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Fitting a slim dime between the verb template and argument structure construction approaches

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The present paper emphasizes the claims that are shared between the verb template approach, espoused in the target article, and the argument structure constructionist (ASC) approach, that I and others have argued for. One phenomenon that does distinguish the two approaches is the treatment of idioms; given that many argument structure expressions are semi-idiosyncratic and that VP idioms are phrasal it is argued that argument structure expressions are best treated as phrasal, where "phrasal" here means multi-word, not "phrase-structural." In addition, from a comprehension point of view, listeners must use phrasal patterns in order to recognize argument structure. The two distinct approaches to verbal representations are also compared; it is argued that the notions of profiling and syntactic underspecification used in certain constructionist representations are advantageous in accounting for verbs' distributions. By means of illustration, a new argument structure pattern is discussed (the Rely On construction) and semantic representations for several verbs of consumption (*nibble, eat, dine, devour*) are offered. The analyses of the Rely On construction and individual verbs make clear that detailed information needs to be included both at the level of argument structure *and* at the level of individual verbs.

1 Introduction

The title of the present paper uses an idiom (*fit a slim dime*) to imply that there is not a huge difference between the general approach adopted by Müller & Wechsler (M&W) and what M&W refer to as the argument structure construction (ASC) approach; a key difference that does exist stems from the relationship between

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idioms and argument structure. Lexical representations are also substantially different as discussed in section 5.

M&W are in agreement with a fundamental claim of constructionist accounts in recognizing the existence of abstract argument structure patterns that may contribute arguments and semantics (p. 5; e.g., Culicover & Jackendoff 2005; Croft 2003; Goldberg 1995; 2012; 2013; Jackendoff 1990; 2002a; Johnson & Goldberg 2012; Michaelis & Ruppenhofer 2001; Smirnova forthcoming; Stefanowitsch & Gries 2003, 2009; Tomasello 2003). Also aligning with constructionists as well a good deal of earlier work, they emphasize that particular verbs can be finicky about which valence patterns they may combine with (Baker 1979; Boas 2010; Bowerman 1988; Braine 1971; Croft 2003; Goldberg 1995; 2013; Lakoff 1970; Pinker 1989; Pollard & Sag 1987; but pace Borer 2005; Hale & Keyser 1997; Marantz 1997). In further convergence, M&W acknowledge the existence of meaningful *phrasal* constructions, citing the "N P N" construction (Jackendoff 2008), and the *off with his head* construction (Jacobs 2008) (M&W: section 2.3). Finally, they allow that certain idioms may be analyzed as phrasal constructions.

We can all additionally agree that several otherwise central issues are orthogonal to the question of whether argument structure patterns are best treated as a word-level or multi-word (i.e., phrasal) phenomenon. These independent issues include a) whether or not all constructions serve some function (related to semantics or discourse), b) whether argument structure patterns are learned from the input or drawn from some universal set, and 3) the degree to which knowledge of language involves item-level knowledge as well as generalizations (i.e., the extent to which our knowledge of language is *usage-based*). The question M&W focus on involves a rather subtle point about whether abstract argument structure patterns should be treated as abstract *verbs*, or whether they should be considered abstract *multi-word* or *phrasal* constructions (ASCs). They favor the former analysis, and term the abstract verbs they posit, *lexical rules*.

Jackendoff (1975) originally defined lexical rules as either representing static relations between two stored verbs, or as dynamic processes that take one verb as input and produce another verb as output. We might term either of these traditional and familiar interpretations of lexical rules, Good Old Fashioned Lexical Rules: *GOFLeRs*. Oddly, M&W assume that the criticisms of lexical rules outlined in Goldberg (1995, 2013) only apply to the first interpretation of GOFLeRs (p. 6), but in fact the critiques hold of either interpretation. These objections include the following. GOFLeRs require implausible and ad hoc verb senses; they obscure broader surface generalizations due to their emphasis on the input, favoring "process-oriented" over "product-oriented" generalizations, to use Bybee's terminology (1985; 1995); they do not account for constraints that hold only of the verb or only of the construction since the two are conflated; and GOFLeRs assume

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that *only* the "input verb" *or* the "output verb" appears in any given sentence, and yet the interpretation of actual sentences typically requires reference to both the "input verb" (i.e., the lexical verb on the constructionist view) and the "output verb" (i.e., the argument structure construction). I leave these issues aside here since M&W do not adopt either version of GOFLeRs.

