TOWARDS A FRAME-CONSTRUCTIONAL APPROACH TO VERB CLASSIFICATION

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ABSTRACT

This paper proposes a novel approach towards identifying English verb classes by combining insights from Componential Analysis (Katz and Postal), Verb Descriptivity (Snell-Hornby), and Frame Semantics (Fillmore, “Frames”). It differs from syntactico-centric and event structure approaches in that frame-semantic information is shown to directly influence a verb’s ability to occur in grammatical constructions. This frame-constructional approach emphasizes the importance of form-meaning correspondences between the information specified in semantic frames and their different syntactic realizations, leading to a more fine-grained classification of English verbs.

KEY WORDS: Componential analysis, verb descriptivity, frame semantics, frame-constructional approach.

RESUMEN

Este artículo propone un nuevo enfoque para la identificación de las clases verbales del inglés. Para ello combina aspectos del análisis componential (Katz and Postal), la “descriptividad” verbal (Snell-Hornby) y la semántica de marcos (Fillmore, “Frames”). Se diferencia tanto de las propuestas sintáctico centricas como de las que se basan en la estructura eventual en que la información de los marcos semánticos se presenta como un aspecto que influye directamente en la capacidad que un verbo muestra para formar parte de las construcciones gramaticales. Asimismo, este enfoque “márcos-construccional” pone de manifiesto la relevancia de las correspondencias entre forma y significado, es decir, entre la información especificada en los marcos semánticos y sus diferentes realizaciones sintácticas, lo que permite establecer una clasificación más exhaustiva de los verbos del inglés.

PALABRAS CLAVE: análisis componential, descriptividad verbal, semántica de marcos, enfoque márcos-construccional.

1. INTRODUCTION

One of the main goals of lexical semantic theories is to classify the lexical items of a language into classes predictive of their syntactic and semantic expressions (Pustejovsky 8). Studies of English verb classes have often focused on identi-
fying specific syntactic features that allow for broad-scale generalizations. For example, Levin proposes a syntactic classification of argument alternations to classify verbs into unique classes. In later work, Rappaport Hovav and Levin ("Building", "English", "Event") develop a model that builds on previous accounts using lexical conceptual structures (LCSs) to represent systematic alternations in a verb's meaning and to define the set of verbs which undergo the same mappings to syntax (Jackendoff, *Structures*; Hale and Keyser "Argument"; Wunderlich; Van Valin and LaPolla). On this view, verbs with multiple meanings have multiple lexical semantic representations, one for each meaning, where meanings are modeled by event structure templates. This approach has the advantage that the different meanings—represented in terms of event structures—make it possible to determine the various syntactic structures that a verb can be found in.

Recently, however, Baker and Ruppenhofer, Boas (Constructional), and Nemoto, among others, have noted empirical problems for such accounts. These findings call into question the role of LCSs and the status and number of predicates used in the event structure representations proposed by Rappaport Hovav and Levin ("Building", "English", "Event"). In fact, several authors (Iwata; Langacker; Boas, "Frame-semantic") have proposed that the lexical semantic representations necessary for defining verb classes are best explained by appealing to more fine-grained semantic descriptions. In this article I propose a comprehensive semantic account of verb classes, in which the explanatory burden is borne by frame-semantic descriptions (Fillmore, "Frame"; Fillmore and Atkins) of the various senses of verbs, a detailed constructional inventory covering each sense of a verb, and an exact inventory of form-meaning correspondences listing the combinatorial possibilities (valencies). My approach maintains the wide empirical coverage of syntactic accounts such as Levin, without suffering from their shortcomings. In addition, I demonstrate that event structure representations of the type proposed by Rappaport Hovav and Levin ("Building", "English", "Event") do not cover the full range of empirical data. The alternative frame-constructural approach to verb classification outlined in this paper thus follows Langacker's (186) proposal that "semantic and grammatical analyses are best pursued in parallel, each informing and constraining the other."

This paper is structured as follows. In section 2, I provide an overview of Rappaport Hovav and Levin's ("Building", "English", "Event") event structure approach and show that it fails to cover the full range of data. In section 3, I review Baker and Ruppenhofer's comparison of FrameNet's verb classes with those proposed by Levin. I argue that while it is important to pay closer attention to frame-semantic information underlying the interpretation of specific senses of verbs, one should not lose sight of syntactic information when determining membership in individual verb classes. In section 4, I propose a unified frame-constructural approach to verb classification that emphasizes the importance of form-meaning correspondences between the information specified in semantic frames and their different syntactic realizations. Section 5 concludes and offers suggestions for further research.

2. VERB CLASSIFICATION BASED ON EVENT STRUCTURES

Before discussing the details of Rappaport Hovav and Levin's ("Building", "English", "Event") event structure approach to verb meaning, a brief overview of earlier accounts incorporating Lexical Conceptual Structures (LCSs) is in order. One of the goals of LCSs and related forms of predicate decomposition is to overcome some of the problems associated with the lists of thematic roles proposed by Fillmore ("Frame") and Gruber, as well as the different types of thematic relations suggested by Jackendoff (Semantics). For instance, Guerrell et al. intend to catalogue those elements of meaning that determine grammatical facets of behavior, including argument realizations. Consider the following sentences involving the transitive verbs cut and break.

(1)

a. Lena cut the cake.
   b. The cake cut.
   c. Lena cut at the cake.

(2)

a. Rosa broke the vase.
   b. The vase broke.
   c. Rosa broke at the vase.

The examples illustrate that cut exhibits a conative use (1c), but not an intransitive noncausative use (1b). In contrast, break exhibits an intransitive noncausative use (2b), but not a conative variant (2c). Guerrell et al. (51-59) therefore propose different LCSs to explain the variation in intransitive noncausative use between the two verbs as follows.

(3)

a. break; y come to BE BROKEN
   b. break: x cause (y come to BE BROKEN)

(4)

a. cut: x produce CUT in y, by sharp edge coming into contact with y
   b. cut: x causes sharp edge to move along path toward y, in order to produce CUT on y, by sharp edge coming into contact with y.

The LCS of cut does not exhibit a meaning constituent [come to be in STATE], although the LCS of break does (see 3b). Therefore, a mapping to syntax for y is possible with break, but not with cut, according to Guerrell et al. Conversely, the LCS of break lacks a meaning constituent including a contact component, whereas the LCS of cut exhibits one. A mapping from y to syntax is thus possible with cut, but not with break. The examples illustrate how LCSs are used to capture variations in verb meaning, which, in turn, have an effect on how the arguments of verbs are realized morphon-syntactically.

