

Conventionalized agentive activities and compositionality¹

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1 Borer's challenge

In this paper we explore some facets of Borer's approach to the relation between verbs and the syntactic contexts available to them. We point out certain challenges that this overall research agenda faces and explore their consequences through a preliminary study of the English verb *sweep* in its varied syntactic frames and their correlated interpretive properties. In this section we lay the foundation for formulating what we call *Borer's challenge*, while §2 and 3 together present a case study addressing this challenge. §4 concludes.

1.1 The exoskeletal approach to the interpretation of verbs in context

Borer (2005a, 2005b, 2013) develops an exoskeletal (XS) approach to the relation between syntactic terminals and their surrounding syntactic contexts. The major properties of this approach in relation to verbs and their argument realization patterns are summarized in (1).

- (1) a. Roots (terminals that are not elements of functional categories) are phonological entities that have neither grammatical properties nor conceptual Content;
- b. roots are necessarily integrated into functional structures; the first functional category that a root is merged with is the categorizer *v*, *n* or *a*;
- c. roots categorized by *v*, i.e. verbs, are subsequently integrated into a syntactically instantiated event structure, composed of functional categories, some associated with syntactically merged semantic operators;
- d. the verb is associated with some conceptual Content;
- e. this Content is non-grammatical in nature in that it does not determine the verb's subsequent options for merging with functional categories.

¹We are pleased to dedicate this paper to Hagit Borer. Her work has been an inspiration to us, challenging us to think more deeply about the relationship between verbs and their syntactic contexts. Although we may disagree with Hagit on certain key issues, her articulation of this large research agenda has spurred us to delve further into topics of shared interest than we might have otherwise, as we trust we demonstrate in this paper.

The lack of interaction between the grammar and the conceptual Content of substantive vocabulary that is a hallmark of this model is highlighted in the following passage:

Where, then, does the grammar meet the substantive listeme [non-functional morpheme – BL&MRH]? At some very narrow portal, I suggest, where little conceptual packages, hermetically sealed, are passed from one side of the wall to the other, and where, at the receiving end, the grammar stamps them with an identifying mark, assigning to them a unique phonological index. Those packages, properly marked, are now embedded within structures, but as such, they may not affect those structures, nor can the structures affect them directly. Only when the derivation is over, and the grammar has assigned interpretation to structures, can the conceptual packages be opened. At this point [...] they are allowed to contribute their conceptual interpretational value. (Borer 2005a: 12)

The XS approach is radically “non-projectionist” (Rappaport Hovav & Levin 1998) – or, in Borer’s words, not “endoskeletal” – in nature. On the projectionist (endoskeletal) approach, in stark contrast to the XS approach, syntax is taken to be a projection of the lexical properties. Borer schematizes the difference between the approaches, as in (2).

- (2) a. The XS approach: Structure → predicate-argument structure/event structure; (category) → event interpretation → meaning assignment to structure.
- b. The projectionist approach: (Lexical-semantics of a verb) → predicate-argument structure; (category) → structure

(Borer 2005b: 9, (5))

On the XS approach the conceptual Content of a verb does not determine the functional structure it can subsequently be merged with, and as a consequence functional structure can in principle be built freely around a verb. Verbs, then, can occur in any syntactic environment. This leads to massive overgeneration, giving rise to sentences that cannot receive a felicitous interpretation. Borer proposes that the felicity of the interpretation given to a particular structure is determined as follows:

The interpretation assigned to a grammatical object by the computational system is matched against world knowledge, meaning of specific concepts, etc. Such matching returns a result ranging along a continuum from the completely felicitous to the highly abnormal, depending specifically on the degree to which the interpretation returned by the grammar deviates from world knowledge, on the one hand, and the salient value of specific concepts, on the other hand. (Borer 2005b: 250)

Borer emphasizes that substantive vocabulary items are remarkably flexible in their interpretation, while the contribution of functional vocabulary to interpretation is rigid and absolute. As a consequence, when there is a mismatch between the conceptual Content of a substantive vocabulary item and the grammar, the Content adapts itself to the rigid interpretive constraints of the grammar. Often, the result is coercion, as Borer exemplifies with the ingestive verbs *eat* and *drink* in (3).

- (3) a. She drank him with her eyes.
b. She ate him with her eyes.

(Borer 2005b: 7, (4))

In (3), the verbs *eat* and *drink* maintain the notion of absorption found in literal contexts, but this notion is interpreted metaphorically. This is a clear case of contextual accommodation: ingestion is understood metaphorically as absorption in an abstract sense since the context makes clear that no physical ingestion takes place. Harley (2014) provides another example of coercion accompanying such a mismatch. She notes (following Gleitman 1990) that in (4) *think* is “interpreted as telekenesis or telepathic transmission” (2014: 246, n. 19).

- (4) I thought the book to Mary. (Harley 2014, 246, n. 19)

The coercibility of the substantive vocabulary contrasts with the absolute inflexibility of functional structure, whether realized as derivational or inflectional morphology. As Borer writes, “Thus *three cats* cannot be made mass or singular; *every cat* cannot be made plural or mass; *permissible* cannot be made a verb; *walked* cannot be made a noun or a present tense verb” (2005b: 8).

In other instances, the interpretation assigned to a grammatical object is not compositional by convention and needs to be listed. An example is the idiom *kick the bucket*, whose interpretation ‘die’, cannot be derived compositionally from its parts (Borer 2005b: 25–29). In this idiom, neither the interpretation of *kick* nor that of *bucket* is contextually accommodated; the convention among speakers of English familiar with the idiom is to associate the entire phrase with a particular meaning.

However, idioms and structures that are interpreted via accommodation or coercion are not the sole motivation for the XS approach. A major motivation is the impressive range of contexts that verbs often appear in. Instead of attributing this multitude of syntactic contexts to multiple meanings associated with a verb which “project” in distinct ways onto the syntax (Levin & Rappaport Hovav 1995; Rappaport Hovav & Levin 1998), the different readings associated with a verb are attributed to the skeletal semantics associated with the functional structure defining each syntactic environment. Consider the verb *siren*, which can be found in many syntactic contexts constituting what has become the much cited paradigm in (5).

