

Resultative Constructions: Cross-Linguistic Variation and the Syntax-Semantics Interface

by

Naoko Tomioka

Department of Linguistics, McGill University, Montreal

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Abstract

This thesis examines constructions known as resultative constructions. In addition to the well-known adjectival resultative construction in English, I investigate the resultative V-V compound, found in Japanese, and the resultative serial verb construction, found in Èdó.

I propose a new classification of these constructions, which focuses on the argument structure of the construction. In Japanese resultative V-V compounds, the argument structure of a compound reflects the argument structure of the second verb only, while in Èdó, the argument structure of the construction reflects the argument structure of both verbs involved. With this criterion, English resultative constructions are divided into two classes – a resultative construction containing an intransitive verb is classified with Japanese resultative V-V compounds, and a resultative construction containing an object-selecting verb is classified with Èdó resultative serial verb constructions.

Based on the classification provided here, I investigate two types of syntactic operations which license the concatenation of the predicates in resultative constructions. I argue that English intransitive resultative constructions and Japanese resultative V-V compounds are formed by adjoining one of the predicates on the other. The adjunction structure is then interpreted as conjunction called event identification. In contrast, English transitive resultative constructions and Èdó resultative serial verb constructions are licensed by treating one of the predicates as a causative predicate. I argue that one of the predicates in these constructions undergoes lexical coercion, and acquires a causative meaning. The newly-formed causative verb takes the other predicate of the construction as its complement. This structure is then interpreted with function-application. I hence argue that the structural difference between the two types of resultative constructions also mirrors the difference in the type of semantic operations used to interpret these constructions.

Résumé

Cette thèse examine une construction connue sous le nom de construction résultative. En plus de la construction résultative anglaise bien connue, les constructions composées V-V résultatives en japonais et les constructions résultatives de verbes sériels en édó sont examinées.

Je propose une nouvelle classification de ces constructions, laquelle se concentre sur la structure des arguments de cette construction. Dans les constructions composées V-V résultatives japonaises, la structure des arguments des constructions composées ne reflète la structure des arguments que du deuxième verbe, tandis qu'en édó la structure des arguments de la construction reflète la structure des arguments des deux verbes impliqués. Selon ce critère, les constructions résultatives sont divisées en deux: la construction résultative contenant un verbe intransitif est classée avec les constructions japonaises composées V-V résultatives, et la construction résultative contenant un verbe transitif est classée avec la construction résultative de verbes sériels en édó.

Sur la base de la classification présentée ici, j'explore deux types d'opérations syntaxiques qui autorisent la concaténation des prédicats dans les constructions résultatives. Je soutiens que les constructions intransitives en anglais et les constructions composées V-V résultatives en japonais sont formées par l'adjonction de l'un des prédicats à l'autre. La structure adjonctive est alors interprétée avec une opération de conjonction appelée identification événementielle. Par contre, les constructions résultatives en anglais et les constructions de verbes sériels résultatives en édó sont autorisées en traitant un des prédicats comme prédicat causatif. Je soutiens qu'un des prédicats dans ces constructions subit une coercition lexicale et acquiert un sens causatif. Le nouveau verbe causatif ainsi formé adopte l'autre prédicat de la construction comme son complément. Cette structure est alors interprétée par l'application de l'opération de fonction. Je soutiens donc que la différence structurale entre les deux types de constructions résultatives reflète également la différence entre les types d'opérations sémantiques utilisées pour interpréter ces constructions.

Acknowledgments

The initial inspiration for this thesis came from Mikinari Matsuoka, when I was looking for a topic for my syntax II term paper. He suggested that I look at adjectives. It seems odd that I started with adjectives and ended up with this thesis, but if he had not suggested that topic, I would not have developed the ideas presented in the following chapters.

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Chapter 1

INTRODUCTION

1. RESULTATIVE CONSTRUCTIONS AS CAUSATIVE CONSTRUCTIONS

Halliday (1967) notes a type of expression which he calls “resultative attributes”. Since his work, this expression, now commonly known as the resultative construction, has received numerous analyses in various frameworks (e.g. Simpson 1983 in the Lexical Functional Grammar, Levin & Rapoport 1988 in the Lexical Conceptual Structure, Hoekstra 1988, Carrier & Randall 1992 in the Government and Binding framework, and Neelman & van der Koot 2002, and Kratzer 2004 in the Minimalist framework). The following sentences in (1) are some of the examples classified as resultative attributes in Halliday (1967).

- (1)
- a. He painted the door green
 - b. She washes them clean.
 - c. She became friendly.

Simpson (1983) shifts the focus and classifies as resultative constructions expressions which contain a verb that describes an action and a phrase which describes the state brought about by the verb. In her study, she thus includes sentences of the type (1a,b) but excludes sentences of the type (1c), in which the verb does not describe *how* the friendliness was brought about, but simply that there is a transition into the specified state. The example in (1c) also differs from the examples in (1a and b) in that the verb lexically selects for the expression which describes the state the object comes to have. In this thesis, I follow Simpson’s (1983) classification and examine the type of expressions in which the verb expresses the action, and the result phrase expresses the result brought about by the action. In addition, resultative constructions examined in this thesis are expressions which contain two phonologically overt predicates. These constructions are also known as resultative secondary predicates (e.g. Rapoport 1999) to distinguish them from so-called “resultative constructions” containing a single verb (e.g. Nedjalkov 1988). I will continue to use the term “resultative constructions” to refer to the former type, the expressions containing resultative secondary predicates. In addition, I focus on the type

of examples which express change of state rather than change of location. Therefore, the relevant expressions in English are the ones that contain an adjectival resultative secondary predicate, rather than a prepositional phrase.¹

The variety and the number of works on the resultative construction reflect the fact that this construction poses a question concerning the basic syntactic and semantic mechanism of concatenation. Resultative constructions contain a verb describing an action and a phrase describing the state brought about by the verb. Further, the relation between the two predicates does not fit either of the better known relations: predicate-argument relation or modification. Moreover, resultative constructions have a flavor of a causative construction (Halliday 1967, Wunderlich 1997, Baker & Stewart 2002, Kratzer 2004). The two questions which anyone working on resultative constructions must address are the following: what is the exact relation between the two predicates in the construction, and where does the causative meaning come from? The answer to the first question must also address how this relation should be represented syntactically, and the answer to the second, what exactly the relevant causative relation is.

In this thesis, I claim that the resultative construction is a type of causative construction, containing a lexical causative predicate CAUSE. Of course, merely saying that the resultative construction is a type of causative construction does not answer the questions posed above, but understanding the exact nature of the relevant causative construction (i.e. lexical causative construction) and comparing this construction to resultative constructions allow us to see what the right analysis of the resultative construction could be, and what the wrong analysis of the construction would be. Moreover, the analysis of resultative constructions as a type of causative construction allows me to compare and contrast various constructions as resultative constructions, and captures their properties based on how the elements in the construction interact with the CAUSE predicate. The constructions I examine in this thesis are presented in (2).

¹ The sentence in (i) exemplifies a resultative construction containing a prepositional phrase, rather than an adjectival phrase.

(i) John sang the baby to sleep.

- (2) English AP resultative constructions
- a. John pushed the window open.
 - b. The dog barked Dave awake.

Japanese resultative V-V compounds

- c. Taro-ga isu-o osi-taosi-ta.
T.-NOM chair-ACC push-topple-PAST
'Taro toppled the chair by pushing it.'

- d. Èdó resultative serial verb constructions
Òzó ghá gbè èwé wù (Baker & Stewart, 2002)
Ozo FUT hit goat die
'Ozo will strike the goat dead.'

In the following section, I provide a brief discussion on the lexical causative construction in order to introduce us to the criteria we need to find the lexical causative CAUSE.

2. LEXICAL CAUSATIVE CONSTRUCTIONS

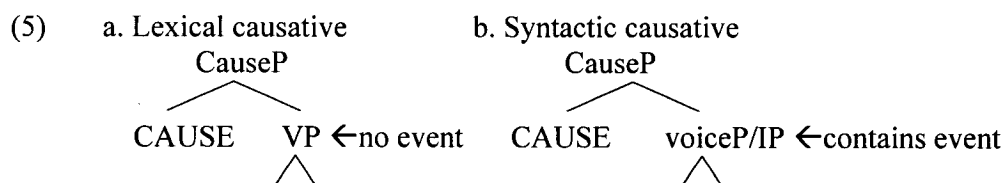
Language provides various ways to express causal relations, and the group of expressions which can be called causative constructions does not form a syntactically homogeneous group. In this section, I identify the type of causative construction which is relevant to our discussion. The construction is called the lexical causative construction, and is distinct from the syntactic causative construction, as exemplified in (3).

- (3)
- a. SYNTACTIC CAUSATIVE
Kotaro caused the ship to sink.
 - b. LEXICAL CAUSATIVE
Kotaro sank the ship.

The lexical causative construction, in contrast to the syntactic causative construction, has all the properties of a monoclausal structure like any transitive verb (Shibatani, 1973). By accumulating various findings throughout the last four decades, we can describe lexical causative constructions as having the following characteristics.

- (4)
- a. The causal relation expressed is a direct causation. (Shibatani 1976)
 - b. The causing event is expressed as part of the meaning postulate of CAUSE, and not as an argument of CAUSE. (McCawley 1976, Wunderlich 1997)
 - c. The construction is an atomic unit for various adverbial elements. (Shibatani 1973, Travis 1988, Harley 1995, Ramchand 1997, 2003)

I argue that these properties of lexical causative constructions should be derived from the constraints on the syntactic structure and how the structure is interpreted. Lexical causative constructions are traditionally analyzed as vP (Harley 1995) or as being within vP (Travis 1994, Ramchand 1997, 2003, Pytkänen 2002). In addition, it has been noted that vP structure is the structure that denotes an event (Travis 1994, Harley 1995, Ramchand 2003²). Lexical causative constructions, according to these analyses, thus differ from syntactic causative constructions, in which the embedded phrase is a vP or a larger constituent, in that the embedded phrase is a smaller structure which is not associated with an event, and that a lexical causative construction as a unit is associated with just one event.³ The following tree diagram illustrates this point. In section 3, I will argue that the voice head is distinct from Cause head, but the following representation is kept neutral with regards to the exact nature of the Cause predicate.



The difference between lexical causative constructions and syntactic causative constructions can thus be attributed to the fact that lexical causative construction denotes one event, associated with the CauseP, while syntactic causative constructions denote two events, the one associated with the CauseP as well as the one associated with the embedded vP. It is however necessary, at this point, to note that we have not defined what it means for a structure to be associated with an event. I will come back to this point

² Ramchand (2003) argues that there are two types of events: micro-events and macro-events. I will come back to this point later.

³ This view is not shared by everyone (see e.g. Parsons (1990)). I will come back to this point in the section 2.2.2.

in Section 2.2, but for now, we simply assume that an event is an element required for adverbial modification, and, as such, the number of events is the source of the distinction between the lexical and the syntactic causative construction. In the following section, I briefly describe each of the points in (4) by comparing the lexical causative construction to the syntactic causative construction. The comparison is left descriptive and in section 2.2., I discuss what events are and how the difference between the two types of causative constructions can be captured using the notion of events.

2.1. Properties of lexical causative constructions

The basic property of lexical causative constructions is that they express direct causation (Shibatani 1976). Direct causation is a subset of possible causal relations. The best-known characterization of direct causation is found in Lewis (1973),⁴ in which he describes the causal relation using counterfactuals. An event (or situation) A is said to cause an event B if A is such that if A did not occur, B would not occur. Direct causation refers to a relation in which A can be said to be the most crucial factor in the occurrence of B, in that B could have happened without C, or D, but not without A (see Bittner 1999 for a similar discussion). Lexical causative constructions differ from syntactic causative constructions in that the causal relation they express must be direct. Syntactic causative constructions can express direct causation, but unlike lexical causatives, they do not have to.

Shibatani (1976) discusses causative constructions in Japanese and notes that lexical causative constructions in Japanese express manipulative causatives, in which the agent of the causing event physically brings about the caused event. Shibatani's (1976) distinction can be seen as reflecting the directness distinction discussed above.

The second property of the lexical causative construction we should examine here is the syntactic constraint on the causing event. With a lexical causative predicate, there are two ways the causing event can be expressed – as a part of the meaning postulate of the causative predicate, or as an argument of the causative predicate. Crucially, only in the former case does the expression follow the directness condition discussed above. This fact is briefly mentioned in McCawley (1976) and Wunderlich (1997), though the

⁴ See also McCawley (1976) and Bittner (1999) for relevant discussions.

relation between the use of an event-denoting subject and the lexical causative verb is not explicitly discussed in these works. I construct the following examples to illustrate this point.

- (6) a. The cat's meowing opened the door.
b. The cat opened the door.

The two sentences in (6) contain the same verb, *open*. This verb is a lexical causative verb, since it means cause to open. The sentence in (6b) thus shows the expected interpretation, in that, as a lexical causative construction, it expresses direct causation. The sentence in (6a), however, does not express direct causation, since the agent that opens the door is distinct from the agent of the causing event (i.e. the cat).⁵ As McCawley (1976) briefly notes, when the causing event is expressed as the subject of the sentence, the directness is lost.⁶ In this thesis, my focus is on the expressions that contain a lexical causative predicate, and denote direct causation. I therefore do not provide an analysis for a sentence such as (6a). For the purpose of this thesis, we should note that the lexical causative predicate poses a syntactic restriction: in order for it to express direct causation, the causing event cannot be expressed as its argument. The notion of the direct causation will play an important role in Chapter 2 and 3, where we discuss the interpretation of the object of the cause-denoting verb.

In addition to adhering to the direct causation requirement, lexical causative constructions behave differently from syntactic causative constructions when an adverb is used. A number of examples similar to the ones in (7-8) and other types of diagnostic tests are presented in Shibatani (1973) for Japanese lexical causatives, but here, we examine the behavior of adverbs with English examples. Manner adverbs show ambiguity with syntactic causative constructions but not with lexical causative constructions.

⁵ Some speakers however do not allow a non-direct reading of the sentence in (6a). I will come back to this point in Appendix at the end of the thesis.

⁶ However, McCawley (1976) does not assume that lexical causative constructions are different from syntactic causative constructions. His example thus contained a syntactic causative construction which does not require direct causation even without an event-denoting subject.

- (7) LEXICAL CAUSATIVE
- a. Kotaro slowly sank the ship
 - b. Kotaro sank the ship slowly.
- (8) SYNTACTIC CAUSATIVE
- a. Kotaro slowly caused the ship to sink.
 - b. Kotaro caused the ship to sink slowly.

In (8a), where the adverb is placed before *cause*, it modifies the causing event, and asserts that what Kotaro did, which caused the ship to sink, had the property of being slow. If the adverb is placed sentence finally, as in (8b), it can modify just the caused event and asserts that the ship's sinking was slow. In (7), in contrast, the different positions of the adverb do not affect its interpretation.⁷ In both sentences, the adverb asserts that Kotaro's sinking of the ship had the property of being slow. The following diagram illustrates the behavior of adverbs in the two types of causative construction.

- (9) a. Lexical causative
- A cause B slowly

```

      /  \
     /    \
    /      \
   /        \
  /          \
 A *slowly   B *slowly