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1 See Dowty, and Levin and Rappaport Hovav (Argument) for details.
2 See Hale and Keyser, "View"; LaLahern; Rappaport; Levin and LaLahern; Levin and Rappaport Hovav, Unaccusativity, for similar types of analyses.
Throughout the 1990s, researchers developed different versions of LCSs to represent a limited stock of basic event types, in the hope of arriving at broad-scale generalizations about the morpho-syntactic behavior of verbs based on the largest common meaning denominator. To achieve this goal, Rappaport Hovav and Levin ("Building", "English", "Event") suggest that a verb's meaning consists of two parts: (1) an event structure, also called a lexical semantic template, which it shares with other verbs in the same semantic class; (2) a root, representing the idiosyncratic aspects of a verb's meaning, thereby setting it apart from other members of the same semantic class. To illustrate, the class of noncausative verbs of change of state exhibit a predicate decomposition consisting of a predicate BECOME describing the notion of change of state as in (5), together with the specified result state indicated in italics (cf. Rappaport Hovav and Levin, "Building" 108).

(5) [BECOME \[x <STATE>\]]

The event structure representation in (5) illustrates the common meaning shared by all noncausative verbs of change of state, such as dry, widen, and dim. At the same time, these verbs differ in their roots, i.e., their idiosyncratic meaning components, which are specified in terms of an attribute of an entity whose value is specified as changing. Compare, for example, the LCSs of dry, melt, and freeze in (6).

(6) a. dry: [BECOME \[y <DRY>\]]
   b. melt: [BECOME \[y <MELTED>\]]
   c. freeze: [BECOME \[y <FROZEN>\]]

According to Levin and Rappaport Hovav (Argument, "Lexical", Unaccusativity) a description of verb meaning in terms of event structures does not necessarily entail providing a complete semantic analysis. Instead, it focuses on isolating those facets of meaning which recur in significant classes of verbs and on determining key facets of the linguistics behavior of verbs. In the case of the verbs in (6), the event structure represents the fact that all three verbs license a noncausative change of state as in sentences like The shirt dried, The butter melted, or The water froze.

One of the main ideas of Rappaport Hovav and Levin's event structure approach to semantic classification and analysis is that verbs exhibiting multiple argument realizations must be associated with distinct event structures. According to this view, each distinct event structure gives rise to an appropriate argument realization when verb roots are integrated into different event structure templates. They can either occur in an argument position of a primitive predicate as in (6) above, or they can modify a predicate, as is the case with activity verbs in (7) and (8), where the subscript signals the modification of the predicate.

(7) Gavin ran
    \[x \text{ACT}_{<RUN>}\]

(8) Natasha wiped the table
    \[x \text{ACT}_{<WIP>}\]

According to the Rappaport Hovav and Levin ("Building"), verb roots are of different ontological types, which in turn determine the event structures with which they can be associated. Consider, for example, the difference between the roots of verbs from the same semantic field such as clean and scrub. Clean has a result root specifying a state that typically results from some activity, and results in verbs such as clean therefore lexicalize the result of some sort of activity in their root, as can be seen in (9).

(9) \[(x \text{ACT}_{-MANNER}) \text{CAUSE} \[y <\text{CLEAN}>\]\]

Levin and Rappaport Hovav propose that the only way in which result verbs such as clean and empty differ from each other is the end state specified by their roots: the root of clean represents the absence of any materials that could be considered as dirty, while the root of empty represents the absence of any materials in a container. This common meaning allows roots of result verb to be associated with a causative change of state LCS like the one in (9). In contrast, verbs such as scrub, wipe, and sweep have a manner root specifying an activity that is conventionally carried out to achieve a particular result. Such verbs are associated with an activity LCS, as in (10).

(10) \[(x \text{ACT}_{-SCRUB})\]

Levin and Rappaport Hovav suggest that manner verbs describe activities that are identified by some sort of means, manner, or instrument. They characterize the difference between manner verbs as follows:

[T]he manner verbs scrub and wipe both describe actions that involve making contact with a surface, but differ in the way the hand or some implement is moved against the surface and the degree of force and intensity of this movement. (...). Despite the differences in the way the instruments are used linguistically all these verbs have a basic activity LCS. (Levin and Rappaport Hovav, "Lexical" 6-7)

Besides being associated with an activity LCS, Levin and Rappaport Hovav claim that manner verbs also entail a specific result, i.e., "cleanliness." In their view this entailment "explains the intuition of relatedness between the manner verb scrub and the result verb clean" (6). To achieve this interpretation, the LCS of all activity verbs as in (10) can be augmented by an additional result state, thereby yielding a causative LCS as in (9).3 This generative process of Template Augmentation in (11) is constrained by the Argument Realization Condition in (12), which imposes well-formedness conditions on the mapping from event structure to syntax.

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3 Rappaport Hovav and Levin ("Building" 108) distinguish five different types of event structure templates: activities, states, achievements, externally caused accomplishments (also known as causative change of state), and internally caused accomplishments.
Rappaport Hovav and Levin's event structure account has been quite successful in explaining a range of syntactic behaviors based on the properties of LCSs, associated with the roots of verbs. However, their approach has a number of limitations which I now turn to. To begin, let us take a look at the range of data covered by their approach. Following their verb classification based on LCSs, the authors claim that English allows the LCSs of all activity verbs to be "augmented" by the addition of a result state, giving rise to causative LCSs. Indeed, as the examples in (13)-(15) illustrate, Rappaport Hovav and Levin's analysis accounts for a range of activity verbs that are associated with both a simple activity event structure and with a complex causative change of state event structure.

Rappaport Hovav and Levin ("Event" 779-780) claim that the basic inventory of event structures, including activity LCSs associated with manner verbs and causative change of state LCSs associated with result verbs, suffices to capture a verb's syntactic behavior, together with Template Augmentation and the Argument-per-subevent condition. The Argument-per-subevent-condition ensures that complex event structures of the type in (9) always give rise to sentences with a subject and an object, because both event participants "x" and "y" need to be overtly realized, hence the unacceptability of *Tracy broke (compare Tracy broke the dishes) (Rappaport Hovav and Levin, "Building" 119). In contrast, simple activity event structures of the type in (10) only require a subject, because the well-formedness condition on argument realization in (12) only requires one event participant "x" to be realized (as the subject), but not necessarily an object (cf. Phil swept and Phil swept the floor (Rappaport Hovav and Levin, "Building" 115)).

Let us now return to the question of why manner verbs can be associated with both simple and complex event structures (cf. Phil swept | Phil swept the floor / Phil swept the floor clean). To explain this syntactic behavior, Rappaport Hovav and Levin suggest that verb meanings are built up incrementally through Template Augmentation (cf. (11)). This process allows basic activity templates, like that associated with scrub in (9), to enter into other possible event structure templates that are more complex like that in (10), "as long as the resulting complex event structure meets the well-formedness conditions of syntactic realization" (Rappaport Hovav and Levin, "Building" 73). Summarizing their classification of verbs, the authors point out the following:

Because the template associated with a verb like break cannot be augmented further, no other achieved state or location can be added to a sentence with break, even with the normal direct object. (...) Thus, the properties that distinguish the verb break from the verb sweep can be accounted for through the interaction of their event structure representations, the operation of Template Augmentation, and the well-formedness conditions. (Rappaport Hovav and Levin, "Building" 122-23)

The verbs sweep, whistle, and run are activity verbs and are thus associated with simple event structures such as those in (7) and (8). Per the Argument-per-subevent-condition in (12), the simple activity event structure requires the syntactic realization of one event participant, compare (13a)-(15a), or two event participants, compare (13b) and (14c). Per Rappaport Hovav and Levin's Template Augmentation mechanism in (11), these simple activity event structures can be augmented to yield more complex event structures of the type in (9). As already discussed above, the event participants of these causative change of state event structures are obligatorily mapped to syntax per the Argument-per-subevent-condition, resulting in sentences like (13c)-(13f), and (15c), (15d), and (15f).
Note, however, that not all activity verbs allow template augmentation similar to the ones in (13)-(15). For example, other wipe verbs (Levin 125-128) similar in meaning to sweep, such as erase, purge, squeeze and suction, do not allow the full range of argument realization as sweep, as the following examples demonstrate.

