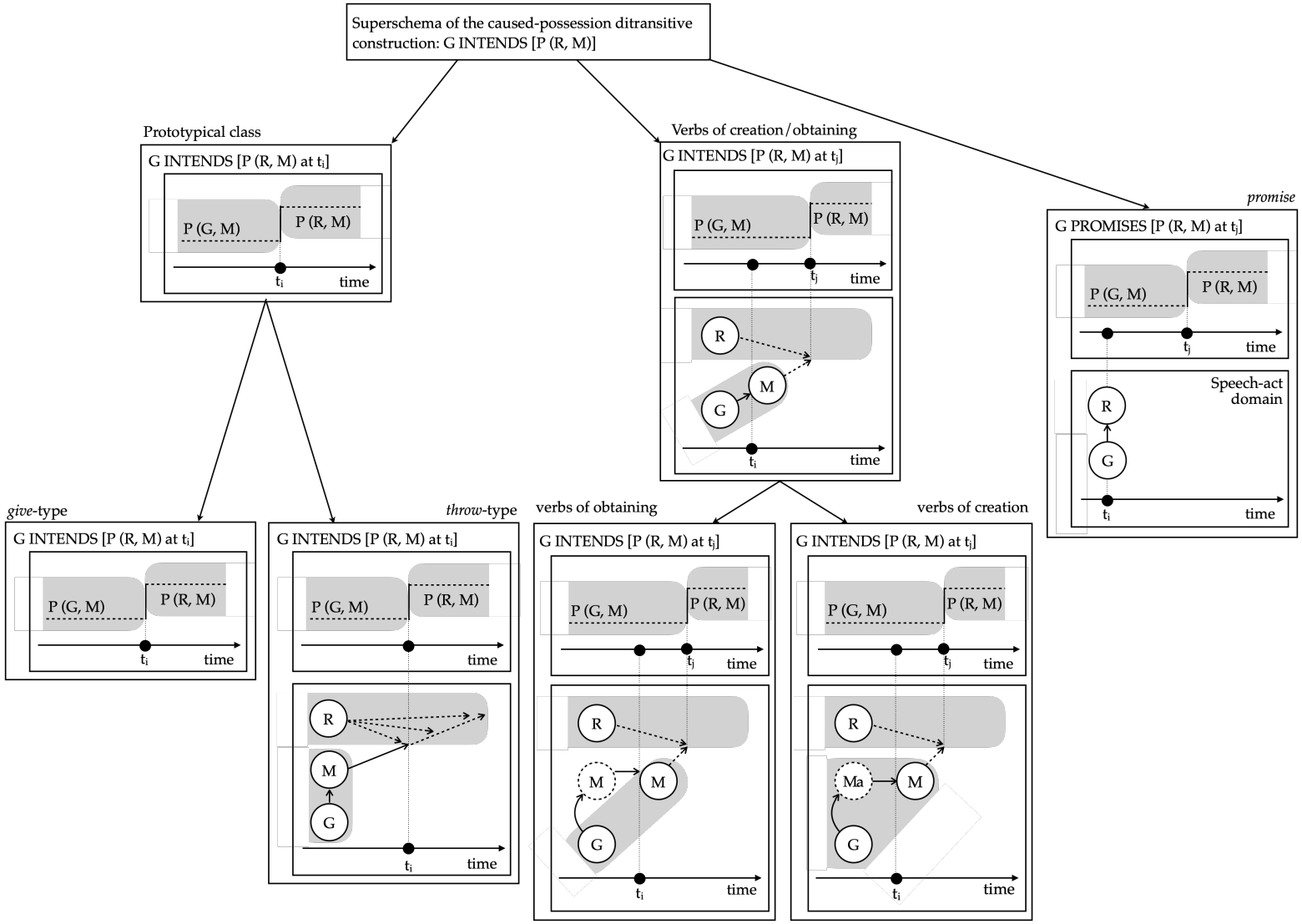


Figure 37: The network structure of the caused-possession ditransitive construction

Figure 37 represents a portion of the entire network structure. Each node represents a semantic structure that consists of several different domains (cf. Newman (1996)). When we look at the structure from top to bottom, the superschema of the construction is instantiated in three ways. The lower-level schema of the prototypical case (class A) elaborates the transfer-of-possession aspect of the superschema. The Giver/Agent carries out her intention to transfer the Mover to the Recipient in the possessional domain. The semantic structures of the superschema and the lower-level schema overlap considerably.

The second way to instantiate the superschema is to elaborate the "precondition" aspect of transfer, which is relevant to verbs of creation/obtaining. I hasten to add that elaborating the precondition aspect is somewhat similar to but different from Goldberg's pattern of fusion, by which the construction adds the Recipient argument that cannot be contributed by the verb. My point is that the verb's scope of predication falls over the ternary relation among the Giver, the Mover and the Recipient. The verb provides a detailed structure of how the Giver prepares the Mover that is intended to be given to the Recipient. The elaborated semantic structure does not entail that the Mover is successfully transferred to the Recipient. The remarkable feature of this class is found in the gap between the moment (t_i) when the precondition is established by having the relevant actions done and the time (t_j) when the transfer, if successful, occurs. The time of giving conceived in the Giver's prior intention refers to t_j, when the Giver intends to give something she has created/obtained (the Mover) to the Recipient. Unlike the assumption in Goldberg (1995), the intended transfer is included in both the verbs' lexical meanings and the construction's meaning, which are inseparable from each other. I point out here that the *throw*-type of verbs and the verbs of creation/obtaining bear a family resemblance because the event frames associated with both verb types include a time lag between the Giver's intended action and the Recipient's receiving the Mover.

The third way of elaboration is to instantiate prior intentionality. The ditransitive *promise* is a case in point, as we have seen in section 3.2.6.b. I do not fully discuss the third way in this thesis, but there are some verbs that elaborate the Giver's prior intention. Another example is *bequeath*, which expresses the Giver's intention in a written form as a will. Similar to the case of verbs of creation/obtaining, the time referred to by the relevant action designated by a verb is not coincident with the time

when the change of possession is intended to take place. In the case of *promise*, the time when the Giver makes the Recipient a promise precedes the time when the Recipient will probably receive the Mover.

Note that the third type of elaboration is probably connected with what Koenig and Davis (2001) call sublexical modality. Sublexical modality deals with verbs' semantic information related to modal meaning and is distinguished from a situational core—lexical information about relations among participants. The modality component of a verb's meaning modifies the situational core, which is assumed to be common among the members constituting a verb class.

3.4 Verb classes C and E

Returning to Goldberg's (1995) network structure of the ditransitive construction subclasses in Figure 26, we take a close look at classes C and E, which involve verbs of permission (*allow* and *permit*) and verbs of refusal (*refusal* and *deny*). The verbs in these classes can be integrated with the construction via force-dynamic relations (see the conventional semantic patterns in (92)). Goldberg clearly states that the relationship with class C is denial. I admit that I cannot find in Goldberg's books and papers an explanation of the relationship with class E, but I infer from Figure 26, which shows that the construction in class C means "agent enables recipient to receive patient," that the verbs in class E are in a certain force-dynamic relation with the construction. Goldberg assumes that classes C and E share the "cause-to-receive" part of the definitions with the central class and that they are provided with additional semantic structures such as "not" or "enable."

Before accepting Goldberg's analysis, we have to question whether the classes are related to each other with respect to "cause-to-receive." I argue here that the semantic characteristics exhibited by classes C and E are different from those of the central class. My first point follows Iwata (2006, 2012). Iwata (2006), an article reviewing Croft (2001), conducts a case study of the 'refuse'-class specific construction and demonstrates the potential of Croft's Radical Construction Grammar. In his case study, Iwata says that the types of DObj nouns differ between classes C and E and the central class. Iwata scrutinizes class C and challenges the idea that the class is simply related to the central class by denying that the Agent causes the Recipient to receive the Patient. Rather, Iwata claims that the class, being associated with the

notion of permission, implies that the Agent does not allow the Recipient to receive the Patient. Citing Wierzbicka (1988: 382), Iwata states that the class implies "a specifiable and emotional charged effect on Y [i.e., the IObj entity], without implying any specifiable effect on Z [i.e., the DObj entity]" (2006: 516). This statement is supported by the data in (135), where the direct object "does not stand for a specific, tangible object" (ibid.):

(135) a. * John denied Mary the flower.
b. * Father refused John the ball.
c. * Mother allowed Mary the doll.

(Wierzbicka (1988: 382))

Note that Wierzbicka includes the verb *allow* in the same category as *deny* and *refuse*, as indicated in (135c).

The second point concerns the semantic relations between the Recipient and the Mover (the Patient, in Goldberg's framework), as I argue in Ueda (2018a).[27] There are some cases of the ditransitive *allow* and *permit*, where DObj nouns refer to concrete objects, as in (136):

(136) a. Passengers on planes usually are allowed 20 kg of baggage. (BNC: FEH 574)
b. No one is denied books, materials or teachers, so all have the same opportunities to use them as they might. (BNC: CMU 186)
c. Women were permitted corsets only if they used no force to preserve the shape. (BNC: GU9 531)

The relations between the IObj and the DObj in (136) are different from those in the prototypical cases. In the prototypical case, the Mover comes into the Recipient's possession as a consequence of the Giver's act of putting it in the Recipient's dominion. In short, the Mover moves from the Giver's dominion to the Recipient's dominion, and the Recipient bears a "possessive" relation to the Mover. In (136), by

27. I claim later that the semantic role labeled *Recipient* is not suitable for classes C and E.

contrast, the DObj entities do not undergo a change of possession. In (136a), for instance, the airline company gives its passengers a baggage allowance rather than transferring items of baggage to them. Similarly, sentence (136b) does not deny the transference of books, materials and teachers to their potential recipients but rather denies children's access to them. This interpretation is suggested by the second half of the sentence. Sentence (136c) means not that women received corsets from someone else but rather that women were allowed to wear corsets.

In sum, the observations here suggest that the relationship among the participants deviates from the relationship of the prototypical change of possession in the following ways. First, the DObj entity has not necessarily been at the Agent's disposal before it is brought under the IObj entity's control. Although the Subj entity is involved in establishing the IObj entity's relation with the DObj entity, she does not exert direct influence over the two entities. Rather, she acts as if she locked or unlocked the IObj entity's opportunity to have some relation with the DObj entity. That is, she has direct control only over locking or unlocking; the IObj entity determines whether he will make use of the opportunity granted to him. Second, the relationship between the IObj and the DObj entities can be characterized more broadly. As we have seen in the examples in (136), the IObj entities can be understood as those who carry in a vehicle (as in (136a)), use (as in (136b)), or wear (as in (136c)) the DObj entities. It is doubtful that the semantics of classes C and E inherits the "cause-to-receive" component from the central class since the relations between the IObj entities and the DObj entities can be interpreted in various ways. We can conclude that classes C and E should be dealt with differently than the prototypical case. More details will be discussed in chapter 4.

3.5 Summary of chapter 3

This chapter has mainly discussed the family of the caused-possession constructions and the verbs that can be incorporated into the constructions from the viewpoint of Cognitive Construction Grammar.

My first point is that the ditransitive construction and the verbs that appear in it are in a schema-instance relationship. The construction does not augment the valency of a seemingly two-place predicate. Even the verbs that are presumed to be two-place predicates evoke the Recipient role in their inherent semantic structures.

Second, I have argued that the notion of successful transfer is a direct consequence of the nature of the possessional domain. Since there are no intermediate stages in the process of change of possession in the possessional domain, transfer of possession is always successful. A confusing case is the case of change of possession accompanying change of location. There might be a time lag between the completion of possessional transfer in the possessional domain and the completion of physical transfer in the spatial domain.

Last, I have presented a part of the network structure of the caused-possession ditransitive construction and demonstrated how the superschematic construction is instantiated. I have discussed three ways of elaboration. The prototypical constructions elaborate the transfer-of-possession component of the schema. Verbs of creation/obtaining instantiate the "precondition" component. Verbs such as *promise* give details of the prior-intention component.

Chapter 4. Causative Ditransitive Constructions

The varieties of meaning of the ditransitive construction are produced not only by the family resemblance of constructional senses associated with transfer of possession but also by metaphor. Metaphor is characterized as "understanding one conceptual domain in terms of another conceptual domain" (Kövecses (2010: 4)). Understanding based on metaphor is often reflected in linguistic expressions. Transfer of possession is an often-used concept on the basis of which we can understand concepts such as communication, intentionally directed action and causation.

For example, let us observe the following sentences:

(137) a. She gave him a kiss.
b. She gave him a quick look.
c. She gave him a kick.

These sentences are understood by "understanding actions that are intentionally directed at another person as being entities which are transferred to that person" (Goldberg (1995: 149)), or what Kövecses (2010: 130) calls the CAUSATION IS TRANSFER OF AN OBJECT metaphor.[28] In these examples, the DObj nominals designate intentionally directed actions, and they are understood as entities moving from the Subj entities to the DObj entities. The causal relationship that holds between the Subj entities and the IObj entities in (137) is direct causation, or the driving-force type of causation.[29]

The ditransitive construction can express indirect causation, or the barrier type of

28. In his introductory book on metaphor, Kövecses (2010) gives a concise explanation of the invariance principle (or hypothesis) (Lakoff (1990) and Lakoff (1993)). Several metaphors may be involved in some cases in (137). See also Goldberg (1995: 148-149) for other metaphors.

29. As we have seen in section 2.5, Shibatani (2002) points out that there is no precise definition of direct and indirect causation. Some factors are mentioned in previous studies to draw the distinction. One factor is intervening force. Direct causation occurs when the causer's action directly causes the subsequent event without an intervening force; indirect causation exists if an intervening force comes into play after the causer has acted. See the condition in (81) that defines a single spatiotemporal domain, based on which I give the definition of direct and indirect causation.

causation, as well.[30] Compare the following pair of examples of the driving-type of causation (138a) and the barrier-type of causation (138b):

(138) a. John gave her a quick look.

b. The other man shook his head, held up his paper, and shouted out, 'Can anybody read this?'

'Give me a look at it,' Cameron shouted back.

(BNC: A0N 351-352, underline mine)

To see the difference between the two examples in (138), consider what relation holds between the IObj entities and the DObj noun *look*. In (138a), the IObj entity is construed as the "object" of being looked at; in (138b), the IObj entity plays a "subject" role of looking at the paper.

The ditransitive construction associated with the driving-force type has been studied intensely in previous studies (Cattell (1984), Goldberg (1995), Lakoff (1990), etc.). The barrier type, on the other hand, still has room to be explored, although some studies (e.g., Cattell (1984) and Oehrle (1976)) mention the usage.

This chapter is based on the ideas provided in Ueda (2018c), and the supporting data come from my series of corpus-based studies (Ueda (2005, 2018b, 2019)). Section 4.1 deals with these two types of causation designated by the ditransitive construction. I take an in-depth look at the semantic structure of each causation. I also consider the relationship between causation and transfer of possession. After presenting the two causation models, I pursue the possibility that the CONTROL IS HOLDING metaphor can provide a conceptual basis of the two types of causation. Suppose that hand-to-hand transfer is a basic, recurring pattern of events that we experience, from which the ditransitive construction schema is built up. Then, it is natural to assume that the act of holding is involved in the causal relationship designated by the construction.

In section 4.2, the causation models presented in section 2.5 are applied to the ditransitive constructions with verbs of refusal (class C in Goldberg's (1995) frame-

30. Though not much attention has been devoted to this issue, Cattell (1984) is one of a few studies that deal with this type of ditransitive construction. He analyzes it in terms of the theta criterion in Generative Grammar. See also Oehrle (1976: 46-54).

work); verbs of permission (class E); and *grant*, a verb of future transfer (class D). These verbs are similar in that many of their DObj nouns refer to abstract concepts such as "permission," "opportunity" and "rights" in the sense of "moral or legal entitlement." On the other hand, the verbs can be classified into two classes: the verbs of permission, *grant* and *refuse*, and the verbs of enablement, *allow, deny* and *permit*. I explain the difference between the two verb classes in terms of Causer-oriented and Experiencer-oriented relations. The verbs of enablement encode the barrier type of causation, and their DObj entities tend to be Experiencer oriented. The event structure profiled by the verbs of permission can be captured by the driving-force type of causation, and the DObj entities tend to be Causer oriented. A notable feature is that the phase subsequent to the profile event structure shows a characteristic similar to Experiencer-oriented relations. Hence, the verbs of permission are partially similar to the verbs of enablement.

Section 4.3 presents a quantitative approach to the verbs of permission/enablement *allow, deny, grant, permit* and *refuse* and the prototypical ditransitive verb *give*. The datasets, collected mainly from the BNC, reveal the following three points. First, *give* can take more kinds of nouns as direct objects than the verbs of permission/enablement can. This result suggests that the verb is so schematic in semantics that its semantic range is larger. Second, *grant* and *refuse* tend to appear more frequently in the passive voice. I argue that this tendency can be explained by our frame-semantic knowledge of permission. Last, the results of the correspondence analysis performed in Ueda (2018b) and Ueda (2019) indicate that *give* and the verbs of permission/enablement are differentiated and that the verbs of permission *grant* and *refuse* are distinguished from the verbs of enablement *allow, deny* and *permit*. The results confirm the distinction between the verbs of permission and the verbs of enablement on the basis of linguists' intuitions.