```
- b. Syntactic causative
- *A causes B slowly⁸

```

      /  \
     /    \
    /      \
   /        \
  /          \
 A slowly    B slowly

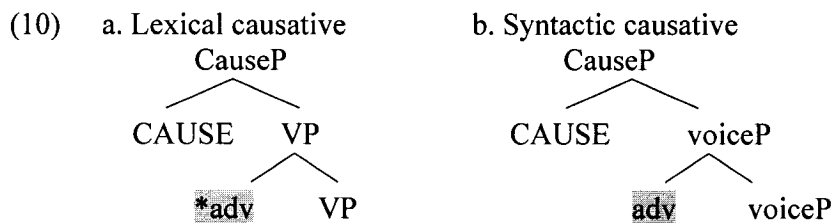
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In the diagram, A represents the causing event and B, the caused event. In the lexical causative construction, neither A nor B can be modified. Instead, the only available interpretation of the adverb *slowly* in (7) shows that what can be modified is the causative construction as a unit. In contrast, the same adverb can modify just A or just B in the syntactic causative construction as we saw in (8). What we need to note here is that, with regards to the adverbial modification, the elements that make up the lexical causative construction are different from the elements that make up the syntactic causative construction.

⁷ We have to be careful here to focus on the manner interpretation of *slowly*. The manner interpretation of *slowly* expresses the rate of the event (e.g. McConnel-Ginet 1982), which should be distinguish from another interpretation, which I call aspectual/temporal interpretation (c.f. Bowers 1993, Harley 1995). Aspectual/temporal *slowly* expresses that it took a long time for a given event to begin. Crucially, the syntactic causative construction allows for two manner interpretations of *slowly*, which are not available with the lexical causative construction. I would liketo thank Heidi Harley for pointing out this issue to me.

⁸ The sentences in (8) are true even if both the causing event and the caused event are slow. However, neither of the sentences asserts that both events are slow.

In order to capture this behavior of adverbs, researchers have postulated that there is an extended projection of a verb, voice, whose function is to denote an event (called Event or E), and adverbs must adjoin to this node, rather than to a verb directly (e.g. Travis 1994, Harley 1995, Ramchand 1997, 2003). These researchers differ in their assumptions regarding what exactly the causative predicate is, but they agree that the causative predicate takes as its complement a VP denoting the caused event. Since adverbs adjoin to voiceP and not to VP, adverbs cannot modify just the caused event of the lexical causative construction that is expressed by the VP complement of the causative predicate. The following diagram illustrates this point.⁹



This approach has the consequence that the basic meaning of the cause predicate in the lexical causative construction and the syntactic causative construction is different. While the causative predicate in the syntactic causative construction denotes a relation between the two events, the causative predicate in the lexical causative construction does not.¹⁰ It is, however, not clear whether the VP complement of the lexical causative predicate cannot denote an event. As I discuss in the following section, this VP is often treated as denoting the caused event. It is worthwhile to examine whether the puzzle is simply a matter of terminology or the puzzle reflects a property of natural language. I turn to this point next.

2.2. Two types of events in linguistics

The notion of event plays a crucial role in this thesis. There are three aspects of event theory that are relevant to the current proposal: First, the type of event identified in

⁹ I will come back to the rare type of adverbs such as *again*, which can adjoin to VP in section 2.2.2.

¹⁰ Shibatani (1973) takes an even further step, arguing that there is no causative predicate in the lexical causative construction. As he recognizes himself, this position has an unattractive consequence that the inchoative-causative alternation cannot be captured in syntax.

Davidson (1967) must be distinguished from the type of event identified in Parsons (1990). This division has been noted previously (e.g. Ramchand 2003), but researchers generally assume that only one of them is relevant in a formal analysis (Travis 1994, Harley 1995, Ramchand 2002). In this thesis, however, I propose that both types of events must be considered in a syntactic analysis, and provide new diagnostic tests to identify them.

The lexical causative construction contains one event, according to Davidson's criteria but two events according to Parsons' criteria. The evidence thus shows that Parsons' events and Davidson's events are not the same.

2.2.1. Davidsonian Events

Davidson (1967) proposes that verbs of action involve existential quantification over events. The idea is that a verb asserts that there is an event of a certain type. A sentence such as (11) expresses that there was an event of buttering the toast that Jones did.

(11) Jones buttered the toast.

According to Davidson (1967), events are entities which a speaker implicitly refers to when using action verbs. The most interesting aspect of his proposal is that by postulating an event argument, we can capture various linguistic phenomena such as adverbial modification. Davidson (1967), for example, shows that pronouns can refer to this event. In (12), the pronoun *it* can be interpreted as referring to the event of Jones' buttering of the toast, described in (11).

(12) He did *it* over and over.

Davidson thus argues that there is an entity, which the verb describes, and which the pronoun *it* can refer to.¹¹ This entity, in Davidson's analysis can be called a Davidsonian event. Higginbotham (1985) adopts Davidson's idea and shows that in addition to verbs, adverbs and temporal adjuncts can be formally characterized using the Davidsonian event arguments. Higginbotham (1985) treats manner adverbs as predicates of events, and such

¹¹ However, see Dowty (1979) for an argument that this particular test may not be valid.

adverbs denote that the event had a certain quality. Following Higginbotham's (1985) proposal, we can represent the adverb *slowly* as in (13).

(13) Slowly: $\lambda x: x \in \text{Set of Davidsonian events. } x \text{ is slow.}$

The adverb *slowly* is a predicate which takes a Davidsonian event as its argument and denotes that an event has the property of being slow. Similarly, adjunct elements such as *before* can be treated as denoting the relation between two Davidsonian events. Higginbotham (2000) thus provides the following formula.

- (14) a. John ate the sandwich before Betty left.
 b. $(\text{ate}(\text{John}, \text{the sandwich}, e)) \ \& \ (\text{left}(\text{Betty}, e')) \ \& \ \text{before}(e, e')$ ¹²

These examples support the existence of an event argument, as postulated in Davidson (1967). The Davidsonian event argument has the properties of a linguistic object in that various elements (adverbs) can be defined as predicates of this argument. We have seen in the previous section that manner adverbs treat the lexical causative construction as a unit. The following example shows that the temporal element *while* also treats the lexical causative construction as a unit.

- (15) a. Kotaro sank the toy boat while it was in the middle of the pool.
 b. Kotaro caused the toy boat to sink while it was in the middle of the pool.

The temporal phrase beginning with *while* in (15a) asserts that both Kotaro's action which caused the boat to sink and the boat's sinking took place while the boat was in the middle of the pool. This interpretation suggests that the temporal phrase takes scope over the entire construction, rather than just the part of the construction denoting the caused event. In contrast, the temporal phrase in (15b) asserts that the boat was in the middle of the pool when it sank, but it does not mean that Kotaro did anything while the boat was in the middle of the pool. He could have punctured a hole in the boat's hull when it was in

¹² In Higginbotham (2000), external arguments are treated as arguments of the verbs. The verb *ate*, for example, is a three-place predicate combining with an event argument (*e*), a theme argument (*the sandwich*) and the agent (*John*).

the house, which caused the boat to sink when it was in the pool, and the sentence is still true. This interpretation is possible with the syntactic causative construction because the caused event of the syntactic causative construction contains a Davidsonian event, which the temporal phrase “*while...*” takes as its argument. These examples indicate that the lexical causative construction, unlike the syntactic causative construction contains just one Davidsonian event.

2.2.2. Sub-events

In the preceding section, we saw that lexical causatives denote a single event according to Davidson’s criteria. The discussion therefore leads to the conclusion that what is interpreted as the causing event and the caused event in the lexical causative construction are in fact not events. In order to evaluate this conclusion, we should examine why the lexical causative construction was thought to contain two events to begin with. The most obvious reason is in the definition of the notion of causation. Semantically a causative relation has been construed as a binary relation between two situations (Lewis 1973, Dowty 1979, Parsons). As a type of causative construction, the lexical causative construction should be seen as denoting a relation.¹³ In fact, various properties of the lexical causative construction are generally explained as constraints on the relation between the two events, which presupposes that the lexical causative construction contains two events (see e.g. Parsons 1990, Rothstein 2004, Krifka 1999, Bittner 1999 for such analyses). In addition, there are some adverbs which pick out constituents smaller than vP.¹⁴ These adverbs indeed treat the caused event and the causing event of the lexical causative as independent entities, as shown below.

- (16) a. Bill opened the box **again**.
 b. John flew the kite **on the balcony**.
 c. Mary spun her pen **two and a half times**.¹⁵

¹³ As I mentioned in footnote 6, Shibatani (1973) abandons this premise.

¹⁴ These adverbs were originally discussed in the Generative Semantics framework (e.g. Morgan 1970, McCawley 1971), and were thought of as adjoining to S nodes. These researchers thus underplay the difference between these adverbs and manner adverbs.

¹⁵ The low reading of this example becomes harder to get if we use “two times” instead.

I will examine these adverbs in detail in Chapter 2. We should simply note here that these examples suggest that some adverbs can modify just the caused event or the causing event. The adverb *again* can be interpreted as modifying just the caused event in (16a) and the locative phrase *on the balcony* can be interpreted as modifying just the causing event. Similarly, the phrase *two and a half times* can be interpreted as referring to the number of times Mary's pen spun, rather than the number of times Mary manipulated it.

In this thesis, I recognize that the events identified in Davidson (1967) and subsequent works are different from the events in the definition of causative constructions, but I also assume that we need both types of events to accurately capture the properties of the lexical causative construction. The alternative approaches, in which just one type of event is assumed to exist, are discussed in Chapter 5.

2.2.3. Combining the event_{sub}

As we discussed in the previous sections, the event argument identified in Davidson (1967) is associated with the structure vP, while the type of event discussed in Parsons (1990) is also associated with VP. Thus, lexical causative construction which contains two predicates (i.e. predicate denoting the caused event and the causative predicate denoting the causing event) have two Parsonian events but just one Davidsonian event, since the causative predicate does not take vP complement. For this purpose, I propose that one of the functions of the syntactic category voice (as proposed in Kratzer 1996), which takes VP as its complement, is to map a Parsonian event to a Davidsonian event, and also that one of the properties of CAUSE is to take two Parsonian events and return one Parsonian event. We examine two cases to see this point.

The following example in (17) represents a simple sentence, which does not express any causation, and thus denotes one event.

(17) Kotaro ran.

With this type of example, we do not see any distinction between Parsons' (1990) events and Davidson's (1967) events. The sentence is associated with one Davidsonian event and one Parsonian event and, therefore, the adverbial tests discussed above do not detect

any ambiguity. We can thus say that the Parsonian event the VP denotes is mapped to a Davidsonian event of the same description.

Lexical causative constructions, in contrast, present a more complicated case. Parsons (1990) introduces a predicate of events, CAUSE, which takes two sub-events as its arguments. A causative predicate, as conceived of in Parsons (1990), can be formalized as in (18).

- (18) $\text{cause}(e, e')$: the function returns the truth value t , iff events e and e' are such that e causes e' . Otherwise, the function returns the value f .

What we should note here is that, contrary to the formula in (17), there are three events we need to deal with. The causing event (e), the caused event (e') and the event of e causing e' . The only event that is mapped to the Davidsonian event by voice is the last one. I thus assume that it is one of the functions of CAUSE to take a pair of Parsonian events ((e, e') in (18)) and map it to a single Parsonian event (e'') which has the denotation $e \text{ causes } e'$. This function can be represented as in (19).

- (19) $\text{CAUSE}(e, e') \rightarrow e''$

In this way, we can maintain that the function of voice is simply to map a single Parsonian event to a single Davidsonian event.¹⁶ In a lexical causative construction, the adverbial elements discussed in section 2.2.1 only see the Davidsonian event. The two Parsonian events (and vacuously, the one Parsonian event which has the same denotation as the Davidsonian event) remain invisible to these adverbial elements.

The mechanism proposed in this section deals with the presence of the two types of events present in this thesis. We will see the working of this mechanism in more detail in the following chapters.

3. RESULTATIVE CONSTRUCTIONS

As I mentioned in Section 1, there are three types of expressions examined in this thesis, and I claim that these three expressions all contain the CAUSE predicate. As I mentioned

¹⁶ The distinction between the two types of events is a formal one.

previously, the similarity between the lexical causative construction and the resultative construction has been known for decades (at least since Halliday 1967). The key elements of the comparison are in the interpretation of the verb which describes the causing event. In resultative constructions a verb which otherwise does not express causation is interpreted as having a causative meaning. I argue that this added causative meaning indicates the presence of the CAUSE predicate in the construction. In this section, I briefly introduce the resultative constructions I will examine in the following chapters and provide an overview of the analyses we will see.

Before I examine each type of resultative construction, however, there is one point I should clarify regarding the structure of the resultative construction. In Section 3.1, I return to the discussion of whether voice and CAUSE are separate. I show that in all three languages we examine in this thesis (i.e. Èdó, English and Japanese), the resultative construction provides evidence that the CAUSE predicate is present when the construction is unaccusative. In analyses in which voice and CAUSE are bundled (e.g. Harley 1995, Hale & Keyser 1993), transitive voice is interpreted as CAUSE, and unaccusative voice, BECOME. In these analyses, it is not expected that an unaccusative construction can have a causative meaning. The existence of unaccusative resultative constructions, which are still causative in meaning, therefore, indicates that CAUSE is distinct from voice in all these languages. Then, in Section 3.2., I provide brief previews of the analyses of these constructions.

3.1. Voice and CAUSE

In this section, we briefly examine one fact which holds of all resultative constructions presented in the following chapters. I have remained neutral as to the exact nature of the CAUSE predicate so far. In order to provide an analysis of resultative constructions, it is time we see what this CAUSE predicate is. Researchers working on the lexical causative predicate differ in whether they treat the CAUSE predicate as being the same as voice (e.g. Harley 1995, Kratzer 1996) or not (Baker & Stewart 1999, Pykkänen 2002). In this thesis, I take the position that voice and CAUSE can be distinct, and that in the languages we examine, indeed, they are distinct. In most examples of the lexical causative construction, the causative meaning is present when the verb is transitive, and it is absent

when the verb is unaccusative. In the context of the resultative construction, however, we see that the transitivity of the verb and the presence of the causative meaning do not always coincide. That is, we find examples of unaccusative resultative constructions, in which the verb is still interpreted as describing the causing event, as shown in (20).

(20)a. The egg broke open.

b. Ògó dé gùoghó (Edo, Stewart 2001: 58)
 bottle fall break
 ‘The bottle fell and broke.’

c. Mushi-ga obore-shin-da. (Japanese)
 Insect-nom struggle.in.water-die-past
 ‘The insect drowned to death.’

In these examples, the first predicate describes the causing event and the result predicate, the caused event. Thus, the interpretation of the construction suggests the presence of the CAUSE predicate,¹⁷ but these constructions are all unaccusative. These examples thus suggest that the presence of CAUSE should be dissociated from the properties of voice, which determines whether there is an external argument or not. In this thesis, the CAUSE predicate is therefore represented as a separate predicate from the voice head. Having clarified this point, we can now see the actual analyses of the resultative construction.

3.2. Two types of resultative constructions

In this thesis, resultative constructions are classified into two types based on whether the argument structure of the cause denoting verb is reflected in the construction. I argue that this criterion reflects the two different mechanisms that underlie the formation of resultative constructions. The two mechanisms that I propose are designed to capture the two different ways the verb that expresses the causing event “acquires” the causative meaning. In order to facilitate the relevant discussion, I first make explicit what I assume about the lexical information of a verb in Section 3.2.1. Then, in Section 3.2.1., I show

¹⁷ These sentences may not feel very causative-like, since the causer argument (i.e. the agent) is absent. However, we should remember that according to Lewis’s (1973) definition of causation, the presence of an agentive argument is not relevant. The important factor is the intuition that if the event the first predicate denotes had not occurred, the event the second predicate denotes would not have happened either.

that the two mechanisms I propose are sensitive to different aspects of the verb's lexical information.

3.2.1. The lexical information of a verb

The traditional assumptions about a verb's lexical information fall in two main types: the first approach assumes that a verb is a predicate of individuals, which expresses the relation between its arguments. The second approach assumes that a verb is a predicate of events, whose main role is to describe the nature of the event. The former approach can be referred to as the functionist approach and the second, the neo-Davidsonian approach. Pietrosky (2005) provides a thorough discussion of the merits and limits of these two approaches. There are researchers who adopt a compromise between the two (e.g. Kratzer (1996)), and this is the approach I take in this thesis. I assume that a verb carries two types of information: event description and argument specification. A verb describes the type of event (e.g. running, laughing, freezing), and what kind and how many participants are involved in this event. Event description provides useful information for inferring what argument expression a verb may appear with. Rappaport Hovav & Levine (1998) propose a classification of verbs along this line, and argue that one class of verbs, which they call manner verbs, appear with varied argument expressions, while another class of verbs, which they call result verbs, are less flexible regarding what kind of arguments they appear with. In Section 3.2.2., I propose a mechanism called M-Incorporation, which treats a verb as an adjunct of CAUSE. The type of verbs that undergo M-Incorporation can be classified as manner verbs, based on their event description. M-Incorporation is not sensitive to the verb's argument structure – as we will see in Chapter 3, a transitive verb in Japanese may undergo this operation and its object becomes suppressed. M-Incorporation, however, is sensitive to a verb's event-based classification. A language that only uses M-Incorporation to form resultative constructions does not allow verbs that specify the result-state of the object (i.e. Rappaport Hovav & Levin's (1998) result verb¹⁸) to appear in these constructions.

¹⁸ These verbs are also known as the change-of-state verbs. See Rappaport Hovav & Levin (1998) and Rappaport Hovav & Levin (2005) for detailed discussion of the syntactic and semantic properties of these verbs.

The second aspect of a verb's lexical information concerns its valency and selectional restrictions. Some verbs select for an object and others do not. The second mechanism that is involved in forming a resultative construction is called lexical coercion and this mechanism is sensitive to a verb's argument structure. A verb that does not select for an object (i.e. an unergative verb) may not undergo lexical coercion. Lexical coercion, in contrast to M-Incorporation, is insensitive to a verb's event-based classification. A language that uses lexical coercion allows both manner verbs and result verbs to appear in resultative constructions.

In this thesis, I argue that English has both mechanisms - M-Incorporation (adjunction) and lexical coercion – available for forming adjectival resultative constructions. Èdó uses lexical coercion as the sole mechanism of forming resultative serial verb constructions, and hence it is only verbs that select for an object that appear as the first verb in resultative serial verb constructions in this language. Japanese resultative V-V compounds, in contrast, exhibit cases where the object of the compound is not the object of the verb describing the causing event. Hence, Japanese resultative V-V compounds are analyzed as being formed by M-Incorporation. In addition, the verbs that appear as the V1 of a resultative V-V compound are verbs that would be classified as manner verbs according to Rappaport Hovav & Levine's (1998) event-based classification.

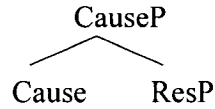
3.2.2. Lexical coercion and M-Incorporation

In the previous section, I briefly mention the difference between the two mechanisms (lexical coercion and M-Incorporation) proposed here, in relation to what kind of verb may be used to describe the causing event in each resultative construction. In this section, I discuss the details of these two mechanisms.

In the first type of resultative construction, which only occurs with verbs that select for an object, the cause-denoting verb acquires the causative meaning by lexical coercion. This verb then enters the derivation as the main predicate of the construction. In the second type of resultative construction, which only occurs with manner verbs, the cause-denoting verb enters the derivation as an adjunct of the actual causative verb. As an adjunct, this verb must be interpreted as modifying the causative verb. The difference

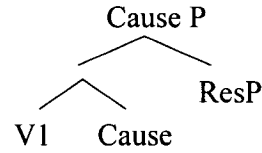
between the two types of the resultative constructions can be seen in their structural representation, as in (21). In the diagram, the result-denoting phrase is referred to as ResP, though we must keep in mind that on the surface this phrase is realized differently from one construction to another.

(21) a. Lexical coercion



(Cause = V1)

a. M-Incorporation/Adjunction type¹⁹



The lexical coercion analysis of the English transitive construction is presented in Chapter 2, and the same analysis is used to account for Èdó resultative serial verb constructions in Chapter 4. This analysis captures the observation that the result denoting phrase seems to be the complement of the cause denoting predicate (Larson 1988, Hoekstra 1988). As we saw previously, a causative predicate, which denotes a direct causal relation, does not take as its argument a predicate which denotes the causing event. Thus, aside from the adjunction analysis presented next, lexical coercion is the only way an otherwise-non-causative verb may appear in a causative (i.e. resultative) construction as a cause-denoting verb. I thus propose that the V1 of Èdó resultative serial verb constructions and the verb in English transitive-resultative constructions undergo coercion, which can be described as in (22).

(22) verbX: $\lambda x \lambda e$ (theme (x)(e) & X-ing(e))

Lexical Coercion $\rightarrow$

verbX: $\lambda f \lambda x \lambda e$ (theme (x)(e) & X-ing(e) & $\exists e'$ (f(x)(e') & cause (e)(e')))²⁰

This condition in (22) states that a verb in its original form is a two-place predicate, which takes an event (e) argument and an individual (x) argument. It returns the truth

¹⁹ English and Japanese differ in their headedness – Japanese is head final, while English is head initial. For the sake of simplicity, I use the head-initial representation here.

²⁰ The caused event is sometimes treated as a state (e.g. Krifka 1999), and sometimes as an event (i.e. an inchoative element, see e.g. Dowty 1979). I will come back to this discussion in Chapter 5, but in other parts of this thesis, I leave this point unspecified and assume that the caused-event denoting predicate can denote either a state or an event.

value t iff there is an event of Xing and the individual x is the theme of this event. The coercion increases the valency of the verb by one. In addition to its theme and event arguments, the verb now takes another event argument. The verb then has the property that it returns the truth value t iff there is an event e of Xing, and the individual x is the theme of this event, and there is an event e' such that e causes this event. The result denoting phrase thus becomes the newly introduced argument of the V1. The concatenation of the V1 and the result-denoting phrase (AP in English and VP in Èdó) can be illustrated as follows.

- (23) V1: $\lambda P \lambda x \lambda e$ [theme (x)(e) & V1-ing(e) & $\exists e'$ [P(x)(e') & cause (e)(e')]]
V2: $\lambda y \lambda e'$ [theme (y)(e') & V2-ing (e')]
V1+V2 and $x=y$ ²¹:
 $\lambda x \lambda e$ [theme (x)(e) & V1-ing (e) & $\exists e'$ [theme (y)(e') & V2-ing (e') & cause (e)(e')]]

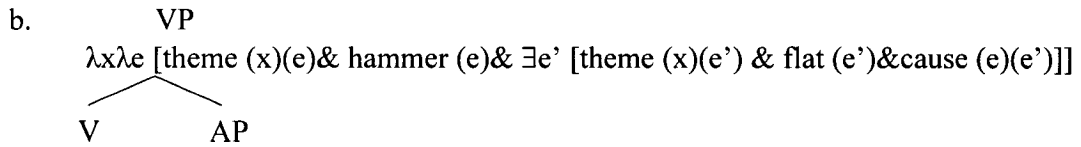
I have argued previously that in resultative constructions the two predicates form a unit within a single vP. As we will see more in detail in Chapter 2, the two events that are combined within a single vP are subject to the Direct Causation condition that requires that the theme of the causing event be the theme of the caused event ($x=y$). This condition can be applied to the examples in (24) and (25).

- (24) Èdó
a. Òzó ghá gbè èwé wù (Edo; Baker & Stewart (2002))
Ozo FUT hit goat die
‘Ozo will strike the goat dead.’
b. $\lambda x \lambda e$ [theme (x)(e) & hit (e) & $\exists e'$ [die(e') & theme (x)(e') & cause (e)(e')]]
V1 V2
V1: $\lambda P \lambda x \lambda e$ [theme (x)(e) & hit (e) & $\exists e'$ [P(x)(e') & cause (e)(e')]]
V2: $\lambda y \lambda e'$ [theme (y)(e') & die (e')]

²¹ The nature of this relation ($x=y$) will be discussed in Chapter 2.

(25) English

a. John hammered the metal flat.



V: $\lambda P \lambda x \lambda e \begin{bmatrix} \text{theme } (x)(e) \& \text{hammer}(e) \& \exists e' \begin{bmatrix} P(x)(e') = t \& \text{cause } (e)(e') \end{bmatrix} \end{bmatrix}$

AP: $\lambda x \lambda e' \begin{bmatrix} \text{theme } (y)(e') \& \text{flat } (e') \end{bmatrix}$

In English resultative constructions with a transitive verb and Èdó resultative serial verb constructions, the object of the construction must be understood as the theme object of both causing event and the caused event. This property of the object makes these constructions distinct from Japanese resultative V-V compounds and English resultative constructions with an intransitive verb.

In Japanese resultative V-V compounds and English resultative constructions with an intransitive verb, the argument structure of the cause-denoting verb is suppressed, suggesting that the verb is an adjunct, rather than the main predicate, of the construction. I have thus proposed that the phonologically overt cause-denoting verb is adjoined to the causative predicate. Given this structure, the combination of the phonologically overt verb and the rest of the elements is interpreted differently from the lexical-coercion cases we just saw. I claim that the concatenation is interpreted as conjunction. Higginbotham (1985) proposes that two predicates that are predicated of the same argument can be linked – by means of theta-identification. Theta-identification may apply to an adjectival modifier of a noun, such as *big* in *big butterfly*. The argument position (referent) of the adjective and the argument of the noun are identified to form a complex predicate with one argument position. As Higginbotham notes, this mechanism can be seen as conjoining two functions $F(x)$ and $G(y)$ and then identifying x and y . Higginbotham (1985) argues that adverbs receive essentially the same treatment as adjectives, as long as adverbs as well as verbs are predicates of events. The concatenation of an adverb and a verb is represented as in (26).

- (26) a. John walked rapidly.
 b. $\exists e [\text{walked}(\text{John}, e) \ \& \ \text{rapid}(e, A)]^{22}$ (Higginbotham 1985:562)

Similarly, Kratzer (1996) proposes that two predicates that are predicated of the same event argument can be combined by conjunction, and she calls this mechanism *event identification*, schematized in (27).

$$(27) \langle e, \langle s, t \rangle \rangle \quad \langle s, t \rangle \rightarrow \quad \langle e, \langle s, t \rangle \rangle^{23} \quad (\text{Kratzer 1996: 122})$$

The underlying assumption of these two mechanisms (theta-identification, event identification) is that a restrictive use of conjunction is necessary, even though most other syntactic concatenations are characterized as function-application (Kratzer 1996). I adopt this option in this thesis, and specifically employ two predicate-conjunction mechanisms. Both of the mechanisms follow the assumptions outlined just now – the two predicates must share an argument in order for the identification rules to conjoin them. The two mechanisms however differ in which argument the two predicates share. In one case, the two predicates share the event argument. In the other case, the two predicates share the theme argument. Crucially, the choice between the two semantic mechanisms is determined by the syntactic structure the two predicates appear in. When a predicate is adjoined to another in the syntactic representation, the former semantic mechanism must be used. When a predicate takes another as its complement, the latter semantic mechanism is used. Japanese resultative V-V compounds and English intransitive-resultative constructions represent the former case and Édó resultative serial verb constructions and English transitive-resultative constructions the latter case.

Japanese resultative V-V compounds can be represented as shown in (28), and this semantic concatenation reflects the structural representation shown in (21b).

²² *A* in this formula is an attribute, meaning that it was rapid for a walk.

²³ The symbol *e* in this formula stands for entity and *s*, situation (what we are calling eventuality here).

(28) Japanese

- a. Taro-ga Jiro-o tataki-korosi-ta.
T.-NOM J.-ACC beat-kill-PAST
'Taro killed Jiro by beating him.'

- b. $\lambda x \lambda e'$ [beat (e') & theme (x)(e') & kill (e')]
 $\swarrow \quad \searrow$
V1 V2
V1: λe [theme (x)(e) & beat(e)] ²⁴
V2: $\lambda x \lambda e'$ [theme (x)(e') & kill (e')]

Similarly, the English resultative construction containing an intransitive verb can be represented as in (29).

(29) English

- a. John drank the lake dry.

- b. $\lambda x \lambda e$ [theme (x, e) & drink (e) & $\exists e''$ [cause (e, e'') & dry (e'')]]
 $\swarrow \quad \searrow$
 λe [drink (e)] $\lambda x \lambda e'$, [theme (x, e'') & $\exists e''$ [cause (e', e'') & dry (e'')]]

As I argue in the next section, there is reason to assume that the verb that denotes the causing event in these examples is syntactically treated as an adjunct. In Japanese, this analysis is necessary to account for the various morphological properties of the V1, which will be discussed in Chapter 2. I thus provide an account of Japanese resultative V-V compounds in which the V1 is externally Merged as an adjunct. The syntactic mechanism, then, provides a context where the V1 does not project its own phrase. Thus the internal argument of the V1 is not projected. Japanese provides evidence that this non-projection is indeed plausible. English intransitive resultative constructions, similarly provide evidence that the phonologically overt verb of the construction is an adjunct. As the following examples show, the object of the construction is not the logical object of

²⁴ I will argue in Chapter 3 that the theme object of the V1 is syntactically suppressed.

the cause-denoting verb (V1 in Japanese and the only phonologically overt verb in English).

- (30) a. Kotaro-ga hokori-o huki-tot-ta.
 Kotaro-NOM dust-ACC wipe-remove-PAST
 ‘Kotaro removed the dust by wiping (something).’
 b. John drank himself sick.

In (30a), the cause-denoting verb (*huk* ‘wipe’) is realized as the V1 of the compound. This verb selects for an object that denotes the surface which gets wiped. The overt object of the compound, which denotes an object that gets removed by wiping is not the object of the V1. Similarly, the cause-denoting verb in (30b), *drink*, selects for an object that gets ingested. The overt object of the construction, *himself*, cannot be interpreted as the object of the verb. These examples suggest that in these constructions, something must be done to ensure that the overt object of the construction does not get interpreted as the object of the cause-denoting verb. The analysis provided in the next section shows that it is the syntactic operation which forms these constructions that has the effect of suppressing the internal object position of these verbs.

4. MORPHOLOGY AND SYNTAX: MOTIVATING M-INCORPORATION

The classification I use in this thesis assumes that constructions that appear to be distinct on the surface may have identical representations at an abstract level (i.e. Logical Form). The dissimilarities in these constructions show up through both phrasal and morphological distinctions. In Japanese resultative V-V compounds, the two predicates are expressed within one complex word (as shown in (2b)). In English resultative constructions and in Èdó resultative serial verb constructions, in contrast, the two predicates appear as separate words (as shown in (2a) and (2c)). The comparison of these constructions is meaningful if these constructions are all subject to the same set of principles, but less so if they are formed in different parts of grammar – in this case, they are expected to be different and the similarities may as well be treated as a mere coincidence. It is therefore important at this point to establish that the three constructions

mentioned above can, in principle, have the same underlying structure. It will then become more interesting to discuss why they are, in fact, different.

In this section, I present arguments in favor of the hypothesis that morphologically complex structures such as compounds can be formed in the syntax. If this hypothesis is correct, the differences between Japanese resultative V-V compounds and Èdó resultative serial verb constructions should not be attributed to the morphology-syntax distinction as one may assume in the Strong Lexicalist framework (DiSciullo & Williams 1987). The debate between the Strong Lexicalist and the morphology-in-syntax position is a long and deep one, and in order to justify my position, it is necessary to review the details of discussions concerning the idea that syntactic operations may yield, as their output, a morphologically complex word. This debate also mirrors the change in syntactic theory. The initial discussion of word decomposition took place within the framework of Transformational Grammar (Chomsky 1957, 1965). Syntactic theories have since then undergone various modifications leading to the Government and Binding theory (Chomsky 1981) and to the Minimalist framework (Chomsky 1995). The spirit of the discussion, however, remains constant: If relations between elements follow the same constraints within and above the word level, these relations should be captured in a single module of grammar (syntax). If relations of elements within words cannot be treated as following the same set of constraints as the relations between words and phrases (i.e. the syntactic relations), a separate module of grammar (morphology) should be postulated to account for the relations within words. I conclude that syntactic structure should be used to represent the relations between elements within a word.

4.1. Generative Semantics and predicate decomposition

The idea that an element which appears to be a simple word on the surface may have a complex underlying structure is one of the core proposals of the Generative Semantics (e.g. Lakoff 1970, McCawley 1968, Morgan 1969). Generative semanticists use paraphrasing and entailment as the means to identify the underlying structure of a sentence. The sentence in (31a) entails the sentence (31b), and this entailment relation is taken to indicate that at certain level of (syntactic) representation, the sentence (31b) is

actually a part of the sentence in (31a). In this approach, a verb which has a simple surface form can be analyzed as having a complex underlying structure.²⁵

- (31) a. John killed Bill.
b. Bill died.

Although the generative semantics approach has received much criticism and has fallen out of popularity, this tradition has provided a number of insights which are still useful in the current study of syntax. One of these insights is that syntax may create a complex form which is realized as a simple form on the surface. This idea is revived in Baker's (1988) proposal that a syntactic operation, head movement, can create complex verbs. In the following section, I review Baker (1988).

4.2. Baker's (1988) Incorporation Theory

Baker (1988) proposes that a morphologically complex form can be formed by the syntactic operation of head movement. He argues that an element that is base-generated as a separate word can undergo head movement to adjoin to another element, thus appearing as a part of a complex word on the surface. He examines phenomena in which the logical object of a verb is realized as a part of a complex verb, as shown in (32).

- (32) a. waʔhahnínú? neʔ oyekwæʔ
 TNS.3SG.3N.buy.ASP ART 3N.tobacco.NM
 'He bought the tobacco.'
- b. waʔhayεʔkwahí:nuʔ
 TNS.3SG.3N.tobacco.buy.ASP
 'He bought tobacco.'

(Onondaga: Woodbury 1975, cited in Baker 1988: 76-7)

Baker (1988) argues that the two sentences in (32) have the same underlying forms, and the surface difference is due to the application of the incorporation operation in (32b), in which the object noun undergoes head movement to adjoin to the verb. The strength of

²⁵ See also Aissen (1979) and Shibatani (1975) for the investigations of morphologically complex causative verbs using the mechanisms made available in the Generative Semantics framework.

his analysis is that syntactic constraints on movements can be used to explain observed restrictions on noun incorporation. One of such restrictions is that subjects, unlike objects cannot appear as part of the complex verb, as shown in (33).

- (33) a. Yao-wir-a'a ye-nuhwe'-s ne ka-nuhs-a'
 PRE-baby-SUF 3FS/SN-like-ASP the PRE-house-SUF
 'The baby likes the house.'
- b. Yao-wir-a'a ye-nuhs-nuhwe'-s
 PRE-baby-SUF 3FS/3N-house-like-ASP
 'The baby house-likes.'
- c. * Ye-wir-nuhwe'-s ne ka-nuhs-a'.
 3FS/3N-baby-like-ASP the PRE-house-SUF
 'Baby-likes the house.'

(Mohawk: Baker 1988: 81-82)

In (33b), the object of the verb, *nuhs* "house," appears as part of the verb. In (33c), the subject *wir* "baby" appears as part of the verb, and the sentence is ungrammatical. This restriction, in Baker's (1988) analysis, can be attributed to a general restriction on movement, such as the Empty Category Principle, according to which a movement from object position to adjoin to the verb is licit, but a movement from the subject position to the verb is not.²⁶

Baker's (1988) incorporation analysis marks one of the major milestones which started an active discussion between proponents of the Strong Lexicalist approach (e.g. DiSciullo & Williams 1987, Rosen 1989, Spencer 1995) and proponents of the morphology-in-syntax approach (e.g. Halle & Marantz 1993, Lieber 1992). Various arguments have been presented to show that the division between morphology and syntax, which is assumed to be basic in the Strong Lexicalist framework, does not exist. Lieber (1992) for example argues that certain morphological structures such as compounds can take a syntactic structure as input, as shown in (34). In this sentence, the

²⁶ I would like to note that though the ECP is not part of the Minimalist Program (Chomsky 1995), the spirit of Baker's analysis still holds. The subject-object asymmetry can still be attributed to a constraint on movement. The incorporation of subject into the verb would involve a downward movement, which is illicit. In contrast, the incorporation of an object is involves an upward movement, which is licit.

constituent which is generally assumed to be a syntactic phrase (*floor of a bird cage*) is used as an input to a compound, and this constituent then simply modifies the noun *taste*.

(34) The floor-of-a-bird-cage taste

In a lexicalist analysis, morphology and syntax are separate modules of grammar, where morphology provides input to syntax but not vice a versa (see e.g. Di Sciullo & Williams 1987, Chomsky 1995). Lieber (1992) thus argues that this type of example cannot be accounted for in a lexicalist framework. Halle & Marantz (1993) propose similarly that syntax is responsible for the formation of complex structure above and below the word level. These authors present evidence which favors the morphology-in-syntax approach over the Strong Lexicalist hypothesis, but in order for the morphology-in-syntax approach to be successful, we must also address the cluster of examples that have been used as evidence against the syntactic analysis of complex word formation. In the next section, I review some of the arguments raised against the morphology-in-syntax approach. I argue that the head movement operation of Baker (1988) alone is not sufficient to account for all complex word formation and I propose a syntactic operation called M-Incorporation to complement the head movement operation.

4.3. Compound formation without movement

Baker's (1988) head movement account of complex word formation has been criticized for its narrow empirical scope. A number of compound patterns have been pointed out which do not lend themselves well to the head movement account. In this section, I re-examine these arguments and conclude that these examples are indeed problematic if head movement is the only syntactic operation which can create a morphologically complex word. The compounds I cover in this section do not appear to be formed by head movement. The failure of the head movement analysis to apply to these compounds, however, should not be equated with the failure of any syntactic account to capture these phenomena. I propose a syntactic operation to complement Baker's head movement account and show that the compounds that do not fit Baker's head movement account are formed with this operation. I refer to this operation as M-Incorporation and argue that