- (5) a. The factory horns sired throughout the raid.
b. The factory horns sired midday and everyone broke for lunch.
c. The police car sired the Porsche to a stop.
d. The police car sired up to the accident site.
e. The police car sired the daylight out of me.
(Borer 2005a: 8, (7); based on Clark & Clark 1979)

Borer considers these uses of the verb *siren* to represent instances of coercion. However, we believe that the *siren* paradigm is crucially and essentially different from the earlier examples (3) and (4) in that the *siren* examples are fully compositional. There is no need to infer some non-conventionalized metaphorical extension in meaning in order to resolve a conflict between the conceptual Content of the verb and its syntactic environment because there is no such conflict. The verb *siren* contributes the same fixed conceptual Content to the interpretation of all the sentences in (5), ‘to emit a siren-like sound’, presumably based on our knowledge of the noun *siren*. The integration of this Content into the surrounding environment is fully compositional in each instance, with the surrounding functional and lexical structure also contributing their fixed interpretive properties. The resulting interpretation is comparable to that of other verbs of sound emission such as *whistle*, when found in comparable syntactic environments²

Although *siren* is perhaps not conventionally used in these ways, the interpretation of the sentences in (5) builds on a strategy exploited in the derivation of a wide variety of denominal verbs, a strategy that is the basis of productive coinages; in contrast, the examples in (3) and (4) are one-off.

Given the centrality of compositionality in generative linguistic theory, the expectation would be that when an element of conceptual Content associated with a verbalized root is integrated into a syntactic context, a compositional interpretation always arises. Indeed, many verbs which appear in a wide variety of contexts are interpreted straightforwardly without any sense of coercion.

To recap, there are three ways in which a verb can be interpreted in its syntactic context: (i) in instances like *kick the bucket* it has a non-compositional conventionalized meaning in a particular syntactic context; (ii) in instances like *drink him with her eyes* or *think the book to Mary* the verb receives a coerced interpretation; and (iii) in perhaps what might be expected to be the default, the verb is integrated

²Rappaport Hovav & Levin (1998: 98, (2)) illustrate a range of environments that *whistle* can be found in, but their list does not overlap completely with that in (5); however, their examples can be supplemented with others to parallel Borer’s list. Nevertheless, *whistle* and *siren* diverge in their full sets of uses because whistling is a sound that can also be made by animates. More generally, there is a set of contexts characteristic of sound emission verbs, with distinctions among them attributable to sound-specific real world properties (Levin, Song & Atkins 1997), which result in some degree of infelicity when some sound emission verbs are found in certain contexts, as expected given the quote above from Borer (2005b: 250).

compositionally into its syntactic environment. In such instances, there is invariant conceptual Content associated with the verb, which manifests itself in each syntactic environment the verb is found in.

As will become evident in what follows, a verb in a particular syntactic context may have the invariant Content found in all other contexts and in addition may have a conventionalized component of Content, so that it has a narrower sense in that particular context. Our case study of the verb *sweep* illustrates this possibility.

1.2 A challenge for the exoskeletal approach

A major challenge for the implementation of Borer's agenda – we could call it *Borer's challenge* – is how to determine whether a verb in a particular syntactic environment is integrated fully compositionally or whether it receives a conventionalized or coerced interpretation. It is perhaps ironic that instances of special meaning have been the focus of so-called neo-constructivist approaches (e.g., Borer's XS approach and Distributed Morphology), with less discussion of how the straightforward compositional integration of substantive vocabulary and functional structure is achieved. The assumption appears to be that a compositionally interpreted structure is easily identifiable. However, as already shown by Harley (2014: 245–246), the “elsewhere” or default interpretation of a root (or, for that matter, of a categorized root) cannot be determined straightforwardly in the way that a default allomorph can be identified. In fact, it is not always easy to distinguish instances of full compositionality from instances of coercion or special meaning. (See also Rappaport Hovav (2017) for similar points with respect to the appropriate analysis of the verb *drown* in a variety of syntactic contexts.) Only careful and sustained investigations of the respective contributions of functional structure and substantive vocabulary can help determine which environments are the fully compositionally interpreted structures and which are not. Only after we have established the contribution of the conceptual Content of the substantive vocabulary can we be sure that we have isolated the contribution of the functional elements. (For an illustration of this point see Rappaport Hovav (to appear).)

Therefore, a sustained study of a particular verb – ideally one representative of a semantically coherent group of verbs – which appears in a wide range of syntactic contexts has great value as it can illustrate the plausibility of the XS approach and bring challenges to the approach to the fore. In this paper we provide an informal, preliminary analysis of the verb *sweep*, a member of the set of verbs of contact and motion with a surface (e.g., *mop*, *rake*, *scour*, *scrub*, *wipe*), which like other members of this class is found in a multitude of syntactic contexts.³ The examples

³McNally & Spalek (in press) present a study of English *sweep* and its Spanish translation equivalent *barrer*, but they focus on differences in the extended uses these verbs display in the two languages. They, too, emphasize the importance of isolating the minimal invariant meaning component, and tie the differences between the languages to subtle differences in the meaning of the verbs in the two languages. We draw on certain insights in their study in the study presented here.

in (6) provide an idea of how wide-ranging these contexts are.

- (6) a. Sam swept the sidewalk.
- b. Sam swept the sidewalk clean.
- c. Sam swept the leaves off the sidewalk.
- d. Sam swept the coins off the counter.
- e. She swept her hair out of her face.
- f. Sam swept her hands over the guitar strings.
- g. Sam swept into the room.
- h. The branches swept the ground.
- i. The storm swept the city.
- j. The branches swept across the window.
- k. The waves swept over the rocks.
- l. The wind swept the door open.

Given these properties, *sweep* constitutes an appropriate domain for a case study that confronts Borer's challenge.

Since our study is meant as a contribution to the overall agenda of meeting Borer's challenge, it is incumbent upon us to provide a way of determining the invariant component of conceptual Content associated with the verb *sweep*. This is the component that can be compositionally integrated into many of the syntactic contexts the verb is found in and will be understood as the basic sense of the verb. We suggest a method for doing so. The basic sense of the verb is associated with that invariant component of Content which imposes the fewest special constraints on argument selection and argument realization while covering the widest range of syntactic environments that the verb is found in. In the remainder of this paper we use this strategy to isolate the core Content associated with *sweep*.

Applying this strategy leads to what might be considered a surprising result: what is probably taken to be the most prototypical meaning of the verb⁴ – e.g., it is typically listed first in dictionaries – is actually a conventionalized meaning that cannot be derived fully compositionally from what we argue is the invariant, and, hence, basic conceptual Content. This prototypical sense of *sweep* appears in the simple transitive frame exemplified in *Sam swept the floor*. All the other instances of the verb will be shown to involve what we take to be the basic conceptual Content of the verb. We will then distinguish between what we call *core-sweep* and *broom-sweep*. The conceptual Content of the latter is a specialization of the conceptual Content of the former: it refers to events of sweeping with a broom-like

⁴This meaning is also the only one taken into account in our analysis of the variable syntactic contexts for the verb *sweep* in Rappaport Hovav & Levin (1998).

entity. We elaborate further on the properties of the two senses of the verb in the following sections. Despite identifying two senses of the verb, we show that it is no accident that a single root is used to name the conceptual Content associated with both *core-sweep* and *broom-sweep* since *broom-sweep* shares the basic components of conceptual Content associated with *core-sweep*. Moreover, we suggest at the end of §2.2 that the specialized meaning of *sweep* is representative of a general pattern giving rise to verbs used to refer to conventionalized activities of agents. Nonetheless, the association of the same name with these two related senses of *sweep* cannot be deterministically derived by any compositional process.

