[Review Article]

CONSTRUCTIONS AND LEXICAL MEANINGS IN VP COMPLEMENTS

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This review article mainly deals with Jackendoff’s articles on productive VP constructions: the verb-particle construction, the time-away construction and the resultative construction. He proposes a flat VP structure in the analysis of verb-particle constructions. And he treats the time-away construction and the resultative construction as constructional idioms. The present article focuses on examining whether these proposals are more plausible than those of other approaches. In order to achieve this goal, I pursue an alternative analysis of the resultative construction based on the theory of the generative lexicon.*

Keywords: flat structure, constructional idiom, qualia structure, argument structure

1. Introduction

This volume is a collection of Jackendoff’s own papers from 1975 to 2010. Although Jackendoff began his inquiry as a generative linguist, he found his own interests slowly drifting away from the mainstream of generative grammar, which assumes that syntactic structure is the sole source of generativity in grammar and that lexical items enter derivations at the point where syntactic combination takes place. Jackendoff (2002) calls this assumption “syntactocentrism,” claiming that such an assumption regarding the roles of syntax and the lexicon is mistaken. Since the 1970s, Jackendoff’s empirical research, which ranges over several subfields, has constantly had a

* I would like to express my gratitude two anonymous reviewers for their valuable comments and suggestions. I am also grateful to Bill Leckie for his suggestions for stylistic improvements. Needless to say, all remaining errors are my own.
great impact on linguistic theory, particularly on lexical semantics. Consequently, his elaborate explorations have led him to the formulation of a new framework known as “Parallel Architecture,” in which phonology, syntax, and semantics are equally generative. He argues that syntax is only one of several parallel sources of grammatical organization.

The volume under review consists of thirteen chapters. Chapter 1 refers to Jackendoff’s fundamental theoretical framework: the Parallel Architecture. Chapter 2 illustrates the structure of the lexicon. Chapters 3 and 4 are about the connection between language and visual perception. Chapters 5 and 6 deal with aspectuality, that is, boundedness and telicity. Chapters 7–12 concern the notion of construction, in which meanings cannot be predicted based solely on their constituents. Among these, the first three chapters focus on productive VP constructions, namely verb-particle constructions, the time-away construction and resultative constructions. The latter three chapters deal with the less ruly constructions, that is, quotative NP constructions, reduplicative constructions with curious semantics and morphosyntax, and the ubiquitous NPN construction (day after day). Chapter 13 is concerned with the semantics of noun-noun compounds.


The following section briefly reviews one of the articles under review, which is about the current framework of Jackendoff’s linguistic theory. In section 3, after reviewing the article on the English verb-particle construction, I clarify the problems it presents and examine whether Jackendoff’s proposal of a flat VP structure is more plausible than a binary branching structure. In Section 4, I review the article on the time-away construction, pointing out a problem it presents as well. In section 5, after reviewing the
article on the English resultative construction, I pursue an alternative analysis based on the theory of a generative lexicon which utilizes as its device qualia structure. Section 6 is the conclusion.


The article under review presents the premise of Jackendoff’s linguistic approach, in other words, his theoretical framework, which he calls the Parallel Architecture. This stems from his dissatisfaction with the fundamental assumption rooted at the core of the generative theory: that free combinatoriality in language is due to a single source, localized in syntactic structure. Believing this “syntactocentrism” to be a serious mistake, he has developed an alternative assumption that language has multiple parallel sources of combinatoriality, namely phonology, syntax and semantics, which serve as independent generative components in language. These each have their own structures, which are linked by interface rules. The whole model of this architecture is given in Figure 2.1.

Furthermore, Jackendoff (p. 1) offers several subcomponents of the Parallel Architecture, such as Conceptual Semantics, the lexicon, and the syntax-semantics interface. Let me present brief reviews of these.

The theory of Parallel Architecture is very convincing in that it assumes that meanings are mentally encoded. This assumption is one of the main components of Conceptual Semantics, and can be traced back to Jackendoff’s article (2002) in which he presents the grammar model on which Parallel Architecture is based, along with the assumption that the process in which thought is expressed by language is closely concerned with cognitive mechanisms known as conceptual structure. Based on this, it can be assumed that there are thoughts behind language and that, when
human beings perceive outside stimuli, this newly perceived information activates information stored in the long-term memory, causing the old and new information to interface with each other. As a result, thoughts are built up. Jackendoff (2002) refers to this faculty for constructing thoughts as *conceptual structure* \(^1\). In addition to this, he claims that in Conceptual Semantics, the relation between language and the external world is assumed to be determined by the way the mind understands the world. Moreover, Jackendoff assumes that meanings are decompositional, that is, word and phrase meanings can be decomposed into a finite, innate stock of primitives based on principles of combination. He states that this is analogous to traditional lexical semantics (e.g. Pinker (1989) and Pustejovsky (1995)).

Jackendoff presents the formation rules for conceptual structure, where several primitive conceptual categories, such as Thing, Event, State, Action, Place, Path, Property and Amount, are combined according to function-argument structures, modifier-head principles and binding. \(^2\)

As the second subcomponent of the Parallel Architecture, Jackendoff refers to the representation of sentences or words, which consists of three structures, namely phonological, syntactic, and conceptual. For example, the structures for sentence *Sue goes into the room* are illustrated as in (1) below. In (1), the subscripts indicate the corresponding components in the three structures.

\begin{enumerate}
  \item \textit{Phonological structure:}
  \[
  \]
  \item \textit{Syntactic structure:}
  \[
  \]
  \item \textit{Conceptual structure:}
  \[
  \text{[Event PRES$_3$ [Event GO$_2$ ([Person SUE$_1$], [Path INTO$_5$ ([[Thing ROOM$_7$; DEF$_8$]$_9$]$_{10}}
  \]
\end{enumerate}

In addition, Jackendoff claims that this tripartite model is beneficial in that the conceptual structure denotes the thematic roles of the arguments within. This is because the thematic roles are determined according to the primitive functions. For instance, in (1c), the first argument of GO has the role of Theme, and the argument indicating the endpoint of Path has the

\(^1\) In Figure 2.1, Jackendoff refers to conceptual structure as semantic structure.
\(^2\) The detailed explanation of this formation rules for conceptual structure is described in Jackendoff (1990: 43).
role of Goal. Jackendoff applies this sentential level of representation to the representation of lexical entries, as illustrated in (2) below. Two words in (1), namely go and into, are described below. As is clear in (2), the lexical entry also consists of tripartite structures, where a syntactic structure appears as subcategorization and a semantic structure is the word’s lexical conceptual structure (LCS). Therefore, each lexical entry can be thought of as a small-scale interface rule.

(2) a. Phonology: gow
Syntax: V2 PP9
Semantics: [Event GO2 ([thing x], [Path y])]
b. Phonology: intuw
Syntax: P5 NP8
Semantics: [Path INTO5 ([thing z])]

In the article under review, Jackendoff repeatedly states that the linguistic phenomena of combining meanings are not derived from syntax, but are triggered by autonomous conceptual properties. He regards syntax as an intermediate stage in the mapping between meaning and sound. Throughout his argument, he strongly disagrees with the assumption of interface uniformity, whereby phrase and sentence meanings are built up strictly from the meanings of their words. Rather, the Parallel Architecture proposes that syntax-semantics correspondences should be many to many, not one to one. In other words, the syntax-semantics interface is flexible enough to map any meaning into any form. Consequently, he concludes that there are numerous cases of enriched composition that violate uniformity. Through the investigation of this mismatch between meaning and form, he has reached the notion of “construction” as one solution to the problem.

In the rest of the present article, I will explore whether the assumption mentioned above is plausible or not.