with the presence of these two operations – Incorporation (head movement) and M-Incorporation, the majority of the examples used to argue against the syntactic account of compound formation can now be captured in syntax.

4.3.1. Compounds without movement: Data

The following examples represent counterexamples to the head-movement analysis. Tuscarora incorporation is problematic for Baker (1988) because the underlyingly monotransitive verb *ahkw* ‘pick up’ remains transitive even after a nominal *taskw* ‘animal’ is incorporated into it. The example in (35) shows that the complex verb, with a nominal element being incorporated into it, *taskwahkw* ‘animal-pick up’ still takes an object (*tsi:r* ‘dog’) outside of the compound. According to Baker’s (1988) analysis, an element that incorporates into a verb is an object, and thus, object incorporation inevitably turns a transitive verb into an intransitive verb, as shown in (34) above. The presence of an object as a separate word in this Tuscarora example here does not follow the expected pattern.

- (35) ne-hra- **taskw** -ahkw-ha? ha? **tsi:r**. (Tuscarora: Rosen 1989)
 DU-M-**animal**-pick.up-SERIAL EMPH **dog**
 ‘He picks up domestic animals.’ (He is a dog catcher.)

The second type of problematic evidence comes from Chukchi. Spencer (1995) points out the following examples in which adverbial elements appear as part of the verbal complex.

- (36)a. nə-**tur**-ew nətejkəkinet nelgət (Chukchi : Spencer 1995 : 455)
 ADV-new-ADV they.are.making skin-ABS.PL
- b. nə-**tur**-tejk-əkinet nelk-ət
 3PL.S-**new**-make-3PL.O skin-ABS.PL
 ‘They are making skins again.’

In these examples, adverbial roots are incorporated into the verb. Adverbs cannot be analyzed as undergoing head movement, since the movement from the VP adjunct

position onto the head of the VP would violate conditions on movement²⁷ (See Travis 1988, Rivero 1992 for relevant discussions on adverbs and movement). Similarly, Chukchi also allows a verbal root to be incorporated into another verb, even though the two verbs are not in a selectional relation (37).

- (37) galga-t nə-**riŋe**-ekwet-inet
 bird-ABS.PL PL.S-**fly**-depart-3PL.S.
 ‘The birds flew away.’

Since the two verbs of the compound are not in a selectional relation with each other, the incorporated verb *riŋe* “fly” cannot be analyzed as being base-generated in the object position of the incorporating verb *ekwet* “depart”. The relation between the two verbs is best characterized as modification – the V1 simply adds extra information (which can be described as the manner) to the event denoted by the V2. The compound in this case, thus, cannot be analyzed as being formed by head movement either. These examples have been used to criticize Baker’s (1988) incorporation analysis and more generally a syntactic account of compound formation. Baker (1988, 1996) thus resorts to assuming that some compounds may be formed in the lexicon, while others are formed in syntax (i.e. via head movement). In this approach, the Tuscarora and Chukchi compounds are formed in the lexicon while object incorporation is formed in syntax.

This approach, however, wrongly predicts how object incorporation and adverbial incorporation may interact with each other. In the example in (38), an adverbial element, as well as the object of the verb, is incorporated into the verb. Crucially, the adverbial element appears further away from the verb than the object.

²⁷ As I mentioned in the previous footnote, in Baker (1988) the relevant condition is the Empty Category Principle, which states that movement operation leaves a trace in the base-generated position of the moved element and that the moved element (antecedent) must c-command its trace. When a VP adverb moves to adjoin to V, it does not c-command its trace and thus the incorporation of an adverb is expected to be ungrammatical. In the Minimalist framework (Chomsky 1995) the condition can be stated as a restriction on movements, which requires that all movement must be upward. The movement of a VP adverb onto the head of VP would be a downward movement. The incorporation of an adverb into the verb is thus expected to be ungrammatical in this framework too. Rivero (1992), however, argues that if verb moves to a higher functional projection, the incorporation of adverbs is possible.

- (38) mən-nəki-ure-qepl-weicwen-mək (Chukchi: Spencer 1995, 459)
 1pl.s.imper-night-long.time-ball-play-1pl.s
 ‘Let’s spend a lot of time playing ball at night.’

In most analyses of compounding, be it syntactic (Baker 1988) or lexical/morphological (Williams 1978), the morpheme order corresponds to the order in which the morphemes are concatenated. The morpheme ordering in (38) thus indicates that the theme argument *quepl* “ball” adjoins to the verb *uwicwen* “play” before the modifier *ure* “long time.” This morpheme order is gravely problematic because a lexical operation (in a framework which allows for lexical operations) is expected to precede a syntactic operation (DiSciullo & Williams 1987). The interaction of the two incorporation operations indicates that the adjunct incorporation follows the object incorporation. If we assume that the object incorporation is a syntactic operation, adjunct incorporation, which follows object incorporation, must be a syntactic operation as well. We have thus seen that the phenomena which do not fit the head-movement analysis of compound formation, nonetheless need to be accounted for in syntax. In the following section, I propose a mechanism which forms this type of compound in syntax.

4.3.2. M-Incorporation

The examples in the previous section suggest that there must be a syntactic operation other than head movement which can create a compound structure. The operation which complements the head movement operation would, like head movement, create a head adjunction structure, but without forming a chain. Kuiper (1999) argues that this operation is base-generation.²⁸ The relation between head movement and base-generation is unclear in the Principles and Parameters framework, but it is more clear in the Minimalist framework. One of the principal assumptions of the Minimalist framework (Chomsky 1995, 2000, 2001) is that base-generation is a structure-building operation (called Merge).²⁹ There is another operation in the Minimalist framework, called Move. Crucially, the operation Move contains, as a subpart, the operation Merge. This means that a structure which is created by Move is, by definition, created by a special case of

²⁸ Kayne (1994) also proposes a similar structure for English compound *overturn* (Kayne 1994: 38-41).

²⁹ In fact, Merge is treated as the one and only structure-building operation.

Merge – Merge that applied to an element already in the phrase structure. This line of thought leads to the prediction that if a certain structure can be created by Move, the same local structure can also be created by Merge.³⁰ The [Spec, IP] position, for example, is traditionally reserved as a position for an element to Move to. Certain elements, such as expletives, however, are argued to appear in this position by Merge (Chomsky 1995). The spirit of this discussion is that if a position (Spec IP) can be filled by Move, it can also be filled by Merge. This argument can be applied to head movement as well. If head movement (a type of Move) can form a head adjunction structure, it is naturally expected that Merge should be able to create such a structure as well. I thus argue that the adverb incorporation in Chukchi, shown in (35-37) involves head adjunction by Merge, which I refer to as M-Incorporation. The properties of M-Incorporation will become clearer in the following sections and in Chapter 2 when I discuss the details of this operation. In this section, still, I have presented arguments in support of the existence of such operation and how the presence of this operation, in turn, salvages the incorporation theory of Baker (1988) by complementing it.

In this section, I have proposed a new syntactic operation M-Incorporation which complements incorporation. The presence of both of these two operations greatly increases the type of compound formation that can be captured in the syntax. The proposal presented in this section, that a syntactic operation, M-Incorporation, creates morphologically complex structures, forms the basis for the analyses presented in the following chapters. The comparison of various forms of resultative constructions in this thesis is meaningful only to the extent that the comparison between compounds and phrasal constructions are meaningful. By defending the morphology-in-syntax approach, I have defended the reason behind comparing resultative V-V compounds in Japanese and phrasal constructions such as Èdó resultative serial verb constructions and English resultative constructions. At this point, there is no a priori reason to assume that Japanese resultative V-V compounds should be different from the other types of resultative constructions and thus we have reason to seek a syntactic or semantic explanation to account for the difference between these constructions. My analyses of resultative constructions take this position and assume that the difference between the two types of

³⁰ This concept, in spirit, is the same the notion of structure preservation discussed in Emonds (1976).

resultative constructions reflect their structural difference within the syntax, and not the modularity difference between syntax and morphology.

5. THE ORGANIZATION OF THE THESIS

In the following chapters I investigate various forms of resultative constructions, organized by language. In Chapter 2, I examine two types of resultative constructions in English. The comparison of the two types of the resultative constructions – transitive resultative constructions and intransitive resultative constructions – exemplifies the approach taken in this thesis. The two types of resultative constructions are distinguished based on the role of the internal object, rather than the morphological or categorial similarities or dissimilarities of the constructions. English transitive resultative constructions are distinguished from English intransitive resultative constructions because they require that the object of the construction must be the interpreted as the object of the cause-denoting verb. In contrast, in English intransitive resultative constructions, the object of the construction may be interpreted as the object of the verb, but this is not required. The phonologically overt verb in transitive resultative constructions, is hence, construed as undergoing lexical coercion, which allows it to directly combine with the result-denoting phrase. In contrast, the phonologically overt verb in intransitive resultative constructions is construed as undergoing M-Incorporation, which adjoins it to a phonologically null CAUSE. The relation between the result-denoting phrase and the verb, and hence the relation between theme of the result-denoting phrase and the phonologically overt verb, is less direct in the intransitive resultative construction.

In Chapter 3, I examine Japanese resultative V-V compounds and argue that these compounds are formed by the same mechanism that forms English intransitive resultative constructions, namely, M-Incorporation. The discussion of M-Incorporation is developed further in this chapter, in which the morphology and semantics of Japanese provides additional evidence for the adjunction structure.

In Chapter 4, I examine resultative serial verb constructions in Èdó, and argue that the V1 in Èdó resultative serial verb undergoes the lexical coercion the same way the phonologically overt verb in English transitive resultative constructions does.

Chapter 5 concludes the thesis.

Chapter 2

RESULTATIVE CONSTRUCTIONS IN ENGLISH

1. INTRODUCTION

As we saw in Chapter 1, English has a construction called the resultative construction, which is also known as the resultative attribute (Halliday 1967, Simpson 1983), or the resultative secondary predicate construction (e.g. McNulty 1988, Rapoport 1999). In a resultative construction, the verb is followed by a noun phrase, and a predicate which describes the state the noun comes to have as the result of the action described by the verb. An example of a resultative construction is given in (1).

(1) John hammered the metal flat.

An analysis of resultative constructions must account for the structural representation, as well as the semantic relations that hold among the elements in the construction. Hoekstra (1988) and Larson (1988) provide various pieces of evidence suggesting that the result-denoting phrase of the construction – the adjective and the object noun phrase – forms a constituent which the verb takes as its complement.¹ Their claims thus reject the analyses which treat the adjectival phrase as an adjunct (e.g. McNulty 1988).² Taking these findings into consideration, I provide an analysis of resultative constructions which treats the result-denoting adjective phrase³ as the complement of the verb. I then show that the relation between the object in the construction and the verb varies in accordance with the transitivity of the verb.

In Section 2, I briefly review the basic assumptions of event semantics, which was introduced in Chapter 1, mainly to introduce the terminology used in this chapter. There are constraints defining the possible relations between the two predicates in resultative constructions, and these constraints reflect general conditions on events. Following Higginbotham (1985), I assume that the two predicates in resultative constructions each

¹ I provide an additional piece of evidence for this constituency in Section 4.

² An analysis which treats the result phrase as an adjunct would need an additional mechanism to account for the causative meaning of the verb. This is another reason to be suspicious of an adjunction analysis.

³ I will discuss the nature of the complement of the verb in Section 3.1. For now, it suffices to say that I refer to this constituent as AP, for the sake of simplicity.

contain an event argument. These event arguments are the elements discussed in Parsons (1990) and they are different from the event arguments discussed in Davidson (1967). As we saw in Chapter 1, the analysis provided in this thesis makes a clear distinction between the two types of events in Davidson (1967) and Parsons (1990). The two predicates in a resultative construction each denote a Parsonian event, and a resultative construction thus contains two Parsonian events. However, a resultative construction as a whole denotes a single Davidsonian event. An analysis of resultative constructions thus must capture how the event denotations of the two predicates are combined to create a complex event denotation which corresponds to a single Davidsonian event.

In Section 3, I claim that there are two classes of resultative constructions in English. In one class, the object of the construction must be interpreted as the object of the verb, hence this construction always contains a transitive verb. In the other class, the object of the construction can be a non-object of the verb. The verbs that appear in this construction are optionally transitive (e.g. *drink*) or intransitive (e.g. *run*). The relation between the verb and the object of the construction provides the basis for the current proposal that the position of the phonologically overt verb in the first class differs from that in the second class, and this difference reflects the way the verb in resultative constructions acquires the causative meaning. In one case, the verb acquires the causative meaning by lexical coercion. Lexical coercion adds one argument slot to the verb, and allows it to combine with a result-denoting phrase. This analysis captures the first class of resultative constructions, in which the object of the construction is necessarily the object of the verb. In the other case, there is a causative predicate, which is distinct from the phonologically overt verb, that combines with the result-denoting phrase. The phonologically overt verb of the resultative construction combines with the phonologically null causative predicate by a mechanism which I refer to as M-Incorporation. M-Incorporation, as I define it in Chapter 1, is external Merge of one head to another. An element that enters the derivation by M-Incorporation is interpreted as a modifier and its arguments remain unprojected.⁴

⁴ As I mention in Chapter 1, a verb provides the description of an event. This part of a verb's meaning can be interpreted even without the realization of its argument.

In Section 4, I review discussions on the position of the internal object in resultative constructions. I classify the traditional analyses into three classes based on their assumptions concerning the position of the object. I then examine the behavior of the object and investigate how the three analyses, which I refer to as the pro-analysis, complex-predicate analysis, and the small-clause analysis, account for the facts. I show that the object must be represented in the structure which denotes just the resulting state, thus refuting one of the traditional analyses. Then, I show that the pieces of evidence conflict with each other when it comes to the question of how the relation between the object and the cause-denoting verb should be represented. The second part of Section 4, thus focuses on presenting a major puzzle, rather than solving it.

2. THE RESULTATIVE CONSTRUCTION AS THE LEXICAL CAUSATIVE CONSTRUCTION

We saw in Chapter 1 that the lexical causative construction has the following properties:

- (2) a. The construction is associated with vP
- b. The causing event is only expressed in the meaning postulate of the causative verb. Otherwise, the directness is lost.
- c. The lexical causative construction contains two events by definition (Lewis 1973), but contains one event by Davidsonian event diagnostics.

In order to establish that the resultative construction is indeed a type of lexical causative construction, I show in this section that resultative constructions express direct causation. Moreover, the resultative construction allows us to sharpen the definition of the directness. In a resultative construction, unlike in a causative construction with a closed-class causative predicate, the causing event is identified, and thus we see the exact relation between the causing event and other elements in the construction.

2.1. Re-interpreting directness

As we saw in Chapter 1, directness is a relative term which measures how essential the said causing event is for the occurrence of the caused event. Generally, different events are compared and measured based on how essential each of the events is in bringing about the caused event, and a direct causal relation holds between event a and b when event a is considered to be more essential than other events in causing the event b (Lewis

1973, McCawley 1976, and Bittner 1999). For the purpose of this thesis, I would like to examine the effect of directness in linguistic expressions. For example, (3) asserts that John's pushing of the door opened the door.

- (3) John pushed the door open.

We may then ask, what would happen if John had pushed something other than the door, thereby causing the door to open? The relation expressed in this alternative context is intuitively not as direct as the condition the sentence in (3) expresses, and the sentence would not be true if it were uttered in this context. This intuition thus suggests that the resultative construction, like the lexical causative construction, must express direct causation.

Moreover, we can capture the difference between the direct context and the non-direct context in terms of the arguments of the two predicates – the verb and adjective.

- (4) A condition in which the theme of the causing event is the theme of the caused event is more direct than a condition in which the theme of the causing event is not the theme of the caused event.

The definition in (4), like the traditional definition of causation (e.g. Lewis 1973), is meant to be relative. The effect of the directness condition sometimes seems vacuous – researchers postulate that there is a phonologically null element (i.e. *pro*⁵) which is referentially dependent on the overt object of the construction. This syntactic mechanism effectively ensures that the object of the causing event (i.e. *pro*) has the same referent as the object of the resultative construction. When we examine the resultative construction of the type represented in (3), the interpretation of the theme arguments can be attributed to either the syntactic mechanisms (i.e. *pro*) or the effect of directness condition. However, there is another type of resultative construction, as we will see in the following section, in which the interpretation of the theme of the cause-denoting verb cannot be

⁵ The unpronounced copy of the object is referred to as “*pro*” in this thesis, though I acknowledge that the relation between the two copies of the theme in resultative constructions does not fit any known definitions of referentially dependent elements.

explained with a syntactic mechanism. The following sentence exemplifies this class of resultative construction.

- (5) a. John whistled the dog awake.
b. * John whistled a whistle (the dog) awake.

In (5), the theme of the causing event is not the theme of the caused event. The verb *whistle* may take as its object, *a whistle* or *a tune*, in other contexts, and these are the only elements that can be understood as the theme of the causing event. In a resultative construction, however, *a whistle* or *a tune* cannot be overtly expressed (5b), and instead, what is expressed overtly is a theme of the caused event, *the dog*, which is distinct from the theme of the causing event. Moreover, in (5a), the relation between the overt object and the verb must be determined based on the pragmatic knowledge and the lexical content of the verb. We thus understand the sentence in (5a) as expressing that John whistled *to* the dog, and the dog awakens. In this condition, the relation between the causing event (whistling) and the caused event (the dog's awakening) is not as direct as the non-meaningful alternative (John's whistling of a dog), but it does not matter because the alternative is a non-meaningful, impossible condition. That is, the directness restriction ensures that a sentence cannot express a condition that is less direct than the most direct condition it is capable of expressing. Directness, as it is thought of in the traditional discussion, is a continuum, and thus we can measure directness even when the theme of the causing event is not the theme of the caused event. The sentence in (5a) represents a context where the theme of the causing event is not the theme of the caused event. However, what this sentence expresses is a most direct condition given the two predicates used in this sentence. A less indirect condition would be if John's whistling causes the dog to wake up without the dog's listening to him, i.e. the dog is a non-participant of the causing event. In this context, the sentence in (5a) is false. What this sentence expresses should thus be treated as the most direct relation among all the relations in which the theme of the causing event is not the theme of the caused event. We will come back to this point in Section 4, after we see the actual analysis of resultative constructions.

2.2. Davidsonian event diagnostic tests

As we saw in Chapter 1, the traditional diagnostic tests for events show that the lexical causative construction is associated with a single Davidsonian event, but two Parsonian sub-events. In this section, I show that these tests show that the resultative constructions contain a single event as well. As we saw in Chapter 1, these tests involve manner adverbs and temporal adverbial phrases. First, the following examples show that the adverb, regardless of its position, must modify the resultative construction as a unit.

- (6) a. John slowly pushed the door open.
b. John pushed the door open slowly.

These sentences express the idea that John's pushing was slow and that the door's opening was slow. In fact, these sentences assert that each part of John's pushing corresponds to the door's opening⁶ and that it is this complex process – John's pushing with the corresponding opening of the door – that was slow. We should note that it is not a necessary condition that resultative construction express this correspondence. Without the adverb, the sentences in (6) can mean that John gave a door a quick push which opened the door, and that the door opened slowly. This interpretation disappears when the adverb *slowly* is used. The point is that the correspondence requirement is something some adverbs, such as *slowly*, require only when it combines with a complex expression of an event. If the adverb combines with a simple expression of an event as in (7), we do not see this condition, since this sentence does not contain two sub-events, and there need to be two sub-events for them to be in correspondence with each other.

- (7) a. John pushed the door slowly.
b. John slowly pushed the door.

⁶ The same type of correspondence condition is discussed in Krifka (1999), in the context of dative alternation. He argues that some verbs require, as part of their lexical entry, that the causing event the caused event (motion) be in correspondence. An example of such verbs is shown in (i).

(i) Beth pulled the box to Ann.

In these cases he examines, what triggers the correspondence is part of the lexical entry of the verb, while the trigger of the correspondence in the examples in (6) is the adverb *slowly*.

These examples suggest that it is because the resultative construction expresses a single Davidsonian event containing two sub-events that the adverb *slowly* imposes the correspondence requirement. In the following sentences in (8), in contrast, the same adverb does not trigger a correspondence between the causing event and the caused event.

- (8) a. John's pushing of the door caused the door to open slowly.
b. John's pushing of the door slowly caused the door to open.

Unlike the lexical causative counterparts in (7), the adverb *slowly* modifies just the caused event in (8a) and just the causing event in (8b). Moreover, in (8), the progress of one of the events does not have to correspond with the progress of the other. In light of the current discussion, we can attribute the difference in the behavior of the adverbs to the number of Davidsonian events associated with different constructions. While the lexical causative construction makes reference to a single Davidsonian event, the syntactic causative construction makes reference to multiple Davidsonian events. The correspondence seen in (6), therefore, should be attributed to the fact that the combination of the two sub-events of this sentence (i.e. the causing event and the caused event) is associated with a single Davidsonian event and that manner adverbs may impose a correspondence requirement between sub-events (as in (6)) but not between Davidsonian events (as in (8)).

As we saw in Chapter 1, a temporal adverb behaves differently when it appears with a lexical causative construction and when it appears with a syntactic causative construction. With a lexical causative construction, temporal adverbials cannot modify the caused event, while with the syntactic causative construction, they can. With resultative constructions, temporal adverbials cannot modify just the result-denoting part, as shown in (9).

- (9) John touched the door open in the morning.

Conceptually, it is possible to have a fancy door, which we can set to open at certain time. Once set, the only thing we need to do is to touch it and it will open at the set time. Then, we can touch it at night so that it will open in the morning. The sentence in (9), however, cannot express such a situation. Like the cases with lexical causative constructions, the temporal adverbial must modify the entire event when it appears with a resultative construction. In (9), thus, the temporal adverbial must express the time when touching and opening takes place. This behavior of the temporal adverbial can again be attributed to the fact that there is only one Davidsonian event associated with the resultative construction, and that the temporal adverbial must make reference to the Davidsonian event.

2.3. The nature of the CAUSE predicate

We saw in Chapter 1 that when a causative predicate denotes a direct causal relation, there is an interesting syntactic restriction on how the causing event is expressed. When the causing event is expressed as the argument of the causative predicate, directness is lost, as shown in (10).

- (10) a. [The baby's crying outside] will open the door.⁷⁸
 b. [The baby] will open the door.

These examples, on the surface, seem to show that the subject of a lexical causative construction can be either a causing event, or a participant (i.e. agent). Given that the lexical causative construction of the type shown in (10b) expresses direct causation, and that the sentence in (10a) contains the same predicate, we would expect that the sentence in (10a) would follow the directness condition as well. It is, however, not the case.⁹ When the subject of the lexical construction expresses the causing event, a much broader range of relations can be expressed in the construction than in the regular lexical causative

⁷ This sentence is tested in the following way: John has locked himself in the room, and he tells his roommate "The baby's crying will open my door but nothing else will."

⁸ McCawley (1976) makes a similar observation, but since he looks at non-lexical causatives (with *make*), he attributes the source of non-directness to the agentivity of the caused event as well as the fact that the causing event is the subject of the construction.

⁹ Some English speakers disagree on this point. They would not accept the example in (12a) unless the door is set with a voice-activated sensor – i.e. a direct condition holds in this sentence. I discuss the variation on judgments of these examples and their implications in Appendix.

constructions where the agent is the subject. (10a) is true, in contrast with (10b), if John, instead of the baby, opens the door, upon hearing the baby cry. Since the extra participant in this context makes it less direct than a context in which the baby herself manipulated the door, the directness condition renders the sentence in (10b) false in this context, but surprisingly, the sentence in (10a) can be true.

This property of the causative predicate has an important consequence in analyzing the resultative constructions. Given that the resultative construction expresses direct causation, as we saw previously, the verb that describes the causing event cannot be treated as the argument of the causative predicate. Instead, the causing event can only be expressed as part of the meaning postulate of the causative predicate. This restriction leads to the two analyses I propose in the next section: in one case, the verb that describes the causing event must itself be the causative predicate. In the other case, the verb that describes the causing event is an adjunct, which modifies the causative predicate.

3. TWO TYPES OF RESULTATIVE CONSTRUCTIONS

As I argued in the previous sections, resultative constructions all contain a predicate CAUSE, and the result-denoting phrase is the argument of this predicate. There are, however, two types of resultative constructions, which differ from each other in how the verb that describes the causing event relates with the CAUSE predicate. The relation between the cause-denoting verb and CAUSE has a consequence for how this verb relates with the object of the construction. In the first type, which I refer to as “object sharing resultative construction,” the verb in the construction obligatorily selects for an object (i.e. an obligatorily transitive verb or an unaccusative verb), and the object of the construction must be interpreted as the object of the verb. In the second class, the verb in the construction is intransitive (i.e. unergative) or optionally transitive, and unlike in the other class of resultative construction, the object of the construction does not need to be interpreted as the object of the verb. Crucially, a verb that appears in an object sharing resultative construction cannot appear with a non-selected object in a resultative construction (11a), while a verb that appears in an intransitive resultative construction can (11b).

- (11)a. *John broke himself sore.
(Intended meaning: John's breaking of things caused him to be sore)
b. John danced himself sore

I propose that the difference between the two classes of resultative constructions reflects their structural difference. In the first case, the phonologically overt verb takes the result-denoting small clause as its complement and in the latter case, the phonologically overt verb is adjoined to a phonologically null causative verb which takes the small clause as its complement.

This section is organized as follows. In Section 3.1, I examine transitive resultative constructions, which fit the analysis presented so far. In Section 3.2, I examine the type of resultative constructions containing an intransitive or optionally transitive verb. I argue that these constructions cannot have the same structure as the other type of resultative construction. I propose to treat the phonologically overt verb of these constructions as a syntactic adjunct. Crucially, the ungrammatical example in (11a) indicates that this adjunction structure cannot apply to verbs that obligatorily select for an object.

3.1. Object sharing resultative constructions

In this section, I examine resultative constructions with verbs which obligatorily select an object. This class consists of obligatorily transitive verbs and unaccusative verbs. Examples of object sharing resultative constructions are shown in (12).

- (12) a. Kotaro pulled the door open.
b. Kotaro rolled the carpet flat.
c. The box broke open.
d. The popsicle froze solid.

In these examples, the adjectival phrases denote the state the logical object of the verb comes to have as the result of the action denoted by the verb. The basic restrictions on resultative constructions have been discussed in many works (Dowty 1979, Simpson 1983, McNulty 1988, Hoekstra 1988). Instead of repeating all the discussions here, I simply summarize the findings. One of the most discussed aspects of the construction is

the positional restriction on the result-denoting phrase. The result-denoting adjectival phrase must immediately follow the object. In the analyses which treat the result phrase as an adjunct (e.g. McNulty 1988), this restriction is interesting because it distinguishes the result phrase from other adjuncts such as adverbs. Even elements which modify the “deepest” meaning of an event, such as the adverb *again*, and purpose clauses cannot precede the result phrase (13).

- (13) a. John pushed the door open again.
b.*John pushed the door again open.
c. John pushed the door open to let his friends in.
d.*John pushed the door to let his friends in open.

McNulty (1988) also notes that the object-oriented depictive adjective (*hot* in (14)), which resembles the result adjective (*flat*), cannot precede the result phrase (14).

- (14) a. John hammered the metal flat hot.
b.*John hammered the metal hot flat.

Hoekstra (1988) then proposed that the surface object and the result phrase in fact form a constituent (small clause) which is the complement of the verb. The small clause analysis explains the positional restriction and the object restriction of the construction. Complements are expected to appear closer to the verb than adjuncts, and the ordering restriction can then be attributed to the fact that the result phrase is part of the complement. The object restriction also follows from this analysis. The small clause structure ensures that the adjective must be predicated of an element within the small clause, and an element which is projected within the small clause is realized in the object position of the verb. In the case of an unaccusative verb, the element in the small clause is realized as the surface subject due to the EPP effect.¹⁰

Hoekstra’s (1988) work, which clearly shows that the result-denoting phrase is the complement of the verb, however, misses the relation between the object and the verb. As

¹⁰ The Extended Projection Principle is assumed to explain why some elements which seem to enter the derivation in the object position appear as the subject of the sentence. The EPP is a stipulation which requires that a sentence have a subject (e.g. Chomsky 1986). With a transitive or unergative verb, the EPP forces the external argument of the verb, which enters the derivation in Spec voiceP, to move to Spec, IP. With an unaccusative verb, EPP forces the internal object to move to Spec, IP.

pointed out in Carrier & Randall (1992) in object sharing resultative constructions, the object of the result-denoting phrase must meet the selectional restrictions of the verb. Moreover, resultative constructions differ from a true small clause construction in at least one respect, as shown in (15-16).

- (15) a. John pushed the door open.
b. John pushed the door.
- (16) a. John considers Bill insignificant.
b. John considers Bill.

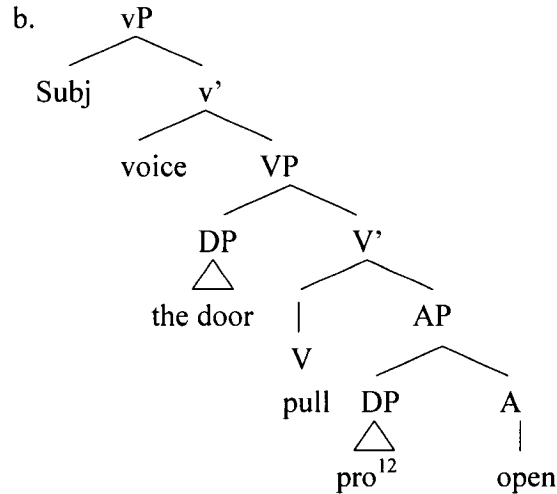
The sentence in (16a) is an example of a classic small clause construction (see Kayne 1985, Hoekstra 1988). The sentence in (16a), in which the verb takes a small clause complement, does not entail (16b), in which the verb takes the noun as the object. The sentence in (15a), a typical example of the resultative construction, entails (15b) in which the verb selects for the object. This entailment pattern is downplayed in works which assume the small clause structure (Hoekstra 1988, Kratzer 2004, Sybesma 1999). The point of these examples is that the object in the resultative construction is the object of the verb, as well as the object of the resulting state. This patterns with the interpretation of the object in direct causation structures discussed in the previous sections. I thus argue that the object-sharing resultative construction should be treated as containing the direct causal structure.

As I argued earlier, a directness restriction applies when the causing event is expressed as part of the meaning postulate of CAUSE, but not when the causing event is expressed as an argument of CAUSE. This syntactic restriction indicates that the specification about the causing event can only be expressed as part of the meaning postulate of the causative predicate, but not as its argument.¹¹ I thus propose that the verb in object sharing resultative constructions undergoes lexical coercion to acquire the causative meaning. As a consequence, we now treat the verb in the resultative construction as a causative verb. The causative coercion then allows the verb to directly combine with the phrase expressing the result state. I assume that the resulting state is

¹¹ Some researchers, however, proposed exactly this type of analysis, in which the causing event is expressed as the argument of the CAUSE verb. See Babko-Malaya (1999) and Lidz & Williams (2002).

equivalent to the caused eventuality. This allows the direct-concatenation structure of the construction shown in (17).

(17) a. John pulled the door open.



The structural relation between the verb and the result-denoting phrase shown in (17) reflects the structure commonly assumed for the resultative constructions (Hoekstra 1988, Rapoport 1999, and Larson 1988). Following Larson (1988), I assume that the verb *pull* undergoes head movement and is pronounced where voice is in the structure, thus creating the surface word order subject-verb-object-adjective. What is new in the current analysis is the idea that it is the lexical coercion which turns the verb into a causative predicate, and it is this coerced causative meaning of the verb that licenses the concatenation of the verb and the result-denoting adjective. The current analysis, thus, makes it explicit that there should be an independent mechanism of lexical coercion which turns a verb into a causative verb, and it is by virtue of the newly acquired causative meaning that the verb can combine with the AP. The structure can thus be interpreted as in (18).

(18) pull: $\lambda P \lambda x \lambda e [\text{pull}(e) \& \text{theme}(x)(e) \& \exists e' [P(x)(e') \& \text{cause}(e)(e')]]$
 AP: $\lambda x \lambda e' [\text{open}(e') \& \text{theme}(x)(e')]$

¹² The puzzle concerning the relation between the element noted as *pro* and the theme objects is discussed in 4.2.

The verb *pull* is originally a two-place predicate, taking an individual argument (x) and an event argument (e), and returns the value true if and only if there is an event (e) of pulling in which the individual x participates as the undergoer (theme). The lexical coercion increases the valency of the verb by one, by adding an additional argument (P). The verb then becomes a three place predicate which takes an event-denoting argument (AP), in addition to the two arguments it requires in the original lexical entry. The lexically coerced verb *pull* then returns the value true if and only if there is a state (e') holding of an individual (x) described by the adjective, which is in direct causal relation with the event (e) of pulling in which the individual (x) participates as the undergoer. The additional argument (P) is hence interpreted as describing the caused event, while the lexical verb (*pull*) provides the description of the causing event.

We may note here that the lexical coercion mechanism proposed in this thesis differs from the derived causative meaning discussed in Hale & Keyser (1993) in at least one crucial way. Hale & Keyser (1993) assumes that it is by virtue of having a result-denoting complement that the verb acquires the causative meaning. In this thesis, I propose that the verb acquires the causative meaning by lexical coercion, not by the structural position it appears in. Though the difference between Hale & Keyser's (1993) proposal and mine is subtle, we can see that not all verbs that take a small clause complement acquire a causative meaning. Perception verbs such as *see* and *hear*, for example, take a small clause complement (see Kayne 1985), but do not have a causative meaning. The existence of these verbs indicates that the causative meaning and the presence of a small clause complement must be dissociated. It is not necessary for a verb to have a causative meaning to combine with a small-clause complement. This dissociation makes it improbable that the presence of a small-clause complement should force the verb to be interpreted as having a causative meaning.

The exact nature of the small clause deserves a mention here. I am not committed to the idea that the verb directly combines with an adjectival phrase. Baker (2005), for example, argues that the adjective first combines with a verbal projection (PRED), which allows it to combine with the object. A number of researchers have postulated a similar

projection which intervenes between the adjectival phrase and the phonologically overt verb of the construction (see e.g. Snyder 1995, Embick 2004).