We argue that identifying the conceptual Content of *core-sweep* allows for the derivation of the interpretive properties of sentences with *core-sweep* compositionally from the core conceptual Content of the verb and the contribution of the elements in the surrounding syntactic environment. If the prototypical sense of *sweep* – i.e. *broom-sweep* – were taken to be the basic sense of the verb, the wide range of other uses of the verb would not be derivable compositionally. Sentences with *broom-sweep* are compositionally derived, only if we assume a conventionalized meaning for the verb in the few, specific syntactic environments where it is found.

Our understanding of the different meanings associated with *sweep* has been refined by considering corpus data primarily drawn from the Corpus of Contemporary American English (COCA; Davies 2008–), but occasionally from other sources.⁵ Relatedly, the vast majority of the examples we cite in this paper are from COCA; thus, we only mention the source of an example explicitly if it is not from COCA. Due to this paper's limited scope, we focus on physically instantiated instances of *sweep*, excluding instances where the entity that sweeps is abstract such as a gaze, a change, or an emotion, as in *American academic fads sweep university departments* or *She sighed, and her gaze swept the room*. We also set aside two senses related to the gaze use. One involves a light source moving over an area, as in *Now the helicopter was homing in on the cliffs, searchlight sweeping the ground*, and a second involves humans searching an area. This second sense commonly occurs in the context of police, detectives, and the like to describe a search for evidence or for hazardous material, as in *The police swept the stadium for bombs*. McNally & Spalek (in press) demonstrate that the extended senses of *sweep* can be grounded in its literal sense; thus, establishing the basic conceptual Content of *sweep* is even more important, as it is also a foundation for its extended senses.

Meeting Borer's challenge in the context of *sweep* involves three steps. The first, the topic of §2.1, is to show that *broom-sweep*, which is overwhelmingly associated with a particular syntactic frame, indeed differs in the way we suggest from the sense of *sweep* in most other syntactic contexts. This distribution justifies a separate treatment for *broom-sweep*. In §2.2, we take the next step and show that all the non-*broom-sweep* uses we discuss – or *core-sweep* uses – involve the same basic

⁵We thank Cass Kramer for collecting, annotating, and discussing the COCA data that are the basis of the case study.

conceptual Content. We identify precisely what this Content is and how it is related to that of broom-*sweep*. The final step is to show how the argument realization and interpretive properties of all the sentence types with core-*sweep* and broom-*sweep* can be derived compositionally from the Content of the verb along with the surrounding functional elements, choice of arguments, and so on. Given this paper's limited scope, we do not carry this step out fully, and simply present a sketch of the basic components of such an analysis to show that it is indeed feasible.

2 Sweeping with and without a broom

2.1 Broom-*sweep*: Sweeping with a broom

What English speakers would take to be the prototypical instances of *sweep* are its simple transitive uses with a human as subject and an object that could be described as a *surface*, as in (7).

- (7) a. Before he moved the desks and swept the floor, he read the black-board [. . .]
b. We would sweep the carpeting around the pulpit [. . .]
c. They found her in Grant Park sweeping the sidewalks.
d. As a final touch I swept the terrace.
e. Mrs. Nichols was out by her back door again, this time sweeping the patio.

In such examples, the subject is understood as an agent who uses a broom or a broom-like entity on a floor or comparable surface which people or animals normally tread on, such as a walkway, sidewalk, deck, or even a street, with the intent of cleaning the surface by removing unwanted material. The instrument, though understood, is not overtly expressed,⁶ and the unwanted material too is usually unexpressed as well.⁷ In a few instances, the object is a room or comparable location, as in (8), but the sentence is understood to describe an event in which a broom is used on that location's floor or an analogous surface. We take this to be a form of synecdoche in which a room or comparable location stands in for its floor.

- (8) I think I will clean out the hall closet or sweep the kitchen.

⁶The data appear to suggest that the instrument is part of conceptual Content of the verb, much like it is with "denominal" verbs like *paddle* or *nail*. However, it seems to us that a sentence such as *Pat swept the floor with a broom* is less deviant than *Sam paddled with a paddle* or *Kim microwaved in the microwave*. See Kiparsky (1997), Harley & Haugen (2007), among others, for discussion, as well as §2.2.

⁷Very occasionally the unwanted stuff can be expressed in an *of* phrase, as in *she had [. . .] meticulously swept the pews of broken glass [. . .]* (Lively, Penelope. 1981. *Judgment Day*. Garden City, NY: Doubleday, p. 194). For some discussion see Levin & Rappaport Hovav (1991: 144–145).

The action is clearly goal-oriented, but the inference that the action leads to the desired result – here cleanliness – is defeasible, as noticed in Rappaport Hovav & Levin (1998: 101). In (7b), for example, there could still be dirt on the carpeting, even enough that the carpeting could still qualify as dirty. Further, this use of *sweep* not only involves a broom or broom-like entity, but this implement must be used to carry out the *activity pattern* that it was designed for. Thus, *sweep the floor* cannot be used to describe a scenario in which a broom is used like a billiard cue to push unwanted litter out of a room. Finally, although the activity must be of the kind that is prototypically taken to achieve the intended result, it is still possible to sweep a floor which is completely clean, even when the agent is aware of the state of cleanliness of the floor, as in the constructed (9). Thus, the existence of the stuff that is moved, while very heavily implicated, is not strictly entailed.

(9) My brother swept the floor, though it was spotless without a speck of dirt!

In §2.2 we show that many sentences with the verb *sweep* in diverse syntactic frames lack these selectional and interpretive properties, which arise when *sweep* appears with an agentive subject in the simple transitive frame. We will show, moreover, that certain instances of *sweep* in the simple transitive frame also lack these properties. Our conclusion, then, is that when sentences with this verb do show these properties, *sweep* is associated with a specialized, narrowed version of the conceptual Content associated with *sweep* elsewhere. When the verb is associated with this narrowed Content, we refer to it as *broom-sweep*. *Broom-sweep* is also associated with a distinctive grammatical property: its conceptual Content is found in what is known as the *unspecified object* frame,⁸ where a verb occurs with no object even though an object is understood, usually as a typical instance of the relevant event participant. With *sweep*, the understood object is a surface that is typically swept such as a floor or other surface that humans walk on.