(16) a. *Terry erased the marks into the corner. (cf. (13c))
b. *Terry purged the leaves into a pile. (cf. (13f))
c. *Terry squeezed the floor clean. (cf. (13e))
d. *Terry suctioned the leaves into a pile. (cf. (13f))

According to Rappaport Hovav and Levin, verbs such as erase, purge, squeeze, and suction should be categorized as activity verbs associated with the same activity event structure as sweep. As such, one would expect that these simple event structures can be augmented per Template Augmentation (cf. (11)), leading to a complex event structure of the type in (9). Given the Argument-per-subevent condition, we would expect the two event participants to be syntactically realized as in (16a)-(16d). However, the unacceptability of these sentences shows that the event structure account lacks crucial features that prevent Template Augmentation from generating unacceptable event structures, which in turn license unacceptable sentences. Note that this is not an isolated problem, as it also occurs with other verbs discussed by the authors. For example, verbs similar in meaning to whistle in (14) and run in (15) also exhibit a syntactic behavior that is unexpected under the event structure account. First, consider the syntactic behavior of manner of motion verbs in (17) and (18).

(17) a. Pat ran her shoes to shreds. (cf. (15d))
b. Pat walked her shoes to shreds.
c. *Pat tipped her shoes to shreds.
d. *Pat crawled her shoes to shreds.
e. *Pat crept her shoes to shreds.
f. *Pat meandered her shoes to shreds.
g. *Pat swam her shoes to shreds.

(18) a. The coach ran the athletes around the track. (cf. (15f))
b. *The coach jogged the athletes around the track.
c. *The coach promenaded the athletes around the track.
d. *The coach staggered the athletes around the track.
e. *The coach roamed the athletes around the track.
f. *The coach ambled the athletes around the track.

In (17) and (18), not all manner of motion verbs allow the same syntactic pattern as run. This distribution is not expected under Rappaport Hovav and Levin’s proposal which predicts that the LCSs of all activity verbs can be augmented by the addition of a result state. Thus, Template Augmentation and the Argument-per-subevent-condition are not sufficient for preventing the licensing of unacceptable sentences as in (17) and (18) (Boas, Constructional: “Determining”).

In my view, the problems faced by Rappaport Hovav and Levin’s approach are caused by a verb classification system that is too coarse grained. Their account relies too much on the distinction between different types of LCSs expressed as types of event structures, which in turn can be augmented. I have shown that Template Augmentation is not appropriately constrained and thus leads to over-generation. Distinguishing between different event structure types may be useful for explaining certain types of phenomena such as aspectual behavior of verbs (Tenny; Smith), but, as demonstrated above, closer examination of the linguistic facts reveals that event structures are not sufficient to explain linguistic idiosyncrasies such as why certain verbs exhibit a wide range of argument expression while other verbs closely related in meaning do not. The lexicon thus once again successfully resists the efforts of linguists to make it neat and clean. In the following section I discuss two alternative approaches to verb classification.

3. VERB CLASSIFICATION BASED ON SYNTACTIC OR SEMANTIC FRAMES?

Baker and Ruppenhofer compare how Levin and FrameNet (Fillmore et al.) classify English verbs. In summarizing Levin’s seminal work, they point out that her approach relies on intuitive semantic groupings as well as the syntactic behavior of verbs, specifically their participation in valence alternations. Based on data taken from the linguistic literature, Levin arrives at a total of 193 verb classes whose members participate in more than 60 syntactic alternations such as the locative alternation (Mary loaded the wagon with hay vs. Mary loaded hay onto the wagon), and other syntactic constructions such as the Cognate Object Construction, the Reaction Object Construction, and the Resultative Construction, among others.

In contrast, FrameNet’s verb classification relies on semantic frames (Fillmore, “Frame”) that underlie the understanding and interpretation of words. Based on corpus evidence from the BNC, FrameNet groups words together that are semantically similar, i.e. they evoke the same semantic frame (Petrick). Another difference to Levin’s or WordNet’s (Fellbaum) classification is that verbs, nouns, and adjectives are all classified with respect to the same underlying semantic frame. Words are distinguished based on the frames they evoke. For example, fill is a lexical unit (LU), a word in one of its senses, which evokes the Filling frame, whose description specifies scenes in which containers are filled and areas are covered with some thing, things or substance (the Frame Element (FE) theme). The area or container can appear as the direct with all these verbs, and is designated goal because it is the goal of motion of the theme. Corresponding to its nuclear argument status, it is also affected in some crucial way, unlike goals in other frames. A frame semantic description of fill includes the frame description, as well as a lexical entry summarizing how the FEs are realized syntactically, together with a list of annotated example sentences illustrating these uses.5

5 See Fillmore et al. and Boas, “Theory” for details.
In contrast to Levin, FrameNet does not view valence alternations as a primary means for identifying verb class membership. In fact, in FrameNet "verbs which share the same alternation might be represented in two different semantic frames" (Baker and Ruppenhofer 27). For example, FrameNet’s Filling frame is evoked by both fill and load. Load additionally evokes the Placing frame, whereas fill also evokes the Adorning frame. This classification shows that Filling is causative (Theme-Object) and Adorning (Theme-Subject) is not. Figure 1 illustrates how Levin’s account and FrameNet’s approach classify verbs differently.

The main difference between the two approaches is that Levin regards a verb’s syntactic ability to alternate as a deciding factor for verb class membership, whereas FrameNet does not. Thus, Levin does not allow alternating and non-alternating verbs in the same class, while FrameNet does. This difference in methodology leads to important variations in how verb classes are defined in the two approaches. For example, Baker and Ruppenhofer (31) discuss cases where Levin’s verb class is narrower than the comparable frame underlying FrameNet’s verb classification. They point out that Levin identifies verbs of putting and placing based on a verb’s morphological relation to a noun denoting the goal location. Verbs that do not exhibit this morphological relation do not belong to the same class. FrameNet, however, does not apply such morphological principles to verb classification. Instead, it presumes that the incorporated argument is interpreted as an indefinite null instantiation (Fillmore, "Pragmatically"), i.e. it is implicitly understood. Verbs of putting and placing are thus classified differently by FrameNet than by Levin. This difference also leads to cases where Levin’s verb classes are broader than FrameNet’s classes based on frames. Baker and Ruppenhofer (31) discuss Levin’s classes of social interaction, including correspond, marry and meet verbs, which are defined syntactically in terms of alternations indicating reciprocity, such as the Simple Reciprocal Alternation, the Understood Reciprocal Alternation, and the Collective Subject NP.