I remain neutral to the existence of this projection, though the current study reveals what property this element, if present, should have. As I will show in the following section, the smallest constituent which contains the adjective and the object must denote a state. This indicates that the element PRED, if present, does not contribute to the meaning of the construction. That is, the sole function of this element is to license the combination of the adjective and the object, as assumed in Baker (2005) or to provide categorial information, as assumed in Embick (2004). The lack of the semantic content, however, makes this element difficult to probe – the PRED head, in such an analysis is an element with neither phonological content, nor semantic content, and is postulated for purely formal reasons. For the sake of simplicity, I chose to represent only the adjectival phrase in the phrasal representation in this thesis.

3.2. Non-object sharing resultative constructions

In this section, I examine another type of resultative construction in which the object of the construction does not have to be interpreted as the object of the verb.¹³ As the following examples show, there are two ways this happens. In one case, an unergative, intransitive verb appears in the construction, and thus the object of the construction cannot be interpreted as the object of the verb (19a-b). In the second case, the verb can be transitive, but, due to the verb's selectional restrictions, the object of the construction cannot be interpreted as the object of the verb (19c-d).

- (19) a. Kotaro ran the carpet threadbare.
b. The dog barked Kotaro awake.
c. Dave drank himself sick.
d. The girl pushed her arm sore.

¹³ In English, we can be sure that a given resultative construction is formed by M-Incorporation only when the object of the construction is not the selected object of the verb. In other languages, such as Japanese (with the resultative V-V compound) and German, we can develop a more accurate description of M-Incorporation. In resultative constructions formed by M-Incorporation, the object of the construction can be interpreted as the object of the verb, but it does not have to be.

These examples in (19) have been used to motivate the small clause structure in Hoekstra (1988), and Kratzer (2004). Hoekstra (1988) argues that the small clause is in complementary distribution with the selected object. This explanation, however, does not capture how a verb's object position can be filled with a result-denoting small clause instead of the regular selected object.

In this section, I propose that these constructions contain a phonologically null causative verb to which the phonologically overt verb is syntactically adjoined. The mechanism proposed in this section is the same mechanism used to account for the resultative V-V compound in Japanese in Chapter 3. In both English and Japanese, the verb that describes the causing event adjoins to CAUSE. The non-object sharing type resultative construction in English differs from Japanese resultative V-V compounds in two respects. The first difference is a superficial one, concerning the form of CAUSE in the two languages. In Japanese resultative V-V compounds, CAUSE is realized as part of the V2, while in English CAUSE remains phonologically null. Additionally, this difference can be attributed to grammatical properties of these languages – Japanese grammar permits V-V compounding, while English does not. The second difference is that in Japanese, an obligatorily transitive verb may undergo this process and the object selection of this verb is suppressed.¹⁴ In English, there is extremely limited amount of evidence that an obligatorily transitive verb may participate in this construction.¹⁵ This is a puzzle that will not be addressed in this thesis.

The use of a phonologically null causative verb in English deserves some discussion. In English, the existence of a phonologically null causative verb, which selects for an adjectival root is postulated independently of resultative constructions (e.g. Marchand 1969).¹⁶ The following examples show that an adjective may have homophonous inchoative and causative verbal counterpart.

¹⁴ The difference between Japanese and English is probably due to the transitivity of manner verbs in these two languages. Transitive manner verbs are often obligatorily transitive in Japanese, while manner verbs are generally only optionally transitive in English.

¹⁵ German seems to have M-Incorporation as the sole mechanism to form the resultative construction. Researchers report that verbs that specify the effect of an event on the object (hence obligatorily select an object) may not appear in resultative constructions (Müller 2001, Wunderlich 1997).

¹⁶ Baker (2005) and Hoekstra (1988) discuss this type of the A-to-V conversion as well, but unlike Marchand's, their analyses of the A-to-V derivations may reflect what they assume of the resultative construction.

- (20) a. The door is open/The door opened/John opened the door.
 b. The air is cool/The air cooled/The rain cooled the air.

Generally, the adjectival form is taken to be the root, to which a verbalizing morpheme attaches. The following example shows that in some cases, the verbalizing morpheme is phonologically overt, and otherwise the relation between the three forms is the same as the pattern in (21).

- (21) Bill's teeth are white. Bill's teeth whitened. Bill whitened his teeth.

Thus the alternation pattern in (20a) can be analyzed as in (22)

- (22) The door is **open_A**/ The door **open- $\emptyset$ _{BECOME}-ed**/ John **open- $\emptyset$ _{CAUSE}-ed** the door

It is thus conceivable that the resultative construction contains this phonologically null causative verb. In the following example, the verb is formed with an adjectival root *awake* and a causative affix *-en*. The object of the verb is an individual who becomes awake, and the subject is an individual who causes the object to become awake.

- (23) The dog awakened John.

In the example (23), the interpretation of the subject and the object mirrors that of the example in (24).

- (24) The dog barked John awake.

In (24), like in (23), the object *John* is an individual who becomes awake, and the subject *the dog* in (24), like in (23), is the individual who causes John to be awake. The only difference between the two sentences is that in (24), the sentence specifies how the dog caused John to become awake. The phonologically overt verb in resultative constructions, thus simply specifies how the causative event is carried out. We have already seen that a lexical causative verb cannot take a second argument which describes the causing event,

if the two events are to be interpreted as being in a direct causative relation. I thus propose that the phonologically overt verb in (24) is syntactically adjoined to the phonologically null causative verb.

This analysis leads to the discussion on how the morphological form of the adjectival root is determined. When the adjectival root *awake* combines with a causative verb, it is generally realized as *awaken*. In the context of resultative constructions, however, the adjectival root is realized as *awake*, rather than *awaken*. I will return to this discussion at the end of the section.

I proposed a mechanism called M-Incorporation in Chapter 1. M-Incorporation allows the operation external Merge to adjoin a head to another head, thus creating a compound structure. Unlike Incorporation discussed in Baker (1988), M-Incorporation is formed by external Merge, instead of internal Merge (=Move). The element that is adjoined by M-Incorporation, by definition, enters the derivation as an adjunct, and thus it is interpreted as a modifier.¹⁷ Examples of M-Incorporation include adverb-verb compounds (25), but as I argue in Chapter 3, also verb-verb compounds, as shown in (26).

(25)a. *nə-tur-ew* *nətejkəkinet* *nelgət* (Chukchi :Spencer 1995 : 455)
 ADV-new-ADV they.are.making skin-ABS.PL

b. *nə-tur-tejk-əkinet* *nelk-ət*
 3PL.S-new-make-3PL.O skin-ABS.PL
 ‘They are making skins again.’

(26) a. *galga-t* *nə-rige-ekwet-inet* (Chukchi)
 bird-ABS.PL PL.S-fly-depart-3PL.S.
 ‘The birds flew away’

b. *Kotaro-ga* *doa-o* *osi-ake-ta.* (Japanese)
 K.-nom door-acc push-open-past
 ‘Kotaro pushed the door open.’

¹⁷ Levin & Rapoport’s (1988) analysis of resultative constructions is consonant with my analysis in this respect – they treat the verb in a resultative construction as being introduced by ‘by’, which implies that the verb is an adjunct/modifier of the main predicate.

I have proposed that the left-most verb in the V-V compounds above is syntactically adjoined to the right-most verb via Merge. Given that the phonologically overt verb in English intransitive resultative constructions simply describes how the causal event took place, it is plausible that the phonologically overt verb in this context is adjoined to the phonologically null causative verb, like the V1 in the above examples. Indeed, we can find empirical evidence supporting this analysis – but the evidence comes from Dutch, instead of English. Dutch provides more examples of intransitive resultative constructions. The following examples represent some of them.

(27) Intransitive verbs

- a. Hij schaatste het ijs kapot
he skated the ice cracked

(Hoekstra 1988: 115)

- b. Transitive verbs with un-selected objects
dat ik de tuin vol plant
that I the garden full plant (Hoekstra 2004:309)
'...that I fill the garden with plants (lit. that I planted the garden full)'¹⁸

- c. De boorhamer dreunde mij doof
the jackhammer pounded me deaf

(Hoekstra 1988: 116)

Moreover, in Dutch, unaccusativity is easy to see since the unaccusativity of the verb correlates with what type of auxiliary it appears with in the past tense (Hoekstra 1988). When a verb is unergative or transitive, it appears with the auxiliary *hebben* "have", and when a verb is unaccusative, it appears with the auxiliary *zijn* "be." The following examples show that a resultative construction containing an unergative verb can have unaccusative properties.

- (28) a. ... dat mijn jas nat geregend is
that my coat wet rained is

(Hoekstra & Mulder 1990, 25)

¹⁸ This translation is mine, in consultation with a Dutch speaker and the word-by-word gloss provided in the original.

This example suggests that despite its inherent propensity to appear with an external argument, the verb may appear in an unaccusative context.¹⁹ This fact is observed in Japanese V-V compounds as well, as shown in (29).

- (29) Ko:to-ga ki-kuzure-ta.
 Coat-nom wear-get.out.of.shape-past
 ‘The coat got worn out of shape.’

In (29), a transitive verb is used as the V1 of a compound. The V2 of the compound is an unaccusative verb, and the compound has the properties associated with unaccusative verbs, such as the case marking pattern. The theme argument of the compound appears with the nominative case marker, *-ga*. Examples of this type are discussed more extensively in Chapter 3. Here, it should be pointed out that this example in (27) shows that the V1 of the compound does not affect the transitivity of the compound. The argument structure of the compound is solely determined by the V2. The Dutch examples in (27) suggest that the phonologically overt verb in an intransitive resultative construction, like the V1 in Japanese V-V compounds, does not affect the transitivity of the compound. In the M-Incorporation analysis, the parallelism between the two constructions, Japanese resultative V-V compounds and English/Dutch intransitive resultative constructions is indeed expected. M-Incorporation, like head movement (i.e. incorporation) is an operation which targets syntactic heads rather than phrases. As an adjunct, the M-Incorporated head cannot project its own arguments. Semantically, the arguments of the adjoined head are thus existentially closed. Structurally, the arguments of the adjoined verb, thus, remain unprojected. Unlike their Japanese counterpart, however, English and Dutch verbs are M-Incorporated into a phonologically null CAUSE, which takes the result-denoting phrase as its complement. In (27), thus, the construction is unaccusative because the phonologically overt verb (*geregend* ‘rain’) is M-Incorporated onto the phonologically null CAUSE, which, in this sentence, combines with a non-external argument introducing voice.

¹⁹ Hoekstra (1988) and Hoekstra and Mulder (1993) provide a number of contexts in which an otherwise-unergative verb appears with the auxiliary *is*. These examples may be used to support M-Incorporation further, but the majority these examples involve a motion context, which I have decided to leave aside in this thesis.

In the next chapter, I will argue that the two verbs in Japanese V-V compounds are combined by adjunction in the syntax, and the concatenation is interpreted via the process of event identification, which I assume is a more general process than assumed in Kratzer (1996). Like theta-identification in Higginbotham (1985), event identification creates a complex predicate of an event, and the two predicates of the event which are identified are interpreted conjunctively. I am aware that there are other analyses of the relation between modifiers and the modified elements (see e.g. Cinque 1999, Morzycki 2005 for a review of these analyses), but for the sake of simplicity, I assume that conjunction captures this relation at least for the initial evidence we are attempting to capture. Thus the semantic relation between the phonologically null causative verb and the phonologically overt verb can be captured conjunctively, as shown in (30).

- (30) a. The dog barked Kotaro awake
 b. $\lambda e[\text{bark}(e) \ \& \ [\exists e'[\text{cause}(e)(e') \ \& \ \text{awake}(e') \ \& \ \text{theme}(\text{Kotaro})(e')]]]$
- $\swarrow \quad \searrow$
 BARK $[\text{CAUSEP} \ [\text{RESULTP} \ \text{Kotaro awake}]]$
 $\lambda e[\text{bark}(e)]$ $\lambda e[\exists e'[\text{cause}(e)(e') \ \& \ \text{awake}(e') \ \& \ \text{theme}(\text{Kotaro})(e')]]]$

Kratzer (2004) provides a similar analysis, in which she argues that the event argument of the phonologically overt verb is identified with the causing event. For the semantic aspect of the construction, my analysis mirrors hers.

3.3. The morphology of resultative constructions

As I have mentioned briefly, I should discuss how the form of the adjectival predicate is determined. When an adjectival root such as *awake* combines with a causative verb, it is realized as *awaken*. In the context of resultative constructions such as (24), I have argued that the adjectival root *awake* is the complement of the causative verb, but on the surface, it appears as *awake*, rather than *awaken*. The two statements above, despite how they may appear, are not contradictory. In order for the causative verb to affect the phonological realization of the adjectival root, it must be in a local relation with the adjectival root. In the usual case, when the causative verb takes a complement containing the adjectival root, the locality is achieved by the adjectival root undergoing head movement to adjoin to the causative verb. We should note here that this movement is

motivated by the affixal requirement of the causative verb (see Hale & Keyser 1993). The causative verb attracts an element to be adjoined to it so that it can be pronounced. Although it is rather counterintuitive in English, since the causative verb remains unpronounced in most contexts anyway (e.g. with *open*, *cool*, and *melt*), it seems to be the nature of the causative verb to induce head-movement. In the context of intransitive resultative constructions, however, M-Incorporation positions a phonologically overt verb as an adjunct to the causative verb, thus supplying its host. The causative verb's need to attract a host is therefore satisfied by the phonologically overt verb in the adjoined position. In turn, the adjectival root stays in situ and it is realized in its adjectival form.

A note on inflectional morphology is in order. It has been argued that once a phonologically null element is suffixed, phonologically overt affixes cannot be attached to it (Meyer's generalization, as noted in Pesetsky 1995: 75). Crucially, Meyer's generalization only applies to derivational affixes. Lexical causative constructions, when they contain an adjectival root, are analyzed as having the morphological form shown in (31a). Inflectional morphemes such as past tense *-ed*, and progressive *-ing* are able to attach to them, as shown in (31b).

- (31) a. They open_{ADJ-Ø_{VCAUSE}} the door.
 b. They opened the door.

The current analysis of intransitive resultative constructions, however, correctly captures the interaction of the constructions with Meyer's generalization. Carrier & Randall (1992) note that adjectival passive forms can be derived from transitive resultative constructions, but not from intransitive resultative constructions, as shown in (32).

(32) ADJECTIVAL PASSIVES FROM TRANSITIVE RESULTATIVES

- a. the stomped-flat grapes
the spun-dry sheets
the smashed-open safe
the scrubbed-clean socks

ADJECTIVAL PASSIVES FROM INTRANSITIVE RESULTATIVES ²⁰

- b. *the danced-thin soles
*the run-threadbare nikes
*the crowed-awake children
*the talked-unconscious audience (Carrier & Randall 1992: 195)

Adjectival passives contain a typical derivational morpheme, and as it is a derivational morpheme, it cannot attach to an element already suffixed with a phonologically null affix. The verb in intransitive resultative constructions, as I argued, has the morphological form V-Ø, while the verb in transitive resultative constructions is simply a V. Thus, the morphological evidence shown here supports the current analysis of resultative constructions.

4. THE OBJECT IN RESULTATIVE CONSTRUCTIONS

The position of the object of the resultative construction is one of the most controversial aspects in the traditional analyses this construction. The various analyses of the resultative construction, in fact, can easily be classified based on the position of the

²⁰ As a side, I would like to note that nominalization, unlike the V-to-A derivation shown in (30), does not distinguish transitive resultatives from intransitive resultatives. The following example is found in Dutch. Neelman and Van der Koot (2002) report that Dutch intransitive resultative construction can be nominalized and take the object of the construction as its genitive object.

- (i) het wakker meauwen van Frank (N&VdK 2002:6)
the awake miaowing of Frank

Similarly, English intransitive resultatives can undergo nominalization.

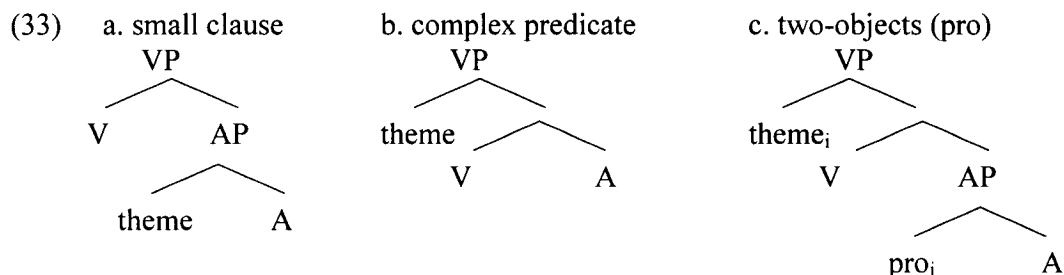
- (ii) the barking-awake of the baby (by the dog)

object each analysis assumes.²¹ In order to evaluate these approaches, I examine the empirical facts about the constructions and point out analyses which are incompatible with the evidence. However, I will not be able to point out the exact nature of the object, because, as I will show in the following sections, the empirical evidence is conflicting, and the available mechanisms still too immature to solve this conflict. I will point out possible directions of research which will hopefully lead to answering the questions raised in this section, but some aspects of the construction will continue to be a puzzle in this thesis. This section will, thus, mainly point out the problems in the traditional analyses rather than solve them. We should also note that the discussion in this section focuses on the object sharing resultative constructions, because it is the nature of the shared object that leads to the controversy.

The three approaches, as represented below, differ in the assumed position of the object. In one approach, the object of the construction is represented once, and it is in the small clause (Hoekstra 1988, Kratzer 2004, Sybesma 1999). I refer to this approach as the small clause approach. In another approach, the object is represented once but this object is combined with a complex predicate, consisting of the result-denoting adjective and the cause-denoting verb. I refer to this approach as the complex predicate approach. In the other approach, the object is represented twice in the structure – once as the object of the verb, and the second time as the object of the result-denoting predicate. I refer to this approach as the pro approach. In this section, I examine the properties of the object of the construction and show that the lower position of the object of the construction receives a strong support, while the higher position of the object, associated with the cause-denoting verb is problematic. However, we should also note that the object of the object-sharing resultative construction must be the object of the cause-denoting verb. Given this restriction, I tentatively conclude that the object of the construction is represented twice,

²¹ There is, in fact, another approach which can be referred to as the bi-eventive predicate approach. In this approach, researchers postulate a predicate which takes as its argument, two event-denoting phrases (i.e. VP, and AP). This predicate is sometimes labeled as “telic” (e.g. Snyder 1995) and sometimes CAUSE (Babko-Malaya 1999, Lidz & Williams 2002). As I argued in Chapter 1, even the CAUSE predicate, found in the lexical causative construction, which is the most likely predicate to take two event-denoting arguments, in fact, does not take two event-denoting arguments when it expresses direct causation. This fact suggests that we should be very careful when we postulate a predicate which takes two event-denoting arguments. I leave the evaluation of this approach for future research.

as postulated in the pro-analysis. The tree diagrams in (31) illustrate how the object would be represented in these three approaches.



The arguments in this section are organized into three parts. First, I provide evidence for a constituent containing the theme object and the adjective, but not the verb. Based on this evidence, I exclude the complex predicate analysis, since the constituency it assumes contradicts the evidence. Second, I revisit the distinction between the object sharing resultative construction (i.e. lexical-coercion type) and the non-object sharing resultative construction (i.e. M-Incorporation type) and argue that in order to capture their difference, we should favor the pro-analysis over the small clause analysis. Third, I show the limits of pro-analysis.

Before we examine the key facts, we should note that not all researchers acknowledge that there are two types of resultative constructions as we do here. Hoekstra (1988), for example, assumes that the small-clause analysis applies to all the resultative constructions, and various researchers have followed his approach and have attempted a unified analysis (e.g. Sybesma 1999, Kratzer 2004). Hoekstra's (1988) small-clause analysis, however, is largely based on the evidence from the intransitive resultative construction, which in this thesis is associated with the M-Incorporation type resultative construction. The premise of the small-clause analysis is hence that the object of the resultative construction is not selected by the phonologically overt verb. Given that this premise does not hold when we deal with the object sharing resultative construction, the small-clause analysis is ill-suited for the resultative constructions containing an obligatorily transitive verb.²² As I mentioned in the previous section, the phonologically overt verb of the intransitive resultative construction does not project its argument, and

²² A criticism along the same line of thought is found in Carrier & Randall (1992).

thus the object of the intransitive resultative construction is treated as the object of the construction. In contrast, the object of the object sharing resultative construction must be treated as the object of the verb, as well as the object of the construction, and it is this complex role of the object that has brought up the various analyses presented in this section. For this reason, the small-clause analysis, which is largely supported by evidence from the M-Incorporation type resultative construction is left aside in the following discussion. From now on, I focus on the object sharing resultative construction, and examine how the two approaches (the complex-predicate approach and the pro-approach) fare in accounting for the various properties of this class of resultative construction.

4.1. The result-denoting constituent

In a complex predicate hypothesis, the adjective and the verb is assumed to form a unit (a complex predicate) and the object of the construction, to combine with this complex predicate. In this section, I examine the two different analyses which have used this complex predicate mechanism. Then, I will show a piece of evidence with the adverb *again*, which suggests that the constituency assumed in a complex-predicate analysis cannot be the correct one.²³

Neeleman and van de Koot (2002) propose a complex predicate analysis based on the examples which suggest that the verb and the adjective in Dutch resultative constructions form a constituent. The examples are shown in (34).²⁴

- (34) Resultative construction
- a. De kat zal Frank wakkermeuwen
 The cat will Frank awake miaow (N &K 2002: 6)
 ‘The cat will miaow Frank awake’

 - b. het [wakker meuwen] van Frank
 the awake miaowing of Frank (N&K 2002:6)

²³ We should note that the discussion in this section crucially relies on the assumption that the interpretation of *again* reflects the constituent it adjoins to (Von Stechow 1996)

²⁴ Unfortunately, the examples here contain an intransitive verb. Since those are the examples given in the original work, and the authors assume that the transitive resultative construction has the same constituency, I treat these examples as relevant.

c. Dit is het geluid waar de kat Frank mee [wakker
 this is the sound that the cat Frank with awake
 miauwde]
 miaowed

These examples, as Neelman & van de Koot (2002) point out, suggest that the verb and the adjective form some kind of a constituent. However, these examples do not conclusively show that the constituent containing the verb and the adjective excludes the object. The two predicates are indeed adjacent in the example in (34c), for example, but it does not mean that the object *Frank*, or its unpronounced copy, cannot be within the structure containing the verb and the adjective. Before I show why the constituent proposed in their analysis is problematic, we should review a separate argument which may lead to a similar complex-predicate type analysis.

In the Event Structure framework (e.g. Tenny 1992, Ramchand 1997, 2003, and Folli 2000), the aspectual properties of a predicate are assumed to indicate its structural representation. A verbal projection may maximally contain a part which describes the process, or causation, and another which describes the state the process brings about.²⁵ In this framework, the end state of the event is uniquely specified (Tenny 1992). A verb which is inherently telic contains as its lexical information the state the object comes to have (Levine & Rappaport Hovav 1992). Examples of such verbs are shown in (35).

- (35) a. Bill broke the window in five minutes.
 b. Bill froze the popsicle in five minutes.

The sentences in (35) express bound eventualities, and thus are compatible with the adverbial phrase *in five minutes*. Moreover, the verbs in these sentences are telic, since they specify what kind of state the object come to have at the end of the event. The verb *break* inherently specifies an endpoint in which the object is broken, and the verb *freeze*, an endpoint in which the object is frozen. In resultative constructions, the adjective also describes the endpoint of the event, by describing what state the object comes to have at the end of the event. In the Event Structure framework, then, when a telic verb is used in

²⁵ Some researchers (e.g. Ramchand 1997, 2003, and Folli 2000) assume that there is another predicate between the two mentioned here, describing the transition.

a resultative construction, the unique specification of the endpoint must contain the endpoint the verb describes, as well as the state the adjective expresses. The following examples illustrate this point. In (36a), the two verbs *break* and *freeze* are telic. The endpoint of the event these sentences express are thus the state of the object being broken open, and the state of the object being frozen solid, respectively. In contrast, the resultative constructions in (36b) contain atelic verbs. In these sentences, thus, it is only the adjectives that specify the endpoint of the event.

(36) a. RESULTATIVE CONSTRUCTIONS WITH TELIC VERBS

Bill broke the window open.

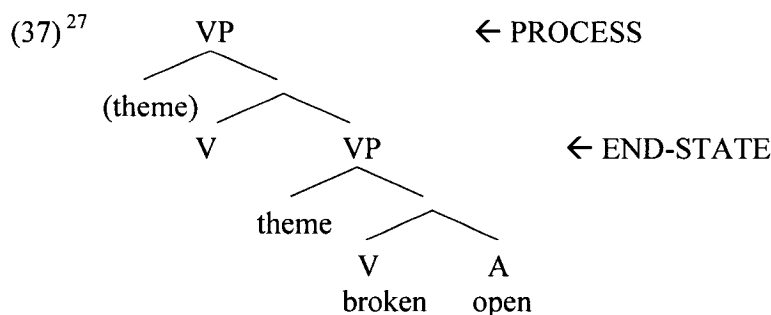
Bill froze the popsicle solid.

b. RESULTATIVE CONSTRUCTIONS WITH ATELIC VERBS

Bill wiped the table clean.

Bill pushed the window open.

In the telicity-based approaches, the examples in (36), which contain telic verbs, would therefore receive a different treatment from the examples in (36b), which contain atelic verbs (see e.g. Rothstein 2004). The following diagram illustrates the structure that would be assumed for the first sentence in (36a) in the Event Structure approach.²⁶ Following Folli (2000) and Ramchand (2003), I represent the theme object twice in the structure, which reflects the intuition that the object *the window* is an element that undergoes a process, as well as the element that comes to have the end-state.



²⁶ Baker's (2005) analysis of resultative constructions employs a very similar structure.

²⁷ This is a simplified version of a structural representations found in the Event Structure framework. Some researchers have a more articulated VP structure (see e.g. Folli 2001, Ramchand 2003).

In contrast, in the lexical-coercion analysis I propose, the verb *break* and *freeze* in resultative constructions should be treated as describing the causing event, and thus the adjectival resultative phrase is the only element which describes the end state of the event. The coercion mechanism I postulate is not sensitive to the inherent aspectual properties of the verb – telic verbs such as *break* and atelic verbs such as *push* are all treated as providing the description of the causing event in resultative constructions.

Below, I examine the behavior of the adverb *again* to show that the resultative constructions with atelic verbs and telic verbs are not structurally distinct. Crucially, in both cases, the adjectival result phrase and the object form a constituent, which excludes any part of the verb, contra the structural representation that would be assumed in a complex predicate approach, as shown in (37), and (33b).

When the adverb *again* is used with an accomplishment event, its interpretation is ambiguous. In addition to the repetitive reading of *again*, which is available with any predicate, *again* may receive what is known as the restitutive interpretation when it combines with a predicate with an end-state denotation (Dowty 1979, von Stechow 1996, Beck & Johnson 2004). The examples in (38) illustrate this interpretation.

- (38) a. John opened the door again.
b. John gave Mary the book again.

These sentences are ambiguous. In one reading, the sentence in (38a), if true, asserts that John had opened the door before and he did it again. Similarly, the sentence in (38b) asserts that John had given the book to Mary before and he did it again. This is the repetitive reading. In the second reading, the sentence (35a) merely asserts that the door was open before and John caused the door to be open again. The sentence in (38b), similarly asserts that Mary had the book previously, and John caused Mary to have the book again. The latter reading is called the restitutive reading. The different interpretations of *again* are assumed to reflect the position *again* may be adjoined to in syntax (von Stechow 1996, Beck & Johnson 2004), as schematized in (39).

- (39) a. John [cause [[the box open] again]]
 b. John [cause [[Mary have the book]again]].

The restitutive reading of *again* suggests that, in (38a), there is a constituent in which denotes the state in which the door is open (39a), and, in (38b), there is a constituent which denotes a state in which Mary has the book (39b). Following the spirit of the Generative Semantics analysis, von Stechow (1996) argues that the lexical predicate (e.g. *open*, *have*) undergoes head movement to create the surface form (e.g. *open*, *give*). The adverb *again* can thus be used to probe for an embedded constituent which denotes a state which is brought about by the action denoted by the verb.

Following this line of thought, we can use the adverb *again* to test for the underlying constituency of the resultative construction. The following example contains the adverb *again* and a resultative construction, formed with a telic verb *break*.

- (39) John broke the safety-deposit box open again.

The restitutive reading of *again* in this sentence asserts that there was a state of the box being open previously, and that John's breaking of the box has restored that state. The availability of the interpretation suggests that the constituent that denotes the end-state contains the object, *the safety-deposit box*, and the adjective, *open*, but not the result-denoting part of the verb *break*. The availability of the restitutive reading of the sentence is problematic in the complex predicate analysis, in which the constituent which contains the adjective and the theme also contains (part of) the verb. In other words, a complex predicate analysis would wrongly predict that the restitutive reading of the sentence in (39) must assert that the safety-deposit box was broken open previously. Moreover, although the verb in the resultative construction in (39) is a telic verb, the construction does not differ from a resultative construction containing an atelic predicate as shown in (40).

- (40) John hammered the metal flat again.
 Restitutive reading: the metal was flat, and John's hammering restored this state.

The restitutive interpretation of the sentence in (40) is exactly the same as the restitutive reading of the sentence in (39). These examples suggest that the two types of resultative constructions, as classified as distinct in an aspect-based approach, are in fact indistinguishable as far as the adverb *again* is concerned. The adjective and the theme object form a constituent which denotes the state the object comes to have at the end of the event. This endpoint specification, crucially, excludes the endpoint information a telic predicate inherently carries (e.g. *broken*). The interpretation of the adverb *again* is thus inconsistent with the constituency assumed in the complex predicate analysis, while the other two analyses (pro analysis and the small clause analysis) predict the pattern correctly. I thus conclude that we should favor a small-clause analysis and a pro-analysis over a complex-predicate analysis.

Having excluded the complex predicate analysis, we are left with two possible accounts of the object. As I implied earlier, the small clause analysis is originally constructed based on the intransitive resultative constructions (see e.g. Hoekstra 1988), while the pro-analysis, based on the transitive resultative constructions (e.g. Beck & Johnson 2004). The division between the two accounts, however, is not as simple as the transitivity of the verb. In the next section, I examine the behavior of quantifiers, combined with the adverb *again*. The discussion is first brought out in Jäger & Blutner (2003), who argue against a structural analysis of *again* completely. Though I do not share their view that the interpretation of the adverb *again* should be dissociated from any structural decomposition, I acknowledge that much of the behavior of the quantifiers will remain unaccounted for.

4.2. Remaining puzzle – the higher position of the object

The two remaining hypotheses of the object position – the small clause analysis and pro-analysis – both contain a position for the object in the result-denoting phrase, and it is this assumption that makes them distinct from the complex-predicate analysis. The two hypotheses, however, differ from each other in how the relation between the cause-denoting verb and the object is represented. In the pro-analysis, the object is represented as a lexically-selected argument of the verb, as well as the object of the result-denoting phrase. In the small-clause analysis, the object is solely the object of the result-denoting

phrase. The contrast between the two analyses, thus, corresponds well to the contrast between the two types of the resultative construction seen in Section 3. The transitive resultative construction requires that the object of the construction be the object of the verb, and the intransitive resultative construction does not. Therefore, the presence of an object, which can only be the object of the construction, is permitted in the intransitive resultative construction (41a), but not in the transitive resultative construction (41b).

- (41) a. John sang himself tired.
 b. * John broke himself tired.

The distinction represented in (41) motivates the classification in this thesis, and the distinction can be attributed to the required selectional relation between the verb and the object in the transitive resultative construction, and the lack thereof in the intransitive resultative construction. The relation between the object and the verb, in turn, can be captured in the pro-analysis, which can be distinguished from the intransitive resultative constructions which can be analyzed as having the small clause structure.²⁸ However, there is evidence which suggests that even in the transitive resultative construction, the object should not be represented in the higher clause.

The problematic examples are constructed based on the arguments presented in Jäger & Blutner (2003), and they involve the behavior of an indefinite object with the adverb *again*. Jäger & Blutner's (2003) original examples do not include resultative constructions, and the evidence they consider to be problematic, in fact, can be solved within a decompositional approach. However, I show when we examine the implication of their evidence in the context of the resultative construction, we encounter a more difficult puzzle. In this section, I examine Jäger & Blutner's (2003) argument that *again* cannot be used to test for the underlying structure, and show that the puzzle they present, in fact, can be accounted for in a decompositional analysis. Then, I show that it is when we examine a similar puzzle in the context of the resultative construction that we encounter a real problem.

²⁸ Of course, the two resultative constructions also differ in the position of the verb. In intransitive resultative construction, the verb is adjoined to the causative verb, and in the transitive resultative construction, the verb is the causative verb. At the end of this section, I will discuss if it is possible to reduce the difference between the two constructions to just this point.

Jäger & Blutner (2003) argues that the following example is problematic for a structural account of *again*.

(42) A Delaware settled in New Jersey again.

The interaction of the indefinite argument *a Delaware* and the two reading of *again* makes this sentence four-way ambiguous. First, the two repetitive readings of *again* are shown in (43).

- (43) a. [again [a D settles in New Jersey]]
b. [a Delaware [again [x settles in New Jersey]]]

Aside from the two repetitive readings, there are two restitutive readings. In one reading, a Delaware once lived in New Jersey, moved out, and then he/she returns to New Jersey. The state that is restored is the state of him being in New Jersey. In the second reading, the sentence asserts that at least one Delaware once lived in New Jersey, and they were then expelled. A different Delaware settles in New Jersey, for the first time for him/her, but his/her settlement restores the state of a Delaware being in New Jersey. In the latter reading, the restitutive *again* takes scope over an indefinite argument (*a Delaware*), as schematized in (44).

(44) [settle [[a Delaware in New Jersey] again]]

Jäger & Blutner (2003) argue that the availability of this reading is detrimental to a compositional account of *again*, such as von Stechow's (1996). They argue that, as an agentive argument of *settle*, *a Delaware* must be base generated as the argument of CAUSE, above the position associated with a restitutive *again*. However, the interpretation of *again* just discussed suggests, in a compositional approach, that the adverb *again* must take scope over the indefinite argument. Jäger & Blutner (2003) thus concludes that a compositional analysis of *again* erroneously construe a structure as shown in (44), in which the agentive argument is positioned lower in the structure.

Jäger & Blutner's (2003) argument crucially assumes that the structure in (44) is erroneous. Contrary to their assumption, I argue that the structure in (44), as puzzling as it may be, is a correct representation of the sentence in (42), and thus conclude that the adverb *again* picks out a correct underlying constituent.

As reported in Levin & Rappaport Hovav (1992), there is a construction in which the sole argument is agentive, but syntactically, this agentive argument behaves as though it is base-generated in a position lower than normal agentive argument (i.e. the position associated with theme). This construction is known as the directed motion construction (see also Hoekstra 1988, Hoekstra & Mulder 1993). The following example from Dutch represents this class.

- (45) dat Jan in de sloot gesprongen is
 that Jan in the ditch jumped is
 'that Jan jumped into the ditch.'²⁹ (Hoekstra & Mulder 1990: 8)

In Dutch, like in Italian, the selection of the auxiliary verb can be used to identify unaccusative constructions (Hoekstra 1988). In (45), the subject of the sentence is agentive (he jumps), but the choice of the auxiliary *is* indicates that this construction is unaccusative. Tests for unaccusativity are more subtle in English, but Levin & Rappaport Hovav (1992) argue that the same pattern is observed in English. They claim that in English, intransitive verbs of motion, when the goal is stated explicitly, are unaccusative. We should recall that the key example in Jäger & Blutner (2003) also expresses a motion (settling) and the goal state (being in New Jersey). In light of the discussions in Levin & Rappaport-Hovav (1992), we would then expect that the volitional argument of this construction to behave as though it were base-generated in a position associated with the theme argument. In other words, we expect the construction to be unaccusative, in which the sole argument of *settle* enters derivation in the theme position, despite the volitional interpretation it has. The “key” interpretation of *again*, as shown in (44), thus confirms what we know of this construction – that the volitional argument of a directed motion

²⁹ The translation is constructed based on the word-by-word gloss and the discussion following the example in the original.

construction is a theme, rather than agent. I thus conclude that the adverb *again* indeed picks out a correct underlying constituent in (42).

Having concluded that a structural analysis of *again* is tenable, we must now face a new puzzle. As we just saw, the use of an indefinite object with the adverb *again* creates a four-way ambiguous sentence. In the context of a resultative construction, we see a sentence such as the one in (46).

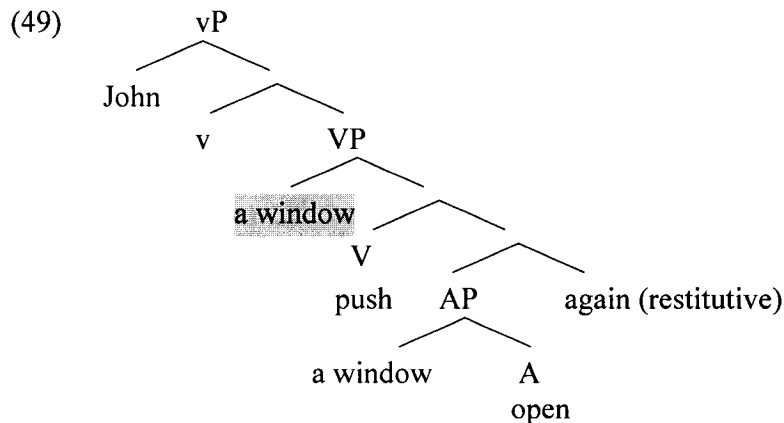
(46) John pushed a window open again.

Again, the repetitive/restitutive interpretations of *again* and their interaction with the indefinite theme object *a window* makes this sentence four-way ambiguous. The two repetitive readings of *again* is shown in (47) and the two restitutive readings in (48).

- | | |
|---|---|
| (47) a. [again [John push a window open] | repetitive <i>again</i> , non-specific |
| b. [[a window] _x again [John push x open]] | repetitive <i>again</i> , specific |
| (48) a. [John push [again [a window open]]] | restitutive <i>again</i> , non-specific |
| b. [John push [[a window] _x again [x open]]] | restitutive <i>again</i> , specific |