(10) We scrub, sweep, mop, and polish, until the shop is positively gleaming [. . .]
(Green, Jane. 2002. *Bookends*. New York: Broadway Books, p. 168)

It is clear from the context that (10) involves *broom-sweep*. Again, the subject of *sweep* is understood as an agent and the use of a broom can also be assumed (contrasting, for instance, with the various cleaning tools that the other actions mentioned implicate). Further, in (10) the full sentence indicates that cleanliness is achieved. These observations make sense in the context of the conditions which are known to govern unexpressed object uses of verbs: such uses always describe a characteristic instantiation of the activity denoted by the verb (Brisson 1994; Mittwoch 2005; Levin & Rappaport Hovav 2014; Glass in press: §2.3 and references cited therein). Thus, they require a verb describing a goal-oriented activity.

⁸Throughout we use the term *frame* purely descriptively to refer to a syntactic environment in which a verb can be found.

2.2 Differentiating broom-sweep from core-sweep

In COCA a preponderance of the simple transitive sentences with *sweep* involve broom-sweep; however, this syntactic frame is not restricted to hosting broom-sweep. The verb *sweep* can appear in the simple transitive frame with non-agentive subjects, as in (11). Among such subjects, natural force subjects predominate, but other kinds of subjects are also attested, as in (11f) and (11g).

- (11) a. Rain sweeps the patio.
b. Frigid waves swept the deck.
c. The flames swept the distant fields.
d. The wind swept the rock knoll.
e. The snow flurries swept the valley.
f. A breeze moved the willows, the tips of their branches sweeping the ground.
g. [...] when the branch of the tree swept the window [...] (Hall, Lindsey. Spiders. <https://lindseyhallwrites.com/2020/10/23/spiders/>)

Sentences with simple transitive *sweep* with non-agentive subjects differ from sentences where simple transitive *sweep* is understood as broom-sweep. Most obviously, no instrument is involved in the non-agentive sentences. The objects are interpreted as “surfaces”, as with broom-sweep, but they represent a much wider variety of surface; most important, they are not typically surfaces that an agent would act on to remove unwanted stuff. In fact, the surface need not even be one which is designed for a human to tread on, as in (11c)–(11f). Next, such examples are not associated with any particular activity pattern. The particular activity pattern associated with instances of broom-sweep follows from the specific instrument involved, a broom: this instrument is designed to be used in a particular way if it is going to be effective. Further, the examples in (11) lack any implication of cleanliness. To take one of them, (11e) simply describes snow flurries making contact with the valley; a valley is not something that one would usually clean, nor is there any implication in (11e) that the flurries displace anything from the valley.

Although the non-agentive instances of *sweep* in the simple transitive frame do not involve broom-sweep, the verb in these instances does share conceptual Content with broom-sweep, namely, the notion of contact and sustained accompanied motion over a surface; more precisely, McNally & Spalek (in press) characterize this motion as planar. We suggest that this shared facet of Content serves as the core invariant component of conceptual Content associated with the verb *sweep*. Broom-sweep has additional interpretive restrictions as well as correlated selectional restrictions. We therefore distinguish two alternate components of conceptual Content associated with the verb *sweep*: what we call core-sweep has the conceptual Content we take to be associated with all the non-broom-sweep uses of the

verb that we discuss in this paper, while broom-*sweep*'s conceptual Content is a specialized version of core-*sweep*'s.

The next step is to support this proposal by surveying other syntactic frames associated with *sweep* and showing that they share the conceptual Content proposed for core-*sweep*, but lack the more specific properties that reflect broom-*sweep*'s narrowed conceptual Content.

First, we return to the contrast between simple transitive *sweep* with and without an agentive subject. The interpretive differences between the two types of sentences motivated the suggestion that non-agentive subject instances involve core-*sweep* and agentive subject instances broom-*sweep*. The difference in subject type is correlated with a syntactic difference: *sweep* with a non-agentive subject is systematically not found in unexpressed object contexts, as demonstrated by the unacceptability of the constructed (12).

(12) *The frigid waves/the flames/the snow/the snow flurries/the branches swept.

This property is expected given the prerequisites mentioned in §2.1 that must be met for a verb to occur felicitously in the unexpressed object frame. The conceptual Content found in the non-agentive simple transitive uses of *sweep* fails to meet these prerequisites.

We now turn to other syntactic frames that the verb *sweep* appears in and show that these all involve core-*sweep*. The verb *sweep* often appears in a syntactic frame where it takes an object and PP; we refer to it as the transitive+PP frame. This frame differs from the simple transitive frame in a number of crucial ways. First, the direct object is not understood to be a surface, but rather a moved or moving entity. Second, the PP is obligatory. Finally, this frame has an intransitive counterpart where the PP complement is retained, but the moving entity is now the subject. In contrast, the simple transitive frame lacks an intransitive counterpart with the surface as subject. Crucially, though, most sentences with the transitive+PP frame lack the special interpretive properties associated with broom-*sweep*. In fact, although this frame allows for agentive subjects, these properties are still absent when the subject is agentive. Instances of the transitive+PP frame do, however, consistently share what we have identified as the core conceptual Content of *sweep*: motion and accompanied sustained contact over a surface.

In order to compare *sweep* in the simple transitive and in the transitive+PP frame, it is helpful to consider the roles of the participants in the event described in sentences with broom-*sweep*, so that these can be compared to those of the participants in sentences with core-*sweep*. Besides the overtly expressed agent and surface participants, there is an implied instrument – the broom-like entity – and an implied theme – the unwanted stuff on the surface that is moved by the instrument to achieve cleanliness. The agent and the surface are obligatorily expressed and the instrument is obligatorily understood, but the theme, though very, very heavily implied, is not strictly obligatorily understood as mentioned in §2.1.

Given our assumption that the invariant conceptual Content of *sweep* is motion with sustained accompanied contact over a surface, sentences with the verb must express or evoke a moving entity as well as a surface in order for these notions to be instantiated. The moving entity may be what we have called the theme, but it may also be the instrument, as an entity manipulated by an agent in the performance of an action. Our corpus data reveal that a striking property of the transitive+PP frame is that either an instrument or a theme can be expressed as the direct object in this frame. We suggest that this variation arises precisely because either one together with the surface can instantiate the invariant conceptual Content of *sweep*: motion with sustained contact over as surface.