One problem with this methodology is that the alternations used to identify the verb classes are not diagnostics of reciprocity, according to Baker and Ruppenhofer. For example, they point out that the encoding of one argument slot by a reciprocal is also available with events that are not inherently reciprocal (cf. Larry and Moe looked at each other). More problems arise in cases when the actions of the participants are not directed at each other but are simply jointly or simultaneously undertaken, since plural, coordinate and collective subjects are also acceptable in such cases as in the following examples.

(19) John and Sue jogged.
(20) John jogged with Sue.
(21) The group jogged. (Baker and Ruppenhofer 31)

These observations lead the authors to conclude that “verbs of social interaction, in so far as they are understood as involving reciprocal action of the participants, cannot be identified with the help of the above constructions”, i.e. those in Table 2 (Baker and Ruppenhofer 31). Instead, they propose that semantic criteria are more useful to establish a coherent classification than syntactic criteria. To illustrate, Baker and Ruppenhofer discuss how FrameNet employs semantic criteria to classify Levin’s verbs of social interaction (see Table 2 above). Among Levin’s correspond verbs argue, bicker, chat and gossip, along with other communication verbs are classified as evoking the Communication_conversation frame because of their shared semantics. In contrast to Levin’s classification, struggle
does not belong to the same class, but is classified as evoking the Hostile_encounter frame.

Baker and Ruppenhofer (33) also point out that not all syntactic frames occurring with verbs in Levin’s classes constitute a heterogeneous semantic group. They show that the transitive and with-PP uses of verbs such as box, play and meet of Levin’s (English) meet-class encode different types of meanings. Thus, box with a transitive syntactic frame in (22b) has more of a competition sense than box with a with-PP frame in (22a). Other comparable meaning differences arise with play and meet in (23) because of the various syntactic frames, according to the authors.

(22) a. I ended up boxing with him.
   b. Tyson will box Lewis.

(23) a. My son played/meet with your son.
   b. My son played/meet your son. (Baker and Ruppenhofer 32)

Data such as in (19)-(23) lead Baker and Ruppenhofer (33) to the conclusion that “the meaning which is to be associated with a Levin class is often hard to define. (...) In addition, many verbs are cross-listed in classes which pick out one aspect of their meanings but do not capture separate senses.” To overcome such problems, the FrameNet approach relies on semantic criteria and would for each verb in (22) and (23) distinguish between two different lexical units, each evoking a separate semantic frame. For example, the with-PP frames of box and play in (22a) and (23a) would evoke a more general Activity frame, while the transitive frame in (22b) and (23b) would evoke the Competition frame (with parts of the semantics inherited from the Activity frame).

On the whole, Baker and Ruppenhofer’s arguments convincingly demonstrate that the importance of syntactic information for identifying verb classes has been overstated. Instead, detailed frame-semantic criteria offer a more coherent way of identifying shared meaning components, thereby leading to a more unified way of classifying verbs. At the same time, FrameNet captures the types of syntactic regularities described by Levin (English) by categorizing alternating verbs as two LUs evoking two different yet often related semantic frames. Nevertheless, what is still at issue here is the question of whether FrameNet’s semantic classification of verbs can be improved to result in a more fine-grained semantic analysis capturing how specific meaning elements influence the syntactic realization of FEs. Consider, for example, verbs in the Self_motion frame such as run, jog, walk, parade, etc., which all evoke the same semantic frame yet differ quite widely in their idiosyn-

4. FINE-GRAINED FRAME-SEMANTIC COMPONENTS THAT ARE SYNTACTICALLY RELEVANT

Taylor claims that an account of syntactic behavior should also include a characterization of encyclopedic knowledge. Arguing against the claims of Jackendoff (Structures), he discusses how the meanings of run and jog differ. He claims that the meaning of jog should be characterized against an Idealized Cognitive Model (ICM) (Lakoff) that stands for a particular lifestyle including health, fitness, physical well-being, and which is embraced by members of middle classes in affluent first-world societies. According to Taylor, the ICM of jog crucially differs from that of run in that a jogger typically jogs for exercise, jogging is not a competitive activity, and one does not jog to beat the world record or to beat fellow joggers. In contrast to jog, the essential meaning aspect of run is speed (it is faster than walking), involving more vigorous bodily movements. Taylor’s main point is that although the two verbs occur in many identical syntactic environments, the differences in meaning between them actually have direct consequences for the syntactic environments in which they occur as the following examples illustrate.

(24) a. Bruce ran against Phil.
   b. *Bruce jogged against Phil.

(25) a. He ran a mile in less than four minutes.
   b. *He jogged a mile in less than four minutes.

(26) a. The race will be run tomorrow.
   b. *The race will be jogged tomorrow.

(27) a. He ran to catch the bus.
   b. *He jogged to catch the bus.

(28) a. I’ve been running up and down all morning.
   b. *I’ve been jogging up and down all morning. (Taylor 27)

The difference in acceptability between (24a)-(26a) and (24b)-(26b) is caused by the absence of a competition component in the meaning of jog. Similarly, the unacceptability of (27b) vis-à-vis (27a) is explained by a particular conventionalized meaning inherent to run, but not to jog, i.e. the idea to move fast in order to reach a goal in a focused manner. Finally, the difference in acceptability between
At the end of the day, it is our knowledge of what jogging actually is — knowledge which in turn is based on stereotypical conceptions of postindustrial lifestyles, and which goes well beyond the action pattern stereotypes that Jackendoff envisages — that motivates the kinds of contexts in which the word jog can be appropriately used, in contradistinction to those contexts in which run is appropriate. (Taylor 32)\(^8\)

Following Taylor’s ideas, Boas (“Frame-semantic”) analyzes the syntactic distribution of a wider range of motion verbs to determine to what degree a verb’s meaning influences its syntactic distribution. Boas observes that the Self-motion frame is evoked by a wide array of verbs whose semantics differ considerably from each other. To capture the differences in meaning between these verbs and to develop a more principled distinction between meaning components in Frame Semantics, he adopts Snell-Hornby’s notion of verb descriptivity. It distinguishes two main meaning components: the act nucleus (ANu) and the modifiers (Mod). For example, the act nucleus of the verb *strut* constitutes the underlying semantics shared by all verbs evoking the Self-motion frame. This meaning is typically associated with the most prototypical verb of that frame, in this case *walk*. In contrast, the modifier, also known as the modifying adverbial, is a semantic bundle further analyzable into distinct physical characteristics (*stiff, erect*), and (negative) value-judgments passed on the character of the agent and his manner of walking (*self-satisfied, proud, pompous, with affected dignity*). Verbs such as *strut*, which exhibit a high degree of verb descriptivity are called descriptive verbs (DVs) (Snell-Hornby 25-26; Boas, “Frame-semantic” 138). To capture the relationship between the two meaning components, Snell-Hornby proposes the formula in (29), where *x* is understood “as an optional element without evaluative properties and not expressible in terms of adjectives or manner adverbs” (25-26).\(^9\)

\(^8\) See Iwata’s lexical-constructional approach for further arguments that particular meaning components are grammatically relevant. Arguing against Pinker, Iwata demonstrates that the syntactic distribution of manner-of-motion verbs crucially depends on the make-up of the MAN-GER component. On this view, image-schematic structures associated with a verb’s sense plays a crucial role in determining whether verbs such as *roll* and *bump* can alternate or not (*roll the doll into a blanket vs. *bounced/slidet*skid the doll into a blanket. roll a blanket around the doll vs. *bounced/slidet*skid a blanket around the doll*).