4.1 Two types of causative ditransitive construction and causation metaphors

4.1.1 The driving-force type of causation and the CAUSATION IS TRANSFER metaphor

As we have seen in section 2.5, the force-dynamic pattern of a sentence such as that in (138a) can be easily described by the causal/action-chain model.

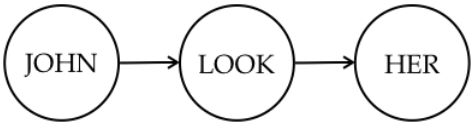


Figure 38: Causal/action-chain representation of *John gave her a look*

This type of sentence is understood via the CAUSATION IS TRANSFER OF AN OBJECT metaphor (cf. Kövecses (2010), Goldberg (1995), etc.). The metaphor maps transfer of possession onto direct causation in the following way:

Table 5: The corresponding relation between TRANSFER OF POSSESSION and DIRECT CAUSATION

Source domain: TRANSFER OF POSSESSION		Target domain: DIRECT CAUSATION
• GIVER (= G)	⇒	• CAUSER (= CS)
• RECIPIENT (= RCP)	⇒	• EXPERIENCER (= EXP)
• MOVER (= MVR)	⇒	• ACTION (= ACT)
• G causes RCP to have control of MVR	⇒	• CS causes EXP to experience ACT

In (138a), the act of looking is construed as an object transferred to the person who is looked at, i.e., the Experiencer.

4.1.2 The barrier type of causation: where a barrier stems from

The ditransitive sentence in (139) cannot be understood by the CAUSATION IS TRANSFER metaphor:

(139) I had introduced Roose-Evans to Reggie and he gave James access to Joyce's study and to all her unpublished material and letters.
(BNC: H9Y 2141, underline mine)

The underlined clause means that Reggie made it possible for James Roose-Evans to see his wife's, Joyce's, study. In this event structure, it is difficult to construe the DObj *access to Joyce's study* as an Action that metaphorically moves from Reggie to James.

The data in (140) clearly bring out this point:

(140) a. "Come. Let's get under a tree and give you your look at the sky."
(*Mother's Choice*)

b. [At the funeral of the speaker's friend]
People stepped out of my way to give me my look at her.
(*Amber's Summer with M. the V and New Poems*, p. 39.)

We should take note of the fact that the referents of the possessive pronouns in the DObj nominals are the IObj entities (the Experiencers).

The sentences in (139) and (140) sound as though some social "barriers" had blocked the Experiencer's access to the study in (139) and the Experiencers' view in (140). It seems that the removal of the barriers gave the Experiencers the opportunities to do what they wanted to do.

One might wonder where the barriers are in (139) and (140) since the barriers are not linguistically overtly expressed. The example in (141) suggests, however, that an obstacle is involved in the scene described by the sentence:

(141) Barker views open education resources (OER) and open textbooks as a way to remove some of the financial barriers to students and give them access to the information that she wants them to learn.
("Open Education Stories: Removing Barriers to Access with Jennifer Barker," *BCcampus*. October 10, 2017, https://bccampus.ca/2017/10/10/open-education-stories-removing-barriers-to-access-with-jennifer-barker; Accessed June 30, 2019)

The premise of the sentence in (141) is that the financial barriers have prevented students from obtaining the information that they need to learn. If open textbooks are available even to students in financial difficulties, then the barriers will be removed, and the students can learn the information.

The sentences in (142) also show that some obstacles exist:

(142) a. He handed me a toffee, climbed into his car, beckoned me to sit on the other front seat for a few minutes, and removed the celluloid sidescreen to give us more fresh air. (BNC: CHG 77, underline mine)

b. Eliminating barriers gives women many career opportunities.

In (142a), the physical obstacle, i.e., the sidescreen, had blocked fresh air; in (142b), some social barriers prevented the improvement of the women's career prospects.

If my observation of the sentences from (139) to (142) is correct, the causal structure should include a barrier that blocks the Experiencer's access to an object. Take (139), for example. Figure 39 schematically represents the transition from (a) the study's state of being unavailable to (b) James gaining permission to see the study.

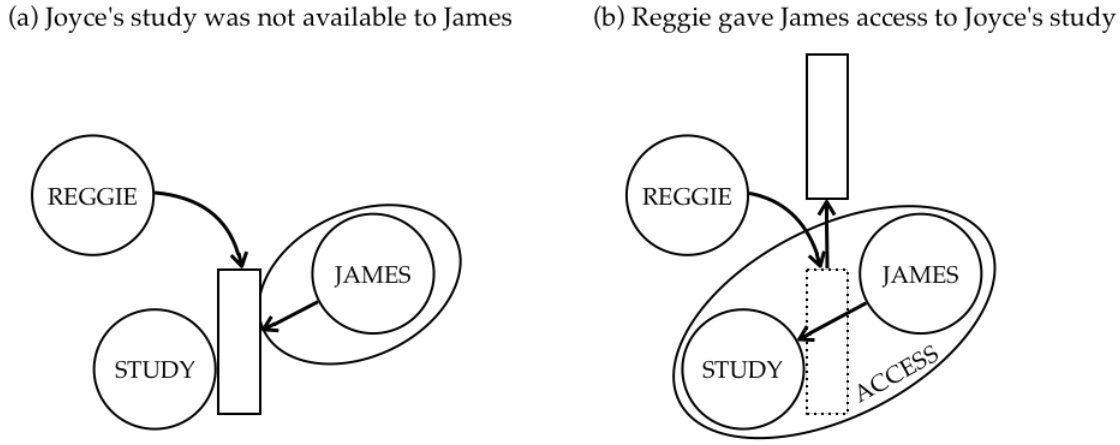


Figure 39: Schematic representations of the transition from Joyce's study being unavailable to James obtaining permission to see the study

Figure 39(a) indicates that the linguistically unexpressed barrier, represented by the rectangle, prevented James from seeing Joyce's study. The arrow from James toward the study indicates James's attempt to see the study; the arrow from Reggie indicates his power to authorize access to the study. The ellipse around James represents his dominion. That the dominion does not contain the study means that James did not gain permission to see the study. In Figure 39(b), Reggie exerted his force over the barrier to remove it, thereby making it possible for James to gain access to the study. The relation depicted by the noun *access* was established between James and the

study, both of which are thus located in the same dominion.

A question immediately arises as to the barrier: What motivates it? I argue in section 4.1.4 that the barrier stems from the CONTROL IS HOLDING metaphor and that the experiential basis of this metaphor presumably lies in two functions of the hand in giving.

4.1.3 Understanding the driving-force type and the barrier type of causation in the paradigm of causation in general

Before going further into the argument about the experiential basis of the barrier, we want to grasp the two types of causation associated with the ditransitive construction in a larger paradigm of causation.

One of the two types of causal relationship designated by the construction is the event structure that can be understood by the causal/action-chain model, as indicated in Figure 38. The other type is exemplified in Figure 39(b). How do these two types of causal relationship fit into the more general patterns of causation that we explored in section 2.5?

According to Shibatani and Pardeshi (2002: 90), direct causation is structured in a single spatiotemporal domain in which the causing-event segment and the caused-event segment happen sequentially, while indirect causation involves two relevant subevents in distinct (but somewhere connected) spatiotemporal domains (section 2.5.2). Although they use the notion of the spatiotemporal domain to characterize direct and indirect causation, the notion needs to be modified to account for the two types of causative ditransitive construction. The configuration of spatiotemporal domains in terms of the flow of energy that I have discussed in section 2.5.2 is summarized in (81), reproduced here as (143):

(143) If we can construe two sequential events as a continuous flow of energy, the two events form a single spatiotemporal domain. If we regard two related events as distinct flows of energy, each event forms a different spatiotemporal domain.

The causal relations in Figure 38 form a single spatiotemporal domain since the series of events can be construed as a continuous flow. We can therefore say that the

causal relation is a kind of direct causation. In contrast, Figure 39(b) has two different flows of energy. The first flow of energy originated from Reggie and was transmitted to the obstacle. The other flow ran between James and the study, and this relation is reified by the noun *access*. On the basis of the generalization in (143), we conclude that the causal relation in Figure 39(b) is a kind of indirect causation.

The terms *direct causation* and *indirect causation* cover various linguistic forms from lexical causatives to periphrastic causatives. The causal relations evoked by the ditransitive construction refer to roughly the two types illustrated in Figures 38 and 39(b). In addition, as I argue in section 4.1.4, these two types of causation are presumed to be motivated by the bodily experience of the hand-to-hand transfer. I prefer to call the direct and the indirect causation designated by the ditransitive construction the driving-force type and the barrier type of causation, respectively, to highlight their features.

In sum, the driving-force type of causation is an instance of direct causation in which the force exerted by the Causer moves the Action construed as a movable object forward to the Experiencer. This configuration is conceptualized as a force-dynamic pattern modeled on the causal/action-chain approach. On the other hand, the barrier type of causation is an instance of indirect, or "letting," causation in which the Causer exerts force to move the barrier away so that the Experiencer can be on the threshold of doing something.

4.1.4 The CONTROL IS HOLDING metaphor

Let us return to the question of the barrier: What is the experiential motivation of the barrier? There are several metaphors involved in understanding the causative ditransitive construction designating the barrier type of causation. One of the key metaphors is the CONTROL IS HOLDING SOMETHING IN THE HAND metaphor (Kövecses (2010: 245)). According to Kövecses, this metaphor is motivated by the following experience: "If we hold an object in the hand, we can do whatever we wish to do with it" (ibid.). This metaphor licenses the following examples:

(144) a. hold the power to do something in the hollow of one's hand ('have the right to make crucial decisions')
b. be in hand ('be under control')
c. be out of someone's hands ('be out of one's control')
d. be in someone's hands ('be being dealt with by someone with the necessary authority')
e. take something in hand ('assume control over something')

(Kövecses (2010: 245))

This metaphor explains who has or loses the power to make something (or someone) do what she wants. The mapping relations between holding and control can be summarized as shown in Table 6:

Table 6: The corresponding relation between HOLDING and CONTROL

Source domain: HOLDING		Target domain: CONTROL
• Someone's hand	⇒	• Someone's sphere of control
• Something is in someone's hand	⇒	• Something is in someone's control
• Something is out of someone's hand	⇒	• Something is out of someone's control
• Someone grasps something	⇒	• Someone gains control of something

Direct manipulation of an object in the hand is the important basis of this metaphor. The salient feature of the source domain in Table 6 is whether one holds or releases an object in the hand. We can associate manipulation by the hand with grasping an object firmly to keep it in the hand and moving it somewhere.

I assume that the CONTROL IS HOLDING metaphor can exhibit a more complicated structure than that summarized in Table 6, thereby furnishing the basis for understanding ditransitive constructions. Extended correspondence relations between control and holding are given in Table 7:

Table 7: Extended correspondence relations of the CONTROL IS HOLDING metaphor

Source domain: HOLDING		Target domain: CONTROL
• Someone hands something to someone else	⇒	• Someone passes control over something to someone else
• The thing in the palm surrounded by someone's fingers is not accessible to someone else	⇒	• The thing in the region behind the barrier is not accessible to someone else
• Once the fingers are opened, the thing in the palm is accessible	⇒	• Once the barrier is removed, the thing behind it is accessible

The extended correspondence relations in Table 7 are vital to understanding the ditransitive construction. The notion of control is essential for characterizing the transfer of possession. For example, Newman (1996: 1) defines an act of giving as "an act whereby a person (the GIVER) passes with the hands control over an object (THING) to another person (the RECIPIENT)" (underline mine). Langacker (1987, 1991a, 1991b, 2008, among others) uses *control* to define the Giver's and Recipient's dominions, which are paraphrased as "spheres of control." Langacker (1991a: 13), for example, gives the example *Bill sent Joyce a walrus* and explains the meaning as follows: "A walrus originates in the domain under Bill's control and—at Bill's instigation—follows a path that results in its eventual location within the region under Joyce's control" (underline mine).

It seems to me that the term *control* in the citations from Newman (1996) and Langacker (1991a) denotes two cases: One refers to transferring an object, and the other means keeping an object in a region. If so, it is likely that the first sense is associated with the driving-force type of causation, while the second sense is related to the barrier type of causation.[31] Why are these two kinds of control involved in the transfer of possession? The experiential basis of the extended CONTROL IS HOLDING metaphor provides clues to why.

31. This suggests that the ditransitive construction that designates the driving-force type of causation can be motivated by two metaphors, the TRANSFER IS CAUSATION metaphor and the CONTROL IS HOLDING metaphor. I will argue about this point soon.

4.1.5 Two functions of the hand in giving

In the typical scenario of transfer of possession, "there is a person who has some thing and this person passes over the thing with his/her hands to another person who receives it with his/her hands" (Newman (1996: 37)). It is reasonable to assume that our basic experience of transfer of possession lies in the act of passing an object from hand to hand. In this basic experience, our hands play a central role. A chief function of the hand is to move an object to the Recipient. In this case, the hand is the source of the force that drives the object forward. This experiential basis motivates the notion of control as moving an object.

Note that I have argued in section 4.1.1 that the driving-force type of causation is explained by the CAUSATION IS TRANSFER metaphor. This argument suggests that two metaphors are involved in this type of causation. Lakoff (1990) states that the CAUSES ARE FORCES metaphor interacts with other existing metaphors to produce a variety of causation types. One of the cases that he shows is the interaction of the CAUSES ARE FORCES metaphor with the EXPERIENCES ARE POSSESSIONS metaphor. The interactions of the two metaphors yields the example in (145):

(145) Problem 3 gave Harry trouble.

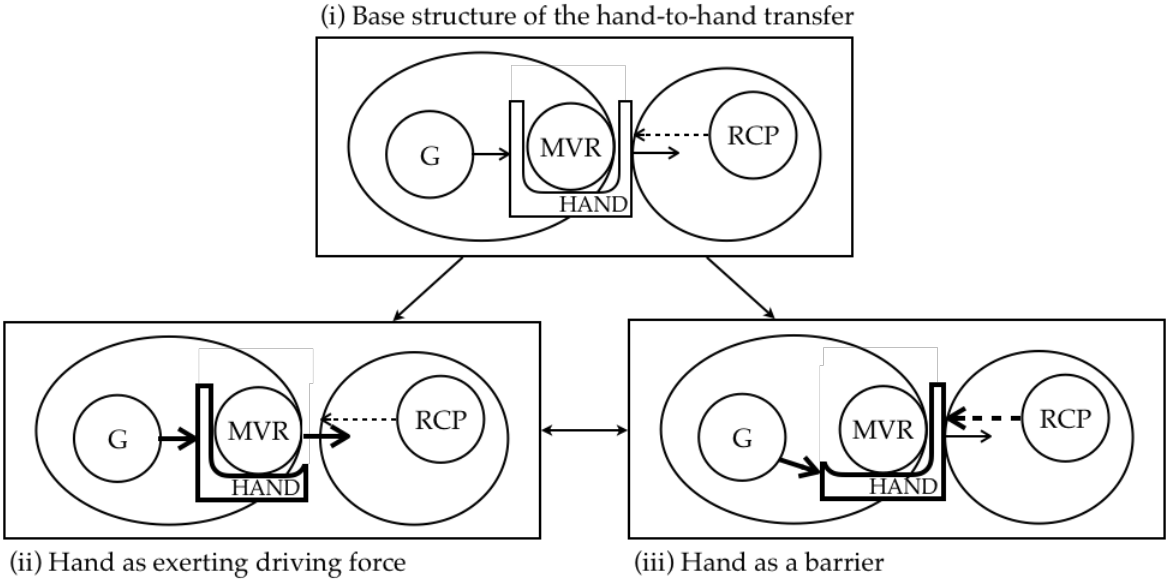
(Lakoff (1990: 63))

If we follow Lakoff's insightful argument, there is a possibility that the CAUSATION IS TRANSFER metaphor underlies the complex interaction between the CAUSES ARE FORCES metaphor and other metaphors. The CONTROL IS HOLDING metaphor might be one of the metaphors that can interact with the CAUSES ARE FORCES metaphor, but I think that the CONTROL IS HOLDING metaphor is itself the result of the interactions of other metaphors. To characterize the notion of control, we need to refer to location (e.g., "something is in someone's hand" corresponds to "something is in someone's control") and possession (e.g., "someone grasps something" corresponds to "someone gains control of something"). It might be safe to conclude that CAUSATION IS TRANSFER is a blended metaphor, but I leave to future research the question of what metaphors interact to yield the CAUSATION IS TRANSFER metaphor.

Returning to the discussion about the hand, I have argued that the hand that moves an object to the Recipient's hand motivates the notion of control as driving an

object forward. The "driving-force" aspect of the typical scenario of giving is cognitively salient because it describes the dynamic aspect of the act of giving. The important thing to notice here is that another aspect rooted in the same basic experience lies behind the "driving-force" aspect. The hand serves to confine an object within a specific region, i.e., the hand. While the hand moves an object to the Recipient, it grasps the object so firmly that the object does not fall from the hand, nor is it snatched by others. This bodily experience shapes the "barrier" aspect of handing over an object.