3.1. A Review of the Article

3.1.1. Syntactic and Semantic Properties

In the article under review, Jackendoff closely analyzes English verb-particle constructions, classifying them into several subclasses and clarifying the syntactic and semantic properties of each subclass. Moreover, throughout the analyses, he constantly casts doubt on the hypothesis that syntactic trees are exclusively binary branching (Kayne (1994)), suggesting that the structure of VP is flat. In the following passage, I will review these analyses of
In the course of his analyses on verb-particle constructions, Jackendoff is deeply concerned with the following issue:

(3) What parts of an utterance can be constructed online, and what parts must be stored in long-term memory? (Jackendoff: 226)

More specifically, he focuses on two distinctions. One is the distinction between lexical items and grammatical words. This is because the former are concerned with long-term memory, while the latter are combined online. The other is the distinction between productive and semiproduc tive combinations. Productive combinations can be created online, whereas semiproduc tive ones must be stored in long-term memory. In other words, they must be listed in lexicon.

In order to examine particle constructions syntactically and semantically, Jackendoff refers to five linguistic phenomena. First, when a verb is transitive, the associated particle can appear on either side of the object, as shown in (4).

(4) a. Pat put out the garbage.
   b. Pat put the garbage out. (Jackendoff: 229)

Second, some of the particles permit specifiers to appear in their right-hand position, as demonstrated in (5).

(5) a. I’ll look the answer right up.
   b. I’ll look (*right) up the answer. (Jackendoff: 230)

Third, the particle must appear before any PP complements, as given in (6). Fourth, the examples in (7) show the fact that nominalized verbs also have particles as their complements.

(6) a. Jill grew up into a strong woman.
   b. *Jill grew into a strong woman up. (Jackendoff: 231)

(7) a. the rapid looking up of the information (is important)
   b. the prompt sending out of reports (is commendable)

Finally, particles can be a part of a lexical item that has the structure \([ N \ V + \text{Prt}]\), such as \(\text{send-off, lookup, lookout}\), or \([ N \ \text{Prt} + V]\), such as \(\text{input, output, outlook}\).

Based on the above-mentioned linguistic properties, Jackendoff classifies particle constructions into six subclasses. The first subclass is the idiomatic verb-particle combination, such as \(\text{look up, blow up, throw up, bring NP up, chew NP out, freak (NP) out}\), and so forth. Jackendoff argues that verbs and particles in this subclass must be listed in the lexicon not as grammatical words but as lexical items, because they have non-compositional mean-
Based on the analysis by Emonds (1972), Jackendoff asserts that they form “discontinuous idioms.” This assertion contrasts with Chomsky’s analysis (1965), in which he assumes that a verb and a particle form a constituent as in (8a), and the structure (8b) is derived from the structure (8a) by extraposition of the particle around the object NP.

(8) a. \[ [V \look] [\text{Pr} \up] \]  
    b. look NP up  
      (Jackendoff: 232)

The second group is the combination consisting of a verb and a directional particle. The particle in this case appears where the directional PP selected as the verb’s argument is supposed to appear, as given in (9a, b). Such a particle can occur on either side of the direct object, as in (9c). Based on these properties, Jackendoff states that such a particle can be regarded as an argument and that the meaning of the verb-particle combination is fully compositional. This means that such combinations are productive and do not have to be listed in the lexicon.

(9) a. Beth \{tossed/took/put/carried\} the food (right) \{up the stairs/into the house\}.
    b. Beth \{tossed/took/put/carried\} the food (right) \{up/in/away/back\}.
    c. Beth \{tossed/took/put/carried\} (*right) \{up/in/away/back\} the food.  
      (Jackendoff: 234)

The third subclass is the combination of a verb with an aspectual particle, that is, the combination with up, away, and on. According to Jackendoff, the combination of a verb and the particle up, as in (10), means “V NP completely,” and the particle up is an independent lexical item which emphasizes the telicity of the event denoted by the verb. With reference to the particles away and on in (11), Jackendoff argues that the combination of a verb and the particle away or on roughly means “keep on V-ing,” and states that away and on emphasize atelicity of the event.

(10) a. Elena drank the milk (completely) up.
    b. Elena drank (*completely) up the milk.
    c. Ben glued the chair (right) up.
    d. Ben glued (*right) up the chair.  
      (Jackendoff: 236)

    b. Bill ran/sang/talked/worked/thought/wrote on.  
      (Jackendoff: 237)

Jackendoff argues that the combinations of verbs and up, away or on, share several properties. The meanings of the combination are predictable and these particles productively combine with verbs, resulting in compositional meanings. This means the combination itself should not be listed in the
lexicon and each particle is an independent lexical item. Jackendoff, moreover, claims that the particles *up, away, and on in these combinations are not the verbs’ arguments because they can be freely omitted. Furthermore, these particles cannot come after a PP complement. They must precede the PP complement.

Jackendoff (p. 237) points out several differences among these three particles. Unlike *up, away and on do not allow their verbs to select the direct object: *Dave drank scotch away/on. Aspectual away basically does not permit specifiers, while aspectual on allows the specifier right.

Besides the above aspectual particles, Jackendoff deals with the particles through and over as candidates for aspectual particles, such as read the book through and cook the food over (p. 238). The former means ‘read the book from beginning to end,’ and the latter means ‘cook the food again.’ Like the three particles above, aspectual through and over do not occupy argument positions. Jackendoff argues, however, that they are different from the particles on and away in that they require their verbs to select direct objects, and also suggests that the combinations of a verb with aspectual through and over may be semiproductive, compared with the combinations with aspectual up, away and on. Therefore, they should be listed in the lexicon individually. However, the reasoning as to why the combinations of verbs with through and over are semiproductive seems to be insufficient. Taking through as an example, its semantic meaning is literally ‘from the beginning to the end.’ Therefore, the meaning of the particle construction read the book through can be interpreted compositionally. Consequently, like up, away and on, it can be assumed that they productively combine with verbs, giving rise to meanings that can be built up compositionally.

The fourth class of verb-particle construction is the ‘time-away construction,’ as shown in (12). The syntactic structure is shown in (13a), and the semantic structure is given in (13b).

(12) a. Bill slept the afternoon away.
   b. We’re twistin’ the night away. (Jackendoff: 240)

(13) a. [VP V NP [Prt away]]
   b. ‘spend/waste [Time NP] heedlessly V-ing’  (Jackendoff: 242)

I will discuss this construction in Section 4, so here I will simply review Jackendoff’s analysis without elaboration. Verbs in this construction are intransitive, while they permit an unlicensed NP to occur as a postverbal NP. According to Jackendoff, the time-away construction itself is a meaningful construction and should be listed as a lexical item, that is, a transitive VP which consists of a verb, an unlicensed NP and a particle away. Fur-
thermore, it can be said that there is a discrepancy between the syntactic structure and its meaning.

The fifth class is the verb-particle construction in which a verb or a noun combines with the particle out, such as I’m (all) knitted/programmed out or I’m (all) coffeeed out. Jackendoff shows its syntactic form and meaning as follows:

(14) a. \[AP V/N + -d \[Prt out]\]
   b. ‘worn out from too much V-ing/too much N’

(Jackendoff: 243)

Jackendoff asserts that this construction is totally productive and derived from combinations such as tired out or worn out.

The final group contains idiomatic combinations, such as talk his head off, sing my heart out or cook up a storm (p. 243). In each case, the NP + particle combination describes the excessive or passionate activity denoted by the verb. Thus, they bear adverbial meaning and are not verb’s arguments.

3.1.2. Binary Branching Structure versus Flat Structure

At the end of his analyses on particle constructions, Jackendoff (p. 246) explores three questions:

(15) a. Do the verb and the particle together form a lexical item?
   b. Do the verb and the particle form a constituent that excludes the direct object?
   c. Do Prt and NP form a constituent that excludes the verb?