The approach that M&W adopt is a third version of lexical rules, that I and others refer to as *lexical templates* in order to distinguish them from GOFLeRs (cf. Rappaport Hovav & Levin 1998; Goldberg 2013). A lexical template is "a unary branching structure that has the input item as daughter (Copestake, 1992; Riehemann, 1993, 1998; Briscoe and Copestake, 1999; Meurers, 2001; Müller, 2002 Section 1.8; Müller, 2006, pp. 872, 876)" (p. 5). As Rappaport Hovav & Levin (1998) had emphasized early on, lexical templates closely parallel phrasal argument structure constructions, since the "input verb" is embedded *within* the "output verb" (see M&W's (4) on page 6), in a way that is analogous to the way that constructionists have argued that the lexical verb is embedded within an ASC (e.g., Goldberg 1992, 1995). Thus a given sentence can simultaneously contain both the "input" and "output" verb on M&W's view. Lexical templates essentially allow a verb's arguments to be changed (as is the theme argument in passive), omitted (cf. the agent in passive), or added to (as the agent argument is in causativization). This approach has been suggested as a way to represent argument structure constructions for a long time (e.g., Rappaport Hovav & Levin 1998; Koenig 1999; Jackendoff 1990), and has been richly mined by valency theorists (e.g., Herbst 2011). The lexical template approach allows for a traditional distinction between the lexicon and syntax, and it has been adopted by certain constructionist approaches as well (e.g., Boas 2003; Kay 2005).

~~Yet c~~Constructionist approaches reject the idea that there is a lexicon of single words and a separate syntactic component, and so within these approaches, whether argument structure constructions are treated as lexical templates or as phrasal patterns is not one of huge importance.[1] This does not mean there is no distinction between single words and phrases, but it implies that both are the same basic type of entity: both are learned pairings of form and function.[2] Learners dynamically categorize witnessed exemplars into a network by implicitly recognizing patterns (Bybee 2013). The exemplars themselves are not

1 The so-called *neo-constructionist* approaches (e.g., Borer 2005; Hale & Keyser 1997; Marantz 1997) are far more distinct from constructionist approaches discussed here. The *neo-constructionist* approaches face many empirical problems and share few basic tenets with constructionist approaches (Goldberg 2006: 205–213).

2 Some constructionists do allow for constructions without any function, but when this is allowed, it is only the limiting case (e.g., Jackendoff 2002b).

veridical representations of tokens, since we necessarily abstract away from usage-events as memory traces are created, and the generalizations over exemplars are necessarily somewhat abstract.

Instead of a list of words and distinct syntax, there is simply one "constructicon": a default hierarchy of interrelated constructions at varying levels of complexity and abstraction. Constructions may have open slots which also vary in size and degree of abstractness. For example, a resultative construction *to drive "crazy"* contains an open slot for a resultative phrase, but the filler of the slot is strongly skewed toward the meaning "crazy":

(1) He drove her crazy/mad/completely nuts/ bonkers/meshugena.

(2) ??He drove her upset/ill/sick/dead. (Goldberg 1995: 79)

Thus, the specific *drive "crazy"* construction – itself an instance of the more general resultative construction – contains an open slot that is highly constrained (cf. also Boas 2003; Bybee 2013). On the other end of the spectrum are verbs such as *think,* which allow clausal complements that are very general. The slot associated with *think* may be combined with a clause with a main verb that itself contains an open clausal slot, and so on, allowing embedded complements in a recursive manner. Constructions are combined on the fly to form actual utterances, with the proviso that their respective constraints must be simultaneously satisfied. That is, the slot in one construction may be filled by another construction that satisfies the restrictions on that slot.

When one construction differs from another in such a way that a difference in function is signaled by a difference in form, the relationship between those constructions can be captured by a symmetric inheritance link between the two. This sort of "paradigmatic" link can be used to relate actives and passives, for example, or verb phrases and nominalizations, or for related argument structure realizations whenever there is evidence that speakers are aware of the relationship (e.g., Perek 2012; Cappelle 2006). Thus paradigmatic relationships can be captured without either construction being viewed as "input" to the other.