When the existential (*a window*) is within the scope of *again*, the window which was previously opened does not have to be the same window as the window that John opened this time – i.e. we get the non-specific interpretation of the indefinite. When the indefinite takes scope over *again*, the window in the presupposition and the window in the current situation have to be the same (i.e. the indefinite is specific). The crucial evidence is that the non-specific reading of the indefinite with the restitutive reading of *again* is available, as represented in (48a). As we saw previously, I have adopted von Stechow's (1996) analysis of *again*, in which, following the Generative Semantics approach (Morgan 1969, McCawley 1971), the different interpretation of *again* reflects the position *again* adjoins to. The restitutive reading of *again* is thus taken to show that this adverb adjoins to the result-denoting phrase. The interpretation in (48a), however, suggests that this adverb takes scope over the indefinite object *a window*. This interpretation, in a structural analysis, indicates that the quantified object must be below the restitutive *again*, which in

turn indicates that the object cannot be represented in the cause-denoting part of the structure. The problem can be represented visually as in (49).



The shadow shows the position where the theme object should be represented in order for it to be interpreted as the object of the verb *push*. This position, however, is outside of the scope of the adverb *again*, which needs to adjoin to the result-denoting AP in order to receive the restitutive interpretation.

The presence of the interpretation presented above brings out a serious problem. On one hand, we need to represent the theme object as the object of the cause-denoting verb, in order to ensure that the verb in the transitive resultative construction indeed selects this object. The representation of the object in this position ensures that the transitive resultative construction is different from the intransitive resultative construction, or a true small clause structure as shown in (14). On the other hand, the presence of the object in this position contradicts the interpretation of the adverb *again*, as pointed out in Jäger & Blutner (2003). Unfortunately, I do not have a solution to this puzzle, and I will still continue to assume that the object is represented as the object of the cause-denoting verb as well as the object of the resulting state.

5. CONCLUSION

In this chapter, I investigated the resultative construction in English. I first argued that the resultative construction is a type of lexical causative construction. The resultative construction patterns with the lexical causative construction in how they describe events.

In both constructions, there are two sub-events, that are in a causal relation. Moreover, the two sub-events in these constructions are associated with a single Davidsonian event. The similarity between the two constructions – the resultative construction and the lexical causative construction – is attributed to the presence of the predicate CAUSE in both constructions.

I also pointed out that, syntactically, the CAUSE predicate must be a one-place predicate. This property of the CAUSE predicate gave us the guidelines for how resultative constructions should be analyzed. I argued that the verb that describes the causing event is either coerced into being CAUSE itself, or M-Incorporated into a phonologically null CAUSE. In the former case, the verb maintains its original argument structure, and the arguments of the construction are interpreted as the arguments of the verb. In the latter case, in contrast, the arguments of the construction need not be interpreted as the arguments of the verb.

I then reviewed a puzzle originally noted in Jäger & Blutner (2003) and discussed how this puzzle also applies to the resultative construction. I noted that the positions of the objects of the resultative construction are controversial. Tentatively, I posited that the lowest copy of the object and the result-denoting adjective form a constituent that excludes any part of the verb, and that in the transitive resultative construction, there is a higher copy of the object in the cause-denoting part of the structure.

In the next chapter, we investigate Japanese resultative V-V compounds. I argue that these compounds are formed by the same mechanism as the intransitive resultative constructions (i.e., M-Incorporation). Then, in Chapter 4, I argue that Èdó resultative serial verb construction, on the other hand, is formed by the same mechanism as the object sharing resultative construction – lexical coercion.

Chapter 3

RESULTATIVE V-V COMPOUNDS IN JAPANESE

1. INTRODUCTION

As I argued in the previous chapters, the main proposal in this thesis is that the resultative construction is a type of causative construction. More specifically, the resultative construction is a type of lexical causative construction, which contains the predicate CAUSE. In the previous chapter, we saw how this idea pans out in English. In this chapter, I examine the resultative V-V compound in Japanese and show that this resultative construction too can be analyzed as a type of causative construction containing the predicate CAUSE. The resultative V-V compound provides crucial pieces of evidence for the current investigation, largely because this construction can be compared to various constructions that minimally differ from it. The relevant constructions that are compared to the resultative V-V compound (1) in this chapter are the aspectual V-V compound, the lexical causative, and the syntactic causative, as exemplified in (2).

- (1) Kotaro-ga isu-o oshi-taoshi-ta.
 K.-NOM chair-ACC push-topple-PAST
 ‘Kotaro toppled the chair by pushing.’

(2) a. ASPECTUAL V-V COMPOUND

 Kotaro-ga gohan-o tabe-hazime-ta.
 K-NOM meal-ACC eat-begin-PAST
 ‘Kotaro began to eat the meal.’

b. LEXICAL CAUSATIVE

 Kotaro-ga isu-o kow-asi-ta.
 K-NOM chair-ACC break-cause_{LEX}-PAST
 ‘Kotaro broke the chair.’

c. SYNTACTIC CAUSATIVE

 Kotaro-ga Naoko-o hasir-ase-ta.
 K-NOM N.-ACC run-cause_{SYN}-PAST
 ‘Kotaro made Naoko run.’

All these constructions involve two predicates which are realized as a single, morphologically complex word. The comparison among these constructions, thus, can highlight the role of semantic relations and the underlying syntactic structure, rather than the effect of compounding or related morphological restrictions as assumed in the Strong Lexicalist approach (e.g., DiSciullo & Williams 1987).

These four constructions can be classified into two types based on the assumed underlying structure, as shown in (3).

- | | |
|-----------------------------------|-----------------------------|
| (3) a. MONO-CLAUSAL CONSTRUCTIONS | b. BI-CLAUSAL CONSTRUCTIONS |
| Resultative V-V compounds | Aspectual V-V compounds |
| Lexical causatives | Syntactic causatives |

The grouping of the lexical causative construction and the resultative V-V compounds are expected in the approach we are taking, and in the following section I provide empirical evidence supporting this classification. The classification also patterns with the traditional analysis of V-V compounds in which the resultative V-V compounds are treated as lexical and the aspectual V-V compounds as syntactic (Kageyama 1989); the lexical causative as lexical, and syntactic causative as syntactic (Shibatani 1976). As I argued in the previous chapters, the so-called lexical-syntactic distinction in the context of causative constructions in fact relates to their structural differences, rather than the different modules they are formed in. Similarly, I argue that the difference between the two types of V-V compounds in Japanese should be attributed to their structural differences. In Section 7, I show that the morphological evidence used to support this lexical-syntactic distinction in Kageyama (1989) can be captured in the current structure-based analysis.

I have argued in the previous chapters that in one type of resultative construction, the cause-denoting verb is a modifier of CAUSE, rather than its argument. In the resultative V-V compound, this claim entails that the relation between the two verbs of the compound is modification rather than selection. I present evidence supporting this treatment of the V1 in Section 4. The structural position of the V1 also has an important

consequence for how the V1 and its argument are interpreted. In Section 5, I examine the nature of the internal argument of the V1, and argue that this argument remains unprojected. In Section 6, I examine unaccusative resultative V-V compounds and argue that the V1 must be adjoined to CAUSE, regardless of the transitivity of the compound. In Section 7, I examine the morphological properties of the resultative V-V compound. In doing so, I review the properties of the resultative V-V compounds which have previously received lexical analyses (e.g Kageyama 1989 and Fukushima 2005) and show that the current analysis can capture the relevant facts without resorting to a lexical analysis.

In the following section, I examine resultative V-V compounds and show that these compounds have the properties of lexical causative constructions discussed in the previous chapters. Crucially, I show that the relevant properties of the resultative V-V compounds should be attributed to their mono-clausal structure, rather than to the surface structure in which the two verbs appear as a compound. For this purpose, I briefly examine the lexical causative construction and syntactic causative construction in Japanese, which are both realized as morphologically complex verb forms. I then provide an analysis of resultative V-V compounds as having the M-Incorporated structure, in the same way English intransitive resultative constructions are analyzed in the previous chapter.

2. EVENTS AND RESULTATIVE V-V COMPOUNDS

As I argued in the previous chapters, lexical causative constructions contain a predicate CAUSE and another predicate describing the caused event. We also saw that lexical causative constructions differ from syntactic causative constructions in at least three respects: the caused event in a syntactic causative construction is associated with a Davidsonian event, while the caused event in a lexical causative construction is not. Lexical causative constructions must express direct causation while syntactic causative construction can express direct or non-direct causation.¹ The embedded predicate which

¹ As a side note, I would like to point out that the Japanese syntactic causative construction, which is expressed with a causative suffix *-(s)ase* differs from the English syntactic causative construction in this respect. Unlike their English counterpart, Japanese syntactic causative constructions cannot express direct causation. See Shibatani (1976), Kuroda (1965b) for a detailed discussion.

expresses the caused event in lexical causative constructions is VP while the embedded predicate in syntactic causative constructions is voiceP or a larger constituent.

In this section, I demonstrate that when the above mentioned criteria are applied, the resultative V-V compounds have the properties of the lexical causative construction. However, the fact that two verbs are expressed as a compound raises the possibility that the diagnostic test that we used for English does not accurately test the mono-clausal/bi-clausal distinction in Japanese.² In order to ensure that we are probing the mono-clausal/bi-clausal distinction rather than morphological/phrasal distinction, I show in section 2.2 that the tests we use in section 2.1 correctly distinguish the lexical causative construction from the syntactic causative construction, both of which are expressed with a causative suffix.

2.1. Resultative V-V Compounds and CAUSE

In this section, I show that the resultative V-V compounds in Japanese have the properties of the lexical causative construction, in the same way the resultative construction in English does. We should recall that, in the previous chapter, we saw that manner adverbs, such as *slowly*, modify Davidsonian events, but not sub-events. These adverbs can modify the caused event of a syntactic causative construction, which makes reference to a Davidsonian event, but not the caused event of a lexical causative construction, which does not make reference to a Davidsonian event. We then saw that with a resultative construction, these adverbs cannot modify just the caused event either, and thus concluded that resultative constructions pattern with the lexical causative construction.

In this section, we consider the same type of argument in support of the resultative-causative analysis. Before we start the discussion, however, I should first point out a caveat, not because it affects the result of these tests, but because it affects how we need to interpret the result. In the previous chapter, I compared the lexical causative construction and the resultative constructions in English. The relation between the lexical causative construction and the resultative V-V compound is more obvious in

² The Lexical Impenetrability condition of DiSciullo & Williams (1987), for example, is a potential explanation.

Japanese, since the resultative V-V compound, in many cases, includes a lexical causative verb as its subpart. In a resultative V-V compound, the first verb (V1) describes the causing event, and the second verb, the caused event. What we should note is that the second verb can be transitive, consisting of a verbal root expressing the caused event, and a lexical causative suffix, as shown in (4).

- (4) Kotaro-ga isu-o oshi-tao-**si**-ta.
 K.-NOM chair-ACC push-topple-**cause**_{LEX}-PAST
 ‘Kotaro toppled the chair by pushing it.’

We have already seen, at least for English, that the caused event of a lexical causative is not associated with a Davidsonian event. Since the caused event in the resultative compound is expressed as part of the lexical causative verb (V2), it is expected that this caused event is not associated with a Davidsonian event. This fact, on one hand, is positive since it brings out the relation between the lexical causative construction and the resultative construction discussed throughout this thesis – the resultative construction is the lexical causative construction plus an additional piece of information about the causing event. In the case of the resultative V-V compound, the V1 provides this additional information added to the lexical causative V2. On the other hand, it makes the similarity between the two constructions appear trivial, and we should be careful not to let the argument be circular. For this reason, I will examine the diagnostic tests discussed in the previous chapters, but the main focus is given to the expression of the causing event (V1) rather than the caused event which is already embedded in the lexical causative construction (V2). In addition, we examine resultative V-V compounds which contain an unaccusative V2. As I argued in Chapter 1, the existence of unaccusative resultative constructions suggests that transitivity (the presence or absence of an external argument) and causativity are distinct. The resultative V-V compound with an unaccusative V2, moreover, provides additional evidence that a resultative construction, even if it is unaccusative, is still a type of causative construction. The resultative V-V compounds, in a sense, bring out the dissociation between causativity and transitivity, and in addition, suggest that the so-called lexical causative suffix in Japanese is, in fact, realizes voice rather than CAUSE. I will come back to this point in Section 6.

We have already seen in the previous chapters that adverbs cannot modify just the caused event of a lexical causative construction. In the example in (5), we see that the adverb cannot just modify the causing event described by the V1, or just the caused event expressed as part of the V2.

- (5) Kotaro-ga isu-o yukkuri oshi-taoshi-ta.
 K.-NOM chair-ACC slowly push-topple-PAST
 ‘Kotaro slowly toppled the chair by slowly pushing it (i.e. both pushing and toppling was slow).’

As I already mentioned, the behavior of the adverb with respect to the caused event is expected since the caused event is expressed as part of the lexical causative verb (i.e. the V2) within the compound. Therefore, a manner adverb cannot modify just the caused event. What is notable about the interpretation of (5) is that the adverb cannot just modify the event that the V1 describes either. The sentence in (5) does not mean that only Kotaro’s pushing of the chair was slow. Instead, the adverb *yukkuri* ‘slowly’ necessarily modifies the entire event and hence the sentence expresses that Kotaro’s pushing and the resulting falling of the chair was slow. This example suggests that the causing event of pushing, which the V1 of the compound expresses, is not associated with its own Davidsonian event. Instead, there is only one Davidsonian event in the sentence in (5), and therefore, the adverb *yukkuri* ‘slowly’ is unambiguously interpreted. In addition, the interpretation of the adverb with this sentence suggests that the two events (pushing and toppling) are in a direct causation. As I discussed in Chapter 2, when two events are in direct causation, the adverb *slowly* requires correspondence between the two events.³ We see here that the adverb *yukkuri* ‘slowly’ in Japanese likewise requires correspondence between the pushing event and the toppling event.⁴ The sentence in (5) indeed asserts that all parts of Kotaro’s chair-pushing correspond to the toppling of the chair.

Having seen an example of resultative V-V compounds with a transitive V2, we may now turn to an example of resultative V-V compounds with an unaccusative V2. The

³ Again, see Krifka (1999) for a formal discussion of correspondence.

⁴ This sentence expresses a slightly odd situation, because it implies that Kotaro’s hands were on the chair and he was controlling the falling of the chair until it had fallen on its side. It is important for us to consider this example because the oddity of the interpretation tells us that it is the grammar (i.e., the correspondence requirement, triggered by the adverb) that forces this interpretation, rather than the pragmatics.

resultative V-V compounds with an unaccusative V2 do not face the same confounding factors as the transitive ones. The predicate that expresses the caused event is a verb (V2) which combines with a verb which expresses the causing event, as shown in (6).

- (6) Mushi-ga yake-shin-da
insect-NOM burn-die-PAST
‘The insect died by burning.’

When the manner adverb *yukkuri* ‘slowly’ is used with this compound, we see that there is only one interpretation, as shown in (7).

- (7) Mushi-ga yukkuri yake-shin-da.
Insect-NOM slowly burn-die-PAST
‘the insect slowly burned to death.’

In the sentence in (7), what is slow is the process leading to the death of the insect, and, crucially, the burning of the insect must be identified as this process. This sentence in (7) is false if the insect died a slow death after suffering from a quick but fatal burning. Instead, this sentence asserts that the insect was burning until it died, and that it took a long time dying. Again, the relation between the burning event and dying event expressed in this sentence should be characterized as that of correspondence, which suggests that the two events (burning and dying) are in a direct relation. Unlike the compound formed with a transitive V2, as shown in (5), the direct relation of this compound in (7) should really be attributed to the nature of the compound.

2.2. Lexical and syntactic causative constructions in Japanese

In this section, we examine the behavior of manner adverbs with the lexical causative construction and the syntactic causative construction in Japanese. In a nutshell, the behavior of manner adverbs in Japanese is the same as the behavior of manner adverbs in English – they may modify just the caused event in the syntactic causative construction, but not in the lexical causative construction. However, in English, the lexical/syntactic distinction of the causative constructions also coincides with the morphemic/phrasal distinction. The lexical causative construction in English is expressed with a mono-

morphemic verb, while the syntactic causative construction is expressed with a causative verb with an embedded phrase. Researchers have thus suspected that the tests which are argued to be sensitive to the mono-clausal/bi-clausal distinction are in fact biased by the morphological/phrasal distinction (e.g. Lakoff & Ross 1972). In contrast, both lexical and syntactic causative constructions are expressed with a verbal base and a causative suffix in Japanese. The fact that manner adverbs behave differently with lexical causative constructions and with syntactic causative constructions, therefore, suggests that the property we observed in the previous section cannot be attributed to a morphological condition such as the Lexical Impenetrability (DiSciullo & Williams 1987).⁵ Therefore, we conclude at the end of this section that the behavior of the adverb presented in the previous section suggests that the resultative V-V compound, like the lexical causative construction, has a mono-clausal structure.

In Japanese, lexical causative constructions are expressed either with a mono-morphemic verb (8a) or a verb with a lexical causative suffix (8b), as shown in Shibatani (1971).

- (8) a. Neko-ga sara-o wat-ta
 Cat-NOM dish-ACC break-PAST
 'A cat broke the dish (i.e. he caused it to be broken).'
- b. Neko-ga sara-o kaku-si-ta
 Cat-NOM dish-ACC hide-cause-PAST
 'A cat hid the dish (i.e he caused it to be hidden).'

In this section, I focus on the bi-morphemic lexical causative verb, so that we can examine the lexical and syntactic causative constructions which differ from each other minimally. Syntactic causative constructions, like bi-morphemic lexical causative constructions, are expressed with a verbal stem and a causative suffix *-(s)ase*⁶ (e.g. Kuroda 1965a, b), as shown in (9).

⁵ Shibatani (1976) discusses examples similar to the ones shown below, to argue against another morphological condition proposed in Lakoff & Ross (1972).

⁶ Miyagawa (1984) argues that in some cases, this suffix should be analyzed as a lexical causative. In this thesis, I do not discuss this point. I simply chose examples with these suffixes which, according to Miyagawa's (1984) criteria, are unambiguously syntactic causatives.

- (9) Kotaro-ga neko-ni sara-o war-ase-ta.
 K.-NOM cat-DAT dish-ACC break-cause-PAST
 ‘Kotaro made the cat break the dish.’ (cf. 8)

The two causative constructions differ from each other exactly in the way one would expect mono-clausal constructions and bi-clausal constructions to differ from each other. Shibatani (1976) presents three tests to show this distinction: (1) the caused event of syntactic causatives, but not of lexical causatives, can function as the antecedent of a VP anaphoric expression *soo su-ru* ‘do so,’ (2) adverbs may take scope over just the caused event of a syntactic causative, but not of the lexical causative, and (3) the pronoun *sore* may refer to the caused event of a syntactic causative but not the caused event of a lexical causative. In this section, I focus on the behavior of adverbs.

As in English, lexical causative constructions contain a single Davidsonian event, and thus manner adverbs treat the construction as an atom that they can modify. The following lexical causative example in (8) shows exactly the same effect of the adverb that we observed with the resultative V-V compounds in the previous section. The following sentence in (10) shows that the interpretation of the adverb *yukkuri* ‘slowly,’ when it appears with a lexical causative, is unambiguous. The adverb can be placed before or after the object, without affecting the interpretation.

- (10) Taro-ga (yukkurito) Jiro-o (yukkurito) korog-asi-ta.
 T.-NOM slowly J-ACC slowly roll-CAUSE-PAST
 ‘Taro slowly rolled Jiro.’

This sentence asserts that both the causing and caused events were slow. As we saw with the resultative V-V compounds, the adverb *yukkuri* ‘slowly’, when it modifies a single Davidsonian event containing two Parsonian sub-events, requires that there be correspondence between the two events, in the way discussed in Krifka (1999). The progression of the causing event corresponds to the unfolding of the caused event, and it is the unfolding of both events that was slow. This requirement holds when the adverb appears with a lexical causative sentence, as in (10).

As I mentioned in previous chapters, syntactic causative constructions contain an embedded clause, which is associated with its own Davidsonian event. A manner adverb

can modify just the caused event or just the causing event. In Japanese, the ambiguous interpretation of the adverb in the following sentence is, hence, expected. We should however recall that when two predicates appear within a morphologically complex word, there is a reason to assume that independently of the nature of the underlying representation, the adverbial test would not work, due to the Lexical Impenetrability condition (DiSciullo & Williams 1987). The following sentence in (11) shows that contrary to such expectation, the adverb can modify just the caused event of a syntactic causative construction, which is expressed as part of the morphologically complex verb.

- (11) a. Taro-ga yukkurito Jiro-o korogar-ase-ta.
 T.-NOM slowly J.-ACC roll(unacc)-CAUSE-PAST
 ‘Taro slowly made Jiro roll.’
- b. Taro-ga Jiro-o yukkurito korogar-ase-ta.
 T.-NOM J.-ACC slowly roll(unacc)-CAUSE-PAST
 ‘Taro made Jiro roll slowly.’

The two sentences in (11) differ from each other in the position of the adverb *yukkurito* ‘slowly.’ When the adverb is placed before the object, the sentence can mean that only the causing event was slow: it took Taro a long time to successfully coerce Jiro into rolling. With this interpretation, the sentence is true if after a lengthy discussion, Jiro quickly rolled. In contrast, when the adverb is placed after the object, this sentence means that the caused event was slow. The sentence is true even if Taro quickly instructed Jiro, as long as Jiro rolled slowly. This example shows that the correspondence condition we observed with the lexical causative construction in (11) does not hold when the adverb appears with a syntactic causative. Moreover, this example suggests that the behavior of the adverb we observed for the lexical causative construction and the resultative V-V compounds should not be attributed to a morphological constraint such as the Lexical Impenetrability Condition, but rather to their structure and the event-related properties.

3. ANALYSIS

In the previous section, we saw that Japanese resultative V-V compounds have the properties of a mono-clausal construction. In contrast with syntactic causative

constructions, manner adverbs, which treat lexical causative constructions, treat resultative V-V compounds as a unit as well. As I argued in the previous chapters, this pattern strongly suggests that the resultative construction is a type of lexical causative construction. The resultative V-V compound, moreover, makes clear the relation between a regular lexical causative construction and the resultative construction. In the resultative construction, there is an extra predicate which describes the causing event, while, in the lexical causative construction, the nature of the causing event is generally left unspecified. I then proposed a mechanism called M-Incorporation in which a verb that describes the causing event enters the derivation as an adjunct on the causative predicate (CAUSE). I argued that M-Incorporation is the mechanism which allows the cause-denoting intransitive verb to appear in a resultative construction in English. In this section, I claim that M-Incorporation is the mechanism which combines the two verbs in Japanese resultative V-V compounds.⁷ The operation M-Incorporation can be defined as in (12).

(12) M-Incorporation

- a. The syntactic operation (External) Merge combines two lexical elements α and β , creating the syntactic object $\Sigma = \{\alpha, \beta\}$, where β is the label of Σ .⁸
- b. The derivational mechanism of syntax thus projects the formal features of β , whereas the features of α will remain unprojected.
- c. At PF, the syntactic structure $\{\alpha, \beta\}$ is interpreted as a compound.
- d. At LF, the element α is interpreted as a modifier of β , via event identification.

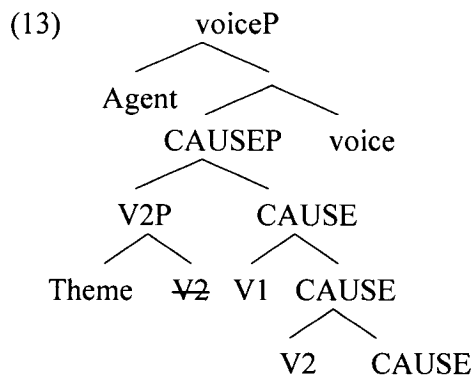
As I mentioned in the previous chapters, M-Incorporation should be thought of as a simpler version of Incorporation. The local structure created by M-Incorporation is identical to the structure created by Incorporation (i.e., head adjunction). However, the M-Incorporated head, unlike its Incorporated counterpart, does not have a lower copy in the phrase structure. In both Incorporation and M-Incorporation, the head adjoined

⁷ Japanese also has phrasal resultative constructions that contain a verb and a result-denoting adjective phrase. Japanese adjectival resultative construction patterns with English transitive resultative constructions, rather the intransitive one, and hence, I leave out a discussion on this construction in this thesis. See Wasio (1997), for example, for details of this construction.

⁸ This definition describes one way of applying M-Incorporation. In particular, M-Incorporation may apply after the Merge and Move involving the object have applied, following the late-merger of adjunct hypothesis (Lebeaux 1988, Fox 2002). This late-merger option seems more appropriate given the Chukchi example in which the object combines with the verb before the adjunct. However, this option is not explored in this thesis.

structure is interpreted as a compound at PF. At LF, however, the absence of the lower copy has an effect on how the adjoined element is interpreted. Unlike the Incorporated element, the M-Incorporated element must be interpreted at the adjoined position, since this is where this element enters the derivation.

In Japanese resultative V-V compounds, as in other incorporated structures (e.g., aspectual V-V compounds) in this language, the head (in the sense of Williams 1981) of the compound is the right-most element. The structure of a resultative V-V compound can be represented as in (13). As I will discuss in the following sections, CAUSE in Japanese resultative V-V compounds is realized as part of the V2, as V2 raises to CAUSE by head movement.



The V1, which enters the derivation by M-Incorporation adjoins to the complex V2-CAUSE. As such, this element is interpreted as a modifier of the V2, to which it is adjoined. As the V1 is interpreted as describing the causing event, the V1 in a resultative V-V compound can be seen as a modifier of CAUSE. I will come back to this point of the exact position of the V1 in section 6. It is intuitive that manner verbs, which express the manner of an event, constitute the class of verbs that may appear as the V1 of resultative V-V compounds. Moreover, as we will see more in detail in section 6, the object of the V1, if it has one, is suppressed, and the otherwise transitive V1 behaves as though it is an

intransitive verb when it is M-Incorporated.⁹ The interpretation of a resultative V-V compound can be formulated as follows: the lexical causative V2 (14a) and the V1, which expresses a simple event (14b) are Merged together. As I discussed in the previous chapters, I follow Davidson's (1967) and Higginbotham's (1985) idea and assume that modification is the conjunction of predicates with the identification of one of their arguments (the (e) of the V1 and the causing event (e) of the V2).¹⁰

- (14) a. LEXICAL INFORMATION OF V2
 $\lambda e \exists e' \lambda x [\text{be.broken}(e') \ \& \ \text{Theme}(e', x) \ \& \ \text{cause}(e, e')]$
- b. LEXICAL INFORMATION OF V1
 $\lambda e \lambda y [\text{beating}(e) \ \& \ \text{Theme}(e, y)]$
- c. COMPOUNDING (WITH OBJECT SUPPRESSION APPLIED TO THE V1)
 $\lambda e \exists e' \lambda x [\text{be.broken}(e') \ \& \ \text{Theme}(e', x) \ \& \ \text{cause}(e, e') \ \& \ \text{beating}(e)]$

For Taro-ga isu-o tataki-kowasi-ta.
 T.-NOM chair-ACC beat-break-PAST
 'Taro broke the chair by beating it.'

It must be noted here that the theme argument of the V1, unlike that of the V2, is left out in the formula. As I will argue in Section 5, when a verb is used as the V1 of a compound, one of two things seems to happen to its logical object. The object of the compound must be interpreted as the object of both verbs if the selectional restrictions of the two verbs allow such interpretation. If, in contrast, the selectional restrictions of the two verbs are such that the object of the V1 cannot be the same as the object of the V2, the logical object of the V1 remains implicit, and its interpretation is inferred in a non-syntactic way. This behavior of the implicit object of the V1 is due to the fact that the V1

⁹ Japanese resultative V-V compounds provide a very limited cases of unergative V1s. The example in (i) is reported in Matsumoto (1997) and (ii) in Kageyama (1996).

- (i) Happa-ga mai-agat-ta.
 Leaf-nom dance-rise-past
 'A leaf rose, twirling'
- (ii) Taro-ga me-o naki-harasi-tei-ta.
 T-nom eye-acc cry-cause.swell-PROG-past
 'Taro had his eyes swollen by crying.'

¹⁰ It is possible that the correct representation of adverbial modification requires function-application instead of conjunction (see e.g. Cinque 1999). In such an approach, I assume that the formal representation in (14) can be translated into is function-application equivalent.

does not project its own phrase. The argument of the V1 remains unprojected, and I propose that this object of the V1, in this context, is existentially closed. This mechanism of existential closure effectively does away with formal binding involved in the interpretation of the empty categories which are present in a syntactic representation. The existentially closed object of the V1 is restricted only by the Directness Condition that holds of the two verbs of the compound. A detailed discussion of the internal arguments of the compound is given in Section 5.

In the following sections, we also see that the structure created by M-Incorporation differs from that created by Incorporation.¹¹ The V1 of resultative V-V compounds is subject to stricter morphological restrictions than the V1 of an Incorporated compound, and the relation between the two verbs in the two types of compounds is different. An Incorporated element may enter the derivation as the complement of the incorporating predicate, since the operation Move does not affect the thematic interpretation of the structure, and the incorporated element that is realized as an adjunct by Move will still be interpreted as a complement of the incorporating predicate, where it first entered the derivation. In the case of aspectual V-V compounds, the V1 is interpreted as the predicate of the embedded clause, as illustrated in (15).

- (15) Taro-ga gohan-o tabe-hazime-ta.
 T.-NOM meal-ACC eat-begin-PAST
 ‘Taro begun to eat the meal.’

Embedded clause [X gohan tabe]
 ‘eat the meal’

An element that is adjoined by M-Incorporation, in contrast, enters the derivation as an adjunct. The adjoined element is thus interpreted as a modifier, like adverbial phrases, and adverbs that enter the derivation as adjuncts. In the case of a Japanese resultative V-V compound, the V1 modifies the event that the V2 describes, and the arguments of the V2 are realized as the arguments of the compound. I will come back to this point in the next section.

¹¹ The term Incorporation (with a capital I) refers to the type of compounds formed by the movement of a head to adjoin to another. It can be thought of as incorporation à la Baker (1988).

This proposal allows the interpretation of the V1 to be accounted for, as well as the distinction between the two types of V-V compounds in Japanese. In the following sections, I examine how this proposal helps understand the morphological and syntactic properties of these compounds.

4. THE ADJUNCT STATUS OF THE V1

In the previous section, I proposed that the resultative V-V compound in Japanese is created via the mechanism I refer to as M-Incorporation. M-Incorporation creates a structure much like the one created via Incorporation, but M-Incorporation is a simpler operation than Incorporation and does not involve a lower copy of the incorporated head. In an aspectual V-V compound, for example, the incorporated head (V1) first enters the derivation as an argument of the incorporating head (V2), and projects its own phrase. Then, the V1 undergoes head adjunction via head movement (Incorporation), and this is how the surface compound structure is created (Baker 1988), while the V1 is still interpreted as the argument of the incorporating head. In resultative V-V compound, in contrast, the V1 enters the derivation as an adjunct of the V2. There is no lower copy of the incorporated head, where an incorporated element would project its phrase. At LF, the V1 is interpreted as a modifier of the incorporating head (V2). In order to evaluate the current analysis, I will compare how it compares to traditional analyses of the resultative V-V compound (e.g. Kageyama 1989, Li 1990, Matsumoto 1996, Fukushima 2005) that claim that these compounds are formed in the lexicon.

Crucially the current analysis differs from other works on resultative V-V compounds in assuming that the V1 of the compound is an adjunct. There are two consequences of this proposal. First, it is an adjunct, and as such I do not assume that there is any element in the structure which selects it as its argument. Second, this head does not project its own phrase. I will discuss the second point in the following section. In this section, I provide supporting evidence for the adjunct-ness of the incorporated head (i.e. the V1 of the compound).

4.1. The argument structure of the compound

First, we should note how the argument structure of the compound is determined. Research on V-V compounds in East Asian languages generally focuses on how the argument structures of the two verbs are combined (e.g. Kageyama 1989, Li 1990, Matsumoto 1996, Fukushima 2005). In some cases, the arguments of the compound are understood as the arguments of both verbs and in others, they are understood as the argument of just one of the verbs. In the current analysis, in contrast, the argument sharing properties receive a secondary place in the analysis – that is, I propose that, in determining the argument structure of the compound, the argument structure of the V1 plays no role. The argument of the compound may be interpreted as the argument of the V1, but no other properties of these arguments follow from whether or not they are arguments of both verbs or of just one.

A resultative V-V compound may consist of two verbs of the following types: transitive-transitive, transitive-unaccusative, unaccusative-unergative, unaccusative-unaccusative, and transitive-ditransitive.¹² In traditional analyses, these patterns are treated one by one.¹³ Again, in the analysis in this thesis, we do not need to focus on each pair. Since we treat the V1 as an adjunct, we do not expect it to have any influence on the argument structure of the compound. We thus expect that the argument structure of the compound is determined solely by the argument structure of the V2. We see that a resultative V-V compound with a transitive V2 is transitive, and a resultative V-V compound selects for an argument that matches the selectional restrictions of the V2. In Section 5, I return to the discussion of the status of the internal argument of the V1, but here, it suffices to say that in determining the argument structure of the compound, the internal argument of the V1 is irrelevant.

The following examples show that the argument structure of a resultative compound reflects that of the V2, and not of the V1. In (16) the transitivity of the two verbs does not match.

¹² As I mentioned earlier, there are few unergative-transitive and unergative-unaccusative compounds too.

¹³ The class of compounds I refer to as the resultative V-V compound is a subset of the compounds called lexical compounds in Kageyama (1989). In his classification, all the compounds that are not syntactic are classified as lexical and resultative V-V compounds as well as some idiosyncratic compounds fall in this category. Matsumoto (1996) on the other hand classifies the type of V-V compound I examine into two classes – result compounds and means compounds. I argue, in section 6, that these compounds differ in the exact position where the V1 is adjoined, but not in the mechanism which is used to combine the two verbs.

- (16) a. Posutaa-ga kabe-ni hari-tsui-ta.
 poster-NOM wall-LOC paste-get.attached-PAST
 'A poster got pasted on the wall.'
- b. Jimen-ga fumi-katamat-ta.
 ground-NOM stomp-harden (unacc)-PAST
 'The ground got hard by (someone's) stomping.'

In these examples, the V1s are transitive verbs and the V2s unaccusative.¹⁴ When these verbs are used separately, an agentive external argument must appear with the V1 (17), but not with the V2 (18).

- (17) a. Kotaro-ga posutaa-o kabe-ni hat-ta.
 Kotaro-NOM poster-ACC wall-LOC paste-PAST
 "Kotaro pasted the poster on the wall."
- b. Kotaro-ga jimen-o fun-da.
 Kotaro-NOM ground-ACC stomp-PAST
 "Kotaro stomped on the ground."
- (18) a. (*Kotaro-ga) posutaa-ga/o kabe-ni tui-ta.
 Kotaro-NOM poster-NOM/ACC wall-LOC get.attached-PAST
 "The poster got attached to the wall"
- b. (*Kotaro-ga) jimen-ga/o katama-ta.
 Kotaro-NOM ground-NOM/ACC harden(UNACC)-PAST
 "The ground hardened."

These examples with the simple verbs show that the the verbs that appeared as the V1s of the compounds in (16) are, in non-compound contexts, transitive (17), while the V2s of the compounds are always unaccusative (18). Given the combination, transitive-unaccusative, one might expect the compound to be transitive, but, as the following

¹⁴ The absence of homophonous causative-inchoative alternation makes it easy to prove this point for Japanese. The unaccusative V2s in (16) *tuk* and *katamar* each have a transitive counterpart, which are morphologically distinct, as shown below.

- i) Kotaro-ga posutaa-o kabe-ni **tuke-ta**.
 Kotaro-NOM poster-ACC wall-loc attach.TRANS-PAST
 'Kotaro attached a poster to the wall.'
- (ii) Kotaro-ga jimen-o **katame-ta**.
 Kotaro-NOM ground-ACC harden.TRANS-PAST
 'Kotaro hardened the ground.'

examples show, the resultative V-V compounds with an unaccusative V2s are ungrammatical when they appear with an agentive argument.

- (19) a. *Taro-ga postaa-o/ga kabe-ni hari-tsui-ta.
 Taro-NOM poster-ACC/NOM wall-LOC paste-get.attached-PAST
- b. *Taro-ga jimen-o/ga fumi-katame-ta
 Taro-NOM ground-acc/nom stomp-harden-PAST

Regardless of the case-marking of the theme arguments (*posutaa* ‘poster’/*jimen* ‘ground’), the presence of the agent argument results in ungrammaticality. These sentences thus indicate that the V2 determines whether the compound may appear with an external argument or not. Moreover, agent-oriented adverbial clauses cannot appear with these compounds, as shown in (20).

- (20)a. *Yari-ga wazato zimen-ni tuki-sasat-teriu.
 Arrow-NOM on.purpose ground-DAT thrust-pierce-PROG-PRES
 Intended meaning: the arrow is stuck on the door by someone thrusting it there on purpose
- b. *Yari-ga [PRO Jiro-o bikkuri-sase-ru tameni]
 Arrow-NOM J-ACC startle-CAUSE-PRES in.order.to
- gimen-ni tuki-sasat-teiru.
 ground-DAT thrust-pierce.unacc-PROG-PRES.
 Intended meaning: the arrow is stuck on the door by someone thrusting it there in order to startle Jiro.

The inability of a purpose clause or purpose adverbial to appear in a clause is taken to indicate the absence of an external argument (see Manzini 1983 for the original discussion, and Nishiyama 1998 for the use of this test in Japanese). These examples, thus, confirm that the resultative compounds with an unaccusative V2 and a transitive V1 are unaccusative.

As a side note, we should note that the way the transitivity of the compound is determined in these examples provides an additional piece of evidence that there are two types of resultative constructions. As we will see in Chapter 4, in Èdó and †Hoan, the way the transitivity of the construction is determined completely differs from the Japanese pattern seen above. In these languages, when the transitivity of the two verbs