Based on the explorations of these questions, he argues that it is not plausible to assume that particles form constituents with either the verbs or the postverbal NPs. In other words, he sees as problematic the hypothesis that syntactic trees are exclusively binary branching (Kayne (1994)). Jackendoff (p. 248) presents two reasons to doubt binary branching. First, he asserts that linear order should not be excluded from grammar because it plays a crucial role in discourse anaphora, and also it is an essential factor in the linguistic input. Therefore, he claims that it is doubtful whether the notion of binary branching is beneficial for learners. Second, based on close investigations of binary branching (Culicover and Jackendoff (2005)), Jackendoff claims that the notion of binary branching has turned out to be deficient in the analyses of anaphor, gapping, and so on, arriving at the conclusion that linear order and other elements, such as the hierarchy of the theta roles, play a crucial role in determining sentential well-formedness.

As the final conclusion of the article under review, Jackendoff states that,
despite having the same syntax, English verb-particle constructions have no unity in their semantics, argument structures, or lexical status. Based on such linguistic facts, he proposes the hypothesis of ‘a flat VP,’ namely that the syntactic structure of VPs is flat.

For a sequence A-B-C, there are in principle three branching configurations:

$$
\begin{align*}
16 & \quad \text{a. } [A \ B \ C] & \quad \text{b. } [[A \ B] \ C] & \quad \text{c. } [A [B \ C]]
\end{align*}
$$

Culicover and Jackendoff (2005) assert that, from the perspective of learnability, there is no basis for the assumption that binary branching is simpler for a learner than flat branching as in (16a).

3.2. Problems

In this section, I would like to investigate whether or not Jackendoff’s analyses on the properties of verb-particle constructions are sufficient, and also discuss whether or not his explorations on the deficiency of binary branching are convincing enough for us to think of the proposal of flat branching as plausible.

Let me start by re-examining the question of whether the verb and the particle form a lexical item, as in (15a). Jackendoff (under review) is doubtful about whether the structure \([V \ V \ Prt]\) forms a lexical verb or even a semantic unit. Jackendoff often refers to a particle appearing in right-hand position in order to argue that such a discontinuous combination of the verb and the particle fails to form a lexical unit. However, this is a very controversial issue, on which researchers’ arguments vary greatly. By assuming that at the underlying level the particle occurs in left-hand position and moves to the right side of the object as suggested by Chomsky (1965), a lexical unit consisting of the verb and the particle can be guaranteed. Moreover, there are several lexical phenomena which illustrate that verb-particle combinations have the properties of lexical units. We can observe the lexical integrity in the syntactic behaviors of the verb-particle combination. With regard to this, Taniwaki and Tohno (2009) presents us with a convincing explanation. Look at (17).

$$
\begin{align*}
17 & \quad \text{a. } \text{John [took in] the evening paper and Mary [took in] the morning paper.} \\
& \quad \text{b. *John [took in] the evening paper and Mary [took out] the morning paper.} \quad \text{(Taniwaki and Tohno (2009: 305))}
\end{align*}
$$

The sentence in (17a) is grammatical because the whole of the verb-particle combination is deleted, while the sentence (17b) is not grammatical because a part of the verb-particle combination is deleted. This observation sug-
suggests that the combination of the verb and the particle form a lexical unit.

In a different way from what is mentioned above, Emonds (1972) concurs that discontinuous combinations of verbs and particles can form lexical units. Emonds proposes that the particles in verb-particle combinations should be regarded as intransitive prepositions. This is because post-verbal particles are almost all transitive prepositions, and when such words are used as directional adverbs, they have the same inherent meaning whether or not they have an object. Thus, he suggests that the syntactic configuration shown in (18a) is an underlying form, from which the structure in (18b) is derived by means of a particle movement transformation.3

(18) a. NP V NP [pp P]  
b. →NP V [pp P] NP  
(Sugioka (2001: 667))

The above-mentioned suggestion by Emonds arouses a question of whether or not idiomatic verb-particle combinations, such as turn down, carry up, or throw out, can be allowed to be discontiguous. However, as Emonds states, there seems to be no evidence that denies the existence of discontinuous lexical items. In other words, it can be assumed that lexical entries may consist of verbs and other sister constituents that are not necessarily contiguous. Considering these observations, it will not suffice to claim that verbs and particles fail to form lexical units only because they are not contiguous. Hence, there is no sufficient evidence for Jackendoff’s argument that a syntactic structure of the verb-particle combination should be analyzed as flat.

Next, let us turn to the question of whether the combination of postverbal NPs and particles forms constituents that exclude the verb, as in (15c). As Jackendoff points out, directional particles syntactically behave in a way similar to that of idiomatic particles. However, from a semantic point of view, the role they play in these constructions is quite different from that of idiomatic particles. As illustrated above, verbs such as those in (9) select directional PPs or directional particles as their path arguments, along which the direct object moves. Look at (19).

(19) a. He tossed the food away.  
b. The boy kicked the dog away.

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3 Emonds (1972: 548) proposes the following transformational rule as a particle movement transformation:

\[ X + V - NP - [P] - Y \Rightarrow 1 - 3 - 2 - 4, \]\n
where 1 – 2 – 3 – 4 is a VP

\[ ← PRO \quad PP \]
Each example above denotes an event in which the subject acts on its direct object, causing the object to move along the path described by the particle. Thus, this construction can be thought of as a sort of caused motion construction. Kageyama and Yumoto (1997) represent the lexical conceptual structure (LCS) of the caused motion construction in (20a) and that of the caused change of location construction in (20b).

(20)  
   a. \([x \text{ ACT (ON } y)\] \text{ CAUSE } [y \text{ MOVE}]\)
   b. \([x \text{ ACT (ON } y)\] \text{ CAUSE } [\text{BECOME } [y \text{ BE AT } z]]\)

(Kageyama and Yumoto (1997: 173))

From the observation of the LCSs shown above, it can be assumed that the verb-particle construction as in (19) has the semantic structure similar to those given in (20), which contains a complex event structure consisting of two subevents, that is, an upper event and a lower event. Moreover, it can be postulated that, in the lower event, there is a subject-predicate relation between the direct object and the directional particle. Consequently, it can be argued that the direct object and the directional particle form a lexical unit.


(21)  
   a. John threw the ball \text{right/straight} through the window.
   b. *John \text{right/straight} threw the ball through the window.

(den Dikken (1995: 38))

   c. John threw the ball \text{right/straight} back/up/down.

(den Dikken (1995: 39))

As is seen from (21a, b), \text{right} and \text{straight} can be characterized as PP-modifiers. The example (21c) shows that particles behave in the same way as PPs with regard to the modification by these adverbs. Since the categorial features of prepositions determines the modification by adverbs \text{right} and \text{straight}, it can be predicted from the example (21c) that particles have the categorial features of prepositions. Based on this analysis, den Dikken assumes that a particle can percolate its categorial features as a preposition to the complex X\textsuperscript{0}-node dominating it only if the verb is excorporated from this complex X\textsuperscript{0}-node. After the excorporation of the verb from the complex V + Prt head in the particle construction, the projection headed by the particle comes to be prepositional. That’s why the adverbs \text{right} and \text{straight} can modify the particle. If, in addition to the verb’s excorporation, the object NP’s (Case-driven) movement to the postverbal position takes place at the same time, then, as den Dikken concludes, particles can
be heads of small clauses (SCs) in the complements of verbs, and it can be argued that an object NP and a particle can form a constituent that excludes the verb, as in (22).

(22) \[\text{VP } \text{push } [\text{SC } \text{Fred down}]\] (Jackendoff: 247)

Jackendoff admits that *down* is predicated of *Fred* in (22) and that they must form a SC. However, he does not completely approve of the analysis of a particle as the predicate of a SC by showing examples in which the relation between the postverbal NP and the particle is not predication. Here, it should be noted that verb-particle constructions do not necessarily contain SCs. As is already discussed, in some verb-particle constructions, it is the combination of the verb and the particle that form a lexical entry. What we should pay attention to is whether or not the VP in the verb-particle construction consists of binary branching constituents. It is not crucial whether the verb and the particle combinations form lexical units or whether the object NPs and particles form lexical units.