The two types of causation, the driving-force type and the barrier type, are the results of making different aspects of the hand's function salient. Their relation is similar to a reversible figure/ground relation. Both types share the same base structure. Once one aspect is perceived as salient, the other aspect is hidden in the background, and vice versa. The relations are diagrammed in Figure 40:



Key: G = Giver, MVR = Mover, RCP = Recipient

Figure 40: Schematic representations of two functions of the hand in transferring an object

The topmost figure in (i) describes the base structure of the hand-to-hand transfer. If the "push" aspect is highlighted in the base structure, the event structure is construed as the driving-force type of causation, as in (ii). On the other hand, if the

"grasp" aspect is profiled, the focus is on the hand as the barrier that prevents an object in the hand from dropping when the hand is closed; the object is released when the hand is opened. Regardless of which aspect is profiled, the resultant relation of the Recipient with the Mover is the same: The Mover is in the Recipient's sphere of control. However, different aspects of the base structure are highlighted by each profiled relation. In (ii), the Mover stands out as moving to the Recipient, while in (iii), the Recipient's approach to the Mover is in the foreground.[32]

The hand as a barrier is not as perceptually salient as the hand as exerting driving force because the barrier function is not perceptually dynamic. As I have argued in section 4.1.2, the barrier is linguistically covert in many cases. Even if it is overtly expressed, the event structure of the sentence is not dynamic. Giver's way of being involved is just to remove the barrier and make it possible for the Recipient to gain access to the Mover. This means that the Recipient is given a possibility of making a physical approach to the Mover, but the relation does not necessarily entail the Recipient reaching the Mover.

Probably because of the low saliency of the barrier aspect, it is difficult to find an example that brings the barrier aspect into focus. The sentence in (146) may help us understand the case in point:

(146) He held out his hand and offered me a sweet.

In (146), the Giver spread the palm of his hand and removed the barrier to give the Recipient the chance of holding a sweet. If the speaker (i.e., the Recipient) chose to accept the offer, she would reach for the sweet; if not, she would not grab the sweet.

4.1.6 Summary

Through section 4.1, we have observed two types of causation designated by the ditransitive construction: the driving-force type of causation and the barrier type of causation. These two types of causation can be seen as instances of direct and indirect causation, respectively. We have considered why the ditransitive construction can be

32. The term Mover is not appropriate for (iii) because it does not necessarily move. Nevertheless, for convenience of explanation, I continue to use the same term for (iii).

associated with the two types of causation. I have suggested that the two types of causation are explained by the CONTROL IS HOLDING metaphor and that each type is experientially motivated by the different focused function of the hand in the act of giving.

4.2 Verbs of permission/enablement

In section 3.4, I have discussed verbs of permission/enablement, such as *allow, permit, deny* and *refuse,* and argued that they should be dealt with differently from the other caused-possession ditransitive classes. I review their characteristics briefly here. Observe the following examples:

(147) a. Some versions of the legend claim that a young girl of "Bahamian descent" gave Otto the doll as a gift or as "retaliation for a wrongdoing."
(*Wikipedia*, https://en.wikipedia.org/wiki/Robert_(doll); Accessed July 11, 2019)

b. * Mother allowed Mary the doll. (Wierzbicka (1988: 382)) (=(135c))

(148) a. Passengers in the first-class section are given champagne. (*Kenkyusha*)

b. Passengers on planes usually are allowed 20 kg of baggage.
(BNC: FEH 574) (=(136a))

There are some differences between a canonical ditransitive sentence, as in (147a), and a ditransitive sentence with *allow*, as in (147b). First, according to Wierzbicka (1988), the DObj noun of *allow* does not refer to specific entities, thereby failing to take the definite article. Second, the relationship of the IObj entities and the DObj entities with *allow* is different from that with *give*. In the case of *give*, as in (148a), champagne is transferred from the airline company to the passengers in the first-class section. By contrast, the sentence in (148b) does not imply that the airline company transfers specific baggage items to its passengers.

From the above, it is clear that ditransitive constructions with verbs of permission/enablement have characteristics different from those of the prototypical caused-possession ditransitive construction. We are now in a position to take a deeper look

at the ditransitive use of verbs of permission/enablement. The first property that we observe with this type of construction is the semantic relationship of the IObj entity with the DObj entity. I introduce the idea of Causer-oriented vs. Experiencer-oriented relations to portray the IObj-DObj relationship.

4.2.1 Causer-oriented relations and Experiencer-oriented relations

At the beginning of this chapter, we observed in (138) that *give* can denote two types of causation: the driving-force type and the barrier type, examples of which are reproduced as (149):

(149) a. John gave her a quick look.
b. The other man shook his head, held up his paper, and shouted out, 'Can anybody read this?'
'Give me a look at it,' Cameron shouted back. (=(138))

Studies of causation provide a view of how events in a series (or the participants in the events) interrelate to produce results. The driving-force type of causation describes a series of events as a continuous flow of energy within a single spatio-temporal domain. The barrier type of causation describes a series of events as two distinct but related flows of energy in two proximate domains.

Here, we see the interrelationship between the participants in the causative ditransitive construction from another vantage point. Centering our attention on DObj entities, we explore the relation between the DObj entities and the other entities.[33] As I have already suggested in previous sections, some ditransitive expressions designate the event frame in which the DObj entity is transferred from the Causer's (i.e., the Subj entity's) dominion to the Experiencer's (i.e., the IObj entity's) dominion, as illustrated by (149a). In the other type of event frame, the DObj entity does not move from the Causer to the Experiencer. The barrier's removal enables the Experiencer to gain access to the DObj entity. I call the first type of interactive

33. Viewing the causative relationship from the vantage point of the DObj entity can be motivated by Kawase's (2004) hypothesis that the ditransitive construction construes the three-place relationship by expanding the scope of predication from the IObj-DObj reference-point relationship to the causing event. For details, see Kawase (2004).

relation a Causer-oriented relation and the second type an Experiencer-oriented relation.[34]

Although it is far from an exhaustive linguistic test, a possible way to distinguish between Causer-oriented relations and Experiencer-oriented relations is to identify the referent of the possessive pronoun of the DObj entity (if the entity can take a possessive pronoun). Compare the (a) and (b) examples in (150):

(150) a. Christi kisses me on the cheek and says, "Love ya, Dad."
"Did you see those toenails?" I say to Tanya.
"Kind of cute." I give her my look.
(*Sabre City: Book 2*, underline mine)

b. [At the funeral of the speaker's friend]
People stepped out of my way to give me my look at her. (=(140b)

Although the noun *look* in (150a), referring to a facial expression, conveys a meaning subtly different from that in (149a), denoting an act, the possessive pronoun *my* in the DObj noun phrase refers to the Causer. In this case, the Experiencer is understood as a Recipient of the metaphorically transferred object. The coreference between the possessive and the Causer indicates that the look came from the speaker. In this sense, I say that the noun *look* is Causer oriented.

In (150b), the possessive of the DObj nominal *my look* is coreferential with the Experiencer. The Experiencer is construed as the person who performs the act of looking, not the Recipient of the metaphorically understood object. In this sense, the DObj noun *look* is Experiencer oriented.

Now, we take a look at the verbs of permission/enablement in terms of Causer-oriented vs. Experiencer-oriented relations. The verbs often take as the DObj the nouns referring to an abstract concept such as "permission," "opportunity" or "rights." The IObj entity is interpreted as the "subject" of the action associated with the DObj or the *to* infinitive immediately behind it. Observe the examples in (151):

34. I owe these terms to Naoki Kiyama in personal communication.

(151) a. In fact, we could assume that it is this liberal multicultural definition of Woods that has allowed him his access to the predominantly white, male sport of golf.
(Razzano, K. A. 2000. "Tiger Woods: A Discursive Struggle over the Construction and Consumption of a Multiracial Image," *Taboo* 4(2). p. 66.)

b. … he had denied Sheila her chance of university … (BNC: A6N 2393)

c. When war broke out, the Foreign Office refused him permission to enlist … (BNC: AR8 588)

In (151a), where the Subj entity is not a Causer but an inanimate Cause, the possessive of the DObj nominal *his access* refers to *him* in the IObj position. In this sentence, the liberal multicultural definition serves as a cause of removing the social barrier, and Woods is understood as the "subject" entity that gains access to the golf society that features racial and gender inequality. The DObj noun *access* has a direct relationship to the IObj pronoun *him*. Therefore, *access* is Experiencer oriented.

Another example of Experiencer-oriented relations is (151b). It appears to be no different from prototypical instances that describe "possessive" relations, such as *John gave his wife a diamond ring*. The IObj entity Sheila could be understood as a possessor of the chance since it is possible to say that she had the chance to attend university. Unlike the Subj in prototypical ditransitive sentences, however, the Subj entity in (151b) did not directly manipulate the chance. His way of being involved was to make the barrier to university stay in place. The noun *chance* designates the relation between *Sheila* and *university*, where *Sheila* is construed as the "subject" of attending university. These relations are schematically drawn in Figure 41:

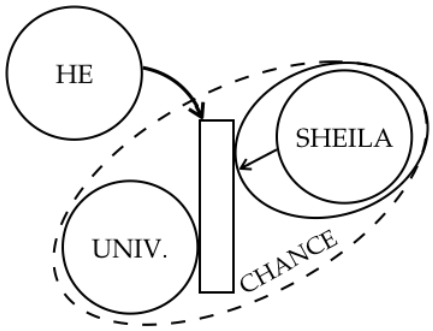


Figure 41: Schematic representation of *he denied Sheila her chance of university*

In Figure 41, the arrow from the circle labeled *HE* to the rectangle representing a social "barrier" indicates that he exercised his authority to block Sheila's access to a university education. The solid ellipse, representing Sheila's dominion, indicates Sheila's actual reality that she was refused permission to go to university; the dashed ellipse indicates her "would-be" future in which she would study at a university. The holistic pattern in Figure 41 is similar to that in Figure 39. I discuss the sentence in (151c) further in section 4.2.3.

4.2.2 Experiencer-oriented relations and intrinsic relations

I have introduced Causer-oriented and Experiencer-oriented relations to explain the relationship of the concept designated by the DObj with other NPs. To do so, I have paid attention to the syntactically overt relations between NPs through the reference of possessive nominals. Causer-oriented relations are straightforward because the relations match the canonical transfer of possession. In contrast, one might feel that Experiencer-oriented relations are complex. Here, I provide a notional definition of the Experiencer-oriented relation and related notions in terms of an intrinsic relationship.[35]

The Experiencer-oriented relation is the intrinsic relation of the experience, including her prospective, or "would-be," experience, to the Experiencer. The intrinsic relation here is defined in terms of a reference-point relationship (section 2.1.4). As indicated in Figures 39 and 41, the Experiencer and its dominion are in the

35. The discussion here is based on Yusuke Minami's comments on the draft of Ueda (2018a).

part-whole relation. Let us consider the relation between the IObj NP *him* and the DObj NP *his access to the predominantly white, male sport of golf* in (151a) again. Figure 42 diagrams the composite structure of the two NPs (see Ueda (2018a: 29-30) for more details):

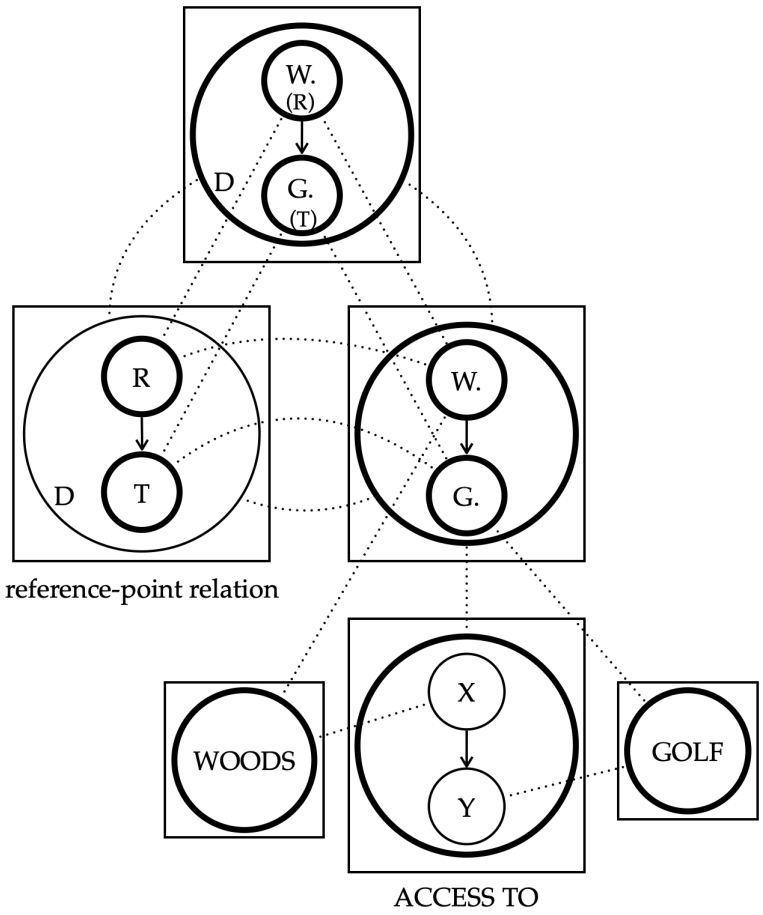


Figure 42: The composite structure of *Woods access to golf*

The noun *access* (*to*), whose semantic structure is indicated in the box with the caption "ACCESS TO," is the relational noun that expresses the relation of two entities, X and Y (cf. Langacker (1991b: 35-43) for relational nouns and nominalizations). (See also Figure 39.) The profiled region of *access* overlaps the dominion of the reference-point relationship, a portion of the ditransitive construction. In the nominal expression *access to the predominantly white, male sport of golf*, the Y slot is filled with the NP that follows *to* (i.e., *the predominantly white, male sport of golf*), and the X slot is identified with the person who gains access to golf, i.e., *him* (=Woods). The noun

chance in (151b) has a composite structure similar to that shown in Figure 42. It is also a relation noun with two open slots in the semantic structure "X's chance of Y." The Y slot is filled with *university*; and the value of X is specified as the IObj NP *Sheila*.

Intrinsic relations between two entities are found in other conceptual configurations. One is ownership. Let us consider the examples in (152) and (153):

(152) '... I did lend you my ear-rings when you went out with that Edward last week.'

(BNC: BMW 1947)

(153) '... Please give me my violin.'
And Holmes began to play his violin.

(BNC: H7V 346-347)

The type of transfer described in (152) and (153) involves at least two elements: ownership and custody. (To my knowledge, Oehrle (1976) first distinguishes between these two notions. See section 2.4.3 for a related discussion.) Ownership is a social notion that is defined as belonging to which person in the possessional domain. Custody is also a social notion that is defined as the state of being under the control of which person. To see the difference, let us observe (152). In (152), the ownership of the earrings was with the speaker while custody of the earrings was granted to the addressee. On the other hand, in (153), the violin was under the ownership of Holmes but was not in his custody. The violin was placed far away from Holmes. Holmes asked the addressee to bring the instrument into his vicinity so that he could gain custody of it. Ownership is always with the owner of a property. Even if the property is out of the owner's custody (i.e., it is placed away from the owner), it still belongs to the owner. In this sense, we can say that ownership denotes an intrinsic relation of the owner to the property.

Note that not every caused-possession ditransitive expression describes transfer of ownership. Ownership is not relevant to a sentence such as *John gave Mary a Christmas present*. Only the custody of the present is involved in this case. On the other hand, in the sentence *John gave Mary her Christmas present*, the possessive pronoun *her* profiles the intrinsic relation between *present* and the would-be owner.

An intrinsic relation also holds between an entity and its attributes, as exempli-

fied in (154):

(154) a. Or the genes that gave me my looks were Filipino, or Lebanese, or Puerto Rican, some multiethnic gumbo. (COCA: FIC: *In the Wind*)

b. The sleek, black furniture gave the room its modern look that contrasted with the old beam supporting the ceiling.
("Malmaison | A Boutique Hotel for a Romantic Getaway in Belfast" *Celtic Wanderlust*. March 21, 2019. https://www.celticwanderlust.com/malmaison-hotel-belfast/; Accessed September 16, 2019)

Although these examples need to be characterized differently than the caused-possession and the causative ditransitive construction, the relation between the IObj and the DObj entities described in the examples shares some commonality with the Experiencer-oriented relation. The Subj entity did not transfer the appearance of the IObj entity; the appearance is an intrinsic feature of the entity that has the appearance.

The relation of the attribute to its possessor may help explain the ditransitive constructions that have long puzzled linguists, as in (155):

(155) a. He forgave her her sins.

b. He envied the prince his fortune.

c. The Polish government realised that the action of the Danzig dockers might have lost them their independence.
((a)-(b) from Goldberg (1995: 132); (c) from BNC: BN2 909)

The sentences in (155) must be characterized in a different domain different than those characterizing the caused-possession and the causative ditransitive construction. They are probably similar to the sentences in (154), which describe the possessor-attribute relationship. As in the case of (154), the DObj entities are regarded as the IObj entities' indispensable attributes. The sins in (155a) supposedly refer to religious matters such as Christianity's "ancestral sin," which is assumed to be intrinsic to its bearer. The concepts of fortune and independence are also attributes that are essential to their possessors. I speculate that the ditransitive construction that

describes the possessor-attribute relationship can be analyzed along the same lines as my analysis of the barrier-type of causation. I acknowledge that ditransitive sentences such as those in (155) require a finer analysis (cf. Ohashi (2004) and Tsuji (2017)). I leave this type of data to future research.

4.2.3 The PERMISSION frame

Let us return to (151c). The example should be carefully considered. It is similar to prototypical ditransitives since it is reasonable to assume that the abstract concept of "permission" comes from the Authority, or the Causer, in the Subj position. The contrast in (156) illustrates the point:

(156) a. I wanted to give you my permission to go out there and experiment.
(COCA: FIC: *30 Days*, 2015)

b. * I wanted to give you your permission to go out there.