does not match, it is the transitivity of the V1 (the verb that describes the causing event) that determines the transitivity of the construction, rather than the V2, which describes the result. As such, I argue that Èdó and †Hoan resultative constructions have a lexical coercion structure like English transitive resultative constructions, rather than the M-Incorporation structure like Japanese resultative V-V compounds.

Following Kratzer (1996), I assume that the transitive/unaccusative distinction is encoded in voice, which subcategorizes for VP (with such verbs as *run*) or CAUSEP (with such verbs as *kill*). The behavior of the compounds shown in (19) follows if we assume that the voice associated with the compound and the V2 are in a direct selectional relation. An unaccusative (non-external introducing) voice selects for an unaccusative V2, and as such a compound with an unaccusative V2 cannot appear with an external argument.

The selectional properties of the compound, like its transitivity, indicate that the V1 does not play any role in determining these properties of a compound. A resultative V-V compound shows the same selectional restrictions as its V2. In Japanese, it is possible for two verbs with different selectional restrictions on their objects to form a resultative V-V compound. The two verbs, *huk* “wipe” and *tor* “remove”, for example, select for different types of objects. *Huk* “wipe” selects for an object that describes the surface to be wiped, while *tor* selects for an object that is removed (from the surface), as shown in (21).

- (21) a. Kotaro-ga kao-o hui-ta.¹⁵
 Kotaro-NOM face-ACC wipe-PAST.
 ‘Kotaro wiped his face’
- b. Kotaro-ga (kao-kara) hokori-o tot-ta.
 Kotaro-NOM (face-from) dust-ACC remove-PAST
 ‘Kotaro removed dust (from his face).’

When these two verbs form a resultative V-V compound, the object of the compound is interpreted as describing the object being removed, and not the surface which is wiped, as illustrated in (22).

¹⁵ If we use *hokori* ‘dust’ as the object of this sentence, the sentence would mean that Kotaro is wiping the surface of dust, which must be really big – i.e. Kotaro must be cleaning the surface of the dust in order for the sentence to be true..

- (22) Kotaro-ga hokori-o huki-tot-ta.
 Kotaro-NOM dust-ACC wipe-remove-PAST
 ‘Kotaro removed the dust by wiping.’

These examples indicate that when the selectional restrictions of the two verbs do not match, the selectional restrictions of the V2 determine those of the compound.

4.2. The aspect of the compound

In this section, I present another piece of evidence that the V1 plays little role in determining the properties of the resultative V-V compound. We examine the aspectual classification of the compound, and see that this property, too, is determined by the properties of the V2, regardless of the aspectual class of the V1.

In Japanese, an achievement verb receives a result state interpretation when it is marked with a progressive morpheme *-tei*, as shown in (23) (see McClure 1996, and Uesaka 1996 for an analysis of this morpheme *-tei*).

- (23) a. Musi-ga sin-da.
 insect-NOM die-PAST
 ‘The insect died.’
 b. Musi-ga sin-dei-ta.
 insect-NOM die-PROG-PAST
 ‘The insect was dead.’

This property only holds for achievement verbs. When an activity verb is suffixed with the progressive morpheme, the verb receives a progressive interpretation (24).

- (24) a. Musi-ga obore-ta.
 insect-NOM struggle.in.water-PAST
 ‘The insect struggled in water.’
 b. Musi-ga obore-tei-ta.
 insect-NOM struggle-PROG-PAST
 ‘The insect was struggling in water’

The sentence in (24b) does not imply any resulting state of struggling in water, such as being drowned. It only means that at one point, the insect was having trouble keeping its head out of the water. This interpretation is due to the aspectual properties of the verb

obore ‘struggle in water.’ If the aspectual properties of the compound reflect the properties of the activity verb *obore*, the compound will show the progressive interpretation with the progressive morpheme. If instead the aspectual properties of the compound reflect the properties of the achievement verb *sin*, it will show a result interpretation with the progressive marker. The compound formed with these two verbs has the achievement interpretation, consistent with the properties of the V2 *sin* ‘die’ but not of the V1 *obore* ‘struggle in water’.

- (25) Musi-ga obore-sin-dei-ta.
 insect-NOM struggle.in.water-die-PROG-PAST
 ‘The insect was dead due to drowning.’ NOT ‘The insect was drowning.’

These examples indicate that the aspectual properties, as well as the argument structure, of the compound are determined by the properties of the V2.

The importance of these examples will be more clear in Chapter 4, when we see Èdó examples which have very similar forms to these examples. In the Èdó resultative serial verb construction, when an activity-denoting V1 and a stative V2 are combined, the construction expresses accomplishment rather than a state or activity. Thus, in Èdó resultative serial verb constructions, unlike in Japanese resultative V-V compounds, the aspectual properties of the construction are determined compositionally. Again, these examples suggest that the resultative constructions formed by M-Incorporation are distinct from resultative constructions formed by lexical coercion.

5. THE INTERNAL ARGUMENT OF THE V1

By definition, the element that is adjoined by M-Incorporation is a head. For the same reason that for Incorporation Move operates on two heads, for M-Incorporation Merge operates on two heads. The M-Incorporation analysis of the resultative V-V compound then has the consequence that the V1 of the compound does not project its own phrase. The V1 enters the derivation as an adjunct on the V2, and as I have argued in the previous section, the V2 projects its own phrase, without any regard to the presence of the V1.

In order to evaluate the M-Incorporation hypothesis, we need to seek potential counterevidence for the claim that the V1 does not project its own phrase. In an

alternative hypothesis, the V1 would be expected to project its own phrase. This alternative hypothesis, thus, would predict that the internal argument of the V1 would be projected. This argument might not be phonologically overt, but, the presence of this argument should be detectable. The presence of the internal argument of the V1, therefore, is the key distinguishing point between the current M-Incorporation analysis and the alternative analysis. The discussion below leads to the same conclusion we reached about the intransitive resultative constructions in English in the previous chapter. The Japanese examples, however, are more insightful because Japanese verbs are obligatorily transitive, as I will show below.

In this section, I thus present evidence which suggests that the argument of the V1 is not projected, hence, suggesting, in turn, that the V1, indeed, does not project a phrasal structure. Recall that the V1 of a compound is either unaccusative or transitive, and Japanese speakers have the intuition that there is some element that undergoes the action described by the V1, since the V1 obligatorily takes an object.¹⁶ This logical object of the V1 is henceforth referred to as the implicit object, without implying whether this element is represented in the phrase structure or not. If this element were present in the representation, it would be a type of empty category, and thus would behave like some other empty categories. If this element fails to pattern with any known empty category, it would be evidence against the empty-element hypothesis, and hence, evidence in favor of the current hypothesis that this element is not projected in the structure.

The essential point of this section is that the implicit object of the V1 may or may not be identical to the overt object of the compound. Given this variation, we could either have two separate analyses for the two cases or have one analysis, which can account for both cases. I have chosen the latter option, since, as far as I can tell, the two types of compounds – one in which the object is shared and the other in which the object is not – do not differ from each other in any other way. Given that the presence or absence of the object sharing does not correlate with other properties of the compound, we should strive to have a unified analysis of the two types of compounds. The current analysis, in which

¹⁶ In the majority of the cases, the V1 of a resultative V-V compound is either transitive or unaccusative, and Japanese transitive manner verbs are not always optionally transitive the way English are. Again, the handful of unergative V1s shown in the earlier footnote present the rare cases where the suppression of the object is unnecessary.

the object of the V1 is not projected in the syntactic structure, therefore, allows us to separate the question of how the argument structure of the compound is determined, from the question of what happens to the internal argument of the V1.

Moreover, once we establish that the implicit object of the V1 is not present in the syntactic structure, I speculate how then the implicit object of the V1 is interpreted. I propose that this interpretation can be derived from conditions on events, such as the Directness Condition. I first examine the interpretation of the object of the V1 in the mismatched cases and note two facts about the implicit object of the V1, which contrast it with regular null objects.¹⁷ First, the implicit object of the V1 cannot be phonologically realized. Japanese allows so-called object drop, in which the object of the sentence is not pronounced (see e.g. Huang 1983 for a detailed description of null objects). One major difference between the general object-drop cases and the implicit argument of the compound instance is that in the object-drop case, a phonologically overt object may be used instead of the null object (26a). The implicit argument of the V1, on the other hand, cannot be phonologically realized, as shown in (26b).

- (26) a. Kotaro-ga (kao-o) arat-ta.
 Kotaro-NOM face-ACC wash-PAST
 “Kotaro washed his face.”
- b. Kotaro-ga hokori-o (*kao-o/ni) arai-otosi-ta.¹⁸
 Kotaro-NOM dust-ACC face-ACC/DAT wash-remove-PAST
 “Kotaro washed dust”

Second, there is a contrast between regular null objects and the implicit arguments of V-V compounds, when the potential antecedent is not provided in the context. That is, the referent of a regular null object must be present in the discourse, but this restriction does not apply to the referent of the implicit object of a compound.

¹⁷ We should keep in mind, however that in most compounds, the object of the V1 is identical to the overt object of the compound.

¹⁸ The two case particles (accusative *o* and dative *ni*) are used to make sure that this ungrammaticality is not due to the double *o* constraint of Japanese.

(27) Situation: Naoko walked into the kitchen, and found a wet mop. Naoko said to her roommate “The mop is wet ...”

- a. “Nanika-o hui-ta-no?” OVERT EXISTENTIAL OBJECT
something-acc wipe-past-Q
“Did you wipe something?”
- b. “#Hui-ta-no?”¹⁹ REGULAR NULL OBJECT
wipe-past-Q
- c. “Kotaro-no asiato-o huki-tot-ta-no?” IMPLICIT ARGUMENT
Kotaro-gen footprint-acc wipe-remove-past
“Did you remove Kotaro’s footprint by wiping something?”

The example in (27b) indicates that the regular null object of a verb cannot be used in this context, in which the potential antecedent is not provided. The example in (27c), in contrast, is felicitous. We should note that the overt object of the compound, Kotaro’s footprint, is not the object of the V1. The verb *huki* ‘wipe’ selects for an object which would become clean by wiping, such as the floor, and not an object which would be removed from this surface. This example, therefore, indicates that the implicit argument of the V1 is distinct from the regular null-object in how their referent is determined.

The crucial point is that in these instances, it is possible for the implicit argument to be interpreted as distinct from the overt argument of the compound. In some cases, it is possible for the implicit argument of the V1 to be the same as the overt argument, as shown in (28).

- (28) Kotaro-ga kao-o huki-tot-ta
Kotaro-NOM face-ACC wipe-remove-PAST
“Kotaro removed his face by wiping it/something”
1. Kotaro wiped his face and his face came off.
 2. Kotaro wiped something, and (a painting of) a face on it came off.

As I mentioned earlier, the two verbs of the compound *huki-tor* “wipe-remove” have different selectional restrictions. Still, in some cases, it is possible for the object of the V1 to be interpreted as the object of the V2, as in (28). The crucial point is, however, that

¹⁹ This judgment is very subtle. When this sentence was given, some Japanese speakers, though hesitantly, accepted it. However, when these speakers were asked to compare (27b) and (27a), they agreed that (27b) is not as good as (27a or c). The individual difference may suggest that the strength of the coercion mechanism (see Pustejovsky 1995) differs from one individual to another.

even in this example, there is an alternative (and preferred) interpretation in which the object of the V1 is not the same as the overt object, as the second interpretation in (28) indicates. The implicit argument of the compound is in a certain relation with the overt object of the compound, and the relation is determined by the way the action described by the V1 relates to the action described by the V2. The following examples illustrate how this relation can vary.

- (29) Kotaro-ga rousoku-no hi-o huki-kesi-ta.
 Kotaro-NOM candle-GEN fire-ACC blow-extinguish-PAST
 ‘Kotaro extinguished the candle light by blowing (his breath)’

The V1 in this case selects for elements which can be exhaled, such as breath, and thus, the implicit argument of this sentence is interpreted as Kotaro’s breath, i.e. something that belongs to the agent. In the next example, the implicit argument is a body part of the theme argument of the compound.

- (30) Kotaro-ga tori-o sime-korosi-ta.²⁰
 Kotaro-NOM chicken-ACC strangle-kill-PAST
 ‘Kotaro killed the chicken by strangling (its neck)’²¹

The implicit object of the V1 must refer to a body part of the object of the compound, but exactly which body part depends, again, on the world knowledge and the selectional restrictions of the V1, rather than structural relations between elements in the sentence. In some cases, it is possible to interpret the implicit object of the V1 as something other than the neck, as shown in (31).

²⁰ The V1 in this example *sime* selects for an elongated object, as shown in (i). It would be ungrammatical to use an animal as its object (ii).

- (i) Jiro-ga niwatori-no kubi-o sime-ta
 J-NOM chicken-GEN neck-accstrangle-PAST
 ‘Jiro strangled the chicken’s neck.’

- (ii) *Jiro-ga niwatori-o sime-ta.
 J-NOM chicken-ACC strangle-PAST.

²¹ We should note that the Japanese verb *shime* ‘strangle’ does not entail the death of the object, and hence the resulting state (death) is only made explicit when this verb appears in a compound with the V2 *koros* ‘kill’.

- (31) Hebi-ga usi-o sime-korosi-ta.
 Snake-NOM cow-ACC strangle-kill-PAST
 ‘The snake strangled/smothered the cow dead.’

This sentence is true in a context where the snake killed the cow by wrapping itself around the cow’s entire body. In such a context, the implicit object of the V1 is the cow’s entire body. Again, this example indicates that the referent of the implicit object varies from one compound to another and the interpretation is largely dependent on world knowledge. The following compound in (32) shows yet another type of implicit object – the implicit object of this compound is a location where the overt object of the compound is moved from.

- (32) Kotaro-ga hokori-o huki-tot-ta.
 Kotaro-NOM dust-ACC wipe-remove-PAST
 ‘Kotaro removed the dust by wiping (the surface where the dust was)’

To summarize, the implicit argument of the compound relates to the overt arguments of the compound rather freely. The referent of the implicit argument may relate to the agent of the compound (in 29), or to the theme of the compound (in 30). These examples show that the way the referent of the implicit object of the V1 is identified cannot be due to an empty category that is projected in the phrase structure. That is, if there is an empty category projection, its referent should be determined structurally. Structural relations, such as c-command, subject, or object (orientation), do not capture the pattern of how the interpretation of the implicit object relates to the other elements in the sentence. I assume that such non-structurally constrained ways of interpretation are less puzzling given the hypothesis that the implicit object is not projected in the phrase structure. The only constraint, which the implicit object seems to follow, is that the implicit object must participate in the event described by the V2 and its arguments in some way. That is, the implicit object of the V1 is not any random element in the discourse, but something that is relevant to the event. This relevance, I will argue at the end of this section, is due to the directness condition.

We must now turn to the cases when the selectional restrictions of the two verbs match. In these compounds, the interpretation of the implicit object is completely different from what we have seen above. In these compounds, the object of the V1 must

be interpreted as the object of the V2. The following examples illustrate this point. The object of the V1 is interpreted as the overt object of the compound (i.e. the object of V2).

- (33) a. Kotaro-ga isu-o keri-taori-ta.
 Kotaro-NOM chair-ACC kick-cause.to.fall-PAST
 “Kotaro toppled the chair by kicking it.”
- b. Kotaro-ga mado-o osi-ake-ta.
 Kotaro-nom window-acc push-open-past
 “Kotaro opened the window by pushing it.”

In these examples, it is not possible to interpret the implicit argument of the V1 as “something”. The sentence in (33a) cannot mean that Kotaro toppled the chair by kicking something (like the house in which the chair was placed), and (33b) cannot mean that Kotaro opened the window by pushing something other than the window. Thus, the sentence in (33b) would be false if Kotaro opened the window by pushing a button which controls the opening and closing of the window.

The data can be summarized as follows. When the selectional restrictions of the two verbs are such that no element can be both theme of the V1 and the V2, the internal argument of the V1 is interpreted as an element which is loosely related with the overt arguments of the compound. The internal argument of the V1 must, on the other hand, be interpreted as being the same as the object of the V2 in other contexts. What makes this pattern odd is that the choice of which pattern a compound falls into depends on whether the selectional properties of the two verbs are compatible with one object or not.

The behavior of the implicit argument of the compound is unlike any well-known empty categories in syntax (i.e. PRO, pro, t, or a variable). Sometimes the implicit argument is co-referential with the phonologically overt clause-mate object. In other cases, the implicit argument is related with some argument in the clause in some way, but we cannot specify *which* argument it might be or what relation it is. What makes this implicit argument even more different from regular empty categories is that whether this element is bound or not is determined by the selectional properties of the verbs. Given

these properties, I argue that there is no empty category that fills the position of the object of the V1. The object of the V1 is simply not projected.²²

If there is no empty category, we need to seek an alternative explanation for the interpretation of the object. As I have discussed in chapter 1 and 2, when two predicates form a unit that denotes a single Davidsonian event, the relation between the two events denoted by the predicates must be direct. The Directness Condition requires that if two predicates can share an argument (e.g. theme), they must share it. If there is no such element that can be interpreted as the theme of both predicates, the theme of one predicate should still be interpreted as some kind of participant in the event expressed by the other predicate. We have already seen the evidence for this condition in English, as shown in (34).

- (34) a. John drank himself sick.
b. John whistled the dog awake.

In the examples in (34), the overt object cannot be interpreted as the logical object of the verb. In (34b), for example, the object – *the dog* – that comes to have the property of being awake by the causing event of whistling is not the theme object of the singing event. The dog, however, is interpreted as some kind of participant in the event of whistling – the sentence asserts that John is whistling to the dog. In Chapter 2, I have argued that this interpretation is due to the Directness Condition which holds when two predicates as a unit denotes a single Davidson event. Japanese V-V compounds, like English resultative constructions, denote a single Davidsonian event, and therefore are subject to the Directness Condition. The Directness Condition requires that if two predicates can share a theme argument, they must share it. In cases where object-sharing is impossible, the non-shared argument, still needs to be interpreted as some sort of participant. This way, the object sharing cases in Japanese resultative V-V compounds can be explained without a formal “identification” mechanism such as binding, or linking.

²² Alternatively, I might propose a new type of empty category. This empty category would have the following properties: its referent is determined based on the selectional restrictions of the predicate (V1) and world knowledge, when the selectional restrictions of the two verbs are such that co-indexing the empty category with the overt object is not possible. Otherwise, it is co-indexed with the object of the compound. However, it is not likely that such an empty category should be postulated.

The M-Incorporation analysis of the V1 predicts that the object of the V1 does not get projected. This analysis thus requires an additional mechanism which ‘plugs’ the object position of the verb’s theta requirement. The most likely mechanism responsible for closing the object position is existential closure. The interpretation of the internal object of the V1 presented in this section provides a good support for this mechanism. If the theme object of the V1 is existentially closed, its relation to the other elements in the construction is only bound by the directness condition, which forces the existentially-closed object to be interpreted as the theme of object in one case, and a mere participant in the other, depending on the selectional restrictions of the V1.

6. THE SITE OF ADJUNCTION

The principles of M-Incorporation, *a priori*, do not restrict what the verb should be adjoined to. The operation Move may displace a verbal head to any extended verbal projections (e.g. v and I). Given the parallelism between Move and Merge, the operation Merge should be able to adjoin a verb to any of these nodes, inasmuch as the LF can interpret the verb in a given position. The restrictions on M-Incorporation, thus, are akin to that of adverb placement (e.g. Travis 1988, Cinque 1999). The element must be able to be interpreted at the Merged position.²³

In the case of resultative V-V compounds, the fact that the V1 agrees with the V2 in voice morphology suggests that the V1 is adjoined to V2 within a voiceP. I will come back to this point in the following section, but we should note here that when the V1 is bi-morphemic (i.e. it contains a voice morpheme), the transitivity of the V1 always agrees with that of the V2. In order to determine the exact position of the V1, I shall first clarify the structure of the VP. I have briefly argued that voice and CAUSE are distinct in Japanese and that the V1 is adjoined to CAUSE. In this section, I provide pieces of evidence supporting this analysis.

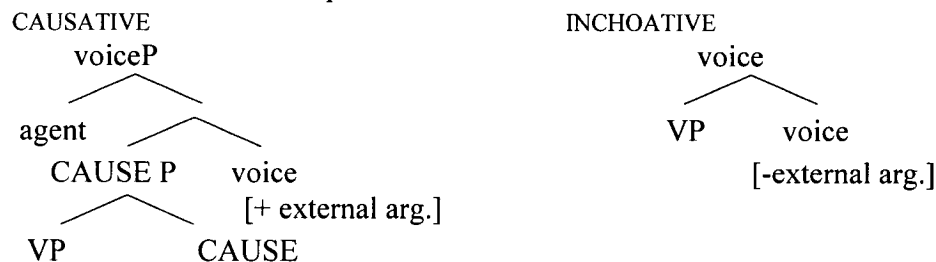
There are two hypotheses of the structure of verbal projection in Japanese. In one, CAUSE and voice are assumed to be the same (e.g. Harley 1995) and in the other,

²³ Roberts & Roussou (1999) propose an analysis for the development of English modals which is similar to my M-Incorporation analysis. They note that in Middle English, a small class of verbs underwent V-to-I movement. These verbs denote temporal relations and modal information. In the Late Middle English, they were re-analyzed as being base-generated as I. I believe there can be an intermediate stage in which these verbs were base-generated as an adjunct of I (i.e. M-Incorporation structure).

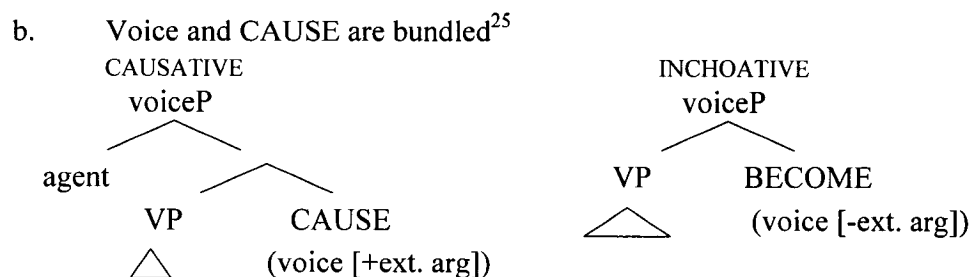
distinct (Pylkkänen 2002). The motivation for the first assumption comes from the morphology of the lexical causatives. In Japanese, verbs that undergo inchoative-causative alternation appear with a lexical causative suffix when causative, and inchoative suffix when inchoative. Except for few cases, the lexical causative form of a verb is not a causative suffix attached to an inchoative form.²⁴ In other words, the lexical causative suffix is in complementary distribution with the inchoative suffix. Harley (1995) thus argues that the causative suffix and the inchoative suffix realize voice, which according to Kratzer (1996) is present in both transitive (i.e. causative) and unaccusative (i.e. inchoative) verbs. Moreover, Harley (1995) assumes that in Japanese CAUSE and voice are bundled (i.e. realized as a single node), and thus voice that introduces an external argument is interpreted as CAUSE, while voice that does not introduce an external argument is interpreted as BECOME. In this section, I agree with the first part of Harley's (1995) argument that the causative suffix and inchoative suffix realize voice morphology, but I disagree with the second part, which assumes that CAUSE and voice are bundled.

The hypothesis that CAUSE and voice are bundled in Japanese has been challenged in Pylkkänen (2002) who argues that in Japanese, they are separate. The resultative V-V compound provides additional evidence in support of this separation hypothesis. The difference between the two hypotheses can be represented schematically as in (35).

(35) a. Voice and CAUSE are separate



²⁴ See Jacobsen (1992) for details of the causative morphology and Harley (1995) for relevant discussion.



As I mentioned in Chapter 1, I hypothesize that the resultative construction is a type of lexical causative. This hypothesis, in turn, entails that all resultative constructions contain the lexical causative predicate CAUSE. The fact that resultative V-V compounds can be unaccusative, therefore, entails that unaccusative resultative V-V compounds contain CAUSE. The relevant examples, which we previously saw in Section 4, are given in (36).

- (36) a. Jimen-ga humi-katamat-ta.
Ground-NOM stomp-harden-PAST
'The ground got hardened by (someone's) stomping'
- b. Mushi-ga yake-shin-da
insect-NOM burn-die-PAST
'The insect died of burning'

The relation between the two verbs in these sentences is the same as the relation we see in transitive resultative V-V compounds: the V1 expresses the causing event and the V2 the caused event. The V2, however is unaccusative. Unaccusative verbs, in this thesis are identified as such if (1) they have achievement Aktionsarten and (2) they do not contain an external argument. Additionally, some unaccusative verbs have a morphologically related transitive counterpart (Alexiadou & Anagnostopoulou 2004). The following examples show that these compounds have the achievement aspect.

- (37) Yari-ga zimen-ni tuki-sasat-teiru.
Arrow-NOM ground-DAT thrust-pierce.unacc-PROG-PRES.
'The arrow is sticking out of the ground (as though someone had thrust it there)'

²⁵ Harley (1995) labels voiceP as E(vent)P. I changed the label for the sake of easy comparison.

As noted above, in Japanese, predicates that denote achievements can be distinguished from predicates that denote activities when they combine with a progressive marker *tei*. Predicates that denote achievement, but not predicates that denote activities, express the resulting state when they combine with the progressive marker. The example in (37) shows that these compounds, when they combine with the progressive marker, express the resulting state. I assume that achievement aspectuality is associated with unaccusativity (Uesaka 1996, McClure 1996, Erteschik-Shir & Rapoport 1997). Given this assumption, the aspect of this example suggests that they are unaccusative.²⁶ In addition, we should recall that when the V1 is transitive and the V2, unaccusative, the compound is unaccusative. In light of such examples, I conclude that, contra the voice-CAUSE bundle hypothesis, the causativity and voice should be distinguished in Japanese.

I thus conclude that in Japanese, the transitivity denoting head voice should be distinguished from the cause denoting head CAUSE. Moreover, the existence of unaccusative resultative V-V compounds indicates that the V1 is adjoined to CAUSE in (37) although the voice of the V2 is unaccusative.

As an addendum, I point out that M-Incorporation may extend beyond resultative V-V compounds. In resultative V-V compounds, the V1 describes the causing event. There are, however, some examples of V-V compounds in which the V1 expresses the manner of motion rather than the cause. In other words, in these cases, the relation between the event V1 describes and the event V2 describes is not of causation. The following example in (38) represents this type of compounding.

- (38) Risu-ga ki-kara korogari-ochi-ta.
 Squirrel-NOM tree-from roll-fall-PAST
 ‘A squirrel rolled down a tree.’

In (38) the V1 simply describes how the squirrel fell down a tree, thus the V1 can be seen as describing the manner in which the change of location took place. Crucially, the V1 does not describe what caused the squirrel to fall. This type of example suggests that, in addition to the resultative V-V compounds, in which the V1 is adjoined to CAUSE, M-Incorporation may also adjoin a verb to a V. In such case, the V1 is interpreted as

²⁶ We should also recall that in section 4, we saw other pieces of evidence that these compounds are unaccusative.

describing the manner, rather than cause, but in all other respects these compounds show the same morphological properties as the resultative V-V compound.

7. THE MORPHOLOGY OF V1

In this section, I investigate how the current analysis fares in capturing the known morphological facts of the resultative V-V compound. I have argued that the resultative V-V compound is a mono-clausal construction like the lexical causative, and that the difference between the two constructions is that in the resultative construction, there is an additional predicate that describes the causing event and that this predicate is a V, which is adjoined to the V2 by a mechanism I refer to as M-Incorporation. We have seen that the current analysis captures the semantic relation between the causing event and the caused event (i.e., correspondence), and the adjunct status of the V1, but in this section, we must face a morphological puzzle which arises within this analysis. The puzzle can be seen from two angles. First, a resultative V-V compound may contain two voice morphemes: there can be one suffix on the V1, and another on the V2, as shown in (39).

- (39) Kotaro-ga siiru-o haga-**shi**-ot-osi-ta.
 K-NOM sticker-ACC peel-CAUSE_{LEX}-remove-CAUSE_{LEX}-PAST
 ‘Kotaro removed the sticker by peeling.’

The lexical causative suffix on each of the verbs in the compound indicates that both of these verbs are transitive. Unlike the base of the lexical causative construction, the V1 cannot be a bare root, as shown in (40).

- (40) *Kotaro-ga siiru-o **haga**-ot-oshi-ta.
 K-NOM sticker-ACC peel-remove-CAUSE_{LEX}-PAST

We should recall the discussion in the previous section. The suffix that is generally known as the lexical causative suffix is treated as a voice morphology in the current analysis. The morphological shape of the compound in (40), therefore, indicates that both the V1 and the V2 appear with their own voice morphemes.

Second, as I mentioned briefly, the two verbs of the compound in some cases do not have the same transitivity. The example in (41) shows that the V1 can be transitive while the V2 is unaccusative.

- (41) a. Jimen-ga humi-katamat-ta.
 Ground-NOM stomp-harden-PAST
 ‘The ground got hardened by (someone’s) stomping’
- b. Koto-ga ki-kuzure-ta.
 Coat-NOM wear-get.out.of.shape-PAST
 ‘The coat got out of shape from wear.’

Examples like these have led some researchers to propose that the V1 of a resultative V-V compound may be associated with its own voice (see Nishiyama 1998). Such proposals, however, are in contradiction with the current analysis in which the resultative V-V compound has a minimal voiceP structure. That is, I have proposed that the resultative V-V compound has a mono-clausal structure in which there is just one voice. In Section 7.1 I defend my proposal by providing additional evidence that suggests that the V1 of the resultative V-V compound does not have an associated voice projection. Then, in section, 7.2, I show that when there is a voice morpheme on V1, it always agrees with the transitivity of the V2. I thus conclude that that unlike true bi-clausal constructions, the voice morphology of the V1 of the resultative V-V compounds shows morphological concord rather than the presence of an additional voice head. In Section 7.3, I then show that the cases in which the transitivity of the two verbs do not match involve a mono-morphemic V1. I conclude that the mismatch pattern is due to a morphological constraint. In Section 7.4, I then propose an account for why the V1 may contain a voice morpheme when it does not have a voice projection associated with it.

7.1. Three morphological restrictions

Kageyama (1989) points out morphological facts that are crucial evidence for the purpose of this section. Kageyama’s (1989) examples show that the V1 of a resultative V-V compound cannot appear with the same range of morphemes that the V1 of an aspectual

V-V compound may appear with.²⁷ We should recall that the aspectual V-V compound is classified with the syntactic causative constructions and treated as having a bi-clausal underlying structure. The three contexts where the distinction between the two V-V compounds becomes apparent are: the appearance of the passive morpheme, the appearance of an honorific morpheme, and the substitution of the V1 with a VP anaphoric element. Kageyama (1989) claims, based on these examples, that the resultative V-V compounds are formed in the lexicon while the aspectual V-V compounds are formed in syntax. Given the current analysis, however, we do not have to resort to a lexicalist analysis to account for the distinction between the two type of V-V compounds. I argue that the morphological restriction presented in Kageyama (1989) confirms my claim that the V1 of the resultative V-V compound is a simple V and has no voice associated with it. Here, we briefly review two of Kageyama's (1989) tests.

Kageyama (1989) shows that a passive morpheme may attach to the V1 of an aspectual V-V compound (42a) but not to the V1 of a resultative V-V compound (42b).

- (42) a. Kotaro-ga Jiro-ni os-are-hazime-ta.
 K-NOM J-DAT push-PASSIVE-begin-PAST
 ‘Kotaro began to be pushed by Jiro.’
- b. * Kotaro-ga Jiro-ni/o os-are-taosi-ta.
 K-NOM J-DAT/ACC push-PASSIVE-topple-PAST

Similarly, a VP anaphora *so-su* “do so,” which I briefly mentioned in Section 2, may replace the V1 of an aspectual V-V compound, but not the V1 of a resultative V-V compound, as shown in (43).²⁸

²⁷ Kageyama (1989) refers to the aspectual V-V compounds as syntactic compounds, and the resultative V-V compounds as lexical compounds.

²⁸ The same test is used in Shitabani (1976) to show the distinction between the lexical causative and the syntactic causative.

- (43) a. Kotaro-ga Jiro-o oshi-hazime-ta. Taro-mo **so si-hazime-ta.**
 K-NOM J-ACC push-begin-PAST. T-also do.so-begin-PAST
 ‘Kotaro began to push Jiro. Taro also began to do so.’
- b. Kotaro-ga Jiro-o oshi-taoshi-ta. *Taro-mo **so si-taoshi-ta.**
 K-NOM J-ACC push-topple-PAST T-also do.so-topple-PAST
 ‘(Intended): Kotaro toppled Jiro by pushing him. Taro also did so’

Kageyama (1989) claims, based on these examples, that the resultative V-V compound is formed in the lexicon and the aspectual V-V compound in the syntax. In light of the discussion in this thesis, I argue that these differences can be captured even when the two types of compounds are both formed in the syntax. The passive morpheme cannot attach to the V1 because passivization applies to voice. We do not expect to see a passive morpheme on the V1 since, according to the current analysis, there is no voice which is associated with just the V1 of the resultative V-V compound. Similarly, the verbal anaphoric element must be an anaphoric element substituting a voiceP, rather than a VP. This element, therefore, should not be able to substitute for the V1 of a resultative V-V compound, which in our analysis, is just a V. These examples, therefore, confirm the current analysis that the V1 of a resultative V-V compound is a V rather than a projection containing a voice node.

7.2. V1 with voice morphology

The conclusion we reached in the previous section seems to be problematic, given that there is voice morphology on the V1 of the resultative V-V compound. In this section, I discuss how this morphological fact can be accounted for in the current analysis.

In resultative V-V compounds, the V1 is either a monomorphemic verb or a verbal root and a voice morpheme, indicating whether the verb is unaccusative or transitive. In this section, I focus on the latter type, and provide an account of how this morpheme may surface within the structure I proposed in the previous sections.

The following examples are given to illustrate the puzzling aspect of the morphological shape of the resultative V-V compound. The syntactic causative morpheme *(s)ase* attaches to a base which contains a verbal root and a voice morpheme (see e.g. Kuroda 1965, Shibatani 1976, and Harley 1995). As shown in (44).

(44) Resultative V-V compounds

- a. Kotaro-ga koroga-ri-ochi-ta.
K.-nom roll-inch-fall-past
'Kotaro went down by rolling.'
- b. Kotaro-ga siiru-o **hag-asi**-tot-ta
K.-nom sticker-acc peel-cause-remove-past
'Kotaro removed the sticker by peeling. (Kotaro peel off the sticker).'²⁹

Syntactic causatives

- c. Kotaro-ga Hanako-o koroga-r-ase-ta.
K.-nom H.-acc roll-inch-cause-past
'Kotaro made Hanako roll'
- d. Jiro-ga Hanako-ni siiru-o **hag-as**-ase-ta
J.-nom H.-dat sticker-acc peel-cause-cause-past
'Jiro made Hanako peel the sticker.'³⁰

Cf. Aspectual V-V compounds

- e. Kotaro-ga koroga-ri-hazime-ta.
K.-nom roll-inch-begin-past
'Kotaro began to roll.'
- f. Kotaro-ga siiru-o hag-ashi-hazime-ta
K.-nom sticker-acc peel-cause-begin-past
'Kotaro began to peel (off) the sticker'

In these examples, we see that the V1 of the resultative V-V compounds, as well as the verbal stem of syntactic causatives and the V1 of aspectual V-V compounds may contain a lexical causative morpheme. These three constructions, then contrast with the lexical causative construction in which the verbal base must be a bare root, as shown in (45).

²⁹ The inchoative form of this verb is *haga-re*, which means to come off by peeling.

³⁰ The syntactic causative can mean "make" or "let" in most contexts. See Kuroda (1965) for a discussion on this point. For the sake of simplicity, I only translate the causative morpheme as "make" when the meaning is ambiguous.

- (45) Kotaro-ga Hanako-o koroga-shi-ta.
 K.-NOM H.-ACC roll-cause-PAST
 ‘Kotaro made Hanako roll.’
 Cf. *Kotaro-ga doro-o koroga-ri-shi-ta.

Kotaro-ga siiru-o haga-shi-ta.
 K.-NOM sticker-ACC peel-cause-PAST
 ‘Kotaro peeled the sticker.’
 Cf. *Kotaro-ga siiru-o haga-re-shi-ta.

The morphological shape of the V1 of the resultative V-V compound thus appears to pattern with the shape of the dependent elements in the two bi-clausal constructions (syntactic causatives and aspectual V-V compounds), rather than with mono-clausal constructions (lexical causatives). However, this morphological similarity is only superficial. In the resultative V-V compounds, a lexical causative suffix may appear on the V1 only if the V2 is transitive, and an inchoative suffix only when the V2 is unaccusative. As I briefly mentioned in the previous section, these suffixes are voice morphemes rather than causative, or inchoative morphemes. The presence of these morphemes on the V1 should, then, be thought of as showing agreement with the transitivity of the V2. This is not so in the syntactic causative construction – we saw in (44c, d) that either an inchoative suffix or a causative suffix may appear on the verbal base of a syntactic causative. Similarly, the V1 of an aspectual V-V compound may contain an inchoative suffix or causative suffix, regardless of the transitivity of the V2 (44e, f).

In resultative V-V compounds, however, a causative suffix appears on the V1 when the V2 is transitive, and an inchoative suffix on the V1 when the V2 is unaccusative.³¹ When the two verbs of a compound do not match in transitivity, the V1 is always mono-morphemic. In other words, the bi-morphemic V1, containing a voice morphology, never appears in a mismatched case.³² The following examples illustrate this point. In (46) the two verbs of the compound match in transitivity.

³¹ The V2 of resultative V-V compounds are telic verbs (accomplishment and achievement in Vendler’s term). As it has been known in the Event Structure literature, verbs are generally atelic. Due to this coincidence, unergative verbs do not appear as the V2 of resultative V-V compounds.

³² I will examine and identify the source of the mismatch pattern immediately after the next set of examples.

- (46) a. Harigane-ga or-e-mag-at-ta
 wire-NOM fold-unacc-bend-unacc-PAST
 'The wire got bent.'
- b. Taro-ga harigane-o ori-mage-ta.
 T.-NOM wire-ACC fold(trans)-bend(trans)-PAST
 'Taro bent the wire by folding it.'
- (47) a. Ka-ga yak-e-sin-da.
 mosquito-NOM burn-unacc-die-PAST
 'The mosquito burned to death.'
- b. Jiro-ga ka-o yaki-korosi-ta.
 J.-NOM mosquito-ACC burn(trans)-kill-PAST
 'Jiro burned the mosquito to death.'

If the two forms of the verbs in (46) and (47) are mixed, and as a consequence, the two verbs fail to agree in transitivity, the forms are ungrammatical, as shown in (48).

- (48) a. *Harigane-ga ori-magat-ta.
 Wire-NOM fold(trans)-bend(unacc)-PAST (cf. 46a)
- b. *Taro-ga harigane-o ore-mage-ta.
 T.-NOM wire-ACC fold(unacc)-bend(trans)-PAST (cf. 46b)
- c. *Ka-ga yaki-sin-da
 Mosquito-NOM burn(trans)-die-past (cf. 47a)
- d. *Jiro-ga ka-o yake-korosi-ta.
 J.-nom mosquito-ACC burn(unacc)-kill-PAST (cf. 47b)

These examples show that when a voice morpheme (inchoative or causative) appears on the V1, they must agree with the voice of the V2. This agreement condition predicts that the transitivity of the two verbs in a resultative V-V compound must always match. There are, however, examples of resultative V-V compounds in which the transitivity agreement does not hold. In the next section, I show that these mismatched cases always involve a monomorphemic V1. In other words, when there is a voice morpheme on V1, it always matches in transitivity with the V2, and it is when the V1 is lexically specified as transitive or unaccusative that it may not match with the transitivity of the V2.

7.3. Transitivity mismatch