Now let us return to the issue of whether or not a verb and a particle form a semantic unit. Particles can appear in a left-hand position as well as in a right-hand position. Jackendoff (p. 246) regards the particle in left-hand position as incorporated into the verb like a quasi-morphological affix to form a structure \([V_{V} V \text{Prt}]\). On this assumption, he claims that, although the verb and the particle form a unit on a syntactic level, the semantic role the particle is supposed to play is not what is traditionally expected of it. With respect to the particle in right-hand position, Jackendoff throws a doubt on the idea that the discontinuous verb-particle combination forms a semantic unit, stating that the movement of the particle from the right to the left seems totally unmotivated. However, it is often pointed out that the meaning of the V-NP-Prt configuration is different from that of the V-Prt-NP configuration and this is not problematic. With regard to this semantic difference, Taniwaki and Tohno (2009) gives us an insightful analysis, based on the notion of iconicity. Look at the examples below.

(23) a. John broke the branch off.

b. John broke off the branch. (Taniwaki and Tohno (2009: 316))

According to Taniwaki and Tohno, in (23a), the subject’s action on the direct object results in a change of state of the direct object. It can be imagined that this process, called the action chain, involves the temporal duration, that is, the time from the onset of the action to the accomplishment of the event. Unlike (23a), the sentence in (23b) is assumed to focus on John’s action itself rather than on the resulting state of the object. In addition, based on the notion of iconicity, the adjacency between the verb and the particle
in (23b) suggests the close integrity between them. This assumption allows us to predict that the verb and the particle form a semantic unit. Thus, there does not seem to be sufficient evidence to exclude the possibility that a particle forms a semantic unit with the verb. Consequently, it cannot be assumed that the notion of binary branching should be eliminated.

Here, let us discuss the verb-aspectual particle construction, such as up, on or away. As for the aspectual particle up, Jackendoff claims that it indicates telicity of the event denoted by the verb and the direct object. Based on this argument, it can hardly be imagined that aspectual up and the direct object actually do form a semantic unit, namely a small clause. Contrary to Jackendoff’s claim, it seems much more probable that the aspectual up and the verb form a semantic unit. Thus, Jackendoff’s denial for underlying contiguity between them is not sufficient evidence to make us abandon the notion of binary branching.

Unlike aspectual up, the aspectual particles on and away do not allow the verb to license its direct object, as shown in (24). Moreover, aspectual away does not admit specifiers.

(24) a. *Dave drank scotch away/on.
b. *Dave danced waltzes away/on. (Jackendoff: 237)

Under these circumstances, it again seems reasonable to postulate that the verb and the particle form a semantic unit.

Next, let us consider the V his head off type construction, including V one’s heart out and V up a storm.

(25) a. [VP V [NP pro’s heart] [Prt out]]
b. [VP V [NP pro’s head] [Prt off]]
c. [VP V [Prt up] [NP a storm]] (Jackendoff: 244)

Jackendoff rejects the assumption that the postverbal NP and the particle form a small clause in this construction, claiming that the particle is not predicated of the postverbal NP (for example, in (25a), [*His heart is out], and in (25b), [*His head is off]). However, these constructions are often thought of as exaggerated expressions of the resultative. Thus (25a) does not have to mean that his heart is actually out, nor does (25b) have to mean that his head is actually off. The resultative construction consists of two subevents, that is, an upper event indicating a causing event and a lower event indicating a resulting event. The lower event consists of the postverbal NP and the resultative phrase. The relation between the postverbal NP and the resultative phrase is predication. Thus, as long as the constructions illustrated in (25a, b) can be taken to be based on the resultative construction, I wish to argue that even in (25a, b), the postverbal NP and the
particle form a small clause, in other words, they form a constituent. In regard to (25c), although Jackendoff includes it in his head off family of constructions, it is a construction syntactically different from the other two constructions in (25). Thus, it seems inappropriate to discuss (25c) on the same grounds as (25a, b).

What we have observed so far suggests that Jackendoff’s investigation of whether the particle forms a constituent with either the verb or the post-verbal NP is not sufficient to make us abandon the hypothesis of a binary branching VP and adopt the hypothesis of a triply branching VP, that is, a flat VP.


4.1. A Review of the Article
4.1.1. Syntactic and Semantic Properties

The time-away construction has the syntactic structure of (26a) and its semantic meaning is (26b).

(26) a. \([\text{VP } \text{V NP} [\text{Prt away}]]\)

b. ‘spend/waste [\text{Time NP}] heedlessly V-ing’

Let us begin with the syntactic properties presented by Jackendoff (under review). With regard to the verb used in this construction, this construction allows verbs with intransitive subcategorization to occur, as illustrated in (27). Thus, verbs that obligatorily require a direct object are not accepted, as in (28).

(27) a. Fred drank (*scotch) the night away.

b. Ann read (*the newspaper) the morning away.

(Jackendoff: 251)

(28) *Fred devoured the night away. (*Fred devoured)

(Jackendoff: 251)

When the time NP is a little longer, it can change places with the particle away as in the verb-particle construction, shown in (29). Moreover, the particle can be modified when it comes after the time NP. Examples of this are given in (30). In addition, the time NP can co-occur with various kinds of determiners, quantifiers or pronouns, as in (31).

(29) Stan drank away the (entire) afternoon of his 50th birthday.

(30) a. Dan slept the long afternoon entirely away.

b. *Dan slept entirely away the long afternoon.

(31) Bill drank the night/three whole weeks/every morning/his entire vacation away.

(Jackendoff: 252)
Regarding the status of the time NP, Jackendoff presents several syntactic phenomena, claiming that such phenomena show that the time NP is a direct object. More concretely, passivization and *tough* movement are possible in this construction, while VP-ellipsis is not possible as is usual for VP complements. These are shown in the examples below.

(32) a. The evening had been nearly slept away, when I suddenly awoke with a start.
   b. A morning like this is hard for even ME to sleep away.
   c. *Bill (blissfully) read away all of Monday AFTERNOON, and Sally did so most of Tuesday MORNING. (Jackendoff: 253)

Moreover, the position of manner adverbs also indicates that the time NP is in the direct object position.

Next, let us turn to the semantic properties of the time-*away* construction. According to Jackendoff, the subject in this construction is required to act volitionally, as in (33), and the verb indicates unbounded activities or repeatable bounded activities.

(33) *The light flashed two hours away. (Jackendoff: 254)

As for the meaning of this construction, Jackendoff states that the subject in this construction is regarded as ‘using the time up’ for heedless pleasure and that the example in (34) is not acceptable. As a final property of the time-*away* construction, Jackendoff states that the time expression can be replaced by a distance expression, as in (35).

(34) ?#Ivan worked/toiled/labored three (miserable) hours away.  (Jackendoff: 256)

(35) Bob slept 350 miles/the whole state of Nebraska away.  (Jackendoff: 256)

Furthermore, Jackendoff argues that the time-*away* construction differs from the verb-aspectual particle *away* construction in regard to telicity and ability to permit quantificational modifications, as illustrated below.

(36) a. Lois and Clark danced away for/*in two blissful hours.
   b. Lois and Clark danced two blissful hours away *for/*in a month.4 (Jackendoff: 258)

(37) a. *Sally waltzed entirely/partly/half away.
   b. Sally waltzed the afternoon entirely/party/half away. (Jackendoff: 258)

4 Jackendoff (under review: 258) states that, because the time period is already specified in the time-*away* construction, the standard tests for both telicity and atelicity fail.
Based on this comparison, Jackendoff concludes that reference to the aspectual characteristics of *away* alone is not sufficient to explain the semantic properties of the time-*away* construction.