We now illustrate the implementation of this idea by tracing how the participants are expressed in the various instantiations of the transitive+PP frame. As mentioned, a major difference between the transitive+PP frame and the simple transitive frame is in the interpretation of the direct object: in the simple transitive frame the direct object is understood to be the surface, while in the transitive+PP frame, the direct object is understood to be a moving entity. In the transitive+PP frame, the surface is typically expressed in the PP, although it is occasionally left implicit when inferable from context, as we discuss below. Two of the participant types mentioned above – an instrument or a theme – are attested as the moving entity in the corpus data. We consider each option in turn.

First, the moving entity may be understood as an instrument, specifically what is called an *enabling* or *facilitating* instrument (Marantz 1984: 247; Wojcik 1976: 145; Wolff et al. 2010), as in (13).

- (13) a. [...] she swept the brush through Megan’s shiny hair. (Blog post. The dancing angels. August 28, 2012. <https://jimrit.wordpress.com>)
b. She began to sweep her fingers over the strings. (L’Engle, Madeleine. 1995. *Troubling a star*. New York: Laurel Leaf, p. 146)
c. Sweeping the sleeve of my sweatsuit across the table, I send dust into the air.
d. The man swept a roll through the gravy on his plate.

(13a) involves a canonical instrument, a hairbrush, while (13b) involves an inalienably possessed body part, which can be considered an instrument too. In (13c) the moving entity is part of a piece of clothing and in (13d) the moving object is a roll; neither qualifies as an instrument ontologically, but both are being used as one in these examples. That is, they are entities manipulated by an agent to achieve a desired result. An instrument, as noted by Rappaport & Levin (1988: 29), among others, is a type of moving entity although it is not always presented in this way. With *sweep*, the moving entity’s path of motion extends along the surface, which is the reference object in the PP. The preposition in these instances is typically *across*, *over* or *through*. In such instances of the transitive+PP frame, there is no other moving entity, what we referred to above as the implicit theme.

Alternatively, the participant that qualifies as the moving entity in the transitive+PP frame may be analogous to what we refer to as the implicit theme in the agentive simple transitive instances. In such instances of the transitive+PP frame an instrument or body part which helps to bring about this entity's motion is implied but not necessarily expressed. In some instances, the moving entity is manipulated in a way similar to an instrument, as in (14). In such sentences the moving entity is not understood to have undergone a change of location. The card cannot be said to be "through the electronic drive" at the end of the event in (14a), nor can the net be said to be "through the weeds" in (14b).

- (14) a. I swept the card through the electronic drive.
b. She swept a net through the weeds.

Other instances of the transitive+PP frame in which the moving entity is analogous to the implicit theme have a true sense of displacement, as in (15), sentences which are typically taken to be instances of the location variant of the locative alternation. In these examples, the entity asserted to move via sustained contact over a surface is distinct from the instrument or body part which manipulates it; this entity is understood to undergo a change of location. This entity is expressed as the object of the verb, while the instrument or body part is understood. The moving entity and the surface are understood to have made contact, but in contrast to the examples in (13) and (14), the moving entity's path of motion can extend beyond the surface. For example, in (15b) the counter serves as the surface, and the coins move along the counter, but end up in a place off the counter.

- (15) a. Cleo swept some papers off the coffee table and emptied the bag on the glass surface. (Meyers, Annette. 2005. *Hedging*. Waterville, ME: Five Star, p. 246)
b. I swept the coins [=the payment – BL&MRH] off the counter [...] (<https://sprudge.com/the-tale-of-the-dark-roast-127280.html>)
c. Sweep the liner on the top lash line [...]
d. We would sweep the crumbs into an empty jar [...] (<https://b-m.facebook.com/campcraftcocktails/photos/a.2239722502993102/2750888031876544/>)

In some instances, especially those that qualify as "putting" events, the surface is not explicitly expressed and must be recovered from context. In (15d), the original larger context makes clear that the crumbs were on a prep table.

In all instances of the transitive+PP frame, however, a PP is obligatorily expressed, as shown in the constructed (16): these sentences, which lack a PP, are unacceptable with interpretations parallel to (14a), (14b), (15b) and (15d), the examples they are based on.

- (16) a. * She swept the card.
 b. * She swept a net.
 c. * She swept the coins.
 d. * She swept the crumbs.

Our claim is that the conceptual Content of *sweep* when associated with the transitive+PP frame is what we have identified as *core-sweep*, the Content which also appears in the non-agentive instances of the simple transitive frame. This claim receives support from a range of selectional and interpretive properties that instances of *sweep* in the transitive+PP frame share with non-agentive instances of the simple transitive frame, properties that differentiate both from simple transitive instances of broom-*sweep*. First, a wide variety of entities turn up as objects in instances of the transitive+PP frame; they include not only tools and body parts, but other physical objects. Moreover, when the DP in the PP is understood as a surface, the set of attested surfaces is more diverse than in simple transitive instances of broom-*sweep*. They do not necessarily denote a surface intended primarily to be trod on, such as a floor or sidewalk: consider the plate in (13d), the strings in (13b), or the weeds in (14b). Finally, unlike simple transitive instances of broom-*sweep*, they typically lack any inference that the action was carried out to increase the surface's cleanliness. In (13b) the agent intends to make music, while in (14a) the agent's goal is to gain entry to some place. The arm motion in (13c) is unlikely to have been performed to increase cleanliness, although incidentally it does result in the removal of dust; if the agent had intended to clean the table, the verb *wipe* would likely have been used in the event description instead. Turning to the displacement examples, in (15d) the original larger context makes clear that the goal is to put the crumbs – actually leftover citrus pieces, herbs, and sugar – into a jar in order to steep them in some type of alcoholic beverage to create a cocktail.

Although instances of the transitive+PP frame most often involve an agent as subject, there are instances with natural force subjects. Such examples represent both types of moving entity objects illustrated with agentive subjects: the examples in (17) parallel those in (14), while those in (18) parallel those in (15), respectively.

- (17) a. [...] working cowboys, ventured onto the plains in winter when stinging northers swept snow across it.
 b. [...] the wind swept the fires quickly through the top growth and left the ground underneath more lightly scorched. (<https://www.ft.com/content/2dfa1c88-7864-11dc-8e4c-0000779fd2ac>)
 c. Syrtis Major should appear to shrink as the martian winds begin to sweep sand along its edges.
- (18) a. [...] a storm sweeps sunken ships off the ocean bottom.