The examples in (156) indicate that *permission* is Causer oriented. We should note, however, that the IObj entities in (151c) and (156) are interpreted not only as obtaining permission but also as a potential Agent who would enlist and one who would go out and experiment, respectively. This may suggest that the *to* infinitive is Experiencer oriented. A question then arises as to why the notion of permission is associated with both a Causer-oriented relation and an Experiencer-oriented relation.

To answer the question, we have to consider our frame-semantic knowledge of PERMISSION. According to FrameNet's definition of the *deny_or_grant_permission* frame, there are three core frame elements (or participant roles) involved in this semantic frame: Authority, Protagonist and Action. Authority and Protagonist can be construed as instances of Causer and Experiencer, respectively. For the sake of convenience, I adopt the terms Causer and Experiencer unless otherwise stated. A Causer has the power to tell an Experiencer to engage or not to engage in the Action that the Experiencer seeks to perform. The definition is as follows:

> In this frame, an Authority [=Causer] allows a Protagonist [=Experiencer] to know (in some way) that they may or may not engage in an Action. For lexical units of this frame marked with the semantic type "Negative," e.g., authorize.v [i.e., the verb *authorize*], the Authority has the power to tell the Protagonist not to do something, but does not do so. It is assumed that if the Protagonist engages in the Action without permission, then the Authority will punish the Protagonist in some way, at least with disapproval; if the Authority grants permission, however, the Authority is agreeing not to impose a punishment on the Protagonist for performing the Action.
>
> (FrameNet, s.v., *Deny_or_grant_permission*)

This definition suggests that the PERMISSION frame involves three phases. In the first phase, an Experiencer applies to a Causer for permission to perform an Action; in the second phase, if the Causer accepts the application, the permission comes down from the Causer to the Experiencer; and in the third phase, the Experiencer can engage in the Action. The first and the second phases are sketched in Figure 43(a), and the third phase is sketched in Figure 43(b):

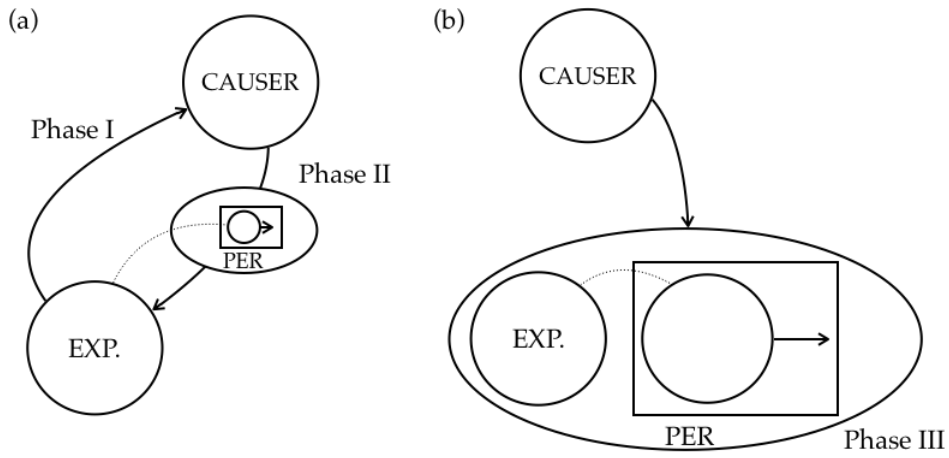


Figure 43: Three phases of the PERMISSION frame

In Figure 43, the Experiencer is abbreviated as EXP. The relational concept Permission is represented by the ellipses. Although Permission does not count as a frame element in the definition of the *deny_or_grant_permission* frame, I include it as a parti-

cipant in the frame because it can be overtly expressed as a noun. The notion of PERMISSION always evokes some Action that the Experiencer attempts to perform. Because Permission associates the Experiencer and the Action, it can be characterized as a relational concept. In Figure 43, Action is represented as the combination of the box, the circle and the arrow in the circle labeled PER. The Experiencer will perform the Action if she obtains permission to perform that Action. In Phase II, we can see that the Permission is transferred from the Causer to the Experiencer. This process is an instance of the Causer-oriented relation. On the other hand, the circle in the box-circle-arrow combination and the circle representing the Experiencer are connected with each other by the dotted lines. This connection indicates that the Experiencer corresponds to the "logical subject" of the *to* infinitive and that the Experiencer and the *to* infinitive are in an Experiencer-oriented relation.

The holistic pattern of the third phase of the PERMISSION frame, described in Figure 43(b), is similar to the patterns we have seen in Figures 39 and 41. We can probably say that the third phase of the PERMISSION frame is a "peripheral" member of the barrier type of causation. A slightly different aspect is the Causer's way of involvement in enabling the Experiencer to perform the Action. In the event structures in Figures 39 and 41, i.e., the barrier type of causation, the Causer engages in removing the barrier that prevents the Experiencer from gaining access to what he wishes to do and makes it possible for the Experiencer to perform the Action that he has attempted to do. In Figure 43, the Causer enables the Experiencer to perform the Action, not by removing a barrier but by bringing the prospective Action to the Experiencer.

4.2.4 Summary

In this subsection, I have introduced several notions to reveal the semantic properties of three types of causative ditransitive constructions. Table 8 gives a summary of the notions that explain the three causative ditransitive constructions:

Table 8: Causative ditransitive constructions

Lower-level construction type	Direct causation	Permission	Enablement (indirect causation)
1. Event structure patterns	Driving-force type		Barrier type
2. Experiential basis of 1	Hand as exerting force		Hand as a barrier
3. DObj properties	Causer oriented		Experiencer oriented

The examples of the three types of constructions are provided in (157):

(157) a. John gave her a quick look. (direct causation) (=(138a))
b. I wanted to give you my permission to go out there and experiment. (permission) (=(156a))
c. People stepped out of my way to give me my look at her. (enablement) (=(140b))

As we have seen in this section, the verbs of permission and the verbs of enablement have slightly different characteristics. Let me summarize the properties of these two types of verbs in relation to the causative ditransitive construction designating direct causation. The direct causation ditransitive construction is an instance of the driving-force type of causation, and its DObj entities are Causer oriented. Verbs of enablement are instances of the barrier type of causation, and their DObj entities are Experiencer oriented. Verbs of permission are characterized with reference to the PERMISSION frame. The profiled phase of the frame is the second phase, which seems similar to the driving-force type of causation. As I have argued in section 4.2.3, however, the third phase seems to be Experiencer oriented. In this sense, verbs of permission have in-between characteristics. (See also Ueda (2018a) for related discussions.)

Before leaving this section, one more thing should be mentioned. Let us return to the examples in (148), reproduced as (158) (see also (136) in section 3.4):

(158) a. Passengers in the first-class section are given champagne.
(*Kenkyusha*)

b. Passengers on planes usually are allowed 20 kg of baggage.
(BNC: FEH 574)

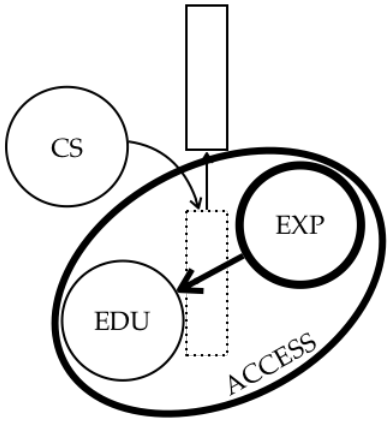
I have pointed out that although abstract concepts such as *access* and *opportunity* appear in the DObj position in many cases with verbs of enablement/permission (see Table 10 in section 4.3.2), there are some cases in which the DObj NP refers to a concrete object, as in (158b). In section 3.4, I have argued that ditransitive sentences such as (158b) are different from prototypical ditransitive sentences such as (158a) in two ways. First, the DObj entity is Experiencer oriented. That is, the DObj entity does not originate from the Subj entity's dominion. Second, the relation between the IObj and the DObj entities is given a broader definition than the canonical possessive relationship. How is this type of expression accounted for in relation to the framework I have summarized in Table 8?

I assume that these two characteristics are derived from the profile shift in the causative event structure. To illustrate my point, let us consider the following pair of sentences:

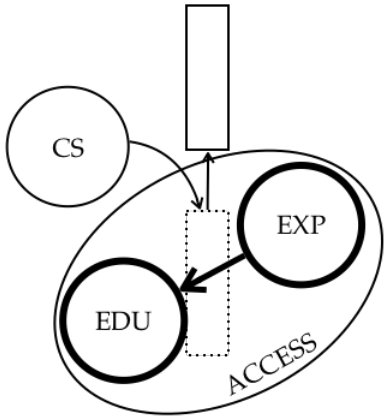
(159) a. They are allowed access to higher education.
b. They are allowed higher education.

The DObj noun *access* in (159a) profiles the relation of the Experiencer to higher education. In Figure 44(a), the bold oval represents the relation designated by *access*. The sentence in (159b) conveys a similar content, but the highlighted part is shifted from the relation to the two entities, the Experiencer and higher education, as indicated by the two bold circles in Figure 44(b). The relation evoked by *access* is backgrounded in this case.

(a) They are allowed access to higher education.



(b) They are allowed higher education.



Key: CS = Causer, EXP = Experiencer, EDU = education

Figure 44: Profile shift from the relational notion to the juxtaposed entities

One might wonder why a profile shift, as illustrated in Figure 44, does not apply to a pair of sentences such as those in (160), which bear different meanings:

(160) a. John gave Mary a look at the book.
b. John gave Mary a book.

We should remember that profile shifting is a cognitive operation and is entirely different from a rule. Since rules apply automatically if conditions are met, we can predict the results that can be produced by the rules. On the other hand, cognitive operations can motivate linguistic expressions but do not predict them. Therefore, it is no wonder that not every ditransitive sentence undergoes the cognitive operation of profile shifting. The failure to interpret (160b) in the same way as (160a) is due to the strongly entrenched correspondence between the ditransitive form and the meaning of *give*. We therefore cannot associate the form with a different reading.

4.3 A corpus-based analysis of verbs of permission/enablement

We have seen thus far that ditransitive constructions with verbs of permission/ enablement are different from the causative ditransitive construction of the driving-force type. I report the results of my quantitative research. For the results, I present

the following conclusions:

- The verb *give* takes more kinds of nouns as direct objects than the verbs of permission/enablement, *allow, deny, grant, permit* and *refuse*. This suggests that *give* is so schematic in semantics that its semantic range is larger. The results of my correspondence analysis confirm that *give* is classified differently than the verbs of permission/enablement.
- The verbs of permission/enablement can be divided into two groups: verbs of permission and verbs of enablement. There is a tendency for the verbs *grant* and *refuse* to take DObj nouns that have Causer-oriented relations, and this tendency is assumed to result from the verbs' meanings that are characterized on the basis of our frame-semantic knowledge of permission. The semantic characteristics are also related to these verbs' preference for the passive voice. There is a tendency for the verbs *allow, permit* and *deny* to take the DObj nouns that have Experiencer-oriented relations. The division between the verbs of permission *refuse* and *grant* and the verbs of enablement *allow, deny* and *permit* is newly identified in my study.

4.3.1 Data

The datasets used for this research were collected from the BNC but via different interfaces. I used SARA, provided on the BNC World (2001), for *refuse* and XAIRA, provided on the BNC XML Edition (2007), for *deny*. The data for the verbs *allow, permit* and *grant* were obtained through BNCweb at http://corpora.lancs.ac.uk/BNCweb. According to Goldberg's (1995) classification, *grant* is in a different class, but I include it in verbs of permission/enablement. One reason is that the nouns in the DObj position of *grant* and the other verbs of permission/enablement overlap considerably, as shown in Table 10.

The data were collected in the following way. After obtaining all the sentences from the BNC in which the verbs *refuse, deny, allow, permit* and *grant* were tagged as verbs, I visually inspected them to select the data with the verbs in the ditransitive use. The dataset with *give* was collected differently, however. The number of appearances of *give* is too high to be inspected manually. After 10,000 instances were sampled randomly from the BNC, only the cases of ditransitive expression were

chosen. The datasets used for this study are summarized in Table 9.

Note that this method of collecting data may cause errors in choosing the target data. The frequency numbers given in Table 9 for (ii) and (iii) are not 100% correct, but I believe that the errors are so small that their effects can be ignored.

The statistics indicate that the number of occurrences of *give* in the ditransitive use is very large compared with the number of occurrences of the verbs of permission/enablement. Given that the prototypicality and the frequency of category members are interrelated (cf. Bybee (2010)), we can surmise that *give* is a prototypical case of a ditransitive verb. We need to conduct more thorough studies of ditransitive verbs to confirm the prototypicality of *give*. Next, we should focus on the type-token ratio (TTR). The TTR is an indicator that is often used to measure the lexical diversity of a text. The TTR of the DObj in (iv) of Table 9 is the ratio of the number of noun types to the number of noun tokens in the DObj position. The TTR of each verb, excluding *permit*, is approximately 0.30. However, we must be careful with the TTR because the ratio is sensitive to the total number of words in a text. The TTR of *permit* is relatively high because the number of cases in the ditransitive use is very low. The TTR of *give* also seems to be unreliable because the number of ditransitive instances is extremely high. I will provide another indicator soon.

Table 9: Summary of the ditransitive verbs used for this study

		Verbs of permission/enablement				
		Verbs of refusal		Verbs of permission		Verbs of future having
	give	*deny*	*refuse*	*allow*	*permit*	*grant*
(i) all instances	10,000	7,435	10,360	31,890	4,350	6,205
(ii) ditransitive	4,215	1,216	441	1,595	147	1,385
(% of (ii) to (i))	(42.15)	(16.36)	(4.26)	(5.00)	(3.38)	(22.32)
(iii) type freq. of DObj nouns	1,276	422	140	527	101	353
(iv) TTR of DObj	0.30	0.35	0.32	0.33	0.69	0.25

4.3.2 Frequency of direct object nouns

We need to take a closer look at the data to figure out the facts that cannot be explained by the TTR. If we compare the ten most frequent nouns in the DObj position with the five verbs, as shown in Table 10, cited from Ueda (2018b), we soon notice that most of them refer to abstract concepts. In addition, some nouns are found with two or more of the verbs in Table 10. The noun *access*, for example, is found with all the verbs. In addition, nouns such as *right*, *opportunity* and *permission* appear repeatedly in the lists.

As I have mentioned earlier, the DObj nouns of *grant* overlap with those of the other verbs. Seven out of the eleven nouns in the table appear with other verbs. Therefore, this overlap is the reason to deal with *grant* together with the other verbs.

Table 10: Ten most frequently used direct object nouns with the verbs of permission/enablement

Verbs of refusal						**Verbs of permission**						**Verb of future having**		
deny			*refuse*			*allow*			*permit*			*grant*		
Rank	Noun	Freq.	Rank	Noun	Freq.	Rank	Noun	Freq.	Rank	Noun	Freq.	Rank	Noun	Freq.
1	*right*	125	1	*permission*	68	1	*access*	132	1	*access*	12	1	*right*	87
2	*access*	106	2	*entry*	38	1	*time*	132	2	*freedom*	7	2	*status*	68
3	*opportunity*	67	3	*access*	30	3	*freedom*	84	2	*smile*	7	3	*bail*	56
4	*chance*	44	4	*admission*	22	4	*opportunity*	38	4	*champion*	3	4	*licence*	53
5	*benefit*	22	5	*bail*	14	5	*smile*	37	4	*choice*	3	5	*leave*	52
6	*victory*	21	6	*leave*	13	6	*chance*	32	4	*item*	3	6	*permission*	20
7	*entry*	14	7	*credit*	12	7	*right*	30	4	*liberty*	3	7	*power*	48
7	*freedom*	14	8	*visa*	11	8	*luxury*	23	4	*number*	3	8	*access*	45
7	*goal*	14	9	*licence*	8	9	*flexibility*	23	4	*opportunity*	3	9	*independence*	19
10	*choice*	13	10	*right*	7	10	*minute*	21				9	*injunction*	19
10	*place*	13										9	*land*	19
10	*status*	13												

To disclose the characteristics of the verbs of permission/enablement, we want to compare the verbs of permission/enablement with *give*. Table 11 provides the twenty nouns most frequently used in the DObj position of the ditransitive *give.*

We soon notice that most of the nouns in the list denote abstract concepts. Additionally, we see that *chance, opportunity, right* and *access,* ranked first, second, eleventh and eighteenth, respectively, are also found in Table 11. One might wonder whether Table 10 provides evidence for the claim that verbs of permission/enablement have semantic characteristics different from those of prototypical cases. If we see only Table 11, such a question arises naturally. It is noteworthy that the ditransitive *give* appears with a wider variety of direct objects. Figure 45 on the next page illustrates how many types of direct object nouns are licensed by each verb until the cumulative percentage of frequency reaches 50%.