### 4.1.2. What Licenses the Postverbal NP in the Time-*away* Construction?

In order to inquire into the question of how the time NP in the time-*away* construction is licensed, Jackendoff (under review) deals with two accounts. First, he examines the account which regards the combination of \([V + away]\) as a complex verb created by a lexical rule and assumes that this newly created complex verb licenses the time NP. This account is mainly based on the approach of HPSG (Pollard and Sag (1994)) and of Levin and Rappaport Hovav (1995). Jackendoff criticizes this approach by stating that such a discontinuous verb-particle combination is not syntactic \(V^0\) and is not lexically listed because it is fully productive. The other account assumes that the direct object is licensed not by the verb but by the construction. This account comes from Jackendoff (1990) and Goldberg (1995). They suppose the argument structure of a VP can be determined by the constructional idiom. In order to support the notion of constructional idioms, Jackendoff discusses the following syntactic configurations. First, he refers to syntactic configurations which are not composed on standard syntactic principles, as in (38).

(38) a. One more beer, and/or I’m leaving.
   b. The more you eat, the fatter you get. (Jackendoff: 271)

As a second type of constructional idiom, Jackendoff deals with constructions containing more ordinary syntactic structures that are assigned idiosyncratic meanings, such as the resultative construction, the *way* construction or the beneficiary dative construction.

Goldberg (1996) suggests that all syntactic structures are fundamentally meaningful constructions. Jackendoff recognizes the existence of constructional idioms, such as (38). However, he also admits that fundamental syntactic principles, such as basic phrase structure and structural case marking, are autonomous. In his view, just as a phrasal idiom such as *kick the bucket* is listed as a lexical item, a syntactic configuration with open argument places and a special meaning should also be treated as a special kind of phrasal lexical item.\(^5\) Jackendoff strongly asserts that the unsubcatego-

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\(^5\) Jackendoff includes the resultative construction, the *way* construction and *one’s head off* construction into such constructions.
rized direct object in the time-away construction, the way construction and the resultative construction is licensed in the argument structure determined by this kind of construction.

The three constructions mentioned above have a peculiarity in their meanings as well as in the licensing of their direct object, as illustrated below.

(39) the time-away construction
   a. \([VP \, V \, \text{Time} \, \text{NP} \, [Pt \, \text{away}]]\)
   b. spend/waste \([\text{time NP}] \, V\text{-ing}\)

(40) the way construction
   a. \([VP \, V \, [\text{bound pronoun}]'s \, \text{way} \, \text{PP}]\)
   b. go \(\text{PP} \, (by) \, V\text{-ing}\)

(41) the resultative construction
   a. \([VP \, \text{NP} \, \text{AP/PP}]\)
   b. cause \(\text{NP} \, \text{to become} \, \text{AP} \, / \, \text{go PP} \, \text{by} \, V\text{-ing} \, (\text{it})\)

In order to explain how the specific syntactic structure corresponds to such peculiar semantics in the above-shown constructions, Jackendoff proposes the notion of the Verb Subordination Archi-Construction, shown in (42).

(42) a. \([VP \, V \, \ldots]\) b. ‘act (by) V-ing’ (Jackendoff: 273)

This is a more general abstract level of construction, to which the three above constructions belong. According to Jackendoff (p. 274), the time-away construction has properties derived from the Verb Subordination Archi-Construction and from the syntax of the verb-particle construction, and these constructional semantics determine the argument structure of the VP. Consequently, the time \(\text{NP} \, \text{in the time-away construction is licensed by the VP, not by the verb. However, it is not clear what the constructional semantics in this case indicate. I will discuss this issue in a later section.}\)

Jackendoff (under review) sees the rule for the time-away construction as a productive rule because any verb that meets the selectional restrictions can take part in this construction and the semantics can be quite predictable. Therefore, he concludes that the time-away construction can be regarded as a lexical item.

4.2. Problems

Although Jackendoff’s analysis is in part convincing, I have found several problems with it and do not think his argument is sufficient to prove that the constructional approach is more appropriate than lexical rules.

Let me begin with semantic properties of the time-away construction. As pointed out above, Jackendoff states that the subject’s activity is
volitional and the referent can be regarded as spending the time denoted by
the postverbal NP wastefully or heedlessly. However, this is not always
the case. In fact, the construction can indicate non-volitional activities or
meaningful activities, like (43a, b) below.

(43) a. He snored the afternoon away on the couch.
    (http://www.ragmag.co/cat/1/join-forces)

b. He studied the night away under the light of the curved
   lamp. (http://www.fanfiction.net)

The particle away contains the meaning of disappearance as well as that
of continuation. In these examples, the time denoted by the time NP is
consumed through the subject’s activity, and the time consumption does not
necessarily accompany the recognition of wasting time. Therefore, it can
be supposed that the semantics given to this construction by Jackendoff do
not come from the construction itself but from parts of the construction.

Next, let me discuss another problem concerning semantic prop-
eries. Jackendoff argues that the time-away construction is regarded as
a constructional idiom with peculiar semantics as described in (39), and
that the argument structure is determined by the construction, not by the
verb. However, he does not fully clarify how the semantics of the con-
struction are determined. As Jackendoff points out, the meaning of the par-
ticle away alone is insufficient to determine the meaning of the construction,
but it can still be assumed that the whole meaning is compositionally built
up on the basis of the meanings of the constituents, namely the verb, the
time NP and the particle away.

Regarding the syntactic properties of this construction, what Jackendoff
most strongly claims is that the postverbal NP in the time-away construc-
tion is licensed by the construction, not the verb. He states this is based
on the assumption that the combination, such as sleep away, is not a V^0
because it is discontinuous, and, therefore, that it cannot license a direct ob-
ject. However, as previously mentioned, there is no evidence that the exis-
tence of such a discontinuous complex verb should be disallowed (Emonds
(1972)). Larson (1988) also supports the idea that a verb and its outer
complement can form a single thematic complex verb. Look at (44) and
(45).

(44) a. Beethoven gave the Fifth Symphony to the world.
    b. Beethoven gave the Fifth Symphony to his patron.
    (Larson (1988: 340))

(45) Lasorda sent his starting pitcher to the showers.
    (Larson (1988: 340))
In (44a), the sentence does not denote a mere transfer of possession, but it means that Beethoven brought the Fifth Symphony into existence. In the case of (44b), the sentence describes that the ownership of the Fifth Symphony as a physical object was transferred. Therefore, these observations allow us to predict that the semantic role assigned to the direct object is determined by the semantic features of the verb in combination with the outer complement. Let us see another example (45). Just like the case of (44), it can be stated that the thematic role assigned to the direct object *his starting pitcher* is determined based on the verb *sent* along with the outer complement *to the shower*. Here, I wish to state that the above-illustrated observations presented by Larson and Emonds are plausible enough to suggest the existence of discontinuous complex verbs.

Lastly, let me turn to the Verb Subordination Archi-Construction. This need not be discussed in detail, since, as Jackendoff admits, this construction involves the same information as the lexical rule, in particular, the lexical subordination Rule (Levin and Rapoport (1988: 282)), as shown in (46).

\[(46) \text{LCS}_1: \text{manner/instr} \rightarrow \text{LCS}_2: [\text{result BY manner/instr}]^{6}\]

Therefore, as far as the above three constructions, that is, the time-away, the way and the resultative constructions are concerned, there is no clear evidence supporting the constructional approach, although it is necessary for the *sui generis* constructions.

In short, I propose that from the perspective of idiomaticity, syntactic configurations with low idiomaticity can be explained either by lexical rules or constructional approaches, whereas constructions with high idiomaticity must be analyzed by means of the constructional approach.\(^7\)


5.1. A Review of the Article
5.1.1. The Semantics of the Resultative Construction

The English resultative construction has been analyzed by many researchers according to a variety of linguistic theories. Goldberg and Jackendoff\(^6\) and Nunberg, Sag and Wasow (1994) propose distinguishing idiomatically combined expressions (e.g. *take advantage*, *pull strings*) from idiomatic phrases (e.g. *kick the bucket*, *saw logs*) according to idiomaticity.

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\(^6\) This rule means that, given LCS\(_1\) which indicates manner or means, the complex predicate LCS\(_2\), which presents result and means, is derived.