\(^9\) According to Snell-Hornby, there are two different types of verb descriptivity: direct verb descriptivity describes scenes in which the modifier refers directly to the activity described by the verb, as in *shout*. Indirect verb descriptivity captures scenes in which “the modifier refers to a participant (or participants) or a circumstance (or circumstances) behind the action or a combination of these,” as is the case with a speaker’s value judgments about the agent of a verb such as *strut*.

Snell-Hornby points out that the relationship between the act-nucleus and the modifier is crucial in determining the degree of verb descriptivity. Thus, a verb has a higher degree of descriptivity whenever the modifier takes up more semantic weight vis-à-vis the act-nucleus. An example of a highly descriptive verb discussed by Snell-Hornby is *bustle*, where the act-nucleus is not clearly definable, and can best be paraphrased as *behave, move about*. In contrast, the modifier of *bustle* is clearly definable and complex, involving descriptions such as *excitedly, energetically, often with apparent purpose, but usually noisily or inefficiently*. *Shout* is a verb low in descriptivity because its modifier is relatively simple when compared to modifiers of highly descriptive verbs such as *bustle*, describing the activity only as *loudly*. In this case, the modifier of *shout* does not take up more semantic weight vis-à-vis the act-nucleus, which can be described as *say, speak or simply cry out* (Snell-Hornby 33-34; Boas, “Frame-semantic” 139).

Reviewing the syntactic range of some verbs, Snell-Hornby claims that the “higher the degree of descriptivity (in other words the more that it is specified by the modifier), the narrower the verb’s range of application is likely to be” (35). Boas (“Frame-semantic” 141-145) tests Snell-Hornby’s proposal by integrating it into Frame Semantics to determine the range of descriptivity of LUs evoking the Self-motion frame.\(^10\) He starts by comparing dictionary definitions of *walk, parade, trot* and *stagger*, all of which evoke the Self-motion frame, in order to get an indication of the semantic make-up of the SELF_MOVER of each verb. He finds a wide range in how the SELF_MOVER is described for each of the four LUs.\(^11\) While the description of the SELF_MOVER of walk only implies that someone is moving on foot, the description of the SELF_MOVER of parade presents a close-up view of the moving activity, focusing on the individual steps taken in a controlled regular manner, often in an energetic way and as a part of a procession to show off. The SELF_MOVER of *trot* is different in that its steps deviate from the norm of regular intervals, often having difficulties to maintain an upright position, which may be the cause of weakness or intoxication. Finally, the SELF_MOVER of *stagger* appears to have even less control over its movements than the SELF_MOVER of *trot*. Its steps are even less controlled while its upright posture is not maintained easily, often due to balancing problems. Based on these differences, Boas (“Frame-semantic” 142) proposes a ranking of the four LUs according to their degree of descriptivity.

\(^10\) Definition of Self_motion frame: The SELF_MOVER, a living being, moves under its own power in a directed fashion, i.e. along what could be described as a PATH, with no separate vehicle.

\(^11\) In this paper I use the term “verb” to mean a verb in one of its senses, evoking a particular semantic frame. Thus, I use the terms “verb” and “lexical unit (LU)” interchangeably.
The middle column in Table 3 represents in a very schematic way the act-nucleus common to all four LUs. In this case, the act-nucleus coincides with the semantics of the Self_motion frame and all of its relevant world knowledge. The schematic representation indicates that an AGENT (AG) (i.e., the SELF_MOVER) is moving from a SOURCE (S) along a PATH (P) towards a GOAL (G). The decreasing font size represents a lesser prominence of the act-nucleus, i.e., the schematic directed motion semantics associated with the Self_motion frame. Thus, the semantics of the act-nucleus is most prominent in the meaning of walk (which may be regarded as the most prototypical verb evoking the frame), and the least prominent in the meaning of stagger. The column on the right side in Table 3 represents the prominence of the modificator in a verb's meaning. For example, the modificator of walk contains only very few semantic attributes, such as using feet, and perhaps upright posture. The small font size indicates that the modificator is only of minor weight vis-à-vis the act-nucleus; hence walk exhibits a relatively low degree of verb descriptivity. In contrast, parade exhibits a comparatively higher degree of descriptivity, indicated by more semantic attributes contained in its modificator and a concomitantly larger font size (Boas, “Frame-semantic” 143).

Table 3 illustrates the idea that a verb's semantics can only encode a certain “amount” of modificator vis-à-vis its act-nucleus, and not more. Located on opposite ends of what I call the descriptivity continuum there are two divergent ways of expressing the combined semantics (act-nucleus and modificant) of verbs in the Self_motion frame. On one end we find verbs with a relatively low level of descriptivity such as walk. The meaning of such verbs consists of a very prominent act-nucleus and a very minimal modificator. On the opposite end of the continuum we find verbs with a very high level of descriptivity such as bustle, with a modificator so detailed and prominent that its act-nucleus is rather vague and is only implicitly understood.12 Other verbs in the Self_motion frame are located between these two opposite ends of the descriptivity continuum, with the prominence of a verb's act-nucleus depending on the extent of its modificator.

With this systematic way of analyzing verb descriptivity in hand, Boas (“Frame-semantic” 143–145) explores whether there is a correlation between the degree of descriptivity and the types of syntactic patterns in which a LU can occur. To this end, he investigates whether the four LUs discussed above can appear in a number of grammatical constructions and alternations discussed by Levin. They include (1) zero-related nominals corresponding to the inclusion of a location PP with the respective verbs (Gerry walked down the street a walk), (2) the resultative construction (Cathy walked [herself to exhaustion]/Pat off the street) (Levin 1993: 99), (3) the locative preposition drop alternation (Julia walked across the town/Julia walked the town) (Levin 43–44), (4) the induced action alternation (Claire walked the dog down the street/The dog walked down the street) (Levin 31), and (5) adjectival passive participles (the walked dog) (Levin 86–87).

Table 4 summarizes his findings with respect to the ability of walk, parade, stagger, and totter to occur in these syntactic patterns.