- b. The floods swept away salts, plants, and ground litter.⁹
- c. Behind her the wind swept leaves into the room [...]
- d. In a tidal river, the current sweeps the bait into the dark reaches under the wooded canopy [...]
- e. What happened to the massive amounts of debris swept into the ocean by the tsunami that inundated Japan's coast in March 2011? (<https://response.restoration.noaa.gov/about/media/get-answers-all-your-questions-about-japan-tsunami-marine-debris.html>)

We treat these examples on a par with the transitive+PP examples with agentive subjects as they share the same hallmarks. Again, the PP is obligatory (**The martian winds sweep sand*), and the corpus examples show a variety of DPs as objects of both the verb and the preposition. When the object of the preposition is the surface, it is often not a surface designed to be walked on, as in (18a), though in some instances of this frame it may be. Further, no implication that the surface increases in cleanliness is at issue in the vast majority of these examples, which describe events taking place in nature. The similarities between the examples of *sweep* with and without agentive subjects in the transitive+PP frame show it is not simply the presence of an agent that sets broom-*sweep* apart from other uses of *sweep*.

Another important property differentiates instances of core-*sweep* in the transitive+PP frame from simple transitive instances of broom-*sweep*: the former have “unaccusative” intransitive counterparts – frames where the subject of the intransitive bears the same role as the object of the corresponding transitive frame, while the latter does not. Thus, in the intransitive+PP frame, the subject is the moving entity, as in (19).¹⁰

- (19)
- a. The rain swept over them in waves [...]
 - b. An early-season storm swept through the lower Ohio Valley [...]
 - c. [...] fire swept through their home [...]
 - d. The flood [...] swept across the flats to the sea.
 - e. [...] a flashing new car swept in through the open gateway [...] (A.W. Upfield, *The Widows of Broome*, 1950; Scribner's reprint, New York, 1985, p. 4)
 - f. The car swept out of the hospital gate [...] (Savita Singh, *The Road and the Lamp*, Notion Press, Chennai, India, 2019; <https://books.google.com/books?id=FnOCDwAAQBAJ>)

⁹The particle *away* in this example serves the same function as the PP does in other examples.

¹⁰In the absence of an external argument it does not make sense to characterize the moving entity as an instrument vs. a theme, especially in the natural world scenarios depicted in the majority of the examples in (19).

- g. [...] a flurry of yellow leaves swept in through the tackroom door, carried by the blustery wind. (Jenny Oldfield, *Lady Roseanne*, Book 15, 2011; <https://books.google.com/books?id=Rog4AgAAQBAJ>)

The intransitive+PP frame also occurs with animate, agentive subjects, as in (20).

- (20) a. [...] she swept out of the hallway into the main dining area. (The inimitable Adele Ferguson. *Legacy Washington*. <https://www.sos.wa.gov/legacy/stories/adele-ferguson/>)
- b. [...] she swept into the bash in the floor-sweeping number. (Photo caption. Adele oozes sophistication in dazzling olive gown. <https://www.pinterest.com/pin/443323157060337528/>)

Nevertheless, there appear to be stronger constraints on the entities that qualify as moving entities in the intransitive+PP frame than in the transitive+PP frame, which we discuss further in §3. For instance, we do not find physical objects like coins or eyeliner that lack an internal energy source as the subject, as shown by the unacceptability of the constructed examples in (21), which contrast with (19e) and (19f), which have a car as subject.

- (21) a. *The coins swept off the table.
- b. *The liner swept on the top lash line.

We are now in a position to take stock. In this section, we surveyed sentences with *sweep* in a range of syntactic frames including non-agentive instances of the simple transitive frame. The sentences in these frames all differ from sentences with broom-*sweep* in that they lack the special constraints which are inherent to broom-*sweep*. To recap, these are: they need not involve an instrument and specifically not a broom; they do not require their subject to be an agent; they do not impose any restrictions on the surface; they need not involve a particular activity pattern; and they may lack an implication of successful removal of unwanted stuff. All the properties special to instances of broom-*sweep* follow from the assumption that its conceptual Content is narrower than core-*sweep*'s and specifically involves a conventionalized reference to a goal-oriented activity involving a broom or comparable implement.

The agentivity demonstrated in instances of broom-*sweep* is a consequence of its conceptual Content, which makes reference to a goal-oriented activity; hence, sentences with broom-*sweep* are necessarily agentive. In contrast, instances of core-*sweep* can be agentive, although they need not be. The transitive+PP frame can be instantiated with either an agentive or a non-agentive subject, but the interpretive properties of this frame are not sensitive to the subject's agentivity. Further, the non-agentive instances of the simple transitive frame show a breadth of selectional restrictions that is generally consistent with instances of the frames with PPs. It is only broom-*sweep* that is necessarily found with agentive – and never non-agentive – subjects.

Before closing this section, we point out that although we have argued that broom-*sweep* has a conventionalized Content, its existence and properties are by no means unusual. This becomes apparent from a consideration of “denominal” verbs.¹¹ Although English has verbs that share their names with other tools for cleaning such as *mop*, *rake*, and *sponge*, as well as a considerable number of verbs that share their names with instruments more generally such as *chisel*, *club*, *saw*, and *towel* (Clark & Clark 1979), there is no generally used verb *broom*. Like broom-*sweep*, these other verbs related to instrument nouns must be used to describe events that involve the activity pattern that the instrument they take their name from is designed for. Given this, instances of broom-*sweep* mean what instances of a denominal verb *broom* would have been expected to mean; presumably, this gap is due to blocking from broom-*sweep*. This gap is particularly noteworthy because the actions denoted by *mop* and *rake* involve broad strokes of motion over a surface just like sweeping does. Further, these two verbs, like broom-*sweep*, are found in the unspecified object frame, as in the constructed *I raked this morning, but there are even more leaves now* or *I mopped after breakfast today*. In general, the syntactic and semantic properties of broom-*sweep* mirror the general properties of denominal verbs taking their names from instruments. Thus, it is part of a general pattern of derivation of agentive verbs referring to conventional activity patterns. Therefore, although we could not have predicted that the verb *sweep* would fill this lexical gap instead of a verb *broom*, its specific properties fit a strategy of meaning extension which is part of the competence of English speakers.

3 Sweeping the pieces together

We have proposed that all surveyed instances of *sweep* that do not qualify as instances of broom-*sweep* are associated with the conceptual Content of core-*sweep*. As mentioned in §1, fully confronting Borer’s challenge would require us to show how all the argument realization and interpretive properties of all the sentence types involving core-*sweep* can be derived compositionally. That is, given what is generally known about English, we must show how the intransitive+PP, transitive, and transitive+PP frames can be derived compositionally from the properties of core-*sweep* and the surrounding functional and lexical structure; this includes ensuring that the surface or the moving entity is realized as direct object, as appropriate to the frame. Doing this goes well beyond the scope of this paper. However, in this section we sketch the basic elements of such an analysis to show that carrying out such an agenda is plausible.