\(^7\) Nunberg, Sag and Wasow (1994) propose distinguishing idiomatically combined expressions (e.g. *take advantage*, *pull strings*) from idiomatic phrases (e.g. *kick the bucket*, *saw logs*) according to idiomaticity.
(under review) investigate it from the perspective of a constructional approach.

According to Goldberg and Jackendoff, there are three levels of constructions.\(^8\) The first one pairs an unusual syntactic string with an idiosyncratic meaning, as in (47a). The second type has a normal syntactic string with some special meaning, such as the resultative construction in (47b). The third one lies between the previous two and has a normal syntactic form which is partially occupied by a special element, such as the \textit{way} construction or time-\textit{away} construction, shown in (47c).

\begin{exe}
\begin{ex}
\item Our friends won’t buy this analysis, \textit{let alone} the next one we propose. (\textit{let alone}: Fillmore et al. (1988))
\item Fred watered the plants \textit{flat}. (Resultative)
\item Bill belched \textit{his way} out of the restaurant. (Way construction: Goldberg (1995), Jackendoff (1990)) (Jackendoff: 280)
\end{ex}
\end{exe}

Goldberg and Jackendoff assume that the VP’s complement structure in constructions such as (47b) and (47c) is not determined by the verb, but by the composite effects of the verb and the construction. They believe there must be something special about the way this composite is constructed, and seek to clarify it.

Like other several researchers, such as Wunderlich (2000), Boas (2003), Ono (2005), Kageyama (1996), Washio (1997), and Wechsler (2005), Goldberg and Jackendoff classify the resultative construction into subclasses, according to whether the verb is intransitive or transitive and whether the postverbal NP is selected by the verb or not.

\begin{exe}
\begin{ex}
\item The pond froze solid. (Intransitive) [RP=AP]
\item The gardener watered the flowers flat. (Selected transitive) [RP=AP]
\item They drank the pub dry. (Unselected transitive) [RP=AP]
\item We yelled ourselves hoarse. (Fake reflexive) [RP=AP] (Jackendoff: 284)
\end{ex}
\end{exe}

In their analysis, Goldberg and Jackendoff propose unique semantic structures for the above-treated resultative constructions. They propose that the meaning of the resultative sentence contains two subevents: the verbal

\(^8\) Jackendoff and Goldberg speak here of partially idiosyncratic phrasal constructions by using the term \textit{construction}. 
subevent determined by the verb and the constructional subevent determined by the construction. Furthermore, they claim that the meaning of the resultative sentence is more than just the composition of the verbal subevent and the constructional subevent, arguing that the relation between them also plays a crucial role.

Concerning the mapping of the constructional subevent to the syntactic argument structure, Goldberg and Jackendoff propose that the semantic argument structure of the constructional subevent determines the syntactic argument structure of the sentence by general principles of argument linking.

Following this generalization, Goldberg and Jackendoff (pp. 287–290) illustrate the structure of the meanings of resultative constructions, according to their subclasses, shown in (49).9

(49) a. Causative property resultative (e.g. Willy watered the plants flat.)
Syntax: NP1 V NP2 AP3
Semantics: X1 CAUSE [Y2 BECOME Z3]
MEANS: [VERBAL SUBEVENT]

b. Noncausative property resultative (e.g. The pond froze solid)
Syntax: NP1 V AP/PP2
Semantics: X1 BECOME Y2
MEANS: [VERBAL SUBEVENT]

c. Noncausative path resultative (e.g. The ball rolled down the hill)
Syntax: NP1 V PP2
Semantics: X1 GO Path2
MEANS: [VERBAL SUBEVENT]

d. Causative path resultative (e.g. Bill rolled the ball down the hill)
Syntax: NP1 V NP2 PP3
Semantics: X1 CAUSE [Y2 GO Path3]
MEANS: [VERBAL SUBEVENT]

Goldberg and Jackendoff (p. 290) assume that in the sound-emission path resultative, such as The trolley rumbled through the tunnel, the relation between the verbal subevent and the constructional subevent is not MEANS

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9 The first line of the semantic representation indicates the constructional subevent, and the subscript indicates the correspondence between the syntactic arguments and the semantic arguments.
because the sound-emission is the result of the subject’s motion. Thus, they posit the relation between the two subevents as RESULT, shown in (50) below.

(50)  Sound-emission path resultative
Syntax: \( NP_1 V PP_2 \)
Semantics: \( X_1 \text{ GO Path}_2 \)
RESULT: \( \text{VERBAL SUBEVENT: } X_1 \text{ EMIT SOUND} \)

(51) a. Selected transitive resultatives
Willy watered the plants flat.
Constructional subevent: Agent: Willy; Patient: the plants; Predicate: flat
Verbal subevent: Agent: Willy; Patient: the plants

b. Unselected transitive resultatives with optionally transitive verb
Dave drank the pub dry.
Constructional subevent: Agent: Dave; Patient: the pub; Predicate: dry
Verbal subevent: Agent: Dave; Patient: implicit

c. Unselected transitive resultative with intransitive verb
The critics laughed the play off the stage.
Constructional subevent: Agent: the critics; Patient: the play; Path: off the stage
Verbal subevent: Agent: the critics

In (51a), two subevents share two arguments, namely Willy and the plants. Therefore, there are actually three arguments that can appear in the syntax. In (51b), the verb’s direct object can be implicit, so three arguments, that is, Dave, the pub and dry, can be mapped into syntactic posi-
tions. Since the verb of (51c) is intransitive, three arguments, namely the critics, the play, and off the stage, can be appropriately mapped into syntactic positions.

The problem, here, is what triggers the unification of the verbal subevent and the constructional subevent. In this regard, Goldberg and Jackendoff (p. 304) assume that the verbal subevent and the constructional subevent can be unified if and only if roles of the verb can be construed as an instance of roles of the construction. However, it is not clear what ‘instance’ means here. More specifically, Goldberg and Jackendoff fail to clarify what circumstances are required in order to bring about the unification between the verbal subevent and the constructional subevent, although this is the very crucial point in the syntactic realization of what they call idiomatic VP constructions.

5.1.3. Analyses on Additional Types of Resultatives

As additional analyses on the resultative construction, Goldberg and Jackendoff deal with the subject-oriented resultative construction and the PP-adjunct path construction, as shown below.

(52) a. Bill followed the thief into the library.  
   b. Bill tracked the leak to its source.  (Jackendoff: 308)

(53) a. Martha danced mazurkas across the room.  
   b. The kids played leapfrog across the park.  (Jackendoff: 313)

(54) a. Bill spit/urinated/ejaculated/coughed/sneezed out the window.  
   b. Bill sweated/bled on the floor.  (Jackendoff: 314)

The examples in (52) describe what is called ‘correlated motion’ (Rappaport Hovav and Levin (2001: 771)) where the position of the subject is necessarily correlated with that of the object, often with both changing locations. Similarly, Goldberg and Jackendoff point out that the subject traverses a path determined by the object, representing the verbal subevent and the constructional subevent in the following fashion:

(55) Transitive noncausative resultative construction
Syntax:   NP₁ V NP₂ PP₃
Semantics: X₁ GO Path₃
MEANS: \([VERBAL \, SUBEVENT: \, X₁ \, GO \, [PATH \, DETERMINED \, BY \, Y₂]]\)  (Jackendoff: 309)

Concerning the examples in (53), Goldberg and Jackendoff assume that

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10 This is called the Principle of Semantic Coherence by Goldberg and Jackendoff.
the verb and the object form a sort of complex predicate on the basis of the fact that these cannot be passivized. In other words, the postverbal NP is not a direct object but a part of a complex predicate. In the example (54), entities in motion, such as spit, are not expressed, although FAR requires the entity in motion to appear in the resultative construction. Goldberg and Jackendoff do not regard the example (54) as a resultative construction but as a PP-adjunct path construction, because the implicit entity in motion has a specified path and the PP is added to the verb in order to delineate the path.