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12 This description is only for the Self_motion frame. While I suspect that similar tendencies can be observed among verbs in other frames, I do not claim that the same dynamics hold for these other frames. I expect further research to show that the variables and attributes will differ between frames, as will the descriptivity continuum with respect to the specifications for the modificant.

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## Table 4: Summary of Syntactic Distribution of Walk, Parade, Stagger, and Totter (Boas, “Frame-Semantic” 144).

<table>
<thead>
<tr>
<th>Location PP</th>
<th>Walk</th>
<th>Parade</th>
<th>Stagger</th>
<th>Totter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero-related Nominal</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Resultative Construction</td>
<td>+</td>
<td>?</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Caused-motion Construction</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Preposition Drop Alternation</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Induced Action Alteration</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Adjectival Passive Participle</td>
<td>+</td>
<td>-</td>
<td>??</td>
<td>-</td>
</tr>
</tbody>
</table>

A comparison of Table 4 with Table 3 shows that there is indeed a correlation between a LU’s level of descriptivity and the range of syntactic constructions in which it may occur. More specifically, LUs with a low level of descriptivity such as walk occur in a wider range of syntactic contexts than LUs with a higher level of descriptivity such as totter (Boas, “Frame-semantic” 144). Although there is an obvious correlation between a LU’s level of descriptivity and the range of syntactic constructions in which it occurs, a number of open questions remain. First, does this correlation only hold for the four LUs investigated by Boas, or also for a wider range of verbs evoking the Self_motion frame? Second, how do we go about systematically integrating detailed descriptions of a LU’s level of descriptivity, i.e., the make-up of its modificant, into existing semantic frames? Finally, are there any particular mean-
ing components of LUs that contribute more to a verb’s descriptivity than other components and thereby have a direct impact on a LU’s syntactic distribution?

4.1. Correlation between Verb Descriptivity and Range of Syntactic Patterns

To answer these questions, let us first consider the syntactic distribution of a larger number of LUs. To this end, I expand Table Y by including sixteen additional LUs evoking the Self-motion frame, namely amble, bustle, crawl, creep, frolic, hike, jog, jump, limp, meander, scurry, swim, trot, wade, walz, and wander. Table 5 summarizes their syntactic distribution with respect to the seven syntactic patterns discussed by Boas (“Frame-semantic”).

Table 5: Syntactic Distribution of 20 LUs in the Self-Motion Frame

<table>
<thead>
<tr>
<th>Location PP</th>
<th>parade</th>
<th>amble</th>
<th>meander</th>
<th>wander</th>
<th>hike</th>
<th>jog</th>
<th>stagger</th>
<th>totter</th>
<th>limp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero-related Nominal</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Resultive Construction</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Caused-motion Construction</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Preposition Drop Alternation</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Induced Action Alternation</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Adjectival Passive Participle</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 continued

<table>
<thead>
<tr>
<th>Location PP</th>
<th>jump</th>
<th>walz</th>
<th>wade</th>
<th>swim</th>
<th>scurry</th>
<th>trot</th>
<th>frolic</th>
<th>crawl</th>
<th>creep</th>
<th>bustle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero-related Nominal</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Resultive Construction</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Caused-motion Construction</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Preposition Drop Alternation</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Induced Action Alternation</td>
<td>-</td>
<td>+</td>
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<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Adjectival Passive Participle</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 shows that the twenty LUs fall into roughly four groups with respect to their syntactic distribution. The first group is syntactically the most flexible and includes only walk. Members of the second group, including jog, jump, and walz, are a bit less flexible syntactically. The third group includes LUs that are even less flexible, i.e., bustle, hike, parade, swim, and wander. Finally, the fourth group includes the least flexible LUs, namely amble, crawl, creep, frolic, limp, meander, scurry, stagger, totter, trot, wade, and wander. Interestingly, there is a correlation between verb descriptivity and syntactic distribution as the following discussion of the meaning differences between these twenty LUs shows.

As argued above, walk differs from all other LUs in the Self-motion frame that it is the least descriptive. Besides evoking the basic semantics of the frame (represented as the act-nucleus, see above), it does not offer much more information about the motion event except for that it takes place on foot, presumably at a normal speed and with an upright posture. The absence of further inherent meaning suggests that the modificant of walk is very minimal vis-à-vis its act-nucleus. Support for this view comes from the broad semantic range of descriptive and manner FEs providing further details about the many different ways of walking. Examples of these FEs found in FrameNet include with the sinuous grace of a cat, in a daze, with posed uncertainty calmly, fiercely, aerobically, springily, silently, purposefully, like drunk soldiers in from the war, quickly and secretly, and curiously. These semantic specifications cover a wide range of concepts, such as agility, different types of mental states, level of energy and intensity, intent, speed, disguise, loudness, and interest. In my view, these semantic specifications are possible only because the modificant of walk is very minimal and does not imply any type of meaning that would be incompatible as is the case with verbs that are more descriptive. Compare, for example, the unacceptable semantic specification the modification of bustle as in *Kim bustled calmly out of the house, where calmly incompatible with the implied meaning of the modification of bustle specifying it energetically, excitedly, etc. I thus regard the broad variety of possible modifications walk as an indicator of its low level of descriptivity.

Members of the second group differ from walk in that their modificants are slightly more complex. They provide up to three additional meaning components specifying concepts that can either be measured on a scale (e.g., speed, level of energy, casualty), or that are binary opposites of each other (e.g., feet on the ground, feet not on the ground). For example, jog implies a higher speed than walk combined with an element of exercise. Jump denotes quickness and suddenness, implying that the feet leave the ground. In addition, both verbs express a higher energy level than walk. Walz is different from walk in that its modificant expresses lightness, casualness, or inconspicuousness, thereby contributing more meaning to the act-nucleus. The make-up of these slightly more complex modificants can be tested by inserting descriptive and manner FEs that express incompatible information vs. the modificants. This is relatively simple in cases where the concepts involve binary opposites such as feet on the ground/feet not on the ground (cf. *He jumped with his feet on the ground) or exercise/no exercise (*They jogged around the track without exercising). In cases involving concepts measured against scales it is not easy to find descriptive and manner FEs that are straightforwardly incompatible.
is illustrated by They jogged slowly around the track or She waltzed out of the house with a limp.