We have proposed that the invariant conceptual Content associated with core-*sweep* – that is, the conceptual Content found across all instances – is motion of an

¹¹Although we use the term *denominal verb*, we do not take a position as to whether the actual analysis involves deriving the verb from the noun or not; see Kiparsky (1997), Arad (2003), among others.

entity with sustained contact along a surface. We assume that a felicitous use of the verb must involve either an explicit realization of this Content, or a context in which what is not realized can be recovered contextually. The minimal realization of this Content would include a moving entity and a surface. There are two syntactic frames in which this minimal Content is expressed and no more. The first is the intransitive+PP frame and the second is the simple transitive frame.

It is clear how the intransitive+PP frame, which is typically used to express motion events, realizes *sweep*'s minimal invariant Content since sweeping events involve a theme and a path. An examination of corpus instances of this frame shows that the moving entity is typically an entity imbued with a force. A representative sample is given in (22).

- (22) a. They [windshield wipers – BL&MRH] began to sweep across the window, hissing,
- b. [...] his fingers could travel the nape of her neck and gently sweep across shoulders that had carried the pain for those who couldn't.
- c. [...] the great swirls of dust that periodically swept across the landscape.
- d. [...] she swept out of the hallway into the main dining area. (The inimitable Adele Ferguson. *Legacy Washington*. <https://www.sos.wa.gov/legacy/stories/adele-ferguson/>)
- e. The rain swept over them in waves [...]

If the moving entity is instantiated by a natural force or some kind of machine, then it may be inherently self-energetic; a relevant example is (22a). Alternatively, the moving entity may have kinetic energy imparted to it by another entity understood from context, an understood entity that falls under Wolff et al.'s (2010) label *force creator*. The force creator may be an animate agent as in (22b); in this example the agent moves a body part, his fingers, which sweep across someone's shoulders. Alternatively, the force creator may be a natural force; for instance, in (22c) a natural force, most likely the wind, imparts kinetic energy to the dust, which moves across the landscape. We assume that agentive instances of the intransitive+PP frame, whose subjects are animate entities by their very nature, have a self-energetic moving entity; example (20a) is repeated above as (22d). Sometimes it is difficult to determine whether the moving entity is self-energetic or has had kinetic energy imparted to it from another source as in (19a), repeated above as (22e).

The restricted range of arguments in the intransitive+PP frame noted in §2.2 follows, we suggest, from the observation that movement (and more generally change) is typically attributed to an entity in the absence of an overt cause of movement only when the cause is recoverable from context (Rappaport Hovav 2014). When the moving entity is an agent or a natural force, the cause of motion lies in the self-generated force of the moving entity. In instances where the moving entity is snow

or rain, the cause – what we have called the force creator – can be recovered given what we know about the world, as we discuss further below.

As mentioned, as part of the verb's conceptual Content the moving entity must move across a surface while maintaining sustained contact with it. Therefore, in intransitive+PP examples, the PP typically includes the surface, which serves as the reference object of the path, while the preposition describes the configuration of the path. However, the path of the moving entity can extend beyond the surface, either at the onset of motion across the surface or at the end of this motion. In instances of the intransitive+PP frame with an extended path, motion across the surface is still understood, while the extension of the path beyond the surface is derived compositionally via the choice of preposition in combination with the DP in the PP – the reference object. Most often the reference object is the surface argument, but there are also some examples, as mentioned in §2.2, where the surface is left implicit and only the goal of motion is mentioned. The examples cited earlier involved the transitive+PP frame, but there are also comparable intransitive+PP frame examples, such as (20b), repeated here as (23)

- (23) [...] she swept into the bash in the floor-sweeping number. (Photo Caption. Adele oozes sophistication in dazzling olive gown. <https://www.pinterest.com/pin/443323157060337528/>)

We turn next to the simple non-agentive transitive instances such as those in (24), which are a representative subset of those in (11).

- (24) a. Rain sweeps the patio.
b. Frigid waves swept the deck.
c. The snow flurries swept the valley.

These examples, too, have just a moving entity and a surface, but the surface is realized as direct object. We suggested that the surface is realized in a PP when it serves as the reference object for the path. Why can the surface be realized alternatively as a direct object, and what is the interpretive consequence of this? Although the path of motion in English is typically expressed as a PP, sometimes a DP object of a manner of motion verb is understood to convey a path, as in the well-known example *climb the mountain*. Here the direct object does not express the path on its own: rather it serves as the reference object of the understood path.

Levin & Rappaport Hovav (2013: 63–64) discuss *climb* in a simple transitive frame and argue that there is a general strategy used to determine the precise path of motion when a manner of motion verbs is found in this frame. The path and direction of motion are determined by considering the intention of the agent in conjunction with the nature of the direct object which serves as a reference object for the path. With *climb*, in the default, the direction and path are understood as upward along the reference object; that is, up the tree in the constructed (25); however, in

other instances, other directions of motion can be understood as also illustrated in Levin & Rappaport Hovav.

(25) Kelly climbed the tree

(25) is just one instance of a more general phenomenon attested when manner of motion verbs take a reference object as direct object. We suggest that the transitive instances of core-*sweep* with surface objects can be given a similar analysis. The surface serves as a reference object, and the moving entity's path is inferred jointly from the properties of the subject and the surface. As in the more familiar case of manner of motion verbs with path objects, there is a strong inference that the entire understood path of motion is traversed, or at least what would conventionally qualify as the entire path.

We turn now to instances of core-*sweep* in the transitive+PP frame. We argue that in these instances the minimal invariant conceptual Content is augmented by the expression of the force creator, the entity which exerts the force on the moving entity imbuing it with the energy necessary for motion. Force creators are always expressed as subjects (Wolff et al. 2010). An example is (17a), repeated as (26).

(26) [...] working cowboys, ventured onto the plains in winter when stinging northers swept snow across it.

In certain kinds of event descriptions, often descriptions of meteorological events, either the moving entity can be expressed together with the force creator, giving rise to the transitive+PP frame, as in (26), or the moving entity can be expressed without the force creator, giving rise to the simple transitive frame, as in (24), or the intransitive+PP frame, as in (22e). Both options are available for describing meteorological events, since the force creator can be easily recovered from context and, thus, need not be expressed (Rappaport Hovav 2014). In descriptions of events where the moving entity is clearly not self-energetic and the force creator cannot be easily recovered from the context, the force creator must be expressed, giving rise to the transitive+PP frame, as in (14a) and (15b), repeated in (27).