Table 11: Twenty direct object nouns most frequently used with *give*

Rank	Noun	Freq.	Rank	Noun	Freq.
1	*chance*	129	12	*what*	33
2	*opportunity*	95	13	*advice*	30
3	*time*	77	14	*number*	29
4	*power*	65	15	*confidence*	28
5	*look*	63	16	*smile*	27
6	*name*	55	17	*pound*	26
7	*information*	51	18	*access*	25
8	*something*	48	18	*ring*	25
9	*idea*	47	20	*hand*	24
10	*money*	41	20	*it*	24
11	*right*	35	20	*lead*	24

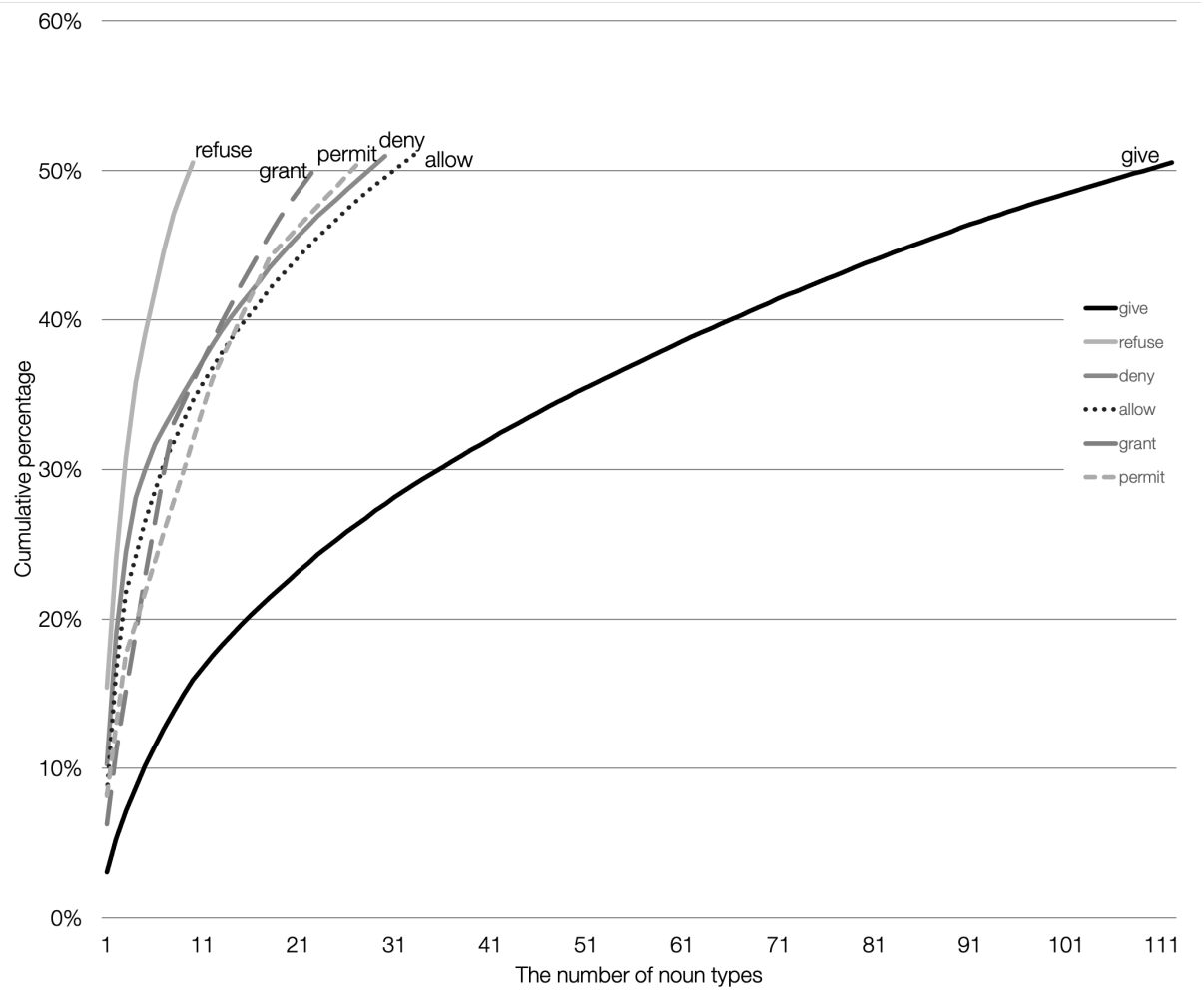


Figure 45: Cumulative percentage of frequency of direct object nouns

The verb *give* takes 111 types of DObj nouns when the cumulative percentage of frequency is over 50, while the number of DObj noun types with the verbs of permission/enablement ranges from 11 to 32. My research reveals that concrete objects such as *money*, *pound*, *book* and *food* are ranked high only in the list of DObj nouns of *give*. It is concluded that the differences in semantic characteristics between the verbs of permission/enablement and *give* lie in the semantic ranges covered by the verbs. It is difficult to detect this difference if we see only the TTR given in Table 11.

The fact that *give* can take more kinds of nouns as direct objects suggests that the verb is so schematic in semantics that its semantic range is large. By "schematic," I mean that the semantic structure of *give* fits closely with that of the ditransitive

construction. In other words, *give* is the prototype of the construction. It is used to refer to typical changes of possession. It also serves as the source domain for metaphorical expressions. It is used to designate not only permission and enablement but also meanings such as sending messages (via the 'conduit' metaphor) and causation (via the CAUSATION IS TRANSFER metaphor).

4.3.3 Predominance of *grant* and *refuse* in the passive voice

Some of the verbs of permission/enablement occur more often in the passive voice than in the active voice. Iwata (2006: 525), examining the verbs of refusal in the ditransitive construction, reports that "by manually counting the occurrences in the BNC, it is observed that passive ditransitives involving *access, entry, permission* and *right* far outnumber their corresponding active ditransitives, an indication that passive ditransitives are far more frequent than active ditransitives." Although we will see later that his conclusion is basically correct, Iwata draws his conclusion from the dataset limited to particular collocational patterns. It is necessary to use a comprehensive dataset to analyze whether there is any difference in frequency between the active and the passive voice. I demonstrate that my analysis corroborates his conclusion.

If we compare the five verbs of permission/enablement with *give*, we find that all the verbs, excluding *allow* and *give*, are used more frequently in the passive voice. If we apply a chi-square test to the cross-tabulation in Table 12, the results indicate that there is a relationship between the verb use and the voice choice ($X^2(5) = 1430.928$, $p < .01$, Cramer's $V = 0.398$). The adjusted standardized residuals given in Table 13 show that the passive voice may be preferably chosen by the verbs *deny, refuse, permit* and *grant,* while *give* and *allow* are often used in the active voice. I hasten to add that the number of cases of *give* is so large that it affects the results decisively. Although the results of the chi-square test seem to be significant, they are a matter of little importance. I therefore prefer that the reader see the test results as approximate guides for discussion here.

Table 12: The ratio between the active and the passive voice for verbs of permission/enablement and *give*

	Verbs of refusal		Verbs of permission		Verb of future having	*give*
	deny	*refuse*	*allow*	*permit*	*grant*	
Active						
(observed freq.)	599.0	119.0	1084.0	79.0	510.0	3471.0
(expected freq.)	789.3	286.3	1035.3	95.4	899.0	2756.7
Passive						
(observed freq.)	617.0	322.0	511.0	68.0	875.0	776.0
(expected freq.)	426.7	154.7	559.7	51.6	485.0	1490.3

Table 13: Adjusted standardized residuals for Table 12

	Verbs of refusal		Verbs of permission		Verb of future having	*give*
	deny	*refuse*	*allow*	*permit*	*grant*	
Active	-12.29 **	-17.11 **	2.81 **	-2.86 **	-23.80 **	31.55 **
Passive	12.29 **	17.11 **	-2.81 **	2.86 **	23.80 **	-31.55 **

(**: $p < .01$)

One might wonder what would happen if *give* was excluded from the analysis. In Ueda (2018b, 2018d), I demonstrate that the verbs *refuse* and *grant* are found more frequently in the passive form than in the active form. The chi-square test applied to Table 14 indicates that there is a relationship between the verb use and the voice choice ($X^2(4) = 396.573$, $p < .01$, Cramer's $V = 0.288$). The results of the adjusted standardized residuals are given in Table 15.

Table 14: The ratio between the active and the passive voice for verbs of permission/enablement

	Verbs of refusal		Verbs of permission		Verb of future having
	deny	*refuse*	*allow*	*permit*	*grant*
Active					
(observed freq.)	599.0	119.0	1084.0	79.0	510.0
(expected freq.)	607.7	220.4	797.2	73.5	692.2
Passive					
(observed freq.)	617.0	322.0	511.0	68.0	875.0
(expected freq.)	608.3	220.6	797.8	73.5	692.8

Table 15: Adjusted standardized residuals for Table 14

	Verbs of refusal		Verbs of permission		Verb of future having
	deny	*refuse*	*allow*	*permit*	*grant*
Active	-0.58	-10.14 **	17.59 **	0.92	-11.62 **
Passive	0.58	10.14 **	-17.59 **	-0.92	11.62 **

(**: $p < .01$)

These results indicate that the percentage of *refuse* and *grant* in the passive voice is significantly higher than the expected percentage.

A question arises as to why *refuse* and *grant* are found more often in the passive voice than in the active voice. Our frame-semantic knowledge of PERMISSION is relevant to this question, as we have seen in section 4.2.3. I have argued that the PERMISSION frame consists of three phases. The focus should be on the first phase. It is important to note that permission should be requested beforehand. The process of granting or denying permission always presupposes the Experiencer and his application. This means that the Experiencer and his application are likely to have

already been introduced before they are mentioned in the target sentence.

Let us observe how the Experiencer and his application are introduced in actual discourse. In examples (161) to (163), the target ditransitive sentences are underlined, the passive subjects and their referents are boldfaced, and the application is italicized:

(161) **The applicant** was charged with murder. **He** was granted bail by magistrates on his committal for trial.

(BNC: FBJ 843-844)

In (161), the passive subject *he*, construed as the Experiencer, refers to *the applicant* in the preceding sentence, which is in the discourse-initial position under the section title *Bail*, followed by the short description of the case reported. The short description introduces the information about the applicant as the "defendant accused of murder—condition on grant of bail of examination by medical practitioners" (BNC: FBJ 838). The sequence of sentences from the section title to the first sentence in (161) describes the first phase of the PERMISSION frame. In this part, the information on the Experiencer and his application is already activated.

Similarly, the Experiencers and their applications are introduced in the preceding context of the underlined sentence in (162):

(162) a. He says over the last few years there've been *a number of applications by **local people** who live and work in the area and want to stay here* and **they**'ve been refused permission to build on their own land for single dwellings... (BNC: K20 1178-1179)

b. **A QUARRY company** which *wants to operate a plant on Sundays* has claimed the move will make the jobs of its 50-strong workforce 'more secure'. But people living near the Penmaenmawr plant say they would suffer from noise, dust and unpleasant smells. **ARC Northern** wants a relaxation of planning conditions which prevent them from working their roadstone coating plant at their Penmaenmawr quarry on Sundays. In 1988 **they** were granted permission to operate on 15

Sundays in any year but that permission expired in December last year. (BNC: K97 3042-3045)

In both examples, the applications are overtly expressed. On the other hand, in (163), the applications are not clearly stated but can be inferred from the context. The italicized parts supply clues for understanding the applications.

(163) a. **The ship** had spent eight days searching for *a port in which to dock*, and had been refused permission to dock by the Aden port authorities on June 19. (BNC: HLL 559)

b. A little after 8.30am, Chris Williamson, a ministry veterinary officer, arrived. He had come *to supervise the slaughter of one of the nuns' flocks which had been found to be infected with Salmonella typhimurium*.

The hen-house door remained firmly shut. Mr Williamson was reduced to fruitless trips between the car and the telephone. The mobile slaughter unit came, saw, and was repulsed. **Miriam Warburton**, a divisional veterinary officer, arrived, and was in turn refused entry to the hen-house. (BNC: A3N 45)

In (163a), our encyclopedic knowledge about docking, i.e., our knowledge that a ship necessarily makes a request for docking before sailing into the dock, could be activated in the beginning part of the example. Then, it is natural to describe the event designated by the ditransitive sentence from the ship's point of view. In (163b), although the passive subject *Miriam Warburton* is not mentioned in the preceding context, the figure can be easily activated by our knowledge that the team of inspectors, not an individual inspector, usually supervises the henhouse, from which we can infer that Miriam Warburton was a member of the team who was expected to come and see the henhouse.

One might wonder whether the PERMISSION frame truly accounts for why the number of appearances of *refuse* and *grant* is higher in the passive voice than in the active voice. One might argue that *refuse* and *grant* are often found in the passive ditransitive construction for pragmatic/stylistic reasons. This may be a chicken-and-egg problem, but I think that a pragmatic/stylistic account alone does not sufficiently

explain the statistics given in Tables 14-15.

In sum, I have argued thus far that the verbs *deny, refuse, allow, permit* and *grant* are different from prototypical ditransitive verbs in two ways. First, the semantic range covered by the direct object nouns of these verbs is narrower. Second, *refuse* and *grant* tend to appear more frequently in the passive voice. I suggest that these facts can be explained by our knowledge of the PERMISSION frame.

Another question that immediately arises is the following: Why are *allow*, *permit* and *deny* not found as often in the passive voice as *refuse* and *grant*? To answer this question, I use correspondence analysis to identify the factors that differentiate between *grant* and *refuse*, on the one hand, and *allow, permit* and *deny,* on the other.

4.3.4 Correspondence analysis of verbs of permission/enablement and *give*

We have seen thus far that *give* designates broader senses than verbs of permission/enablement. We have also seen that *grant* and *refuse* are more frequently used in the passive voice than in the active voice. This passivizability suggests that there are some semantic differences among verbs of permission/enablement. In this subsection, I report the results of the correspondence analyses conducted in Ueda (2018b) and Ueda (2019) to show the statistical differences between these verbs. After I give a brief introduction of correspondence analysis in section 4.3.4.a, section 4.3.4.b presents the results of the correspondence analysis applied to the verbs of permission/enablement in Ueda (2018a, 2019). The results demonstrate that the verbs can be classified into two classes: the verbs of permission *grant* and *refuse* and the verbs of enablement *allow, deny* and *permit.* I assume that this classification is based on the distinction between Causer-oriented and Experiencer-oriented relations. In section 4.3.4.c, we see the results of the comparison between verbs of permission/enablement and the prototypical verb *give* from Ueda (2019). The results confirm linguists' intuition about the semantic differences between *give* and the verbs of permission/enablement.

4.3.4.a Data visualization and correspondence analysis

It is important to visualize data because graphical representations of data provide an insightful view into what the data tell us. One of the simplest forms of visualization is given in Figure 45, which illustrates the lexical varieties of the DObj nouns

that a verb can take. Correspondence analysis is a statistical technique "that allows the user to graphically display row and column categories and provide a visual inspection of their 'correspondences', or associations, at a category level" (Beh and Lombardo (2014: 20)). Owing to statistical computing software and languages and the availability of powerful computers at a reasonable price, linguists such as me, who are not good at statistical formulae, can apply statistical techniques to quantitative linguistic data. For my research, I mainly used R, a language for statistical computing and graphics. The operation of R was conducted via MacR, which offers a user-friendly interface designed by Yasuhiro Imao.

Following Beh and Lombardo's introductory chapter, "Data visualization," I use their illustrative example with data that originate from Selikoff (1981) to give a brief introduction of correspondence analysis. Selikoff carried out continuous research into the disease caused by asbestos and was the first to demonstrate the danger of working with asbestos for a lengthy period. He found a correlation between the period of occupational exposure to asbestos and the grade of asbestosis. The part of Selikoff's original data cited by Beh and Lombardo (2014) is given in Table 16.

If we apply correspondence analysis to Table 16, we can obtain the results of the inertia decomposition, as shown in Table 17.

Table 16: Selikoff's data for 1,117 New York workers with occupational exposure to asbestos (Beh and Lombardo (2014: 17))

Occupational exposure (years)	Asbestosis grade diagnosed				Total
	None	Grade 1	Grade 2	Grade 3	
0-9	310	36	0	0	346
10-19	212	158	9	0	379
20-29	21	35	17	4	77
30-39	25	102	49	18	194
40+	7	35	51	28	121
Total	575	366	126	50	1117

Table 17: Inertia decomposition of the period of occupational exposure to asbestos and the grade of asbestosis

Dimension	Eigenvalue	Canonical correlation	Percentage of inertia	Cumulative percentage of inertia
1	0.489	0.699	84.22	84.22
2	0.089	0.299	15.35	99.57
3	0.003	0.050	0.43	100.00

The total number of dimensions created is three. Following a rule of thumb, the number of dimensions retained should be more than 70% of the inertia. In Table 17, only the first dimension represents 84.22% of the association, and the second dimension represents 15.35%. The correspondence plot given in Figure 46 visually displays 99.6% of the association between the row and column categories.