LUs belonging to the third group exhibit a higher level of descriptivity than the previous two groups because their modifiers are even more complex, providing up to six additional concepts that modify the act-nucleus. For example, the modifier of hike implies several concepts that are not combined in such a way in any of the other LUs discussed so far. These include (1) duration and distance (a hike is typically longer than a walk or a jog), (2) purpose (one typically hikes for recreational reasons), (3) location (hiking usually takes place outdoors, often in forests or mountains), and (4) path (hiking typically takes place along a predetermined path). The modifier of parade also exhibits a more complex combination of concepts, involving (1) display (usually intended to be viewed publicly), (2) organization (typically a long moving line of people or vehicles), (3) celebration (often performed on special occasions to express pride), (4) uniformity (all units of a parade move at the same speed and perform specific activities simultaneously or according to a choreographed plan), (5) path (parades typically move along a predetermined path), and (6) place (often in a square, down a street, outside of a building, or in front of a particular person). There is an interesting difference between the six concepts implied by the modifier of parade. The first four concepts can all be subsumed under the FE MANNER of the Self-motion frame and are implicitly understood. This explains why parade in its default interpretation does not typically appear with any additional phrases providing information about display, organization, celebration, and uniformity. Thus, such additional information is only expressed when there is a particular need for it, such as profiling a specific aspect of a scene described by parade that is either non-prototypical, or so important to the speaker that it deserves mentioning in that context. In contrast, the other two concepts that make up the modifier of parade are directly connected to the FEs PATH and PLACE. They are usually more relevant as they provide crucial information that help distinguish the types of path and place FEs from those of other LUs in the Self-motion frame.

Members of the fourth group display the highest level of descriptivity because their modifiers are the most complex among the twenty LUs discussed here. The modifiers of amble, meander, and wonder describe the motion as it were from a distant perspective. Snell-Hornby (133) proposes that these LUs do not provide information about the physical properties of the agent (as is the case with limp) or details of his gait (as is the case with jump). Instead, they focus “on the background, the atmosphere, and the agent’s attitude, typically favoring an outside setting, usually over a wide area, and without prescribing any particular goal or any impediment to terminate the action.” More specifically, amble implies a leisurely, easy-going attitude of the Self-mover, an easy pace and even movement, and a positive evaluation by the speaker. In contrast, meander describes motion or progress that is random or casual, while wonder indicates movement over a larger area, focusing on an unsettled aimlessness, without route or destination, usually slow or idle in manner (cf. Snell-Hornby 134).

Next, consider limp, stagger, and totter, whose modifiers describe a deviant or impeded mode of walking, caused either by the agent’s physical or mental state, or by external factors. More specifically, limp indicates irregular, laborious walking caused by lameness or injury. Often, this is caused by a disability and the speaker evaluation is typically sympathetic towards the Self_mover. In contrast, both stagger and totter describe unsteady movements. The modifier of stagger involves unsteady, irregular movement and uncertain balance of someone not in complete control of the movement, usually caused by intoxication, a serious injury to the head, or a heavy weight carried by the Self_mover. The modifier of totter focuses on the coordination of movement by describing a feeble, shaky walk, as of an agent who has lost control of his movement (in particular lack of coordination and control of the limbs) (cf. Snell-Hornby 139). Finally, consider frolic, scurry, and trot, which involve a more extensive movement of the body and thus typically require agility or a higher level of energy. The modifier of trot focuses on the ease of running with quick and short steps, typically covering only short distances and sometimes involving hurriedness (I leave out the use of trot to denote the movement of a horse). The modifier of frolic is different from that of trot in that it involves moving around at a fast speed while playing, with a positive evaluation by the speaker. In addition, it indicates play of a less boisterous and more joyful nature (as opposed to romp), typically of small animals. The modifier of scurry evokes a different set of concepts, involving short quick steps of a very small animal such as a mouse or a squirrel. When used to describe the movement of humans, it usually refers to the hurried activities of frightened people moving fast to accomplish their goals (cf. Snell-Hornby 140-142). The last set of highly descriptive LUs includes crawl and creep. These are particularly interesting because their modifiers describe a number of concepts not found in this combination in the modifiers of other LUs. The modifier of crawl typically evokes the concepts of slowness, laborious motion, proximity to the ground, horizontal body posture (on hand and feet), loss of control (by injured or intoxicated people who cannot move standing up), age (typical of babies), and insects. The modifier of creep also implies slowness, but in addition emphasizes quietness, caution, secrecy, and the intention of the SELF_MOVER to escape attention while moving (cf. Snell-Hornby 142).

In sum, comparing the level of verb descriptivity among twenty verbs in the Self_motion frame, I have identified four groups of verbs according to their level of descriptivity. Taking these results and comparing them with the syntactic range in which the verbs occur (see Table 5) answers our first question, i.e., it confirms Boas’ proposal that a verb’s level of descriptivity appears to influence the range of syntactic patterns in which it can occur.

4.2. COMBINING FRAME SEMANTICS, VERB DESCRIPTIVITY, AND COMPONENTIAL ANALYSIS

Answering our second question about whether it is possible to systematically integrate detailed descriptions of a LU’s level of descriptivity, i.e., the make-up of its

13 See Fillmore and Atkins for further details.
This method of identifying semantic features such as adjectives, which are specific elements that need to be understood as a whole, is different from the traditional approach of identifying nouns and verbs as separate entities. The approach described here allows for a more comprehensive understanding of language by focusing on the relational aspects of words and their meanings. This method emphasizes the importance of context and the way in which words interact with each other to convey meaning. It also highlights the significance of the order and arrangement of words in a sentence, as well as the relationships between different elements within a sentence.
provide any such specific meaning element. At the same time, this meaning element can be provided by context (e.g. The baby crawled happily to her mother).

<table>
<thead>
<tr>
<th>TABLE 6: SEMANTIC FEATURES AND DESCRIPTORS CHARACTERIZING THE SELF_MOVER⁸</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>on feet</td>
</tr>
<tr>
<td>laborious motion</td>
</tr>
<tr>
<td>steady movement</td>
</tr>
<tr>
<td>controlled body movement</td>
</tr>
<tr>
<td>speed</td>
</tr>
<tr>
<td>energetic</td>
</tr>
<tr>
<td>steps</td>
</tr>
<tr>
<td>posture</td>
</tr>
<tr>
<td>mood</td>
</tr>
</tbody>
</table>

¹ I have not included other meaning elements such as “speaker evaluation,” “temp,” or “finiteness” in the description of the modifier of the SELF_MOVER. These elements, as well as many others, should be included in future work to determine their syntactic relevance.

Note that the data in Table 6 serve only to compare and contrast four LUs in the Self_motion frame against each other. As such, the list of features and descriptors in Table 6 serves only as a first step towards systematically characterizing the modifiers of all LUs in the Self_motion frame. It will grow as the analysis is extended. For example, expanding the list of LUs in Table 6 to include waddle and slumber would necessitate the inclusion of the descriptor “speaker evaluation” and the feature “dragging feet.” Similarly, an analysis of slumber and trip would lead us to incorporate the feature “external obstruction” into Table 6. Besides including in our account the full range of LUs of the Self_motion frame, it will also become necessary to provide a detailed analysis of other FEs. Applying the same methodology as above will yield a clearer picture of the semantic make-up of the modifier, including information about the features and descriptors that characterize all other FEs. For example, the FE PATH can be characterized in the modifier by including a semantic feature “clear and directed.” Totter and wander would have a minus specification while crawl and jog would have a plus specification. Similarly, the size of the FE AREA of wander can be characterized as “large,” while crawl, jog, and totter do not provide specific information about this FE.