In this section, we see that when the transitivity of the two verbs does not match, the compound involves a V1 that is monomorphemic. The mismatched cases thus suggest that non-lexical voice morphemes (i.e. passive and syntactic causative morphemes) may not appear on the V1, even if such morphemes are required to match the transitivity.³³ If a verb is lexically specified for transitivity, neither passive or syntactic causative suffixes can appear on the V1,³⁴ and this prohibition is the source of the mismatched cases. The relevant examples are shown in (49).

- (49) Kagami-ga hikari-o hane-kaesi-ta
mirror-NOM light-ACC bounce(unacc)-return(trans)-PAST
'The mirror reflected the light.'

In the example in (49), the V1 *hane* "bounce" is lexically specified as unaccusative, and therefore, would not appear with a lexical causative suffix. Therefore, if the V1 were to match the transitivity of the V2, it would have to take the syntactic causative suffix, *-(s)ase*.³⁵ The presence of a causative morpheme on the V1, however, yields completely ungrammatical forms.

- (50) *hane-sase-kaesi-ta. Syntactic causative on V1

In the other type of mismatched context, the V1 is transitive and the V2 is unaccusative, as shown in (51).

³³ In fact, even lexical causative morphemes are not always allowed on the V1. I do not have an explanation for why a lexical causative morpheme is sometimes allowed and sometimes not allowed on the V1. In the following discussion, however, I focus on the cases where the lexical causative morpheme is allowed on the V1 and provide an analysis for these cases. I believe this is a superior approach to this puzzle, since in this way, we could later look for an independent explanation to account for the cases where the lexical causative morpheme is not allowed. If we assumed that the lexical causative morphemes are not allowed on the V1 in general, we could not account for the cases where the lexical causative morpheme appears on the V1.

³⁴ This generalization raises an interesting question concerning the proposal in Miyagawa (1984). He argues that the syntactic causative suffix *-(s)ase* can in fact be analyzed as a lexical causative suffix when it attaches to a verb that is lexically specified as unaccusative and lacks a lexical causative counterpart. The verbs that are investigated in the following discussions are verbs that lack lexical causative counterparts, but the lexical causative suffixes are still not allowed to appear on them when they appear in the compound.

³⁵ As noted in Kuroda (1965), the choice between the two forms of this suffix depends on the phonological form of the base. If the verbal base ends in a consonant, it takes *-ase* and if the base ends in a vowel, it takes *-sase*.

- (51) a. Kabe-ni postaa-ga hari-tui-ta.
 wall-on poster-NOM paste-get.attached-PAST
 ‘A poster got pasted onto the wall.’
- b. Yari-ga jimen-ni tsuki-sasat-ta.
 arrow-NOM ground-on thrust-get.pierced-PAST
 ‘An arrow got pierced into the ground.’
- c. Tsuchi-ga humi-katamat-ta.
 Soil-NOM step.on-harden-PAST
 ‘The soil got hardened by someone’s tramping on it’

The V1s of these compounds are lexically specified as transitive. In other words, they differ from the bi-morphemic verbs we saw in the previous section, which undergo the inchoative/causative alternation. Therefore, unlike the V1 in (47) or (48), the lexical unaccusative morpheme (the unaccusative counterpart of lexical causative) would not attach to them. In other words, there are not unaccusative counterparts to these verbs in (51).

The prohibition of the causative and passive morpheme on the V1 again suggests that the current analysis is on the right track. The resultative V-V compound is a monoclausal construction in which two verbs (V) are combined under a single voice node. The V1 indeed is a V rather than voice, and as such it is not associated with its own Davidsonian event. In the syntactic causative construction, the causative predicate selects for a phrase denoting a Davidsonian event. The V1 of a resultative V-V compound, therefore, is not the right type of argument for a syntactic causative suffix. Similarly, the passive morpheme is associated with voice, rather than a verb. Again, the V1 of the resultative V-V compound, which is just a V, is not the right type of element for the passive morpheme to attach to. The inability of the passive morpheme to attach to the V1 is taken to indicate that the compound is formed in the lexicon (Kageyama 1989). I have, instead, claimed that this fact is due to the syntactic size of the V1. I will come back to Kageyama’s (1989) lexical-syntactic classifications in the following section.

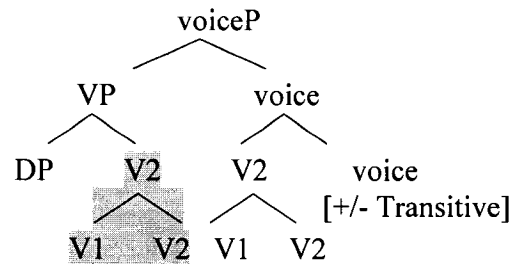
7.4. Voice morpheme without voice

In this section, I argue that the presence of voice morpheme in a structural position without voice can be accounted for if we adopt the morphological realization mechanism

in Bobaljik and Thráisson (1996). Moreover, I examine other morphological properties of the resultative V-V compounds and conclude that there is only one voice head in the structure.

In the derivation of a resultative V-V compound, the verb that describes the causing event adjoins to CAUSE, which is then realized as the V2, and the complex verbal structure [_{v2} V1, V2] moves to v, as illustrated in (52).

(52)



(Shadow indicates the moved elements)

The transitivity matching fact, thus, should be thought of as transitivity concord. The morphological realization of the two verbs in the compound is influenced by the transitivity feature of the voice. When the compound Merges with a transitive voice, the transitive forms of the verbs are inserted. In the case of bi-morphemic V1, this means that the lexical suffix follows the root. When the compound Merges with an unaccusative voice (v with –transitive feature), the unaccusative forms of the verbs are inserted. In the case of bi-morphemic V1, this means that the inchoative suffix follows the base. I argue, following Bobaljik and Thráinnsson (1998) that when a head is directly dominated by another head, the feature of the dominating head may be realized on the dominated head. Thus, as voice dominates the two heads in (52), the transitive feature of voice may be realized as a lexical voice morpheme on V1 as well as on V2. This assumption correctly predicts that it is only the feature of the immediately dominating voice which may be realized on the V1. We have seen in the earlier section that a syntactic voice morpheme, which attaches to a voice, and thus would not directly dominate a V1, would not appear on V1.

I show that by maintaining that there is only one voice head for the compound, we can account for a morphological property of the compound, which received lexical analyses in the past (Kageyama 1989, Li 1993, Matsumoto 1996). Kageyama (1989)

points out that certain morphemes, such as the passive morpheme, honorific marker, and verbal anaphoric element, which may target the V1 of an aspectual V-V compound may not target the V1 of a resultative V-V compound. I have already argued previously that passivization applies to voiceP, rather than to VP and as such, by assuming that the V1 of a resultative V-V compound is a V, we do not expect a passive morpheme to appear on the V1. Similarly, the honorific marker, and verbal anaphoric elements target voiceP rather than VP. Thus, in the current proposal, these properties of the resultative V-V compounds can be attributed to their structural label, rather than assuming that they are formed in the lexicon. In the next section, I briefly examine the aspectual V-V compounds, as a means to clarify this structural difference between the two types of V-V compounds.

8. CONCLUSION

In this chapter, I have analyzed resultative V-V compounds in Japanese as being formed by M-Incorporation. Various properties of resultative V-V compounds such as the absence of argument-sharing between the two verbs and the morphological restrictions on the V1, are attributed to the head-adjunct status of the V1. The semantic relation between the two verbs, in addition, is explained as modification, which entails event identification.

As I have argued in the previous chapter, the cause-result relation between the two predicates in resultative constructions does not receive a unified structural representation. In the case of Japanese resultative V-V compounds, the cause-denoting verb is adjoined to the verb that denotes the resulting event. We saw that several properties of the compounds, including their aspect, transitivity, and the morphological shape, support this analysis. Semantically, the event denoted by the V1 is treated as extra information (modifier) added to the event description given by the V2.

In the next chapter, I compare Japanese resultative V-V compounds to Èdó serial verb constructions. Researchers have attempted to provide a unified analysis for Japanese resultative V-V compounds and resultative serial verb constructions, due to the similarity of the relation that holds between the two verbs in the two constructions. As I have done so far, I will examine the role of the arguments of the two verbs and morphological

properties to show that the semantic similarity between the two constructions does not warrant a unified analysis.

Chapter 4

1. INTRODUCTION

In this chapter, I examine a construction called the resultative serial verb construction in Èdó.¹ Following the method I employed in the previous chapters, I first establish that the resultative serial verb construction is a monoclausal construction, the same way other resultative constructions are shown to be. Moreover, the discussion in this chapter is largely based on Stewart's (2001) work on Èdó, in which the relevant construction (the resultative serial verb construction) is carefully distinguished from other constructions with similar appearances. This is necessary because not all researchers provide evidence to show that what they call resultative serial verb constructions are indeed monoclausal constructions.

The term *serial verb construction* is traditionally defined broadly, as shown in (1), and hence picks out a variety of phenomena including the examples shown in (2).

(1) DEFINITION: serial verb construction

There is one subject, which is interpreted as the subject of two (or more) verbs.

- (2) a. Kofi san to bOl no (Akan, Campbell 1996:87)
Kofi return throw ball that
'Kofi throws the ball again'
- b. Kofi firi Kumase kO Nkran.
Kofi go.out Kumase go.to Accra
'Kofi leaves Kumase and goes to Accra.'
- c. ɔde sé!k"an twaa nám nó (Twi, J. Stewart 1967:146)
he-take knife cut meat that
'He cut the meat with a knife.'

As we saw with the English examples, various complex structures, such as syntactic causatives, would fall under a general definition such as the one in (1). For this reason,

¹ The tones in Èdó examples are marked with[́] for high, [̀] for low and [!] for downstep. The symbol [e] indicates a mid front lax vowel and [o] the mid back lax vowel.

various constructions which are picked out by the definition in (1) would fall out of the scope of the current study. As we saw in the previous chapters, the relevant constructions for our discussion are expected to have the following properties, shown in (3).

- (3) a. Two predicates are in a relation which can be characterized as causation. One predicate describes an action which brings about another event described by the second predicate.
- b. The two predicates form a unit that denotes a single Davidsonian event.

The property in (3a) describes a semantic relation between two events and it does not entail a structural relation. A cause-result relation can be expressed in various ways, including subordination, as illustrated in (4).

- (4) a. John is sick since he ate a rotten apple yesterday.
- b. John ate a rotten apple yesterday, so he is sick today.

When a cause-result relation is expressed in a single clause (= voiceP), however, the structural as well as the semantic relation between the cause-denoting predicate and the result-denoting predicate becomes more restricted. As we saw in the previous chapters, the lexical causative predicate CAUSE has its unique properties, including the restriction on how the causing event is expressed. Crucially, the predicate that expresses the causing event cannot be treated as its argument. Instead, it should be the causative predicate, as in the case of the object sharing resultative construction in English, or be a modifier of the causative predicate, as in the case of the intransitive resultative construction in English and the resultative V-V compound in Japanese.

Stewart (2001) provides a detailed examination of various types of serial verb constructions and identifies a class of serial verb construction which he refers to as resultative serial verb constructions. Stewart (2001) provides evidence suggesting that this construction, indeed, is a mono-clausal construction associated with a single Davidsonian event. For this reason, I focus on the Èdó resultative serial verb construction, as exemplified in (5), and argue that this construction has the same underlying structure as English object sharing resultative constructions.

- (5) Òzọ sùá Úyí dé (Èdó, Stewart 2001: 8)
 Ozo push Uyi fall
 ‘Ozo pushed Uyi down.’

I would like to emphasize again the importance of carefully identifying the relevant construction, among many constructions that have similar surface forms. Most constructions, which appear to be similar to resultative serial verb constructions, as identified in Stewart (2001), in fact, have a complex structure, and thus would fall out of the scope of this chapter. For this reason, in Section 2, we begin our discussion by examining various structures that have been referred to as serial verb constructions and discuss how we can identify the resultative serial verb construction. I should note that most works on serial verb constructions have not carefully examined the mono-clausal, single-event property, and thus I mainly rely on Stewart’s (2001) work on Èdó for my examples.

Once I establish the construction to be examined, I review the traditional discussions on how this construction should be structurally represented. The properties of resultative constructions I focus on are: the causative meaning which arises in resultative serial verb constructions, the unity property, and the object sharing restriction. Following the approach I have taken in previous chapters, I assume that voice head (v) takes as its argument a predicate that describes a (sub) event and forms a Davidsonian argument. I also argue that the V1 of a resultative serial verb construction must undergo a lexical coercion to acquire a causative meaning, in the same way the phonologically overt verb of the English transitive resultative construction is argued to do. The lexical coercion analysis captures the emergence of the causative meaning in resultative constructions, as well as the head-complement relation between the V1 and the V2P. The head-complement relation between the V1 and the V2P is assumed in some analyses of resultative constructions without considering the causative meaning (e.g. Collins 1997, Larson 1991), but in the current analysis, I make it explicit that it is the coerced causative meaning that licenses the V1 to take the V2P as its complement.

In Section 4, I review the line of thought that serial verb constructions and V-V compounds have the same structural representation at one point in the derivation. Considering this hypothesis, I revisit the Japanese resultative V-V compounds and show

that it is the argument structure of the construction that leads to the differential analysis of Èdó resultative serial verb constructions and Japanese resultative V-V compounds, rather than a universal difference between serial verb constructions and V-V compounds.

In Section 5, I examine the role of the internal argument of the resultative serial verb construction. The discussion in this section focuses on understanding the relevant issues, rather than solving them. The same way the position of the object in English transitive resultative construction could only receive a tentative analysis, the exact position of the object in the resultative serial verb construction remains a curious puzzle.

2. RESULTATIVE SERIAL VERB CONSTRUCTIONS

There are different types of serial verb constructions, and in Section 2.2, I briefly review the literature on serial verb constructions, with a focus on how to identify the resultative serial verb construction from other types. In particular, I focus on the work of Stewart (2001) because it provides the most detailed examination of the constructions, and it is one of the few studies of serial verb constructions which carefully distinguish and identify sub-types of serial verb constructions and identify resultative serial verb constructions from other constructions with similar appearances.

2.1. Three types of serial verb constructions

As previously stated, the term *serial verb construction* is a descriptive one. Researchers generally use the following definition, shown in (6), to identify the serial verb construction (taken from J. M. Stewart (1963)).

- (6) i. The subject, which must be the same in each of the underlying simple sentences if they are to be eligible for co-ordination in a serial verbal sentence, is generally deleted in each sentence other than the first.
 - ii. If two or more successive underlying sentences have the same direct object, this direct object is deleted in each of the sentences other than the first in which it occurs.
- (J. M. Stewart 1963)

Recently a more restrictive description is used, in which the object sharing is required and which excludes co-ordination structures as shown in (7). The type of serial verb

construction to which this definition applies is sometimes called the object sharing serial verb construction (see e.g. Baker 1989, Campbell 1996, Collins 1997b).

(7)[A] single clause in which two or more finite verbs occur without any marker of coordination or subordination, sharing a single structural (and semantic) subject and a single object. (O. T. Stewart 2001, p12, parentheses in the original)²

The definition in (7) still picks out a variety of constructions, as shown in (8).

(8)a. *TAKE-SERIAL VERB CONSTRUCTIONS*³

Kwesi yí-ì atser no má-à Ato (Akan, Osam 2003: 27)
 Kwesi take-COMPLspoon DEF give-COMPLAto
 ‘Kwesi took the spoon for Ato.’

b. *CONSEQUENTIAL SERIAL VERB CONSTRUCTIONS*

Esi tó-ò paanoo dzí-ì (Akan, Osam 2003: 27)
 Esi buy-COMPL bread eat-COMPL
 ‘Esi bought bread and ate it.’

c. *RESULTATIVE SERIAL VERB CONSTRUCTIONS*

Òzó kòkó Àdésúwà mósé (Èdó, Stewart 2001: 12)
 Ozo raise Adesuwa be.beautiful
 ‘Ozo raised Adesuwa to be beautiful.’

Stewart (2001) provides convincing empirical evidence that the three constructions in (8) differ in various ways, such as the interpretation of adverbs and aspectual morphemes. Adverbs and aspectual morphemes in Èdó treat the two verbs of resultative serial verb constructions as a unit and cannot take scope over just one of the verbs. In contrast, these elements can scope over just one of the verbs constituting consequential serial verb constructions or covert coordinations. These elements indicate that resultative serial verb

² Stewart (2001) points out that it is not always easy to identify sentences containing a subordinate or coordinate structure in the SVC languages, since they often do not have any morphological marker indicating subordination or coordination.

³ The *take*-serial verb construction is sometimes classified as an object-sharing SVC (e.g. Collins 1997b) and sometimes not (e.g. Baker 1989, Stewart 2001). The difference in the classification reflects the different interpretation of object-sharing restriction. The *take*-serial verb construction may involve object-sharing when it is used to license a certain type of direct object. It may also be used to introduce an instrumental argument. In this case, there is no object sharing. If one takes the position that object-sharing SVC **must** involve object sharing, *take*-serial verb constructions will not be classified as a type of object-sharing serial verb construction. If, however, one assumes that object-sharing serial verb constructions refer to types of serial verb constructions that **may** involve object sharing, then *take*-serial verb constructions are included in this class. For the purpose of the current discussion, I examine the cases of *take*-serial verb constructions that involve object-sharing to show that even object-sharing *take*-serial verb constructions are different from resultative serial verb constructions.

constructions are the only serial verb constructions which fall under the scope of current thesis (due to the unity property in (3)). Before I provide a close examination of resultative serial verb constructions, I should first look at other well-known types of serial verb constructions so that we will have a clear idea of how we can identify the relevant type of serial verb construction, and what properties this relevant construction has. In general, there are two more types of serial verb constructions that are identified in the literature. In the next section, I first examine *take*-serial verb constructions and point out how they can be distinguished from other classes of serial verb constructions. In Section 2.3, then, I compare and contrast consequential serial verb constructions with resultative constructions.

2.2. *Take*-serial verb constructions

In this section, I examine a construction called *take*-serial verb constructions, and show that this construction should be distinguished from the resultative serial verb construction, on the basis that the V1 of a *take*-serial verb construction does not describe the causing event. I do not provide an analysis for this construction, rather I simply provide enough empirical evidence in support of the proposed distinction.

Take-serial verb constructions involve a light verb, which often is morphologically related to a verb meaning ‘give’, ‘take’ or ‘hold’. *Take*-serial verb constructions can be used to license a definite theme object in certain contexts. First, let’s look at an example of the *take*-serial verb construction in (9).

(9) *Take* serial verbs

a. Me- de nwoma no maa Kofi (Akan, Campbell 1996:93)
 I-TAKE book that gave Kofi
 “I sold the book to Kofi.”

b. Abena de sika no kyé-è abofra no (Akan, Osam 2003:33)
 Abena TAKE money DEF give-COMPLchild DEF
 ‘Abena gave the child the money.’

The verb *de* “take” describes a taking event (i.e. really means “take”) when it is used as the sole verb of a sentence, as shown in (10).

- (10) Okom de me⁴ (Akan, Campbell 1996:92, f.n.10)
 hunger TAKE me
 ‘I am hungry.’

When this verb is used in a serial verb construction, however, the verb does not really mean “take”. It has been argued that the sole purpose of the verbal element *de* in the sentences in (9) is to license a definite direct object of the verb *maa* “give” and *kyé* “give,” since a definite direct object with these verbs cannot appear in a regular non-serial verb construction (11).

- (11) a * Me-maaKofi nwoma no (Campbell 1996: 85)
 I-give Kofi book that
 b. Abena kyé-è abofra no sika (*no) (Osam 2003:32)
 Abena give-COMPLchild DEF money DEF
 ‘Abena gave the child (*the) money.’
 c. Kwesi bré-è maame no adaka (*no)
 Kwesi bring-COMPL woman DEF box DEF
 ‘Kwesi brought the woman a/*the box.’

The examples in (11) show that when a single verb appears with two internal arguments (i.e. in a double object construction), the theme object must be indefinite. The use of a definite marker *no* “that” with the theme object of the double object construction is thus illicit. In order to license a definite object, the light verb *de* must be used in conjunction with the main verb, and then we have the *take*-serial verb constructions seen in (9).⁵

⁴ Campbell (1996) claims that this use of the verb *de* is idiomatic and that this verb is simply homophonous with the light verb *de* which appears in serial verb constructions.

⁵ Similarly, in Twi (a dialect of Akan), *take*-serial verb constructions are used to license a pronominal theme object. The *take*-serial verb construction in (i) thus contrasts with the sentence in (ii) in which the theme argument is a full nominal.

- (i) ɔde nó fɛmm me (Stewart 1963:145)
 he-take it lent me
 ‘He lent it to me’
 (ii) ɔfɛmm me ne pɔnkɔ nó
 he-lent me his horse that
 ‘He lent me his horse’
 (iii) *ɔfɛmm me no
 he-lent me it

The difference between *take*-serial verb constructions and resultative serial verb constructions becomes clear when we focus on the interpretation of the V1. While the V1 of a resultative serial verb construction describes the causing event, the V1 of a *take*-serial verb construction is semi-functional, in that this verb does not describe an event. The sole purpose of the V1 in a *take*-serial verb construction, instead, is used to license a certain type of object. Although the *take*-serial verb construction falls within the scope of the definition in (7), and hence has received a unified analysis with the resultative serial verb construction, the difference between the *take*-serial verb construction and the resultative serial verb construction in meaning warrants leaving it out of the scope of the current investigation.

2.3. The two types of object-sharing serial verb constructions

The other type of serial verb construction which has to be distinguished from resultative serial verb constructions is called the consequential serial verb construction. It must be noted here that not all researchers working on serial verb constructions distinguish resultative serial verb constructions from consequential serial verb constructions. Stewart (2001), and Campbell (1996) note two different types of serial verb constructions aside from *take*-serial verb constructions, and they classify them based on the transitivity of the second verb. Collins (1997b) and Baker (1989), on the other hand, provide a single analysis regardless of the transitivity of the second verb. The differences between the two constructions are subtle, and these differences were not known before Stewart's (2001) careful investigation. The analysis in Baker (1989) and Collins (1997b) captures the evidence which was known before Stewart's (2001) study, and their analysis captures the properties that the two-object sharing serial verb constructions have.⁶ Nonetheless, Stewart (2001) presents convincing arguments that a unified analysis fails to capture a cluster of properties associated with each of the two types of object-sharing serial verb

⁶ It was known, even before Campbell's work, that some object-sharing serial verb constructions do not involve subject sharing. Some researchers have provided different labels for the two types of object-sharing serial verb constructions. The consequential serial verb construction in Campbell-Stewart classification is referred to as the subject-sharing, object-sharing serial verb constructions, and the resultative serial verb constructions is referred to as the switch-subject (because the subject of the V1 is not the subject of the V2), object-sharing serial verb constructions. See Osam (2003) for the description of these terms for Akan serial verb constructions.

constructions. I follow Stewart's (2001) footsteps and distinguish consequential serial verb constructions from resultative serial verb constructions.

Consequential serial verb constructions are first identified in Campbell (1996), who notes that serial verb constructions (of non-*take* serial type) can be classified into two types based on the transitivity of the second verb as shown in (15)

(12) TRANSITIVE V2

- a. Kofi tOO bayerE diiE (Akan, Campbell 1996: 85)
 Kofi bought yam ate
 'Kofi bought a yam and ate it.'

UNACCUSATIVE V2

- b. Kwasi hwie e nsuo guu fOm ho⁷
 Kwasi poured water dripped floor surface
 'Kwasi poured water onto the floor.'

Stewart (2001) follows Campbell's (1996) classification based on the transitivity of the second verb, but he re-labels the two classes as consequential and resultative serial verb constructions. In this work, thus, the object-sharing serial verb construction is classified as consequential if the second verb is transitive, and as resultative if the second verb is unaccusative. His study is based on Èdó examples, which are shown in (13) and (14).

(13) CONSEQUENTIAL SERIAL VERB CONSTRUCTIONS

- Òzó gbé úzò khién (Edo, Stewart 2001: 13)
 Ozo kill antelope sell
 "Ozo killed the antelope and sold it."

(14) RESULTATIVE SERIAL VERB CONSTRUCTIONS

- a. Òzó kòkó Àdésúwá mósé (Edo, Stewart 2001: 12)
 Ozo raise Adesuwa be-beautiful
 "Ozo raised Adesuwa to be beautiful"
- b. Òzó sùá ágá dé
 Ozo push chair fall
 "Ozo pushed the chair down"

The main contribution of Stewart (2001) is that it provides convincing evidence that this classification is non-trivial. He shows that resultative serial verb constructions and

⁷ Campbell (1996) claims that *guu* 'drip' is an unaccusative, double-object verb.

consequential serial verb constructions indeed behave differently with adverbial elements, and aspectual markers.

The following examples illustrate that adverbs and aspectual markers can take scope over just one of the two verbs in consequential serial verb constructions, but must take scope over both verbs in resultative serial verb constructions. In (15), a pre-verbal adverb *gié!gié* “quickly” is placed right in front of the V2. In (15a, b), the serial verb construction contains the unaccusative verb *dé* “fall” and *mósé* “be beautiful” respectively, and therefore they are classified as resultative serial verb constructions according to the Stewart-Campbell classification.

(15) PRE-VERBAL ADVERB *GIÉ!GIÉ*

- a. *Òzó súá ògó **gié!gié** dé (Stewart 2001: 26)
 Ozo push bottle quickly fall
 (Expected interpretation: Ozo pushed the bottle and it fell quickly)
- b. *Òzó kòkó Àdésúwá **gié!gié** mó!sé
 Ozo raise Adesuwa quickly be-beautiful
- c. Òzó dúnmwún èmà **gié!gié** khiến (Stewart 2001: 29)
 Ozo pound yam quickly sell
 “Ozo pounded the yam and quickly sold it.”

With these serial verb constructions, the pre-verbal adverb placed in front of the V2 cannot just modify the V2, and the sentences are, in fact, ungrammatical (15a, b). In (15c), in contrast, the use of the same adverbial in the same surface position is grammatical. As the second verb in this sentence *khién* “sell” is transitive, we know that this is an example of a consequential serial verb construction. These examples indicate that serial verb constructions with an unaccusative V2 (resultative serial verb constructions) and ones with a transitive V2 (consequential serial verb construction) are indeed different.

Stewart (2001) also uses a post-VP adverb to demonstrate the same pattern – that the modification of just the V1 is impossible in resultative serial verb constructions but it is possible with consequential serial verb constructions. The following examples illustrate

the distributional restrictions of a post-VP adverb *ègìégìé* “quickly.” This adverb appears at the right edge of a VP. It follows the verb and its object which it modifies (Stewart 2001). (16a) shows how the adverb behaves with consequential serial verb constructions. The adverb *ègìégìé* “quickly” modifies just the first VP – pounding of the yams – without modifying the second VP. With a resultative serial verb construction, in contrast, the adverb cannot modify just the first VP (16b). The use of a post-VP adverbial between the two VPs in this context, in fact, results in ungrammaticality.

(16) POST-VERBAL ADVERB *ÈGÌÉGIÉ*

- a. Òzó dúnmwún èmà *ègìégìé* khiénné (Stewart 2001: 37)
 Ozo pound yam quickly sell+PL
 ‘Ozo pounded the yams quickly and sold them.

- b. *Òzó súá ògó *ègìégìé* dé (Stewart 2001: 36)
 Ozo push bottle quickly fall
 (Expected interpretation: Ozo pushed the bottle quickly and the bottle fell)

These examples presented in Stewart (2001) strongly suggest that resultative serial verb constructions and consequential serial verb constructions can and should be distinguished. The behavior of the adverbs suggest that the resultative serial verb construction, like the lexical causatives and other resultative constructions we saw in previous chapters, is mono-clausal. In other words, the resultative serial verb construction as a unit is associated with a single Davidsonian event.

In the following section, I review Collins’ (2002) work on $\neq$ Hoan, in order to illustrate why one might seek a unified analysis for resultative V-V compounds and resultative serial verb constructions. I would, however, like to first detour a bit to look at more work on serial verb constructions in other languages. Not all researchers adopt the Campbell-Stewart classification, and it is worthwhile to speculate why this might be so.

Despite the success of the Campbell-Stewart classification in Èdó, this classification may not easily be adopted for other languages. In Èdó examples, the transitivity of the verb is unambiguous⁸ and it makes it easy to use the transitivity-based

⁸ Most of Stewart’s (2001) examples of resultative serial verb constructions contain a stative V2, which do not undergo unaccusative-transitive (i.e. inchoative-causative) alternations (see Baker & Stewart (1997)

classification of Campbell (1996) and Stewart (2001). In other serial verb languages, however, the transitivity of a verb is not morphologically marked, and some examples of serial verb constructions in these languages cannot be unambiguously classified as transitive V2 or unaccusative V2. The following examples illustrate this point (17). The verb *hyèw* can be used as a transitive verb (17a) or unaccusative verb (17b).

- (17) a. Kwame bɛ-**hyèw** dua no (Akan, Osam 2003:19)
 Kwame FUT-burn tree DEF
 ‘Kwame will burn the tree.’
- b. Kwame bɛ-**hyèw**
 Kwame FUT-burn
 ‘Kwame will get burnt’

When this type of verb is used as the V2, it can be analyzed as a resultative serial verb construction (=unaccusative V2) or a consequential serial verb construction (=transitive V2), as illustrated in (18).

- (18) Ama twé-è Ekua bɔ́-ɔ́ famu (Akan, Osam 2003: 31)
 Ama pull-COMPL Ekua fall-COMPL ground
 ‘Ama pulled Ekua down’
 or ‘Ama pulled Ekua and toppled him(=Ekua)’ (Osam, pc, 2003)

In Akan, the verb *bɔ́* “fall” can be transitive (‘fell’) or unaccusative (“fall”). If the verb is transitive, the sentence is an example of a consequential serial verb construction and if it is unaccusative, it is an example of a resultative serial verb construction. As the interpretation may indicate, the semantic difference between resultative serial verb constructions and consequential serial verb constructions is very subtle. Applying the Campbell-Stewart classification to Akan, for this reason, is difficult. If we use the adverbial test to (18) to see if an adverb can modify just one of the verbs, the sentence is expected to be grammatical, not because the behavior of adverbs are different in Akan, but because the construction can be analyzed as a consequential serial verb construction. It would be interesting to see, in the future, if there is a way to force one reading over the other.

for more discussion). In this way, he ensures that his examples cannot be re-analyzed as containing a

In other verb serializing languages, serial verb constructions involve two verbs that match in transitivity, and thus, the transitive-unaccusative form of serial verb constructions is not found (see Cummings 2001 for a transitivity-based cross-linguistic typology). Saramaccan is one of these languages. Veenstra (1996) notes that in Saramaccan, a Caribbean Creole language related to Akan, serial verb constructions always involve two transitive verbs. This pattern may be suggesting that Saramaccan only has consequential serial verb constructions, or that in Saramaccan an independent constraint forces the transitivity matching between the two verbs. In order to see if these languages have resultative serial verb constructions, we need to see how adverbs behave in these constructions. I will leave the study of Saramaccan as a future project.

Leaving these facts aside, we can see that resultative serial verb constructions in Èdó look very much like resultative constructions in other languages. As pointed out in Larson (1991), they are very similar to the English transitive resultative construction which has been examined in Chapter 2. In resultative serial verb constructions, two verbs form a unit which describes a complex event. The first verb of resultative serial verb constructions denotes an activity event and the second verb describes either a state (e.g. *mòsé* “be beautiful” shown in (14a)), or a change of state (e.g. *dé* “fall” in (14b)) which occurs as a result of the activity described by the V1. Thus a serial verb construction formed with an activity V1 and a stative/achievement V2 describes an accomplishment event. Stewart (2001) provides the following examples to show that two verbs which individually denote atelic events can form a resultative serial verb construction, which has telic aspectual properties. The examples in (19) show that the verbs *kòkó* “raise” and *mòsé* “be beautiful” are incompatible with the time-span temporal phrase *vbè ùkpó isén* “in five years”, but compatible with the durational temporal phrase *là ùkpó isén* “for five years”. This pattern suggests that these two verbs denote atelic events (see Vendler 1967, Dowty 1979). In contrast, the resultative serial verb construction formed with these two verbs, shown in (20) is compatible with the time-span phrase but incompatible with the durational one, which suggests that the construction denotes a telic event.

transitive V2.

- (19) a. Òzó kòkó Àdésúwá (*vbè ùkpó isén)/ là ùkpó isén.
 Ozo raise Adesuwa in year five for year five
 ‘Ozo raised Adesuwa for five years.’
 ‘*Ozo raised Adesuwa in five years.’
- b. Àdésúwá mósé (*vbè ùkpó isén)/ là ùkpó isén
 Adesuwa be-beautiful in year five for year five
 ‘Adesuwa stayed beautiful for a period of five years.’
 ‘*Adesuwa stayed beautiful in five years.’
- (20) Òzó kòkó Àdésúwá mósé vbè ùkpó isén/ (*là ùkpó isén)
 Ozo raise Adesuwa be-beautiful in year five/ for year five
 ‘Ozo raised Adesuwa to be beautiful in five years.’
 *‘Ozo raised Adesuwa to be beautiful for five years.’
 (Stewart 2001: 80)

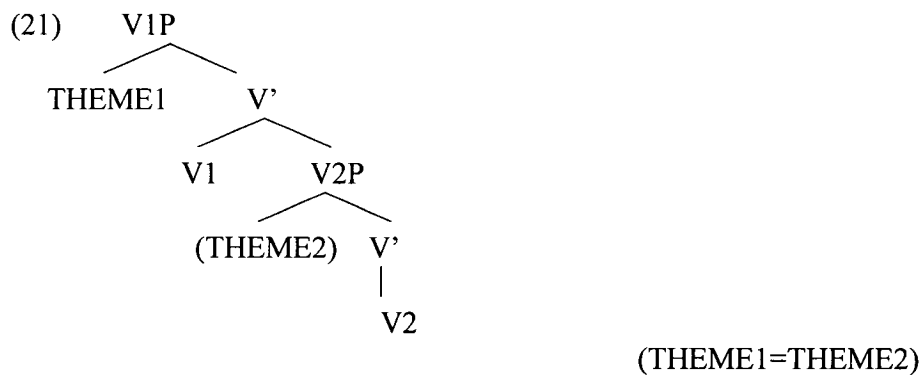
As a side note, we should recall that in Japanese resultative V-V compounds, the aspectual properties of the compounds are determined solely by the aspectual properties of the V2, rather than by the composition of these properties of the two verbs as in Èdó. As we will see in the later sections, the aspectual composition we observe in (19-20) again provides a piece of evidence that the two constructions (Japanese resultative V-V compounds and Èdó resultative serial verb constructions) are fundamentally different.

3. THE ANALYSIS OF RESULTATIVE SERIAL VERB CONSTRUCTIONS

The relation between the two predicates in resultative constructions in English is often described as causative. One predicate describes an action which causes the state described by the other predicate to come about. Researchers have hence proposed that, in resultative constructions, there is a phonologically null predicate, CAUSE, that license the combination of the two predicates. As I argued in Chapter 1, the current thesis differs from some analyses involving CAUSE (i.e. Lidz & Williams 2002), in treating the predicate CAUSE as a one-place predicate, which takes a single VP complement.

Traditional syntactic accounts, on the other hand, focus on the structural relation between the two predicates. Larson (1988) proposes that the result denoting predicate is embedded under the action denoting predicate. Larson (1991) extends this analysis to resultative serial verb constructions. Collins (1997b) and Stewart (2001) adopt Larson’s approach that the resultative serial verb constructions should be modeled after the

resultative construction in English, and that the result-denoting phrase is embedded under the cause-denoting phrase. Extending the VP-shell analysis of English resultative constructions in Larson (1988), the structure of the resultative serial verb construction can be represented as in (21), in which the result-denoting verb (V2) is treated as the complement of the action denoting verb (V1).



In this approach, the exact mechanism which allows the combination of the two verbs is not defined. That is, the V2P is the complement of V1, even though V1 does not lexically select for the V2.

I propose combining these two approaches by adopting the structural representation of (21), and also by assuming that the relation between the two verbs is a causative relation. As I mentioned in Chapter 2, this is the same mechanism I postulated for the transitive resultative constructions in English. I propose that the V1 of a resultative serial verb construction acquires the causative meaning by lexical coercion, which, in effect, turns the V1 into a causative predicate. In this analysis, the V1 is the causative predicate, which takes a VP complement and interprets it as a caused event. This analysis contrasts with other analyses which postulate a separate causative predicate. I argue that given in the spirit of modeling resultative constructions after (lexical) causative constructions, my analysis captures the similarity between the two types of constructions better than analyses with a separate causative predicate.

It must be noted that the nature of the shared object is greatly controversial. Some researchers argue that there is an anaphoric empty element in the result-denoting phrase (e.g. Collins 1997b, 2002), and others argue that there is not an empty category in the result-denoting phrase (Baker 1989, Stewart 2001). The representation in (24)

contains a theme object within the V2P to make it explicit that the logical object of the V2 must be coreferent with the logical object of the V1. The representation in (21) is modeled after the analysis of the English transitive resultative constructions seen in Chapter 2, but I will discuss the controversy regarding the position of the object in Section 4.

3.1. Resultatives as Causatives

In this thesis, I follow Larson's (1991) assumption that so-called serial verb constructions should not be treated as exotic constructions that differ greatly from constructions known in European languages. Given the apparent similarity between the English AP resultatives and the Èdó resultative serial verb construction, I treat these two constructions as being essentially the same. Like the two predicates in English resultative constructions, the two verbs in resultative serial verb constructions describe an action and its result respectively. This relation between the two predicates can be seen as causational (Baker & Stewart 2002, Kratzer 2004). Like the relation that lexical causative constructions denote, the two predicates in resultative constructions are in a direct causative relation (see Dowty 1979 for more discussion on direct causation). The relation is more restricted than the causative relation seen in non-lexical causative constructions, involving verbs such as *make*, or *cause*. In addition, like in the lexical causative construction, manner adverbs cannot modify just the caused event (i.e. the result phrase). This behavior of adverbs indicates that the resultative construction as a unit is associated with a single Davidsonian event (Davidson 1967). The relation is captured straightforwardly if we assume that the relation between the two predicates in resultative construction is exactly like the relation between the predicates in lexical causative constructions. Following the approach I took for English in Chapter 2, I propose that the V1 of the resultative serial verb construction should be analyzed as the causative verb, similar to the causative predicate. I propose that the process of lexical coercion adds a causative meaning to the V1. I show that this analysis captures the parallel between the causative construction and the resultative construction, as well as maintaining the assumed structural relation in Larson (1991).

3.2. Lexical coercion in resultative constructions