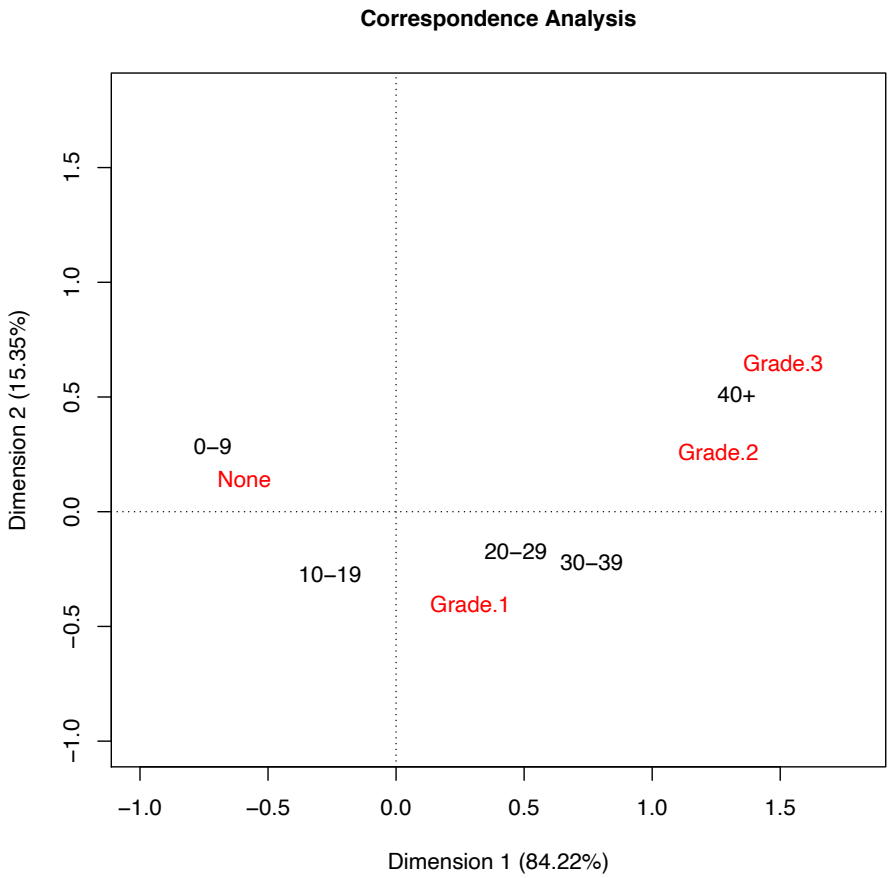


Figure 46: Two-dimensional visual representation of the rows and columns of Selikoff's data (after Beh and Lombardo (2014: 21))

This plot reveals that workers who had been exposed to asbestos for less than 20 years were not diagnosed with asbestosis, while those who had worked with asbestos for more than 20 years were diagnosed with asbestosis. Furthermore, we can see an association between those who worked with asbestos for more than 40 years and those who were diagnosed with Grade 2 or 3 asbestosis.

I applied this statistical technique to the cross-tabulation of the frequencies of the verbs under study and their DObj nouns.

4.3.4.b Correspondence analysis of verbs of permission/enablement

Next, I wish to show the results of the correspondence analysis conducted with verbs of permission/enablement in Ueda (2018b). A portion of the study is reproduced in Ueda (2019) to compare the results that I obtained in my 2018a study

with those of the 2019 study. I used correspondence analysis to compare *allow, deny, grant, permit* and *refuse* and discussed how they were clustered. For my analysis, I created the cross-tabulation of the frequency of DObj nouns by each verb, which contains only the nouns that appear 7 times or more with at least one of the verbs. (For details, see the Appendix. Note that the list includes the frequency with *give*, which is relevant to section 4.3.4.c.) Consequently, the table contains 44 kinds of noun. The total number of cases used for this analysis was approximately 2,500. This sample size means that approximately 52% of all the instances were covered. The correspondence analysis first, demonstrated that the verbs can be distinguished by polarity and second, disclosed another way of classifying the set of verbs. Based on these two results, I argue that the verbs are roughly grouped into two bands.

Let us see the output results produced by the correspondence analysis.[36] Table 18 shows the results of the inertia decomposition. The total number of dimensions created is four. The first dimension represents 46.15%, and two dimensions represent 72.14%. Therefore, I chose to retain two dimensions to describe the salient relationships.

Table 18: Inertia decomposition of the verbs of permission/enablement and their direct object nouns

Dimension	Eigenvalue	Canonical correlation	Percentage of inertia	Cumulative percentage of inertia
1	0.516	0.719	46.15	46.15
2	0.291	0.539	25.99	72.14
3	0.267	0.516	23.82	95.96
4	0.045	0.212	4.03	99.99

36. The results presented in Ueda (2019) are slightly different from those presented in Ueda (2018a) due to data transposition. The dataset used in the 2019 study to reproduce the results of the analysis in the 2018a study is the result of the transposition from row to column. In addition, the versions of R and the package MASS are different. The versions used in the 2019 paper were 3.5.1 and 7.3.50, whereas those in 2018a were 3.3.2 and 7.3.45. The operation of R was conducted via MacR (ver. 1.01).

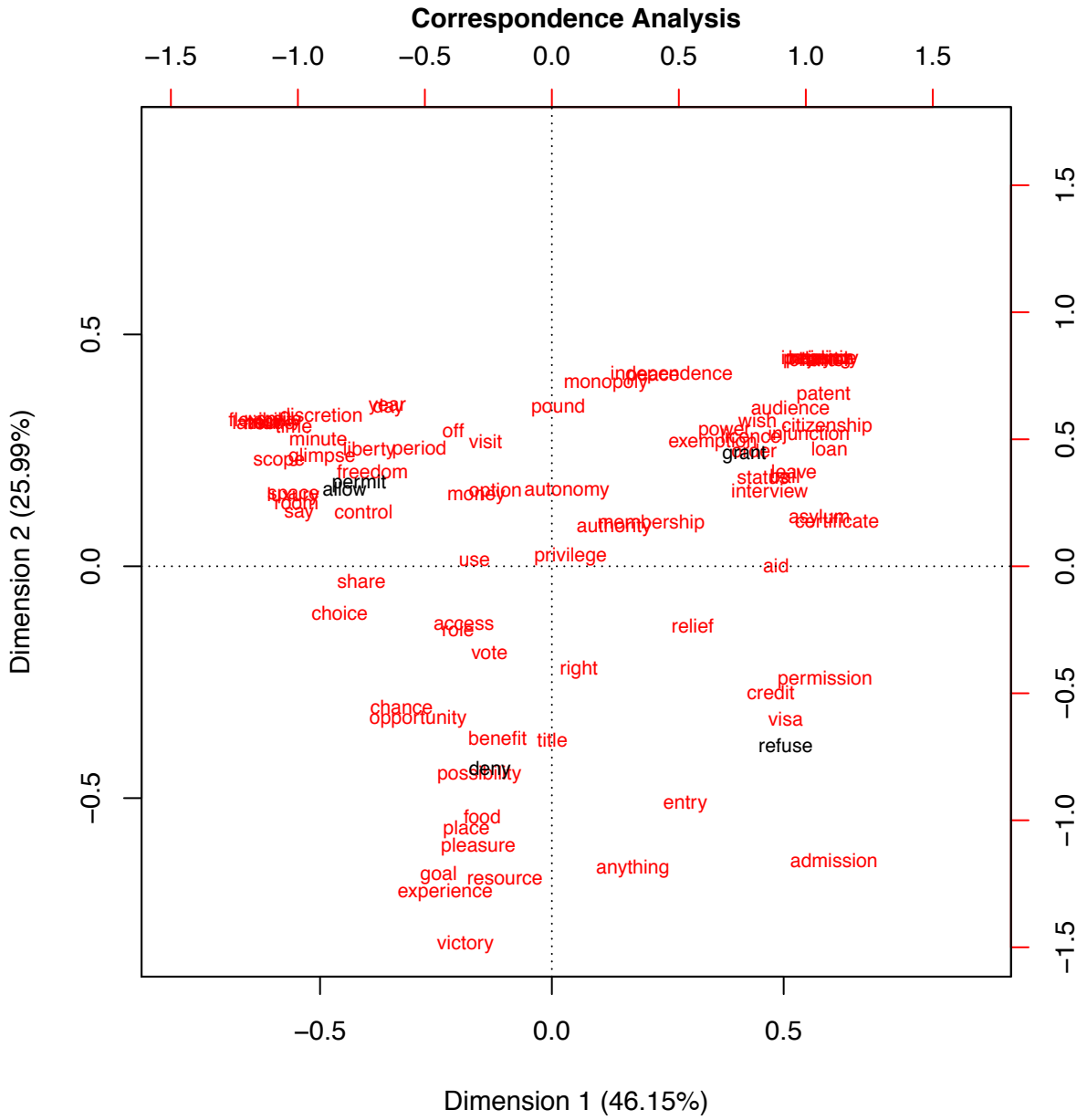


Figure 47: The correspondence analysis map of verbs of permission/enablement and direct object nouns

The two maps in Figure 47 visualize the relationships between the verbs (row plots) and the DObj nouns (column plots).

It is important to interpret the correspondence analysis maps. Since it is complicated to read dimension 1, we explore dimension 2 before considering dimension 1. Dimension 2 differentiates the analyzed verbs with respect to negative vs. affirmative; *allow, permit* and *grant* form a group toward the positive end of the scale, and

tive; *allow, permit* and *grant* form a group toward the positive end of the scale, and *deny* and *refuse* cluster toward the negative end.

Although the first dimension of the row plots is difficult to interpret, the column plots provide clues for understanding the differentiation between *grant* and *refuse*, on the one hand, and *allow, permit* and *deny*, on the other. The enlarged column plot is provided in Figure 48:

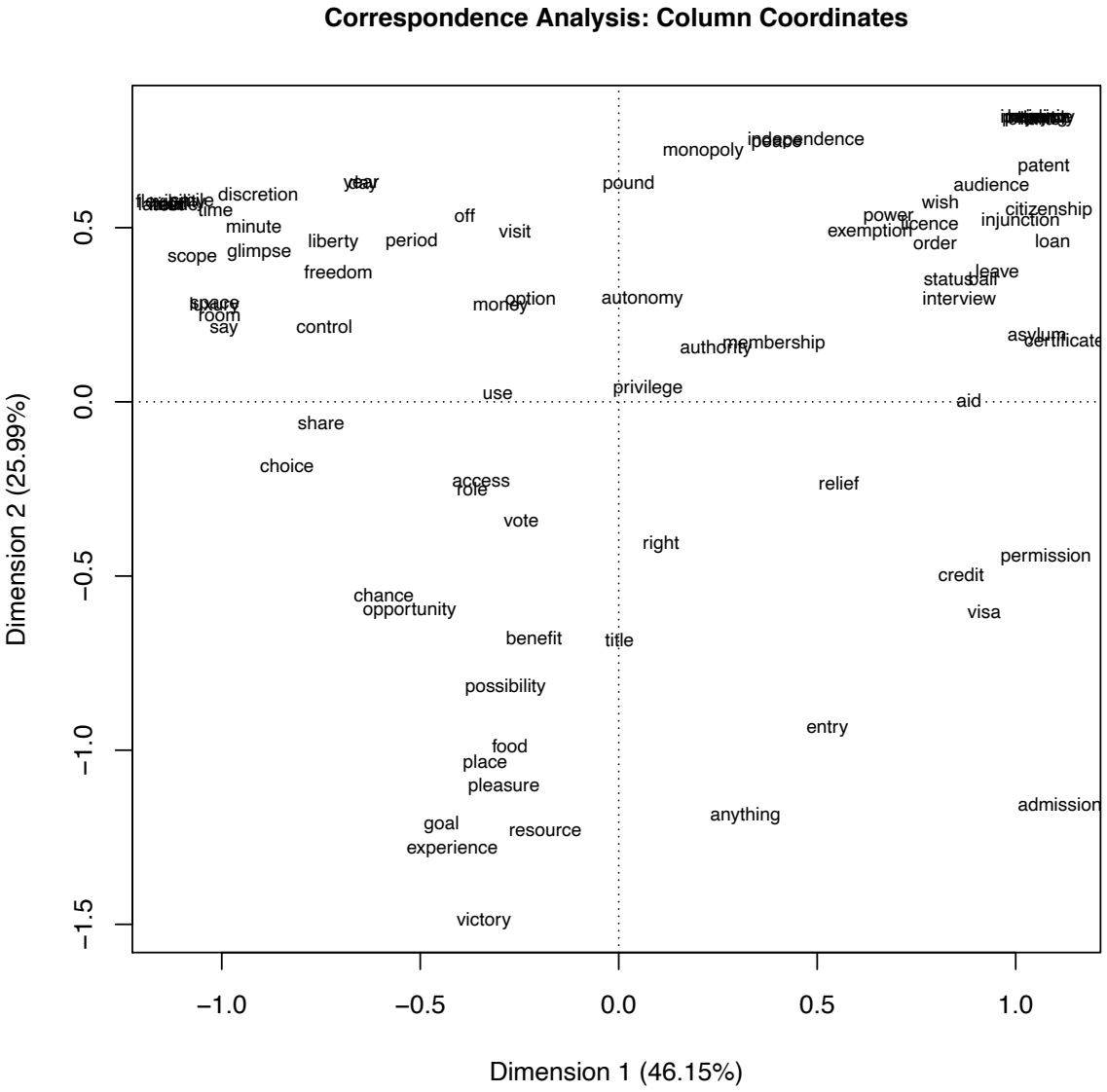


Figure 48: The column plot from the correspondence analysis given in Figure 47

Note that we should be careful when interpreting the relationships between the verbs and their direct objects. The distances between the row and column plots are not mathematically defined but are a guideline to interpret the relationships. We can make use of the closeness between the verbs and their direct objects with regard to points in the same quadrant.

I speculate that dimension 1 forms a continuum between Causer-oriented relations and Experiencer-oriented relations (the notions of which are introduced in section 4.2.1), as I argue in Ueda (2018b). I can possibly say that *refuse* and *grant* tend to be associated with Causer-oriented concepts, by which I mean the concept designated by a DObj noun that can be in a Causer-oriented relation, and that *allow, permit* and *deny* tend to be associated with Experiencer-oriented concepts.

Note, however, that this conclusion does not mean that *refuse* and *grant* are never related to Experiencer-oriented concepts or vice versa, though there is a reduced chance for such relations to be established. For example, we can find five cases (0.36%) in the BNC in which *grant* collocates with *freedom*, located at coordinates (-0.70, 0.39), and two cases (0.12%) in which *allow* appears with *permission*, located at (1.10, -0.28). Examples are given in (164):

(164) a. He knew so little about the serf question that at first he thought it involved no more than granting the peasants their personal freedom. (BNC: HY7 1092)

b. However, one other rule was that the Committee 'may allow first-class caddies permission to play over the course occasionally at such times … as the committee may deem advisable'. (BNC: AMY 385)

Before moving on, I wish to write more about the continuum between Causer-oriented relations and Experiencer-oriented relations. Given that the two relations form a continuum, something in between is expected along the continuum. I admit that I am not ready to provide a comprehensive discussion, but I can present a suggestion about the continuum. Take concepts of moral or legal entitlement, for example. Basic human rights are acknowledged to belong to all people from birth to death, as stated in the Universal Declaration of Human Rights of the United Nations: "All human beings are born free and equal in dignity and rights." Consider citizen-

ship. Many people are born with citizenship in a country. For those who receive citizenship as their birthright, citizenship is seen as intrinsic to them. In this case, the possessive pronoun, if used, can refer to the IObj, as illustrated by sentence (165):

(165) By 1952, Israel had passed laws to expropriate the refugees' lands and deny them their citizenship.
("On the 70-year anniversary of Nakba Day, this is how Israel could embrace returning Palestinian refugees." *Independent.* May 14, 2018. https://www.independent.co.uk/voices/israel-palestine-nakba-day-refugees-displacement-solution-a8350616.html; Accessed January 25, 2019.)

Similarly, some other legal rights that are regarded as intrinsic to their holders can be expressed with possessive pronouns referring to IObj NPs, as in (166):

(166) a. The purpose of this Act was to deny them their right, as British citizens, to enter Britain. (BNC: A6V 1735)
b. If we deny these chaps their rights as union members, they'll leave it … (BNC: ATA 892)

Some other rights are granted by human authorities, such as governments. Citizenship in a country can be gained after an individual requests it and after his/her application is accepted. In the context of granting citizenship, the noun *citizenship* is used with no determiners in many cases, as in (167), since it is not possible to specify in whom the legal right is vested unless it is conferred on its applicant:

(167) The residents of St Louis and the other three major towns on the coast (Rufisque, Goree and Dakar) were granted full French citizenship in 1916 … (BNC: A6M 225)

Given an appropriate context, however, we can identify who is the 'starting point' of the transferred citizenship, as shown in (168):

(168) It is often suggested that Paul's family received their citizenship in this way, that a generation or two back in Paul's line they were slaves to a Roman citizen who freed them and gave them his citizenship.
("Acts 22—Paul and Citizenship." *Reading Acts*. June 6, 2009. https://readingacts.com/tag/roman-citizenship; Accessed January 25, 2019)

In (168), the possessive in *his citizenship* refers to *a Roman citizen*.

The sentences in (169), as supporting evidence, demonstrate that some legal rights can be understood as the object being transferred:

(169) a. The State Department today released documents showing that Arkansas Attorney General candidate Leslie Rutledge transferred her citizenship to Canada in 2009 following the election of Barak Obama.
("STATE DEPARTMENT DOCUMENTS SHOW LESLIE RUTLEDGE IS NO LONGER A US CITIZEN." *Rock City Times*. October 6, 2014. http://www.rockcitytimes.com/state-department-documents-show-leslie-rutledge-longer-citizen/; Accessed January 25, 2019.)

b. Once you transfer your right of self-government to someone else, even if that person is deemed to be your "representative," you are no longer free. (BNC: EVP 759)

A similar point can be made regarding the following pair with *title*, located at (0.02, -0.77) in Figure 47.