5.2. An Alternative Analysis

I agree with Goldberg and Jackendoff in that, in VPs such as the resultative construction and the time-\textit{away} construction, the VP’s complement structure is not determined by the verb alone and thus something else must be stipulated. Goldberg and Jackendoff argue that the irregularity between the syntactic form and the meaning lies in the construction itself. However, I cannot help asking a very basic question. How is such a syntactic configuration constructed? In particular, I am interested in the strong resultative construction (Washio (1997)), which contains either the unselected object followed by the resultative phrase or the selected object followed by a resultative phrase which is not entailed by the verb. What mechanism operates to generate the strong resultative construction? In order to clarify this issue, I would like to pursue an alternative approach based on the theory of generative lexicon (Pustejovsky (1995)) by stating that the lexical information gained from the semantic representation with the qualia structure plays a crucial role in the realization of strong resultative constructions (Sakai (2009)).

5.2.1. Semantic Relations between Verbs and Postverbal NPs

Goldberg and Jackendoff (under review) classify the resultative construction according to syntactic properties. However, they do not fully explain what triggers the occurrence of an unselected postverbal NP. They only refer to the Principle of Semantic Coherence. However, this is not sufficient to predict the augmentation of event structure templates involved in the

\footnote{Rappaport Hovav and Levin (2001: 771) state that the examples in (53) involve the creation of a performance named by the object or involve cognate objects, more accurately hyponyms of cognate objects.}
strong resultative construction. We need a more elaborate mechanism which triggers the occurrence of an unselected object and a resultative phrase. In order to explore this, it is necessary to examine the semantic relation between the verb and the postverbal NP or the resultative phrase. Goldberg and Jackendoff fail to explore this aspect. In this regard, Wunderlich (2000: 251) presents a very insightful proposal which determines the condition for the composition of the upper subevent and the lower subevent in the construction with a complex event structure. According to Wunderlich’s proposal, in a decomposed SF (Semantic Form) structure, each predicate must share at least one argument with another predicate, either explicitly or implicitly.\textsuperscript{12} Here, the implicit argument sharing between the two subevents is a crucial point. However, Goldberg and Jackendoff do not refer to this implicit argument sharing. They do not clarify how the upper subevent and the lower subevent can be combined despite their having no arguments shared between them.

Here, I wish to claim that we can detect implicit arguments shared between the two subevents by illustrating the semantic structure of the resultative construction through representation with the qualia structure. In order to explore this issue, I would like to focus mainly on the strong resultative construction.

What accounts for the acceptability and the unacceptability of the sentences among the following examples?

(56) a. Julie swept the floor clean. (Boas (2003: 9))
    b. The waiter wiped the table clean.

(57) a. They drank the wine cellar empty. (Kaufmann and Wunderlich (1998: 9))
    b. *They drank the kitchen empty.

(58) a. Beryl painted the brush to pieces. (Boas (2003: 120))
    b. *She painted the broom to pieces.

\textsuperscript{12} Wunderlich (2000: 251) proposes the following conditions on the expansion of argument expressions:

(i) a. Possible Verbs: In a decomposed SF (Semantic Form) representation of a verb, every more deeply embedded predicate must specify the higher predicate of sortal properties activated by the higher predicate.
    b. Connexion: In a decomposed SF structure, each predicate must share at least one argument with another predicate, either explicitly or implicitly.
    c. Coherence: Subevents encoded by the predicates of a decomposed SF structure must be connected contemporaneously or causally.
(59) a. The joggers ran their Nikes threadbare.
    (Carrier and Randall (1992: 173))

b. *The joggers ran their headbands threadbare.

In (56), each of postverbal NPs is an argument of the upper subevent as well as the lower subevent. Therefore, the extension of argument expressions takes place. However, the circumstances in (57)–(59) are different. The problem relates to “implicit” argument sharing, which I will discuss next.

5.2.2. Argument Sharing at the Level of the Qualia Structure

Now, I wish to propose an alternative approach to detect the implicitly shared arguments based on the lexical information contained in semantic representations with qualia structures of the main verbs and postverbal NPs. Let us consider the example (57). This pair has the same verb and the same secondary predicate, yet their acceptability is not the same. This difference depends on whether or not there is an implicitly shared argument between the upper subevent and the lower subevent. In (57a), the unexpressed object of the verb drink is liquid, and the postverbal NP wine cellar is a location where wine, which is a liquid, is stored. From this observation, it can be assumed that the shared argument between drink and the wine cellar is “liquid.” In fact, the kind of information mentioned above is available from representations of the qualia structures of the individual words, although Wunderlich (2000: 251) argues that this kind of information comes from “inference.” In (57a), we can regard the postverbal NP as a location where the main verb’s unexpressed object is stored. In general, when a noun indicates a certain container or storage location, the FORMAL role and the CONST role in the qualia structure of the container or storage location include the following information (Ono (2005: 60)).

\[
\begin{align*}
\alpha &= \text{a certain kind of container} \\
\text{QUALIA} &= \text{FORMAL} = \text{container_of } (x, y) \\
\text{CONST} &= \text{content } (y): y \text{ is part of } x
\end{align*}
\]

In (60), x stands for an object, and y stands for its content. This representation indicates the relation where [x is a container or storage location of y]. There is also a whole-part relation between the container and the content. Thus, y (= content) can satisfy the value of the CONST role. The representation of the qualia structure for wine cellar in (57a) is given in (61).
(61) wine cellar
   \[
   \begin{align*}
   \text{ARGSTR} &= [\text{ARG1} = y] \\
   \text{QUALIA} &= \left\{ \begin{array}{l}
   \text{FORMAL} = \text{storage\_location\_of} \ (y, x) \\
   \text{CONST} = \text{content} (x: \text{wine}) \\
   \text{TELIC} = \text{store\_wine\_in} (e, w, x = z, y),^{13} \\
   \text{QUALIA} = \text{FORMAL} = \text{liquid} (z) \\
   \text{AGENTIVE} = \text{drink\_act} (e_1, w, z) \\
   \end{array} \right.
   \end{align*}
   \]

The qualia structure of the verb \textit{drink} is shown in (62).

(62) drink
   \[
   \begin{align*}
   \text{EVENTSTR} &= [E_1 = e_1 \text{ process}] \\
   \text{ARGSTR} &= \left\{ \begin{array}{l}
   \text{ARG1} = w: \text{animate individual} \\
   \text{ARG2} = z: \text{liquid} \\
   \end{array} \right.
   \]
   \]
   \[
   \text{QUALIA} &= \left\{ \begin{array}{l}
   \text{AGENTIVE} = \text{drink\_act} (e_1, w, z) \\
   \end{array} \right.
   \]

Note that the object (= ARG2) generally selected by the verb \textit{drink} in (62) and the FORMAL role of wine, which is the value of the CONST role of the noun phrase \textit{wine cellar} in (61), share the same value, “liquid.” Thus, we can assume that, in the VP \textit{drink the wine cellar empty}, the argument shared implicitly between the upper and lower event is “liquid.” This observation leads us to the assumption that, if the relation between the postverbal NP and the verb’s unexpressed object is identical to the relation between a storage location and its content, the unexpressed object itself plays the role of a shared argument between the upper and lower event. In addition to the shared argument, we should note that in the VP \textit{drink the wine cellar empty}, the value “drink” is included in the TELIC role of the postverbal NP \textit{wine cellar}, and the verb \textit{drink} also contains the value “drink” as its AGENTIVE role. This means that at the level of the qualia structure, there is a shared event between the main verb and the postverbal NP. In other words, the purpose or function of the postverbal NP is realized by the activity denoted by the main verb. By contrast, in (57b), the postverbal NP \textit{kitchen} shares neither an argument nor an event with the main verb at the level of the qualia structure. Thus, the unification of the upper event and the lower event does not take place, resulting in an unacceptable sentence in (57b).