As we discussed in the previous chapters, the analogy that resultative constructions are like lexical causative constructions is not simply a descriptively useful tool. It captures several aspects of resultative constructions. The caused event of resultative constructions, like the caused event of lexical causative constructions, must be denoted by an unaccusative verb (in Èdó) or an adjectival element (in English).⁹ Resultative constructions, like lexical causative constructions, denote a single Davidsonian event. These similarities suggest that this analogy between resultative constructions and lexical causative constructions is on the right track. In order to complete the analogy, however, we must locate the source of the causative meaning. I apply the same analysis that I proposed for the English object sharing resultative constructions in Chapter 2. I argue that the V1 of resultative serial verb constructions acquires the causative meaning by lexical coercion.

As I argued in Chapter 2, in resultative constructions, a verb that would otherwise denote a simple, non-causative event is used to denote an activity which brings about the event described by the V2. The examples in (22) contain such verbs as *hammer*, and *push*, which take a nominal, non-event complement. These verbs differ from such verbs as *try*, and *begin*, which lexically select for a clausal, event complement shown in (23).

- (22) a. Kotaro pushed the door.
b. Kotaro hammered the nuts.

- (23) a. Kotaro **tried** [to bite me].
b. Kotaro **began** [to sleep].
c. Kotaro **wants** [to eat].

These bolded verbs in (23) lexically select for a clausal complement, and thus the relation between the clauses in bracket and the verbs can be treated as a predicate-argument relation¹⁰. The examples in (22), in contrast, suggest that the verbs in the examples do not

⁹ As we will see in Section 4, a language that has the Èdó-type resultative serial verb construction may force both verbs of the construction to move to voice, and this movement, then, forces both verbs to be realized with the same transitivity. In Section 4, I present Collins' (2002) arguments that †Hoan is this type of language.

¹⁰ Interestingly, these predicates can combine with VP, or vP (Wurmbrand 2002). Their subcategorization seems more flexible than that of a lexical causative predicate, though the choice of vP or VP has a structural consequence. Moreover, we observe the same flexibility in languages in which a single causative

lexically select for an event object, yet these verbs appear with the result denoting phrase in (24)

- (24) a. John **hammered** the metal flat.
b. John **pushed** the window open.

The main verb in resultative constructions in (24) does not lexically select for the result denoting phrase, as they are simple verbs describing activities. However, when they appear in the resultative construction, a causative meaning emerges, and the activities these verbs describe are interpreted as bringing about (i.e. causing) the state the result-phrase describes. The same causative relation also plays a role in Èdó resultative serial verb constructions. The V1, which in other contexts would not select for an eventive argument, nonetheless acquires a causative meaning. Following the analysis I proposed for the object sharing resultative constructions in English, I argue that, in the Èdó resultative serial verb construction too, the causative meaning is forced onto the V1 by lexical coercion, as shown in (25).

- (25) a. The basic lexical representation of *sùá* “push”
 $sùá: \lambda x \lambda e1 [\text{push}(e1) \ \& \ \text{theme}(x)(e1)]$
 b. The lexically coerced meaning of *sùá*
 $sùá: \lambda P \lambda x \lambda e1 [\text{push}(e1) \ \& \ \text{theme}(x)(e1) \ \& \ \exists e2 [P(e2)(x) \ \& \ \text{cause}(e1)(e2)]]$

This allows the V1 to combine with the result-denoting phrase (V2P), as shown in (26).

- (26) $\lambda P \lambda x \lambda e1 [\text{push}(e1) \ \& \ \text{theme}(x)(e1) \ \& \ \exists e2 [f(e2)(x) \ \& \ \text{cause}(e1)(e2)]]$
 $\ \& \ f: \lambda y \lambda e2 [\text{theme}(y)(e2) \ \text{fall}(e2)]$
 $\rightarrow \lambda x \lambda e1 [\text{push}(e1) \ \& \ \text{theme}(x)(e1) \ \& \ \exists e2 (\text{fall}(e2) \ \& \ \text{cause}(e1)(e2), \text{theme}(y) (e2))]$
 $(x=y \text{ due to PRO, or the Directness Condition})$
 $\rightarrow \lambda x \lambda e1 [\text{push}(e1) \ \& \ \text{theme}(x)(e1) \ \& \ \exists e2 (\text{fall}(e2) \ \& \ \text{cause}(e1)(e2), \text{theme}(x) (e2))]$
 cf. Òzò sùá ágá dé
 Ozo push chair fall
 “Ozo pushed the chair down”

element can be used as a lexical causative or syntactic causative predicate (see Travis 2000 and also Harley 1995, Miyagawa 1984).

In addition, the causing event argument can be saturated as soon as the lexical coercion turns the V1 into a causative predicate. Thus, syntactically, the coerced V1 needs to combine with only one event predicate to saturate its caused event argument.

Having shown the composition of the complex predicate, I now turn to the behavior of adverbs we saw earlier. Èdó manner adverbs cannot modify just the V1, or just the V2. Instead, they modify the entire event, denoted by the combination of the V1 and V2. I have argued that the “entire event” is the event first discussed in Davidson (1967), which I call a Davidsonian event. Sub-events, which are arguments of the CAUSE predicate, are not Davidsonian events. The causative predicate in resultative serial verb constructions take two sub-event arguments (one denoted by the CAUSE verb itself, i.e. the V1, and the other by the V2) and returns a single complex event argument. As previously discussed, the voice head, which combines with the V1, takes as its input the single complex event argument, given by the causative predicate and turns it into a Davidsonian event argument. Locality conditions ensure that the voice function does not see the two events that are arguments of the cause predicate. For the purpose of manner adverbs, which are predicates of Davidsonian events, there is only one event in a resultative serial verb construction. It is the complex event that is composed of two sub-events, but it is one Davidsonian event.

3.3. Voice and cause: unaccusative resultative serial verb constructions

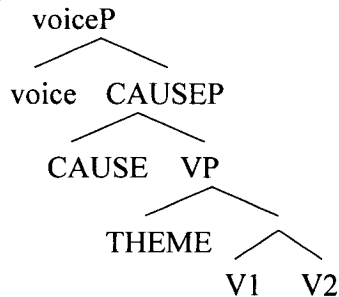
In the previous chapters, I argued that both in English and Japanese, resultative constructions (resultative V-V compounds in Japanese) provide evidence for separating voice and CAUSE. Unaccusative resultative constructions must contain CAUSE and a non-external-argument introducing voice.¹¹ When CAUSE and voice are bundled (i.e., realized as a single node), voice that has a causative meaning is voice that introduces external argument (Hale & Keyser 1993, Harley 1995). The dissociation of an external argument introducing context and the presence of a causative meaning in English and Japanese led us to conclude that the two nodes – voice and CAUSE – must be separate. Similarly, Èdó grammar permits unaccusative resultative serial verb constructions, which leads us to conclude that voice and CAUSE separated in Èdó as well. This conclusion

¹¹ I do not claim that unaccusative verbs in non-resultative contexts contain CAUSE.

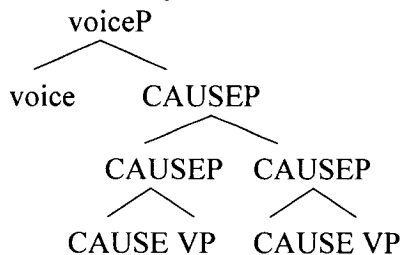
confirms the proposal in Baker & Stewart (1999) and Stewart (2001), who argue for the separation of the two nodes.

Although the current analysis reached the same conclusion as Baker & Stewart (1999) and Stewart (2001), the basis of our arguments differ from one another. For Baker & Stewart (1999) and Stewart (2001), the separation of the two nodes (CAUSE and voice) allows them to capture two points: that there are two types of serial verb constructions (resultative and consequential) and that it is at these nodes that languages with serial verb constructions differ from languages without these constructions. They argue that in the resultative serial verb construction a single CAUSE head licenses two Vs, while in the consequential serial verb construction, a single voice licenses two CAUSEs. Their analysis, therefore, entails that a language may have the two types of serial verb constructions (resultative and consequential) only if voice and CAUSE are separate in this language. Moreover, it is the properties of CAUSE and voice that makes languages with serial verb constructions differ from other languages. The structures in (27) illustrate their point.

(27) a. RESULTATIVE SERIAL VERB CONSTRUCTIONS



b. CONSEQUENTIAL SERIAL VERB CONSTRUCTIONS



The current analysis in this thesis leads to the same conclusion as Baker & Stewart (1999) and Stewart (2001) with regards to the separation of the two nodes. In the current

analysis, the presence of unaccusative resultative serial verb constructions is taken to indicate the separation of the two nodes. Èdó, indeed, permits resultative serial verb constructions in which both verbs are unaccusative, as exemplified below.

- (28) a. Ògò dé gùòghò
 bottle fall break
 ‘The bottle fell down and broke.’ (Stewart 2001: 58)
- b. Òmó dé (*giégié) wú
 child fall (*quickly) die
 ‘The child fell and (*quickly) died.’ (Baker & Stewart 1999:27)¹²

As I mentioned previously, when voice and CAUSE are realized as a single node, voice that introduces an external argument is interpreted as CAUSE, and voice that does not introduce an external argument BECOME (Hale & Keyser 1993, Harley 1995). In the examples in (28), neither of the two verbs introduces an external argument since they are both unaccusative, but the V1 should be interpreted as describing the causing event. In other words, the examples in (28) indicate that, in Èdó resultative serial verb constructions, a causative meaning can be found when the voice associated with the construction is non-external argument introducing. These examples in (28), thus, indicate that voice and CAUSE are separate in Èdó.

4. VERB SERIALIZATION AND V-V COMPOUNDING

There are two distinct but similar ideas concerning the principle of the grammar which allows serial verb constructions. Baker & Stewart (1999) and Stewart (2001) argue that it is the fact that T does not have to license verbs in Èdó that permits serial verb constructions in this language. Collins (1997), in contrast, argues that verb serializing languages differ from other languages in that T in verb serializing languages can license multiple Vs. It is not our goal to identify the exact nature of the verb serialization. I adopt the general spirit of these researchers and assume that verb serializing languages differ from other languages in some property of T. However, I would like to examine Collin’s

¹² The impossibility of the adverb ‘quickly’ to appear between the two verbs ensures that these sentences indeed exemplify resultative serial verb constructions.

(1997) claim, because it brings out an interesting fact about the cross-linguistic variation.

Collins (1997) claims that in verb serializing languages, T can license multiple Vs. Given this multiple-feature checking mechanism, Collins claims that at LF, all the verbs are adjoined to T in all verb serializing languages. This brings out an interesting data point – verb serializing languages are, in some sense, V-V compounding languages. Given that Japanese is a V-V compounding language, one might expect that in Collins' sense Japanese and verb serializing languages are the same at LF. This is, indeed, the claim made in Collins (2002) and Nishiyama (1998).

The analysis of resultative V-V compounds proposed in Nishiyama (1998) is in contradiction with the analysis provided in the previous chapter. These contradicting views arise from the difference in the basic assumptions. As I argued in Chapter 2, English has two types of resultative constructions. These two constructions have a similar appearance, but when we examined the object of the construction, the difference between the two constructions became apparent. Similarly, serial verb languages may come to have a similar appearance to Japanese V-V compounds at some point in the derivation (i.e., at LF), but the similarity in the appearance alone does not warrant a unified analysis. Again, I examine the role of the object of the construction and show that the two constructions – serial verb constructions and Japanese resultative V-V compounds must be distinct.

In Èdó resultative serial verb constructions, the object of the construction must be interpreted as the object of the two verbs. The presence of a non-shared object results in ungrammaticality, as shown in (29).

- (29)a. *Ì wón úkpù ká
I drink cup dry
'I drank the cup dry'
- b. *Ékítà gbòó Àdésúwà rhiórré
dog bark A. wake.up
'The dog barked Adesuwa awake.'

In these examples, the object of the construction can only be the object of the V2, and Baker & Stewart (1999) and Stewart (2001) report that these constructions are systematically ungrammatical.¹³

In contrast, we saw that in Japanese resultative V-V compounds, the object of the compound may not be the object of both verbs. The relevant examples are shown in (30).

- (30)a. Kotaro-ga hokori-o huki-tot-ta.
 K-nom dust-acc wipe-remove-past
 ‘Kotaro removed the dust by wiping (his face).’
 b. Taro-ga niwatori-o shime-koroshi-ta.
 T-nom chicken-acc strangle-kill-past
 ‘Taro killed the chicken by strangling (its neck)’

These examples support the differential treatment of the two constructions I have provided in this thesis.

I should point out that I do not claim that V-V compounds are universally different from serial verb constructions. Collins (2002), for example, presents an analysis of #Hoan V-V compounds and argues that these compounds have an underlying serial verb structure. In Section 4.1, I briefly review Collins’ (2002) work and show that indeed, #Hoan resultative V-V compounds resemble resultative serial verb constructions the way Japanese resultative V-V compound do not. I thus conclude that an approach which unifies resultative V-V compounds with resultative serial verb constructions is tenable, but that we must pay individual attention to each language in determining whether a

¹³ There is one known counterexample to this prohibition on unergative verbs as V1, as shown in (i).

- (i) Òzọ sàán kpàá
 O jump leave
 ‘Ozo jumped out.’ (Stewart 2001:15)

The V1 *sàán* cannot be re-analyzed as an unaccusative verb in other contexts. The presence of this verb in the V2 position of a resultative serial verb construction results in ungrammaticality (see Stewart 2001: 15 for a relevant example).

The presence of an unergative verb in the V1 position of the resultative serial verb construction is ungrammatical in other contexts. This example, hence, is truly exceptional.

We should also note that this example expresses a motion event. It might be possible that, in Èdó, motion events are expressed with an M-Incorporation structure. This line of thought is plausible since even in English there are more examples of M-Incorporation-like constructions that express a motion event than examples of M-Incorporation that express change of state. I leave this point for a future research.

particular resultative V-V compound can be construed as having an underlying resultative serial verb structure.

4.1. #Hoan and verb incorporation

In this section, I review an analysis of resultative V-V compounds in #Hoan, a Niger-Congo language, in order to emphasize that resultative V-V compounds, in principle, may be derived from a serial verb construction. In #Hoan, resultative V-V compounds, indeed, seem to be derived from an underlying resultative serial verb structure. The properties of #Hoan resultative V-V compounds, in turn, force us to seek an explanation for the difference between Japanese resultative V-V compounds and Èdó resultative serial verb constructions which would go beyond the phrasal/compound distinction.

Collins (2002) argues that verbal compounds (V-V compounds) in #Hoan, which are shown in (31), are derived from underlying serial verb forms.

- (31) Ma a-q||hu l'o djo ki kx'u na (Collins 2002: 1)
 1sg prog-pour put.in water part pot in
 'I am pouring water into the pot.'

According to his analysis, a subset of serial-verb constructions are realized as V-V compounds due to a movement operation. He argues that the voice (v) in #Hoan checks multiple verbal (V) features, which allows it to attract both V1 and V2. Collins thus assumes that the difference between Ewe (a serial verb language, like Èdó) and #Hoan (a verbal compounding language) is similar to that between English and Bulgarian *wh*-movement. In Bulgarian all *wh*-words must move to C, but in English, only one *wh*-word moves to C. On the surface, Bulgarian may have a series of *wh*-words sentence initially, while in English, *wh*-words generally appear in separate position of the sentence, as shown in (32).

- (32) a. Koj kogo vizda? (Bulgarian, Rudin 1988: 472)
 Who whom sees
 'Who sees whom?'
 b. Who sees whom?

Analogously, in some serial verb languages, the two verbs in a serial verb construction may be separated by other elements of the sentence, but in others, the two verbs must appear adjacent to each other. Collins (2002) thus argues that in $\neq$ Hoan, all the verbal heads move to the light verb *v*, creating the compound structure, while in Ewe, only one verb moves to *v*. In Collins' (2002) analysis, Ewe and $\neq$ Hoan, are considered to be serial verb languages, in contrast to English, and Ewe and $\neq$ Hoan both allow the generation of more than one verb within a single clause.

(33) T licenses more than one V (Collins 1997b, Stewart 2001¹⁴)

However, unlike Ewe and all the serial verb languages, the value of *v* has the dimension that requires that all the V heads to move to adjoin to *v*, similar to the value of the C in Bulgarian.

Collins (2002) presents two arguments in support of his attempt to treat V-V compounds with an underlying serial verb construction. He first points out that the definition of serial verbs in Collins (1997b), shown below in (34), includes verbal compounds.

(34) A serial verb construction is a succession of verbs and their complements (if any) with one subject and one tense value that are not separated by any overt marker of coordination or subordination. (Collins 2002, (9))

With this definition, the only difference between serial verb constructions and verbal compounds is in the word order. Moreover, Collins (2002) presents two similarities between the two constructions. First, verbal compounds in $\neq$ Hoan and serial verb constructions in West African languages range over the same range of meanings (directional, consecutive, and benefactive, in his terms). Second, the same verbs that are used in a verbal compound can also be used to form a serial verb construction.

In his analysis, Collins (2002) adapts multiple-feature checking theory and proposes that when two verbs move to adjoin to the same *v*, the higher verb adjoins to *v* first (by superiority), and the lower verb then adjoins internally to the *v*.

¹⁴ Stewart (2001) proposes that serial verb constructions in Èdó are licensed because T in Èdó does not need to check the features on V. Both Collins (1997) and Stewart (2001) assume that serial verb constructions are licensed by some property of T.

(35) [_v V1 [_v V2 v]]

(Collins 2002: 12)

He then presents the transitivity-matching restriction in $\neq$ Hoan and argues that this property follows his analysis in which the two verbs have to agree with the same *v*. Thus, unlike Èdó resultative serial verb constructions, the two verbs in $\neq$ Hoan V-V compounds match in transitivity. This pattern seems to suggest that $\neq$ Hoan V-V compounds are much like Japanese V-V compounds. However, the difference between the two constructions becomes apparent when we examine the non-matching patterns. Collins (2002) points out a few examples in which the transitivity of the two verbs does not match. Collins (2002) claims that these cases are due to the gaps in the lexical inventory. If a verb only has an unaccusative form or transitive form, this only available verb form must appear in both unaccusative and transitive contexts. Interestingly, the transitivity mismatch cases show that $\neq$ Hoan is indeed more like Èdó resultative serial verb constructions in a way that Japanese resultative V-V compounds are not. The following example illustrates this point.

- (36) Ma i q||a lhon-lhon bele-qa
 1sg past pound ground.up gorghum
 ‘I ground up the sorghum by pounding it.’ ($\neq$ Hoan: Collins 2002: 23)

Collins (2002) claims that in (36), the V1 is transitive and the V2, unaccusative. Crucially, the compound is transitive. We should recall that in Japanese when the transitivity of the two verbs does not match, the compound has the transitivity of the V2. The above example in (36) shows that $\neq$ Hoan resultative V-V compounds are indeed different from Japanese resultative V-V compounds. Crucially, we should note that in Èdó resultative serial verb constructions, the construction is transitive in case the V1 is transitive and the construction is unaccusative in case the V1 is unaccusative. The example in (36) thus provides a key empirical point where $\neq$ Hoan resultative V-V compounds pattern with Èdó resultative serial verb constructions, but not with Japanese resultative V-V compounds.

The †Hoan examples discussed here provides an additional support for the key idea in this dissertation, that there are two types of resultative constructions, and that they are structurally different. The resultative V-V compounds in Japanese and the resultative V-V compounds in †Hoan appear very similar on the surface – the V1 describes the causing event and the V2 the caused event. A careful investigation of the interaction between the two compounds, however, reveals that these compounds are, in fact, different. When the transitivity of the two verbs does not match, it is the transitivity of the V2 that determines the transitivity of the compound in Japanese, while it is the transitivity of the V1 that determines the transitivity of the compound in †Hoan. The analyses in this thesis predicts this difference: in resultative constructions in which the action-denoting verb undergoes lexical coercion, this verb is the main verb of the construction, which takes as its complement the phrase that describes the caused event. In †Hoan resultative V-V compounds, as well as in Èdó resultative serial verb constructions, the presence of a transitive V1 correlates with the presence of an external argument, regardless of the apparent voice properties of the V2. In contrast, in resultative constructions in which the action-denoting verb (V1) M-Incorporates into a phonologically null CAUSE verb, this verb is an adjunct in the construction. Hence, the presence of a transitive V1 in these constructions does not correlate with the voice properties of the construction. The transitivity mismatch cases of Japanese and †Hoan, thus, clearly shows the key difference of the role of the V1 in these compounds: in Japanese, the V1 is an adjunct, and in †Hoan, it is the main verb.

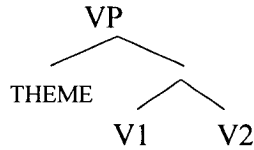
5. RESULTATIVE SERIAL VERB CONSTRUCTIONS AND ENGLISH RESULTATIVE CONSTRUCTIONS: THE INTERNAL OBJECT PUZZLE

As we saw in Chapter 2, the position of the theme object in English object sharing resultative construction is controversial. The two major lines of thought were: (1) the complex predicate approach, in which a single copy of the theme object is interpreted as the argument of both predicates which form a complex predicate, and (2) the pro-approach, in which there are two copies of the theme object, each of which is interpreted as the argument of one of the predicates. We should recall that in the discussion in

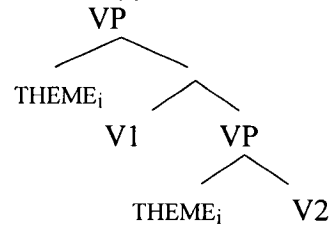
Chapter 2, the one position of the object that received the strongest support was the lower position, where the object forms a constituent with the result-denoting phrase. In this section, I show that the same controversy is found in the context of resultative serial verb constructions, but in resultative serial verb constructions, it is the lower position of the object that is controversial.

The following tree diagrams illustrate the structures assumed in these approaches.

(37) a. Complex Predicate



b. pro-approach



In this section, I propose a tentative solution to the puzzle raised by Baker & Stewart (1999), and maintain the structure in line with the pro-approach, which I have assumed for English object sharing resultative constructions, and for the resultative serial verb construction in Èdó.

The analysis presented in this chapter follows the spirit of Larson's (1991) proposal, that constructions in exotic languages should not be treated as exotic constructions. This is the same approach taken in Collins (1997), Baker & Stewart (1999) and Baker (2005) – that the analysis of resultative serial verb constructions should reflect the analysis of resultative constructions in general and in turn, an analysis of resultative serial verb constructions should have a consequence for an analysis of resultative constructions in general. This approach, however, meets with one puzzle concerning the position of the object.

In the English object sharing resultative constructions, various pieces of evidence suggest that there should be a copy of the object in the lower part of the structure, as part of the result-denoting phrase. This copy of the object falls within the scope of the restitutive *again* and forms a minimal constituent with the result-denoting phrase, excluding any meaning of the phonologically overt verb (38).

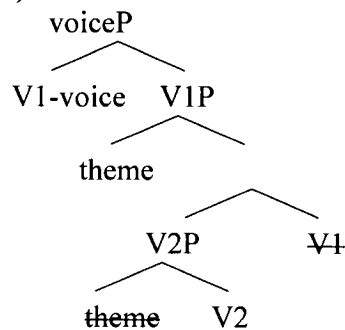
They argue that the possibility to have the object-oriented *tòbòrè* in this position indicates that there is a phonologically empty copy of the object (as indicated with *e* in the example). On the other hand, with a resultative serial verb construction, the presence of the object-oriented *tòbòrè* after the V2 is impossible, as shown in (41).

- (41) * Òtà sùá Òzó dé tòbòrè
 Ota push Ozo fall himself
 (Stewart 2001: 53)

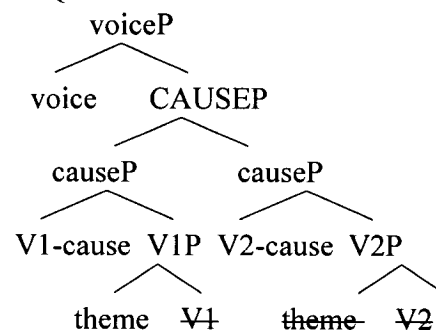
Baker & Stewart (1999) thus conclude that this evidence supports the complex predicate analysis of the resultative serial verb. However, as I mentioned earlier, Baker's (2005) extension of this complex-predicate analysis to English resultative construction is problematic, in light of the evidence shown in (38). Again, we should recall that it was the lower position of the object, where it combines with the result-denoting phrase, that received the strongest support in the English resultative construction.

As a tentative solution to this puzzle, I assume that Èdó VP is head-final. In languages in which V moves to the left periphery of the extended verbal projection,¹⁵ this head-final order is hardly ever observed. Resultative serial verb constructions would, in fact, provide possibly the only context where the V (in V2P) does not move out of its own phrase. Given this assumption, we would predict the following structure for the resultative serial verb construction and the consequential serial verb construction, shown in (42).

(42) a. RESULTATIVE SERIAL VERBS



b. CONSEQUENTIAL SERIAL VERBS



¹⁵ Baker & Stewart (1999) assume that V in Èdó moves to the left periphery of the extended verbal projection for a prosodic reason.

In the phrase structures shown in (43), the elements that are not pronounced are indicated with strike-through. Crucially, in resultative serial verb constructions, the V2 is pronounced in its base position. When the adverb *tòbórè* is placed following the V2, the V2 indeed intervenes between the phonologically null copy of the theme and the adverb. In consequential serial verb constructions, shown in (43b), in contrast, if the adverb is placed after the phonologically overt copy of the V2, as in (41), the adverb can still be considered as being adjacent to the phonologically null copy of the theme. By assuming that Èdó VP is head-final, we are able to capture the behavior of the adverb, which differentiates the resultative serial verb construction from the consequential serial verb construction, and still maintain the pro-analysis presented in this chapter.

To summarize, the on-going debate on the positions of the theme object in the resultative serial verb construction focuses on the lower position of the object, while there is a subtle consensus that there is a higher position of the object associated with the V1. I have argued that, given the discussions on the positions of the object in English resultative construction, and the assumption that the English object sharing resultative constructions and Èdó resultative serial verb constructions should receive a unified analysis, there is reason to defend the lower position of the object.

6. CONCLUSION

In this chapter, I reviewed a construction called the resultative serial verb construction. I have argued that Èdó resultative serial verb constructions are formed by the same mechanism that forms object sharing resultative constructions in English. Namely, one of the verbs undergoes lexical coercion, which (1) gives it a causative meaning, and (2) adds a new argument (the V2P) which denotes the caused event. I have reviewed Stewart's (2001) study, which indicates that resultative serial verb constructions are indeed a monoclausal construction. In addition, I compared resultative serial verb constructions to Japanese resultative V-V compounds and argued that unlike Japanese resultative V-V compounds, the object sharing mechanism is obligatorily in Èdó resultative serial verb constructions, and thus this mechanism should be treated in syntax. I have then compared English object sharing resultative constructions with Èdó resultative serial verb

constructions and reported that the same controversy concerning the position of the theme object exists in both constructions, though the focus of the controversy is the lower position of the object, rather than the higher one. I have suggested a tentative solution to the empirical puzzle presented in Baker & Stewart (1999) and concluded that in both English object sharing resultative constructions and Èdó resultative serial verb constructions, the pro-analysis can be maintained.

Chapter 5

CONCLUSION

1. INTRODUCTION TO THE FINAL REMARKS CHAPTER

In this thesis, I argued that resultative constructions are lexical causative constructions. I will review some of the crucial claims made along this line of argument. In Section 2, I review the basic premise that resultative constructions are causative constructions. In Section 3, I review the motivation for the two types of events (Davidsonian events and sub-events) discussed in this thesis. In Section 4, I return to the claim that there are two types of resultative constructions. In Section 5, as a concluding thought, I discuss the consequence of the current proposal to a theory of category and theories of interfaces of syntax.

2. RESULTATIVES AS CAUSATIVES

In this thesis, I explored the hypothesis that resultative constructions are lexical causative constructions. The success of this approach, as shown in this thesis, confirms what researchers have intuitively known since the resultative construction was first identified (Haliday 1967) – that it has a flavor of the causative construction. I argued that in the constructions we observed, one of the predicate describes the causing event, and the other, the caused event.

Based on this criterion, I have identified constructions that are mono-clausal. In the past, Japanese resultative V-V compounds, for example, have received an analysis as a bi-clausal construction (e.g. Nishiyama 1998), but in this thesis, I showed that this construction, like the lexical causative construction, should be treated as a mono-clausal construction. Similarly, I have focused on a construction in Èdó that has been shown to be mono-clausal.

In addition, the investigation of resultative constructions brought out properties of lexical causative constructions that had remained unnoticed. In particular, I pointed out that there is a relation, which we may call a correspondence relation, that only holds between the two sub-events that constitute a single Davidsonian event. That is, resultative constructions differ from bi-clausal constructions, such as syntactic causatives, in how

manner adverbs are interpreted. Although there are two predicates in the construction, one describing the causing event and the other, the caused event, a manner adverb can only describe the entire construction as a whole. Resultative constructions, in this respect, pattern with lexical causatives.

I also argued that in a lexical causative construction, the predicate that describes the causing event must itself be the predicate that denotes the causing relation. This condition leaves two options for combining the two predicates in resultative constructions – lexical coercion and M-Incorporation, to which I will return in Section 4. What this condition excludes is an analysis in which there is a separate predicate CAUSE which combines two event-denoting projections. I will come back to this point in the appendix.

3. TWO TYPES OF EVENTS

The discussions in this thesis crucially relied on the idea that there are two types of events in linguistics. The first type of event, first identified in Davidson (1967), is associated with a sentence, and generally, predicates of events, such as manner adverbs and temporal adverbial clauses (e.g. with *before*) make reference to this event. The second notion of event arises from the definition of causation (e.g. Lewis 1973). When causation is defined as a relation between two events, and a single clause is construed as denoting causation, we must allow that a simple clause, which makes reference to a single event according to Davidson's criteria, may in fact, make reference to two sub-events.

I argued that the use of two events is well-grounded since several known conditions of events in fact differ in whether they are conditions on Davidsonian events or sub-events. The Uniqueness of Theta-Roles as discussed in Landman (2000), contrary to his claim, must in fact make reference to the Davidsonian event. In addition, I pointed out that when certain adverbs are used with resultative constructions, the two sub-events are in a correspondence relationship.

In order to understand this condition, it is necessary to acknowledge that there are two types of events. What is in correspondence is the progress of the causing event and the progress of the caused event. In other words, it is the two sub-events that are in correspondence with each other. This condition, however, holds only when the two sub-events form a single Davidsonian event. We saw that when the same adverb appears with

a syntactic causative construction, in which the two sub-events are associated with separate Davidsonian event, we do not observe any effect of the correspondence relation.

4. TWO TYPES OF RESULTATIVES

In this thesis, I proposed that the resultative construction comes in two types – in one, the object of the caused event must be understood as the object of the causing event, and in the other, it does not have to. The English transitive resultative constructions and Èdó resultative serial verb constructions fall in the former class while the English intransitive resultative constructions and Japanese resultative V-V compounds fall in the latter.

The English intransitive resultative construction and the Japanese resultative V-V compounds present a question concerning the status of the non-shared, un-pronounced theme object of the causing event. Japanese resultative V-V compounds provides a strong support for the current proposal that the object of the V1, despite the fact that this verb is obligatorily transitive, remains unprojected. I have extended this analysis to English intransitive resultative construction and argued that in English too, the object of the cause-denoting verb remains unprojected.

The two object-sharing resultative constructions (i.e. English object sharing resultatives and Èdó resultative serial verb constructions) present a major puzzle concerning the position of the theme argument. In Chapter 2, I argued that the one position of the object that receives a strong support is the lower position where it forms a constituent with the result-denoting predicate. In Chapter 4, however, we saw that in Èdó resultative serial verb constructions, it is the lower position of the argument that is controversial. I have proposed a tentative solution to this puzzle, but in the future, this is a point that should be further explored.

5. TRANSCENDING CATEGORIES AND THE MORPHOLOGY-SYNTAX DISTINCTION

The classification of resultative constructions in this thesis followed the criteria mentioned in the previous sections, rather than criteria based on the category of the result-denoting predicate or the surface realization of the construction. As I mentioned in Chapter 1, I am not aware of any corroborating property which can be used to classify the Èdó resultative serial verb construction and the Japanese resultative V-V compound as

one class, excluding English resultative constructions. As such, the exploration in this thesis shifts the focus from the category to constituency tests. Moreover, the Japanese resultative V-V compound patterns with English intransitive resultative constructions in various ways – the determination of the argument structure, as well as the aspect of the construction. Based on these properties, I classified English intransitive resultative constructions and Japanese resultative V-V compounds on the one hand and English object sharing resultative constructions and Èdó resultative serial verb constructions on the other. What is implicit in my classification is the idea that constructions that are realized as compounds are not inherently different from constructions that are realized as phrases. Hence, what distinguishes Japanese resultative V-V compounds from Èdó resultative serial verb constructions is the adjunct status of the cause-denoting verb, rather than the phrase/compound distinction. The discussions in this thesis, in summary, shows that the question of what elements form constituents should be distinguished from the question of what category these elements may belong to, and the question of whether these elements are realized as a morphologically complex word or not.

APPENDIX 1(a note to Chapter 2)

VARIATION WITHIN A LANGUAGE

In the traditional treatment of the CAUSE predicate (e.g. Dowty 1979, and Parsons 1990), the CAUSE predicate is assumed to have the following two properties: The CAUSE predicate takes two events as its arguments and its two arguments are in a direct causation relation. Some researchers have argued that the two predicates in resultative constructions are arguments of this CAUSE predicate (e.g. Lidz & Williams 2002). The motivation for this argument is that resultative constructions express a causative concept and that there are two predicates that are in direct causation relation. Contrary to this assumption, I have argued that the cause-denoting predicate in a resultative construction cannot be treated as the argument of CAUSE. The basis of this argument is the data shown in (1a), in which the subject of the sentence is a phrase expressing the causing event, rather than the agent, as in (1b).

- (1) a. The cat's meowing may open my door, but nothing else will.
b. The cat opened my door.

I reported that the sentence in (1a) is ambiguous the way (1b) is not. The agent of the opening in (1a) may be *the cat's meowing* (i.e. the door reacts to the sound of the cat's meow), or *I*, in contrast to (1b) in which the agent must be the cat. The availability of the latter interpretation in (1a) suggests that when the causing event is expressed as the argument of CAUSE, the directness restriction is somehow lost. In resultative constructions, the directness restriction is still active, as the agent of the sentence is unambiguously *the cat*, as shown in (2).

- (2) The cat meowed my door open.

I argued that if the causing event expressed in the resultative construction were indeed the argument of CAUSE, we should expect the directness restriction to be lost in the resultative construction. In other words, we would expect the sentence in (2) to show the same ambiguity as (1a). The fact that (2) is unambiguous, unlike (1a), therefore indicates that the causing event of (2) cannot be treated as the argument of CAUSE.

In this appendix, I would like to focus on an interesting individual variation in judgment, which provides an additional support for my position. The variation concerns the ambiguous interpretation of (1a). Some native speakers of English interpret the sentence as ambiguous, since they allow the non-direct interpretation – in which the cat’s meowing may make me open my door. Other native speakers of English, however, reject this interpretation completely. The latter type of judgment, at first glance, seems to support the traditional account of CAUSE, in which this predicate can take two event-denoting arguments, and still maintain directness relation between the two events. In this section, I would like to explore the implication of these speaker judgments.

This variation, at first glance, appears to weaken my criticism of the use of CAUSE in resultative constructions. The speakers who reject the non-direct interpretation of (1), indeed, have the grammar expected in an analysis which uses CAUSE as the predicate of two event-denoting arguments. However, I argue that this variation, in fact, adds further support for my argument that the bi-event selecting CAUSE should be avoided in an analysis of resultative constructions. The crucial fact in this discussion is that the variation we observe with (1a) is absent with (2). The relevant aspect of this speaker variation is in its pattern, which can be summarized as in (3).

(3)

	Lexical causatives are always direct	Resultative constructions are always direct
Group 1	No	Yes
Group 2	Yes	Yes

The English speakers in group 2 have the grammar in which the CAUSE predicate can take two event-denoting arguments and maintain the Directness Condition. Based on their intuitions, we may postulate that the CAUSE predicate is responsible for the combination of causing and caused events in both lexical causative and resultative constructions, as illustrated in (4).

- (4) a. Lexical causative constructions
 [the cat's meowing] CAUSE [my door open]
- b. Resultative constructions
 [John push (the door)] CAUSE [the door open]

In this analysis, however, if a speaker has the CAUSE predicate which does not follow the Directness Condition he or she should allow a non-direct interpretation of both the lexical causative constructions and resultative constructions. However, the speakers in group 1, as well as those in group 2, all reject the non-direct interpretation of the sentence (2).

The sentence in (2) cannot mean that the cat meowed and I opened my door. If this interpretation were possible, the two events in this sentence could not be in a direct relation. Contrary to the prediction of the bi-eventive CAUSE analysis, speakers who allow the non-direct interpretation of the lexical causative sentence in (1a) nonetheless reject the non-direct interpretation of the resultative sentence in (2).

To summarize, the key fact is that the variation in the interpretation we observe with the sentence in (1a) does not correlate with how these speakers interpret the resultative construction example in (2). This dissociation between the two types of sentences is expected in my analysis. In resultative constructions, the predicate that expresses the causing event is either the causative predicate itself, or is M-Incorporated to CAUSE. Crucially this predicate is not an argument of CAUSE. Hence, the interpretation of this predicate in resultative constructions does not hinge on the part of the grammar which determines whether CAUSE can take as its argument the phrase that expresses the causing event. The absence of correlation, in contrast, is detrimental in an analysis in which CAUSE takes two event-denoting phrases in resultative constructions. I do not have an explanation for why the speakers in two groups disagree on the sentence in (1a), but at least, my analysis of resultative constructions does not hinge on this point. I thus leave this puzzle for future research.

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