(27) a. I swept the card through the electronic drive.
b. I swept the coins off the counter [...] (<https://sprudge.com/the-tale-of-the-dark-roast-127280.html>)

The requirement that the minimal components of *sweep*'s conceptual Content be expressed or else be contextually recoverable, then, is why the non-agentive transitive+ PP and the intransitive+PP frames both show restrictions on their arguments.

The same assumption about that the minimal components of conceptual Content also explains the observation in §2.2 that when the moving entity is expressed as direct object, the PP is obligatory. If the moving entity is the direct object, the surface and path of motion have to be recoverable. These elements can be explicitly

expressed, as when the surface is the object of a preposition as in (14a), repeated here as (28); alternatively, if the surface is expressed in the previous context, it is recoverable, as in (15d), repeated here as (29) with a fuller context.

(28) I swept the card through the electronic drive.

(29) A few years ago we were saving the pieces of citrus, herbs, and sugar that were left on the prep table after liddings. We would sweep the crumbs into an empty jar and wait for it to fill. (<https://b-m.facebook.com/campcraftcocktails/photos/a.2239722502993102/2750888031876544/>)

With this discussion of *core-sweep* as a backdrop, we return to how broom-*sweep* with its distinctive syntax and interpretive properties might arise. What we would like to show is that the core conceptual Content of the verb is augmented here with a reference to a conventionalized activity pattern involving the use of a broom. All the properties of the verb in this use should then follow.

In the agentive simple transitive sentences with broom-*sweep*, a moving entity that has been imbued with kinetic energy by the agent – the broom – has become part of the verb’s conceptual Content; it is lexicalized by the verb. Since it is lexicalized in the verb, the instrument is typically not overtly expressed. In order to express the minimal core Content of *sweep*, all that is now necessary is the expression of the surface and a recoverable path of motion. In broom-*sweep* uses, the broom is being used in the activity pattern it was designed to carry out to achieve the goal it was also designed for; thus, the general properties of the broom’s path are recoverable. Furthermore, satisfying the agent’s intended goal of cleaning the surface requires that the broom make contact with the entire surface; thus, the surface qualifies as an incremental theme, yet another reason that it should be expressed as the direct object. Still the instances of broom-*sweep* in the unspecified object frame show that the surface need not be expressed. In these instances, the surface associated with broom-*sweep* is understood as a floor, the surface typically associated with sweeping with a broom. Finally, although the implicit theme is heavily implicated in instances of broom-*sweep*, it is implicated because of the conventional use of a broom, but it is not strictly part of the verb’s conceptual Content. For this reason, broom-*sweep* is felicitous in sentences which lack an implicit theme.

Finally, we turn to instances of the transitive+PP frame such as [...] *a small, shivering figure in an overlarge T-shirt, sweeping the new snow from the walk [...]*, where an agent uses a broom or comparable implement in the fashion it was designed for. Even though the event depicted is one typically described by broom-*sweep*, the object is the theme argument, as in other instances of *core-sweep*, and not the surface, as expected if the sentence involved broom-*sweep*. Such examples can easily be treated as involving *core-sweep*, since *core-sweep* has no restrictions on its use and can be used to describe events involving an agent and a broom in the prototypical action of sweeping. However, since broom-*sweep* allows its object to be omitted, and English allows productive addition of small clause results in such

contexts, the sentence can be derived from broom-*sweep* as well. We do not consider this a drawback of the analysis; there is no reason why a sentence cannot have two modes of derivation, even if both lead to the same interpretation.

4 Conclusion

In §1 we surveyed three ways in which a verb can be interpreted in its syntactic context: (i) in instances like *kick the bucket* it receives a non-compositional conventionalized meaning associated with a specific syntactic context; (ii) in instances like *drink him with her eyes* or *think the book to Mary* the verb has a coerced interpretation which is calculated on the fly; and (iii) in what is likely the default, the verb is integrated compositionally into its syntactic environment.

The topic of our case study, the verb *sweep*, does not fall cleanly under any of these three possibilities. We claim that when it is associated with the conceptual Content of core-*sweep*, it is compositionally interpreted, but as broom-*sweep*, it has specialized Content, related to, but distinct from, that of core-*sweep*. We stress, however, as we already did in §2.2, that although we cannot predict from the properties of English that *sweep* is associated with this specialized Content, the existence of a verb with these properties is fully expected given what we know about the English verb lexicon. That is, English has a strategy for deriving names of activities that are prototypically associated with the use of an instrument; in most instances, the verb shares a root with the noun that names the instrument. The verb *sweep*, however, shares its name with another verb used to refer to events which share key properties with those referred to by broom-*sweep*. More generally, verbs are able to assume specialized meanings that pick out activities prototypically associated with events which agents commonly engage in. Interestingly, such verbs do not only describe events carried out with designated instruments. In Levin & Rappaport Hovav (2014) we discuss a specialized sense of the verb *clean*: its use to refer to the collection of activities typically associated with tidying a room, a set of activities that varies depending on whether the room, for instance, is a bathroom, bedroom, or kitchen. That sense is associated with a verb whose core Content is a change of state and, thus, does not implicate a specific implement, as different implements are used to effect the change of state on different entities. As we show in that paper, when the verb is used with the specialized Content, the change of state is no longer entailed. Clearly, the patterns of conventionalized meaning associated with agentive activities constitute a research area worthy of further investigation.

In closing, we assess the significance of our study of *sweep* in the context of Borer's assumption – key to the XS approach – that there is no direct communication between the conceptual Content of listemes and the functional structure they are found in. She elaborates on this assumption in this passage:

A substantive listeme is a unit of the conceptual system, however organized and conceived, and has no grammatical properties. Its use

will return a meaning based fundamentally on its conceptual value. A grammatical structure will return an interpretation as well, based on combinatorial, computational principles of interpretation assignment, as linked with the structural and the formal-semantic properties of functional vocabulary and syntactic structure. In a cognitive place which is neither the grammar nor the conceptual system – call it the “making sense” component – these two outputs will be compared. Here the overall felicity of any linguistic behaviour would emerge as a direct function of the extent to which these two outputs match each other. (Borer 2005b: 8–9)

This suggests that the felicity of a particular verb in a given syntactic context is not a grammatical or a linguistic issue. Yet, as we have tried to show, the successful implementation of the XS approach to the relation between the lexicon and syntax does require a method for determining how the conceptual Content of a word is integrated with the interpretation associated with a functional structure. There are many complex generalizations lurking at this interface, and a proper understanding of the relation between the lexicon and syntax is predicated on uncovering and understanding them. We hope this paper constitutes a small step in that direction.

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