Based on these observations, I wish to claim that, in resultative constructions where the verb’s unexpressed object is identical to the value of the

\footnotesize
^{13} \ e = \text{event}, \ w = \text{the subject in the event}. \text{This representation is based on Pustejovsky (1995) and Ono (2005).}
CONSTRUCTIONS AND LEXICAL MEANINGS IN VP COMPLEMENTS

The CONST role of the postverbal NP and the TELIC role of the postverbal NP is identical to the AGENTIVE role of the main verb, the sentence is acceptable because the information available from the qualia structure provides us with a shared argument and a shared event.

Next, let us consider another type of resultative construction with transitive main verbs and unselected objects. Look at the sentences in (58), repeated here in (63).

(63) a. Beryl painted the brush to pieces. (Boas (2003: 120))
   b. *She painted the broom to pieces.

In (63a), the postverbal NP is a tool used for performing an activity denoted by the main verb. Here again, by means of the qualia structures of individual words, we can detect a shared argument or a shared event between the upper and lower event. Let us consider the example (63a) in more detail. The qualia structure of the verb *paint* is given in (64). The verb *paint* represents a situation where the subject (w) paints a certain surface (x) with some paint (y). As for paint (y), it is incorporated into the semantic information of the verb *paint* and usually unexpressed syntactically. Therefore, the argument “paint” is a shadow argument.  

(64) paint

EVENTST = [E1 = e1 process]
ARGST = [ARG1 = w: animate individual
ARG2 = x: surface of physical object
S-ARG1 = y: paint (noun)]
QUALIA = [AGENTIVE = paint_surface_with_act (e1, w, x, y)]

The qualia structure of the noun *brush* is given in (65).

(65) brush

ARGSTR = ARG1 = z
QUALIA = [FORMAL = tool (z)
TELIC = paint_with (e, w, z)]

In this case, the TELIC role of the noun *brush* is realized by the activity denoted by the verb *paint*. Therefore, we can assume that there is a shared event at the level of the qualia structure between the main verb and the postverbal NP. In contrast with (63a), the postverbal NP *broom* in (63b) shares neither an argument nor an event with the main verb *paint* at the

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14 Shadow arguments are parameters which are semantically incorporated into the lexical item. They can be expressed only by operations of subtyping or discourse specification. (Pustejovsky (1995: 62))
level of the qualia structure, so the sentence is judged to be unacceptable.

On the basis of these observations, we can make the assumption that if the postverbal NP as an unselected object indicates some kind of tool used for performing an activity denoted by the main verb, then there is a shared event between the upper and lower event. This is because the TELIC role of the postverbal NP is identical to the AGENTIVE role of the main verb.

Next, let us consider resultative constructions with unergative verbs and unlicensed objects as in (59), repeated here in (66).

(66)  

   a. The joggers ran their Nikes threadbare.  

      (Carrier and Randall (1992: 173))  

   b. *The joggers ran their headbands threadbare.  

Although agentive unergative verbs usually indicate activities without licensing objects, the main verb in the resultative construction in (66a) is followed by an unlicensed object. In other words, the lower event, consisting of the unlicensed object and a resultative phrase, is added to the upper event, denoted by the main verb. Thus, it is assumed that an augmentation of event structure templates takes place. This means there should be a shared argument or a shared event between the main verb and its postverbal NP at the level of the semantic representation with the qualia structure. The main verb in (66) generally does not license an object which is syntactically expressed. However, when these kinds of verbs are represented by means of semantic representations with the qualia structure, it is possible for their shadow arguments or default arguments to be denoted. For example, the qualia structure of the verb run is given in (67). The verb run indicates a manner of motion which entails the motion of feet, and the information about feet is incorporated into the verb run. Thus, it can be assumed that the representation with qualia structure of the verb run contains the value of “feet” as a shadow argument, and also contains “run” as the value of its AGENTIVE role. As for the postverbal NP Nikes, they are a kind of shoes, and can thus be regarded as “footwear” whose contents are feet. Therefore, we can assume that the value of the CONST role of Nikes is “feet.” In addition, their TELIC role can be assumed to be “run.” The qualia structure of the noun Nikes is given in (68).

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15 Default arguments are parameters which participate in the logical expressions in the qualia, but which are not necessarily expressed syntactically; e.g. “John built the house out of bricks.” (Pustejovsky (1995: 63))
Looking at (67) and (68), it can be observed that the shadow argument of the verb \textit{run}, namely “feet,” is identical to the value of the CONST role of the noun \textit{Nikes}. Thus, “feet” is a shared argument between the main verb and its postverbal NP at the level of the semantic representation with the qualia structure. In addition, since the value of the AGENTIVE role of the verb \textit{run} is identical to that of the TELIC role of the noun \textit{Nikes}, there is a shared event between the main verb and its postverbal NP. As a result, extension of the argument expressions takes place. Consequently, we can detect a shared argument between the default or shadow argument of the main verb and the postverbal NP at this level. We can also detect a shared event between the main verb and its postverbal NP based on information derived from their qualia structures. On the contrary, in (66b), the noun \textit{headbands} has no shared value with the verb \textit{run}. Thus, it can be assumed that the sentence is unacceptable.

Lastly, let us consider resultative constructions with unergative verbs and reflexive pronouns, as shown in (69).

\begin{enumerate}
\item James ran himself ragged.
\item *James ran her ragged.  \hfill (Boas (2003: 6))
\end{enumerate}

In (69a), the main verb does not license the object, but it is followed by a reflexive. Here, let us proceed on the assumption that the reflexive in (69a) is identified with the sentence subject’s body. Here, let us recall the semantic properties of the verb \textit{run} above shown in (67). As is seen in (67), the verb \textit{run} has the value “feet” as a shadow argument in the semantic representation. Now let me present the semantic representation of “feet.” Look at (70).
As is seen in (70), there is a whole-part relation between a body and its feet. Feet are a part of a body and a body has feet. Therefore, the noun feet, that is, a shadow argument of the verb run, contains the value “body” as the value of the CONST role. Consequently, it can be stated that the verb run includes the value “body” in its semantic representation. As mentioned above, the reflexive can be identified with the subject’s body. Thus, it can be stated that the value “body” is an implicitly shared argument between the verb run and the reflexive. As a result, we can claim that there is a shared argument between the upper and lower events.

So far, we have discussed what makes it possible for the augmentation of event structure templates to take place in the resultative construction. This issue is not fully discussed in the Goldberg and Jackendoff’s article (under review). In their approach, the construction comes first and they do not fully explore how such syntactic configurations are integrated into the various constituents. The present analysis, however, argues that lexical information derived from semantic representation with the qualia structure plays a crucial role in predicting the acceptability of resultative constructions involving the addition of an unlicensed object and the augmentation of event structure templates.

6. Conclusion

Among Jackendoff’s articles in the volume under review, which range over a wide area, the present article is devoted to the studies dealing with productive VP constructions and has critically reviewed them from the perspective of whether Jackendoff’s accounts for the VP constructions are more plausible than the other accounts. Although his proposal of a flat structure of VP complements does not seem to be so problematic, it may actually not be so convincing as to justify giving up the binary branching structure as he argues. Jackendoff argues extensively that syntactic argument structures are commonly determined not by main verbs but by constructions, claiming that such constructions with a special meaning must be listed as lexical items. Indeed, there are constructions that cannot be explained without the notion of constructional idioms. However, it seems that Jackendoff
overuses this approach even in the cases of constructions whose semantic and syntactic structures can be analyzed compositionally. As an alternative analysis to the resultative construction, I have introduced the analysis based on the lexical information attained from semantic representation with the qualia structure. Jackendoff’s arguments, however, are still compelling because he puts his position between the extreme constructionism and what he calls syntactocentrism. It is my expectation that the lexical information provided by the theory of the generative lexicon will contribute to the analysis on mismatches between forms and meanings in spite of the shortcomings observed here.

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[received April 1 2012, revised and accepted August 1 2012]