4.3. SYNTACTICALLY RELEVANT UNITS OF MEANING IN A FRAME-CONSTRUCTIONAL APPROACH

Instead of focusing on abstract meaning components such as LCSs to determine a verb’s syntactic distribution, I propose to pay close attention to the structure of its modifier. More specifically, I am interested in identifying a particular combination of semantic features and descriptors that directly influence a LU’s syntactic distribution in a specific grammatical construction. To illustrate, consider the distribution of the LUs in one of the constructions discussed in Tables 4 and 5 above, namely the English Resultative Construction.

The resultative has received a great deal of attention (Jackendoff, Structures; Goldberg, Constructions, Work; Levin and Rappaport Hovav, Argument; Boas, Constructional; Goldberg and Jackendoff, Boas, “Determining”; Wechsler) because it is now fully productive and appears to apply only selectively to specific classes of verbs. For example, Goldberg (Constructions, Work) posits an independently exist
ing resultative construction with its own meaning that is capable of fusing with senses of verbs, thereby providing additional semantics and allowing verbs to occur with the syntactic pattern of the resultative as in Lena walked herself to exhaustion or Claire sneezed the napkin off the table. Goldberg's constraints on the application of the resultative construction appear to be very detailed at first sight. However, Boas' (Construcational, "Determining", "Theory") points out a broad range of counterexamples where some verbs can occur in the resultative while others closely related in meaning cannot. This observation leads him to suggest that Goldberg-style constructions are not sufficient for explaining the distribution of resultatives from the perspective of encoding (as opposed to decoding). Instead, Boas' Construcational proposes so-called mini-constructions in which each sense of a verb constitutes its own conventionalized pairing of form and meaning, together with appropriate syntactic, semantic, and pragmatic subcategorization restrictions. This alternative account provides detailed event-based frame semantic information for each mini-construction that allows Boas to explain the distribution of the resultative appropriately.

Adopting the idea that mini-constructions inherently specify their subcategorization restrictions allows us to view our data above in a new light. Parallel to Boas' Construcational analysis I suggest that the combination of act-nucleus and modifier constitute the semantic core of a mini-construction (i.e., the sense of a verb). Assuming that all LUs in a frame share the same act-nucleus it then becomes possible to focus on the make-up of the modifier of each individual LU to isolate meaning components that are syntactically relevant. That is, when looking at the syntactic distribution of the four LUs discussed in Table 6 above, we see that jog appears with a resultative pattern, while crawl, totter, and wander do not, as the following data illustrate:

(31) a. Kim jogged Pat off the street.
b. Kim was excited and crawled very fast. Kim crawled Pat off the blanket.
c. *Kim was drunk and wanted to walk fast to get home. When exiting the bar, Kim tottered Pat off the sidewalk.
d. *Kim didn’t know where she was going and moved around quickly. By accident, Kim wandered Pat off the street.

In contrast to (30b), the basic semantics of the modifier of crawl in (31b) is amended by contextual background information about the activity, more specifically the higher degree of speed and energy of the self_mover. The addition of this information from the prior sentence changes the default value of the "speed" and "energetic" descriptors of crawl to become closer to the values associate with jog. It is because of this additional background information that (31b) sounds more acceptable than (30b). Similarly, totter in (31c) sounds a bit more acceptable than in (30c), yet not as acceptable as crawl in (31b). This difference is probably due to the difference in semantic similarity between jog, crawl, and totter. While contextual background information provides a different value for "speed" and "energetic" to both crawl and totter in (31b) and (31c), it does not provide information to change the semantic features "steady movement" and "controlled body movement" from minus to plus for totter. As such, even the amended modifier of totter is too different from the modifier of crawl or jog, both of which exhibit positive values for "steady movement" and "controlled body movement." This example suggests that although semantic default information encoded in the descriptor of the modifier can be changed by contextual background information this is not the case for binary semantic features. Finally, consider wander in (31d). which remains unacceptable in the resultative despite additional contextual background information. Perhaps one of the reasons why the modifier of wander is not open to contextual background information is that its descriptor is not assigned any value at all. As such, it may not allow modification that would change its basic meaning to be closer to that of jog (or the prototypical LU of the frame, walk). This point, like so many others discussed in this section, requires further investigation.

Despite the preliminary nature of my analysis, I hope to have shown that certain meaning elements of the modifier are more relevant for syntactic behavior than others. The limited data on the ability of four LUs from the Self_motion frame to occur in the resultative construction suggest that the descriptors "speed" and "energetic" are relevant for determining whether an LU can occur in the resultative. The preliminary data also illustrate that contextual information can override the default values of descriptors more easily than that of semantic features. This difference is probably due to the fact that the values of descriptors are measured against a scale, and can thus be modified, while the values of semantic features are either plus or minus, and can thus not be amended.
5. CONCLUSIONS AND OUTLOOK

I have argued that frame-semantic information directly influences a verb’s ability to occur in grammatical constructions, hence my label “frame-constructional.” Combining key insights from Frame Semantics, verb descriptivity, and componental analysis has led me to propose a methodology for systematically identifying syntactically relevant units of meaning. Differentiating between a more general act-nucleus and a more specific modifiant (made up of semantic features and descriptors) also helps us to distinguish the semantics of LUs in the same frame from each other in a more precise way. In my view, this bottom-up usage-based approach overcomes many of the shortcomings of other analyses discussed in sections 2 and 3 above.

Clearly, my alternative proposal is only a first step towards a more comprehensive frame-constructional account of verb classification. To develop this approach further, future work will first have to provide a complete analysis of all LUs in the Self_motion frame, similar to the methodology sketched out above. This phase will focus on the ability of these LUs to occur in the resultative construction alone, thereby identifying additional relevant meaning components. One of the main obstacles ahead will be the search for a more vigorous methodology that goes beyond the relatively unstructured use of contextual background information as in (31) to identify meaning components. Once the relevant meaning elements are identified, a procedure must be devised that allows us to measure them against a scale. This will allow us to determine their importance with respect to syntactic distribution in the resultative construction. The next phase will apply the same methodology to determine which meaning elements of LUs in the Self_motion frame are syntactically relevant when it comes to other syntactic constructions, such as the way-construction (Goldberg, Constructions: Israeli), the ditransitive construction (Goldberg, Constructions), and the a-hole-through-y-construction (Boas, “Resolving”), among many others. Based on the work by Goldberg and Jackendoff and on Boas (Constructions, “Determining”, “Theory”), I expect that each construction will imply a unique grid of syntactically relevant units of meaning for the LUs in the Self_motion frame. Once the relevant meaning components are identified for all LUs in this frame vis-à-vis the full range of constructions, we need to expand our methodology further to cover the remaining LUs in the other frames of the English verb lexicon. This methodology will eventually result for each semantic frame in a list of grammatical constructions that specifies for each construction the relevant range and weight of syntactically relevant units of meaning that determine whether a LU may occur in that construction.

WORKS CITED