(170) a. I suppose it will be you as will give them their titles? (BNC: H9D 301)

b. Andre had given them his title for two hundred fifty dollars in cash … (*Saving the Dream*, p. 141)

The concept of title can be understood either as being intrinsic to the indirect object, as in (170a), or as being at the subject's disposal, as in (170b).

In sum, we have thus far seen the results of the correspondence analysis conducted in Ueda (2018b). The analysis showed that the verbs *deny, refuse, allow, permit* and *grant* can be classified into two groups: one group consisting of *allow,*

permit and *deny,* i.e., verbs of enablement, and the other group consisting of *grant* and *refuse,* i.e., verbs of permission. I have also suggested that we can interpret dimension 1 as differentiating between Causer-oriented and Experiencer-oriented relations. This suggestion may lead to the conclusion that *grant* and *refuse* tend to be associated with Causer-oriented notions and *allow, permit* and *deny* tend to be related to Experiencer-oriented notions. These findings are noteworthy, especially because they detect the semantic difference between the verbs of refusal *deny* and *refuse* that previous studies have been unable to detect. The findings also indicate that *grant* together with *refuse* can be grouped with verbs of permission. In addition, the close association between the two verbs has not been considered in previous studies. Causer-oriented and Experiencer-oriented relations semantically motivate the newly found classification of the five verbs.

Before continuing beyond this section, in connection with the meanings of *grant* and *refuse*, I wish to mention comments that I have received from Yoshikiyo Kawase (in personal communication) and that I also received from the floor when I read my paper at ICCG 10 in 2018. The commenters wondered why *allow* and *permit* are classified as verbs of enablement that tend to describe Experiencer-oriented relations even though they denote the sense of permission. A possible answer to the question may be that since the verbs *allow* and *permit* include the notion of permission in their lexical meanings, the use of *permission* with those verbs is redundant.

In section 4.2.3, I have argued that the PERMISSION frame consists of three phases. In the first and second phases, as described in Figure 43(a), reproduced in Figure 49(a), the Experiencer requests permission to perform an Action, and the Causer grants it to him. As a result of phases I and II, the Experiencer is allowed to perform the Action, which is described in Figure 43(b), reproduced as Figure 49(b):

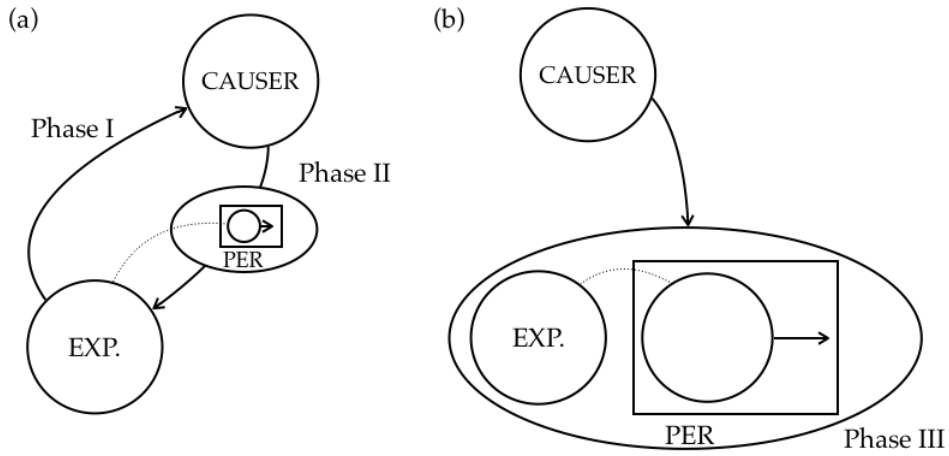


Figure 49: Phases I to III of the PERMISSION frame

The semantic component corresponding to phase II of the PERMISSION frame is inherent to and thus in the background in the semantic structure of *allow* and *permit*. The verbs thus profile Experiencer-oriented relations.

The following data may provide supporting evidence. When I submitted the query "{allow/V} >>5>> {permission/N}" on the BNC to find cases in which the lemma *allow* in the ditransitive use is followed by *permission* within five tokens, I found only four cases. No case was found with *permit* under the same condition. The sentence in (171) is an example of *allow* with *permission*.

(171) However, one other rule was that the Committee 'may allow first-class caddies permission to play over the course occasionally at such times … as the committee may deem advisable'.

(BNC: AMY 385)

On the other hand, 69 cases and 47 cases were found with *refuse* and *grant*, respectively.[37] Given that the sense of granting permission is inherent to the meanings of

37. If you compare the numbers of cases with *refuse* followed by *permission* here and in Table 10, you will notice that the number of cases in Table 10 is smaller by one. I may have missed at least one when I numbered the cases. For *grant*, the difference in the number of cases reported here and the cases in Table 10 is due to the specified range of tokens between *grant* and *permission*.

allow and *permit*, it is reasonable to hypothesize that the low number of occurrences of those verbs with *permission* reflects the redundancy of the meanings encoded by the verbs and the meaning designated by *permission*.

4.3.4.c *Verbs of permission/enablement and* give

Next, I use correspondence analysis to compare the verbs of permission/enablement with the prototypical verb *give*. As we have seen in section 4.3.2, while both types of verbs take some DObj nouns in common, the lexical variety of *give* is wider than that of the verbs of permission/enablement. We can expect that correspondence analysis will differentiate between the verbs of permission/enablement and *give*.

The correspondence analysis results that I present here are cited from the analyses I conducted in my 2019 paper. The method of choosing the data was the same as that used for the verbs of permission/enablement, as we have seen in section 4.3.4.b. The datasets for my analysis consisted of the DObj nouns that appeared more than 6 times with one of the target verbs. (For details, see the Appendix.) The number of cases covered by this analysis is 5,197 of 8,999 cases, which means that I used 57.8% of all the data that I collected from the BNC. The results of the inertia decomposition are given in Table 19 below.

We need to see three dimensions because the cumulative percentage of the first three dimensions is more than 70%. First, we take a close look at the first and second dimensions. The relationships among the verbs (row coordinates) and the relationships among the DObj nouns (column coordinates) are plotted in Figure 50 on the next page.

Table 19: Inertia decomposition of the verbs of permission/enablement and *give* and their direct object nouns

Dimension	Eigenvalue	Canonical correlation	Percentage of inertia	Cumulative percentage of inertia
1	0.518	0.720	39.59	39.59
2	0.333	0.577	25.44	65.03
3	0.232	0.482	17.72	82.75
4	0.186	0.432	14.23	96.98
5	0.039	0.199	3.02	100.00

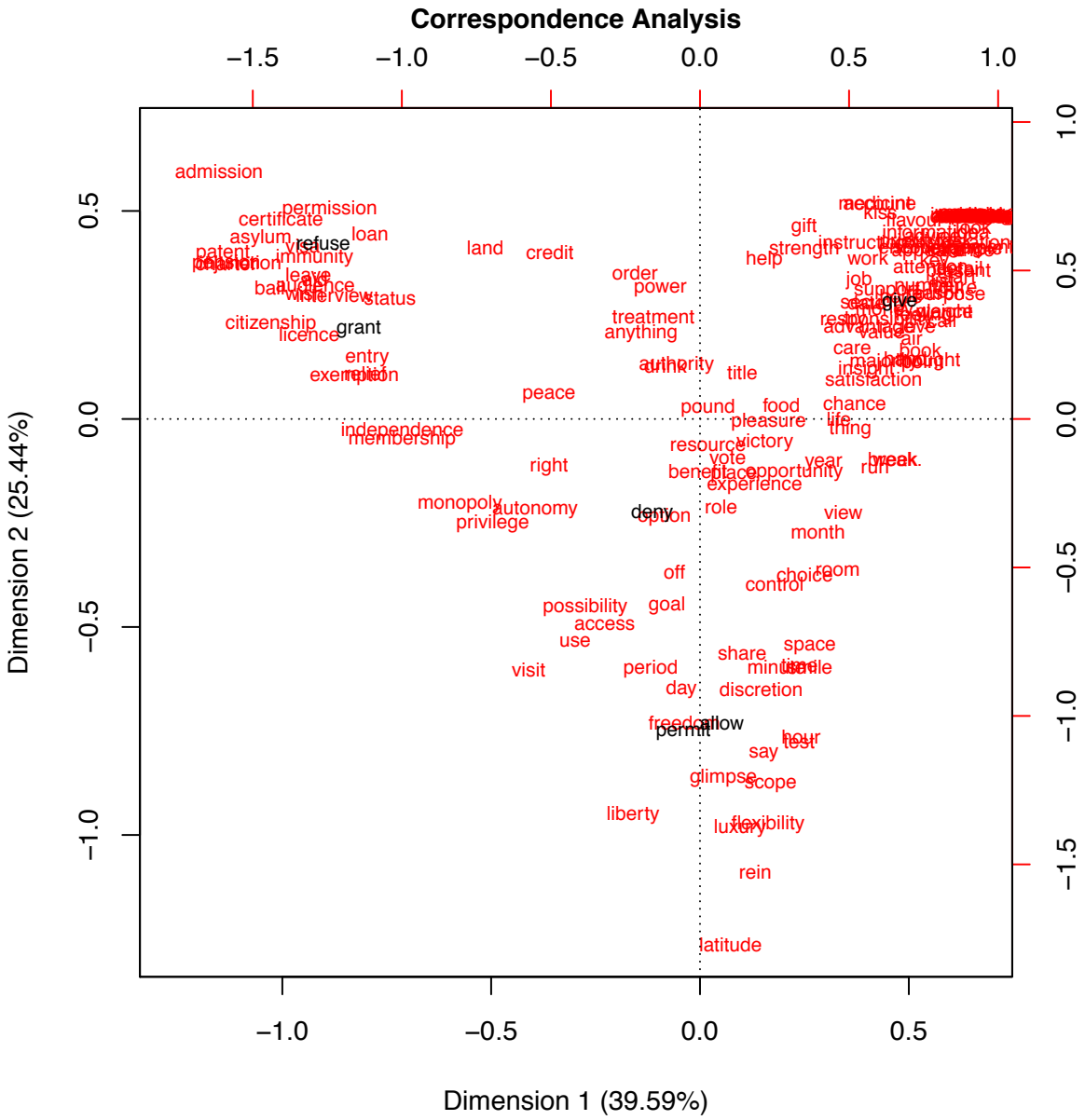


Figure 50: The correspondence analysis map of verbs of permission/enablement and *give* and direct object nouns (Dimensions 1 x 2)

The row plots suggest that dimension 1 clearly distinguishes *give* from the other verbs. Evidently, the clustering of the other verbs appears different from that given in Figure 47. When we look carefully at the map, we realize that the topological relationship among the verbs seems to be similar. In dimension 1, the verbs *refuse* and *grant* are located in a cluster, and *deny, allow* and *permit* are in another cluster.

The third dimension differentiates between *allow, permit, grant* and *give*, on the one hand, and *refuse* and *deny*, on the other. Observe Figures 51 and 52:

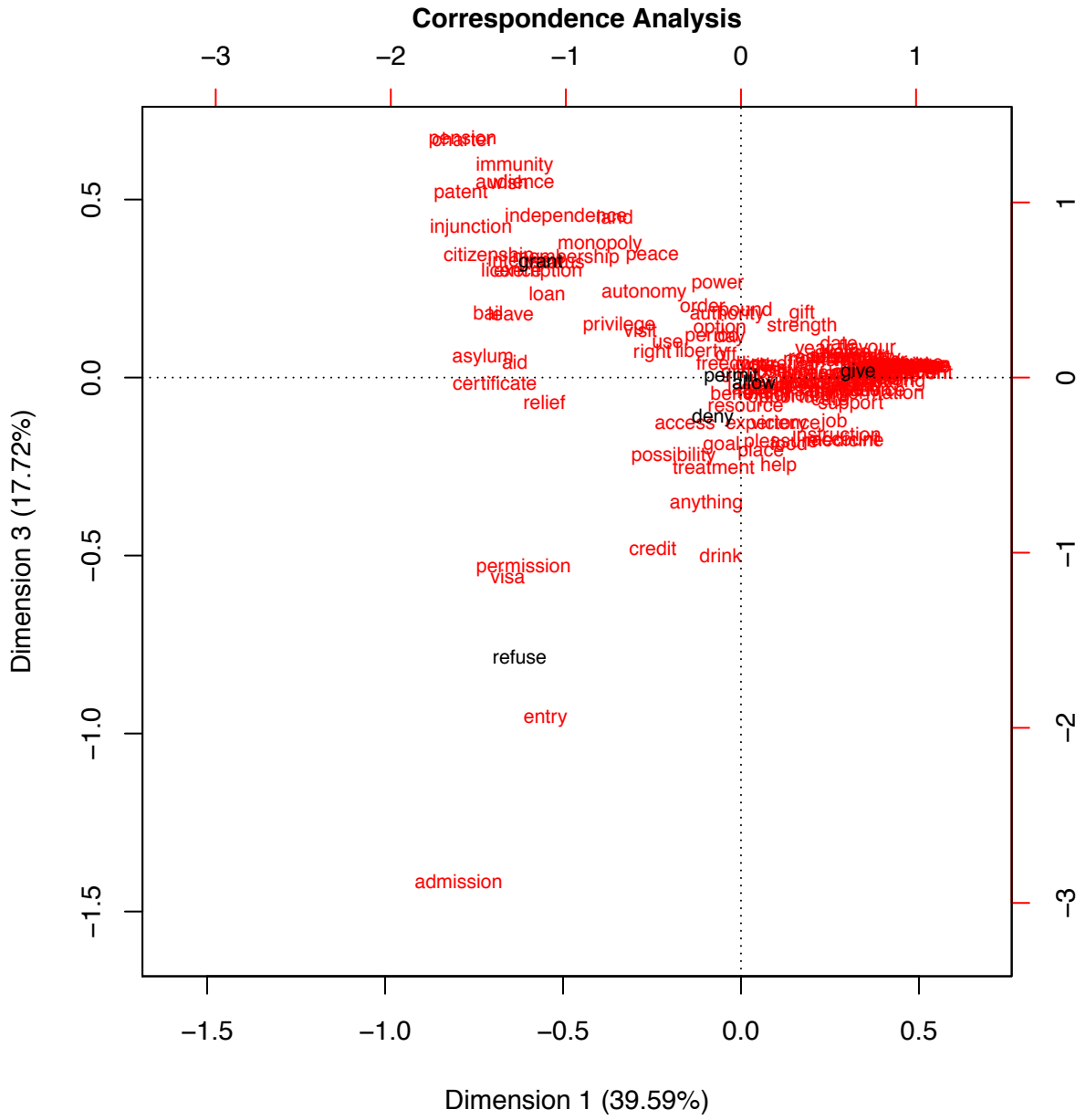


Figure 51: The correspondence analysis map of verbs of permission/enablement and *give* and direct object nouns (Dimensions 1 x 3)

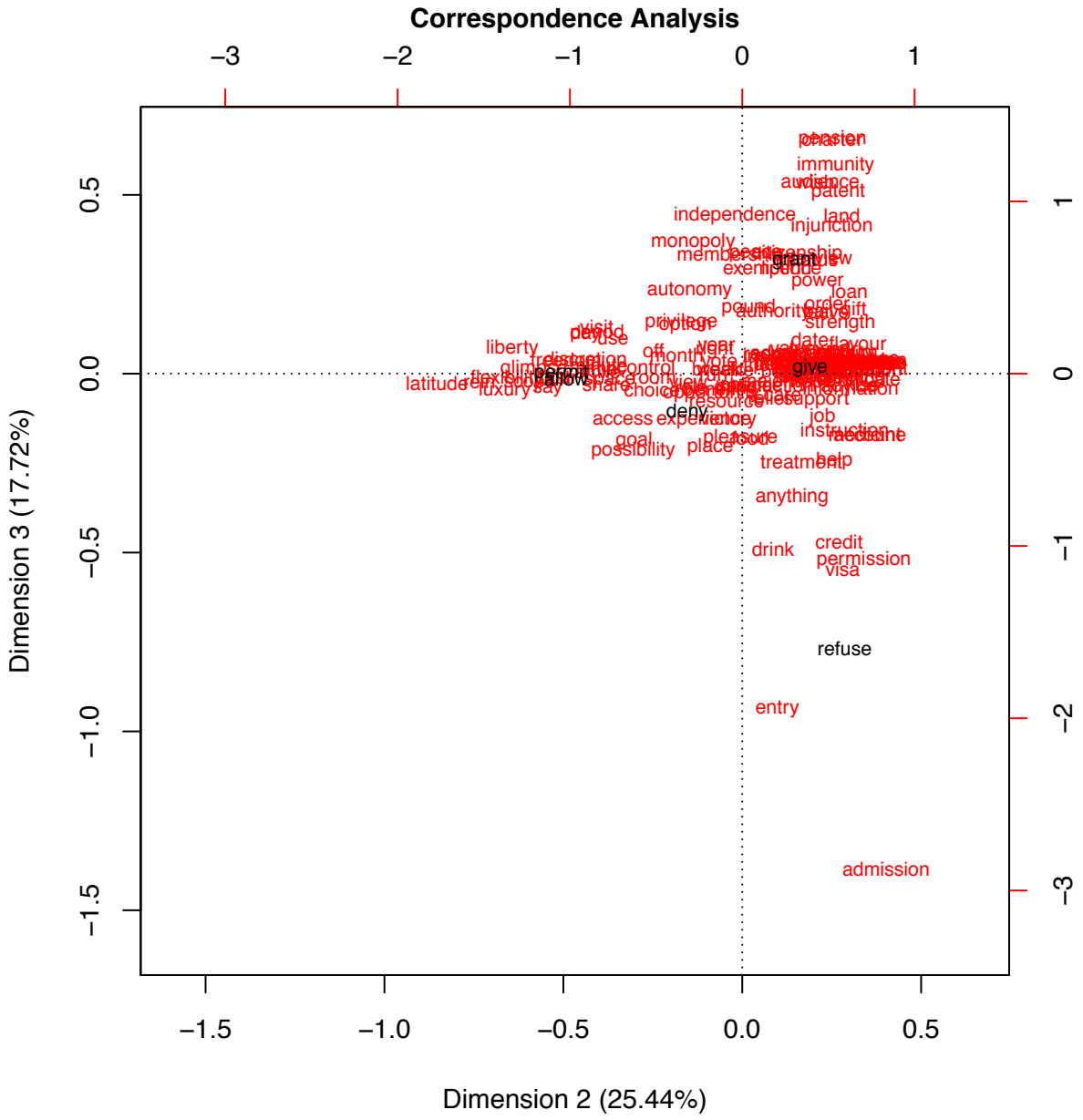


Figure 52: The correspondence analysis map of verbs of permission/enablement and *give* and direct object nouns (Dimensions 2 x 3)

This distinction seems to indicate the polarity of the verbs. The verbs with a positive sense are plotted on the positive Y axis, and the verbs with a negative sense are plotted on the negative Y axis.

The most important point is that the results presented in this section confirm linguists' intuition about the semantic differences between *give* and the verbs of permission/enablement.

4.4 Summary of chapter 4

This chapter has concerned causative ditransitive constructions. In section 4.1, we have seen that there are two types of causation designated by the construction: the driving-force type and the barrier type. The driving-force type of causation is a kind of direct causation; the barrier type is a kind of indirect causation. Although they have different event structures, I hypothesize that they share the same bodily experiential basis: the hand-to-hand transfer. In the hand-to-hand transfer, the hand combines two functions: It acts both as a source of force that moves an object toward the recipient and as a barrier that confines the object.

In section 4.2, I have dealt with the verbs of permission (*grant* and *refuse*) and the verbs of enablement (*allow, permit* and *deny*) as causative ditransitive constructions. One reason is that many of the DObj nouns occurring with these verbs refer to abstract concepts such as "permission," "opportunity" and "rights." Another reason is that the IObj cannot be understood as a literal Recipient of a transferred object; rather, the IObj can be construed as an Experiencer who is enabled to perform some Action referred to by the DObj or the *to* infinitive immediately behind it.

In section 4.3, I have explored data collected from the BNC to examine the lexical-semantic properties of the verbs of permission/enablement and the prototypical ditransitive verb *give*. We have seen that *give* has a wider variety of DObj nouns, which leads to the conclusion that the semantic range covered by *give* is broader than the semantic ranges of the verbs of permission/enablement. In addition, we have observed that the verbs of permission tend to appear more frequently in the passive voice than in the active voice. I mentioned that our frame-semantic knowledge of granting permission may explain why the verbs prefer to choose the passive voice. In the PERMISSION frame, the Experiencer asking for permission precedes the Causer granting or denying permission. The Experiencer is thus likely to have already been mentioned in the preceding context. Furthermore, the results of the correspondence analysis performed in Ueda (2018b) and Ueda (2019) differentiated *give* from the verbs of permission/enablement and distinguished between the verbs of permission *grant* and *refuse* and the verbs of enablement *allow, deny* and *permit*. That is, the analysis identified three clusters: one group consisting of *grant* and *refuse*; another group consisting of *allow, permit* and *deny*; and a third group consisting of *give*. The classification between *give* and the verbs of permission/enablement supports

linguists' intuitions. The classification between the verbs of permission and the verbs of enablement is newly identified in my research. It is motivated by my introspection-based distinction between Causer-oriented and Experiencer-oriented relations.

Chapter 5. Conclusion

This thesis has explored the caused-possession ditransitive construction and the causative ditransitive construction from a Cognitive Construction Grammar viewpoint. At the beginning of the thesis, I posed the following five research questions:

i. Given the semantic varieties of the ditransitive construction, how are the senses related to each other? Do the varieties stem from the constructional polysemy or the idiosyncratic features of the verbs that appear in the ditransitive construction?
ii. Can the successful transfer entailment be a feature that characterizes the prototypical ditransitive construction?
iii. What distinguishes the verbs that can appear and the verbs that cannot appear in the ditransitive form?
iv. If the ditransitive construction and the prepositional dative construction are semantically different, how different are they?
v. If the ditransitive construction designates the two types of causation, what metaphor motivates each causation? What experiential basis is provided for the metaphor(s)?

The first and second questions are not separable. I have discussed them mainly in chapter 3. Since the caused-possession ditransitive construction forms a graded category due to the prototype effect, members of the construction, i.e., lower-level specific constructions, share a family resemblance. Their resemblance is captured by higher-level constructions. I have demonstrated that the most schematic construction is characterized only in terms of prior intentionality and filters out other features observed in lower-level schemas. The ditransitive construction forms a network consisting of lower-level specific constructions to higher-level abstract constructions, and the network is organized by the schema-instance relationship.

I have also argued that it does not make sense to discuss the division of labor between constructions and verbs since verbs and constructions cannot be divided due to the usage-based nature of grammar. Each verb's semantic structure is charac-

terized in relation to the frame in which the verb's semantic elements participate. Thus, the verb's semantic structure is complicated enough to be construed as an instance of the construction. The polysemous nature of the caused-possession ditransitive construction is the consequence of the generalizations over the idiosyncratic properties of the ditransitive verbs.

I have revealed that the notion of successful transfer is naturally drawn from the discontinuous nature of the possessional domain. The successful transfer entailment seems to hold only with change-of-possession verbs such as *give*, but I have argued that the notion of successful transfer is involved even in the meanings of verbs of change of possession accompanying change of location, such as *throw*. The apparent cancelability of the successful transfer entailment is the consequence of the difference in nature between the possessional domain and the spatial domain. There is a possibility that a transferred object does not reach its intended Recipient in the spatial domain after the object's ownership is judged as being in the Recipient's dominion in the possessional domain. I have claimed that the notion of successful transfer is an important feature that characterizes the prototypical ditransitive verbs and their constructional schema.

The answer to the third question has already been furnished in previous studies. I have merely repeated the conclusion drawn by those studies. (See Langacker (1987, 1991b, etc.) for profile and base (section 2.1.1) and Goldberg (2006) for surface generalizations (section 2.2.5).) The ditransitive construction and the prepositional dative construction share the same cognitive base but profile different aspects of the base. The ditransitive construction highlights the resultant state of the Mover being within the Recipient's dominion, while the prepositional dative construction profiles the process of transferring the Mover to the Goal. Since these two constructions have similar but distinct semantic structures, each construction should be defined on its own terms independently from the other construction.

The fourth question has also been discussed in previous studies. In many cases, the distinction between ditransitivizable verbs and nonditransitivizable verbs has been made in terms of the semantics of verb classes. However, Latinate verbs are controversial. Some previous studies (Pinker (1989), Goldberg (1995), etc.) assume that the morphological constraint prevents Latinate verbs such as *donate* from entering into the ditransitive construction. I have claimed that whether a verb, even if

a Latinate verb, can appear in the ditransitive construction is determined only by the verb's complicated semantic structure, and the construction choice is not sensitive to morphological information. This claim gives a natural explanation of the issue that previous studies have been unable to solve (i.e., some Latinate verbs can be used in the ditransitive construction), and it also follows the natural tendency of language borrowing (i.e., the borrowing and the native word divide the semantic labor if both words survived in the language).

The last question has been discussed in chapter 4. I have observed that the English ditransitive construction can designate two types of causation—the driving-force type and the barrier type of causation. I have claimed that the ditransitive construction can denote both types of causation because the metaphors motivating those causation types are experientially based on the two functions of the hand in the hand-to-hand transfer. If the "push" function is highlighted in the base structure, the focus is on the hand that moves an object to the Recipient's hand. This profiled function motivates the driving-force type of causation. On the other hand, if the "grasp" function is profiled, the focus is on the hand as the barrier that confines an object in the hand. This function provides the experiential basis of the barrier type of causation.

I have used quantitative methods to show how the verbs of permission, *grant* and *refuse*, the verbs of enablement, *allow, permit* and *deny*, and the prototypical verb *give* are related. First, the TTR indicates that *give* has a wider variety of DObj nouns, which leads to the conclusion that the semantic range covered by *give* is broader than the semantic ranges of the verbs of permission/enablement. Second, the verbs of permission tend to appear more frequently in the passive voice than in the active voice. I have argued that our frame-semantic knowledge of granting permission may explain why the verbs prefer to choose the passive voice. In the PERMISSION frame, the Experiencer asking for permission precedes the Causer granting or denying permission. The Experiencer tends to have already been mentioned in the preceding context and been the center of the discourse. Therefore, the Experiencer is likely to be chosen as the passive subject. Third, the results of the correspondence analysis performed in Ueda (2018b, 2019) differentiate *give* from the verbs of permission/enablement and distinguish between the verbs of permission *grant* and *refuse* and the verbs of enablement *allow, deny* and *permit*. That is, the analysis identified three

clusters: one group consisting of *grant* and *refuse*; another group consisting of *allow, permit* and *deny*; and a third group consisting of *give*. The classification between *give* and the verbs of permission/enablement supports linguists' intuitions. The classification between the verbs of permission and the verbs of enablement is newly identified in my research. It is motivated by my introspection-based distinction between Causer-oriented and Experiencer-oriented relations. The verbs of enablement in the ditransitive construction are instances of the barrier type of causation. The DObj entities tend to be in an Experiencer-oriented relation. On the other hand, the verbs of permission have the hybrid nature of Causer-oriented and Experiencer-oriented relations. The profiled semantic structure is characterized by Causer-oriented relations, while characteristics similar to Experiencer-oriented relations can be observed in the peripheral portion.

Finally, I mention some limitations and the outlook for future research. The network structure of caused-possession ditransitive constructions that I have laid out is a portion of the whole structure. To show the entire structure, further analyses of other verb classes and their class members need to be conducted. My network structure of the caused-possession ditransitive construction is based on my introspection. It may be possible to create the network structure with a statistical technique similar to my attempted correspondence analyses with the verbs of permission/enablement and *give*.

Statistical analyses are promising, though I have some technical issues to overcome. The correspondence analyses that I conducted were based on only the token frequencies of the DObj nouns of the target verbs. In my analyses, I used 50 to 60% of the data I collected. This means that approximately half of the data were not used for the analyses. To make my analyses more effective, I need to count the number of occurrences of semantic classes, not word tokens. It is worthwhile to examine whether other pieces of information such as semantic classes, definiteness and active/passive voice are effective for future research. Recently, more sophisticated methods such as collostructional analysis (cf. Stefanowitsch and Gries (2003) and Gries and Stefanowitsch (2004)) have been developed. Such methods may shed new light on the data I have used in this thesis.

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Appendix

Cross-tabulation table for the verbs of permission/enablement and *give* by direct object nouns

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
access	30	106	132	45	12	25
account	1	0	0	0	0	7
address	0	0	0	0	0	17
admission	22	1	1	1	0	0
advantage	0	2	3	2	0	20
advice	1	2	0	0	0	30
aid	4	3	0	12	0	1
air	0	1	1	0	0	7
answer	0	0	0	0	0	17
anything	6	11	0	2	0	11
appearance	0	1	0	0	0	9
assistance	0	0	0	0	0	7
assurance	0	0	0	0	0	9
asylum	6	1	0	17	0	1
attention	0	3	0	0	0	19
audience	0	1	0	11	0	1
authority	0	4	3	8	0	12
autonomy	0	4	7	10	0	3
bail	14	2	5	56	0	1
benefit	1	21	7	6	0	16
book	0	1	3	0	0	15
boost	0	0	0	0	0	9
break	0	0	5	0	0	10

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
call	0	0	2	0	0	12
card	0	1	0	0	0	10
care	0	4	0	0	0	7
certificate	3	0	0	7	0	1
chance	1	42	32	3	0	129
character	0	0	0	0	0	8
charter	0	0	0	16	0	0
choice	0	11	16	0	3	20
citizenship	1	0	0	7	1	0
clue	0	0	0	0	0	10
confidence	0	0	0	0	0	28
consideration	0	1	0	0	0	13
control	0	5	18	3	1	16
credit	12	0	3	5	0	13
date	0	0	1	1	0	7
day	0	0	13	4	1	4
detail	0	0	1	0	0	13
drink	5	0	4	0	0	7
discretion	0	0	8	1	1	4
edge	0	0	0	0	0	7
encouragement	0	1	0	0	0	10
entry	38	14	10	3	1	0
example	0	0	1	0	0	21
exemption	2	1	4	16	0	1
experience	0	9	1	0	0	5
feel	0	0	0	0	0	8

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
feeling	0	1	1	0	0	9
figure	0	0	1	0	0	9
flavour	0	0	0	1	0	11
flexibility	0	0	23	0	2	5
food	2	8	3	0	0	13
freedom	1	13	84	18	7	19
gift	0	0	0	3	0	10
glance	0	0	2	0	0	13
glimpse	0	1	11	1	0	2
goal	0	13	2	0	0	1
hand	0	0	6	1	0	24
headache	0	0	0	0	0	8
help	4	4	0	1	0	16
hope	0	2	0	0	0	7
hour	0	0	10	0	0	4
idea	0	0	0	0	1	47
immunity	0	0	0	15	0	2
impression	0	0	0	0	0	15
independence	0	0	5	19	2	2
information	2	3	0	0	0	51
injunction	2	1	0	19	0	0
insight	0	1	2	1	1	12
instruction	1	1	0	0	0	8
interview	1	2	0	10	0	1
job	2	6	0	0	0	23
key	0	1	0	0	0	7

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
kiss	1	0	0	1	0	14
land	0	0	0	19	0	10
latitude	0	0	7	0	0	0
lead	0	0	0	0	0	24
leave	13	1	3	52	1	6
lesson	0	0	0	0	0	11
liberty	0	1	7	2	3	0
licence	8	1	9	53	0	2
life	0	3	4	1	0	12
lift	0	0	0	0	0	21
list	0	1	1	0	0	15
loan	2	0	0	10	0	3
look	0	0	1	0	0	63
love	0	1	1	0	0	8
luxury	0	4	23	0	1	3
majority	0	2	1	0	0	7
meaning	0	0	0	0	0	9
medicine	1	0	0	0	0	7
membership	0	4	2	9	0	0
message	0	0	0	0	0	7
minute	0	1	21	2	0	11
money	2	0	7	2	0	41
monopoly	0	0	5	8	0	1
month	0	0	6	1	0	7
name	1	0	0	0	0	55
number	0	0	0	1	3	29

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
off	1	0	11	5	1	7
opportunity	2	62	38	6	3	95
option	0	3	8	6	0	7
order	1	1	1	10	0	13
paper	0	0	0	0	0	8
patent	1	0	0	14	0	0
peace	0	0	3	7	0	4
pension	0	0	0	8	0	0
period	0	1	8	3	0	2
permission	68	6	2	50	0	20
picture	0	0	0	0	0	11
place	2	13	4	0	0	10
pleasure	2	12	3	0	0	14
point	0	0	1	0	1	8
possibility	1	8	2	1	1	0
pound	0	1	13	15	0	26
power	0	7	6	48	0	65
present	0	0	1	0	0	12
priority	0	1	0	1	0	14
privilege	1	8	8	12	0	1
purpose	0	0	1	0	0	8
reason	0	1	1	0	0	12
rein	0	0	9	0	0	1
relief	5	7	2	12	0	0
resource	0	8	0	1	0	4
responsibility	0	2	3	2	0	22

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
right	7	120	30	87	1	35
ring	0	0	0	0	0	25
role	1	7	8	3	0	10
room	0	3	15	0	1	17
run	0	1	4	0	0	8
say	0	3	14	0	0	4
satisfaction	0	4	2	0	0	12
scope	0	1	12	0	0	3
security	0	1	1	1	0	10
sentence	0	0	0	0	0	13
shake	0	0	0	0	0	7
share	0	5	10	1	0	5
smile	0	0	38	1	7	27
something	1	3	1	0	0	48
space	0	3	17	0	1	12
start	0	0	1	0	0	11
status	6	12	2	68	0	15
strength	0	1	0	3	0	11
support	1	3	1	0	0	18
task	0	1	0	0	0	14
taste	0	0	0	0	0	7
test	0	0	13	0	0	5
thing	0	3	2	0	0	7
thought	0	0	2	0	0	8
time	0	2	132	7	2	77
title	0	9	1	4	0	13

	refuse	*deny*	*allow*	*grant*	*permit*	*give*
treatment	3	3	1	2	0	7
try	0	1	1	1	0	8
use	0	9	10	8	3	1
value	0	0	2	1	0	10
victory	0	21	0	0	0	13
view	0	3	6	0	1	11
visa	11	4	0	8	0	1
visit	1	1	11	8	3	0
vote	0	8	5	4	0	11
warning	0	0	0	0	0	14
week	0	0	4	0	0	8
weight	0	0	2	0	0	13
welcome	0	0	0	0	0	8
wish	0	2	0	17	0	1
work	0	1	0	1	0	8
year	0	0	7	2	0	12