M&W rightly critique certain phrasal approaches that associate argument structures with actual tree structures complete with linear ordering of arguments (the same critique is made in Müller 2006; 2013). Such accounts either require movement, or a vast proliferation of constructions, since the same argument structure pattern can appear in a variety of long-distance dependency constructions and with more than one possible linear order (cf. "heavy NP shift," "particle shift"). Yet as M&W acknowledge, ASC approaches do *not* assign particular tree structures to argument structure constructions; instead, we underspecify aspects of the syntax of argument structure constructions, including word order (e.g.,

Goldberg 1995; 2006; 2013). For example, the phrasal double-object ASC construction specifies a subject and primary and secondary objects, but it does not specify the linear order of the grammatical relations. The same double-object construction is involved when one of its arguments is questioned, topicalized, or clefted. Other constructions (e.g., a question construction, topicalization construction, or cleft construction) *combine* with the double-object construction to give rise to various linear orders (Goldberg 2006). That is, "phrasal" as used here, does *not* mean "phrase structural;" rather, "phrasal" simply implies that ASCs involve more than the main verb. To clarify what's at stake, let us revisit the arguments that M&W offer in favor of treating argument structure patterns as exclusively a verb-level phenomenon.

2 Are argument structure patterns verb templates or multi-word constructions?

M&W suggest one piece of new evidence for the verb template approach, but the argument they provide turns out to be circular. They assert that "coordinated verbs must have compatible syntactic properties like valence properties" (section 6.1 p. 26), then they demonstrate that two verbs can be conjoined. From this they conclude that the two verbs must have the same valence properties. However, the initial assumption can be just as easily stated in phrasal terms: coordinated verbs must be used in the same argument structure constructions. That is, we can all agree that [V_i and V_j] typically has the same distribution as V_i and V_j; in fact [X_i and X_j] combinations typically have the same distribution as X_i and X_j for any X. The conjunction can only be combined with an argument structure construction if both verbs are compatible with the requirements of the ASC. Thus, the argument from conjunction does not resolve the debate.

In fact, M&W note in several places that the ASC approach can work in a quite analogous way as to what they propose for the lexical template approach. They note, "A reviewer correctly observes that a version of the ASC approach could work in the exactly same way as our lexical analysis." They go on to state that "As long as the ASC approach is a non-distinct notational variant of the lexical rule approach then of course it works in exactly the same way. But the literature on the ASC approach represents it as a radical alternative to lexical rules . . ." (p. 26). However, with the exception of Goldberg (2013), the literature M&W appear to be focused on distinguishes ASC from GOFLeRs, not the lexical template approach (see e.g., Goldberg 1995; Michaelis & Ruppenhoffer 2001). There are far fewer differences between the lexical template approach and the ASC approach than

there are between either approach and GOFLeRs (Croft 2003); therefore, this author at least, reserved judgment about lexical templates until very recently (Goldberg 2013).

However, there do exist certain differences between verb templates and multiword argument structure constructions, and we focus on ~~three of~~ those now. First, it is argued that the recursive nature of verb templates is not necessarily a virtue (2.1). Secondly, it is argued that even if a lexical template approach were adopted for language production, a phrasal approach is required for comprehension (2.2). It is further observed that many argument structure phenomena must specify more than one nonadjacent word (2.3). Finally, in section 2.4, it is argued that idioms are best represented as multi-word patterns, that argument structure patterns are often directly related to idioms, and therefore that argument structure patterns are better represented as multi-word (phrasal) patterns as well.

2.1 Verb templates are recursive and yet the phenomena are not necessarily recursive

M&W emphasize that lexical templates predict that the combination of a verb and a lexical template should serve as input to other lexical templates, because the combination of verb and lexical template simply yields a different verb. Thus the combinations must be recursive. M&W are very clear on this point: "The output of a lexical rule . . . is just a word (an X0), so it has the same syntactic distribution as an underived word with the same category and valence feature." But there are many cases where the combination of verb and lexical template can*not* freely serve as input to another otherwise productive lexical template. This can be seen in the "-able" (*-bar* in German) example that M&W provide in service of making a different point, namely that verbs should lexically specify some aspects of their argument structure – a point that ASC approaches already adopt (see section 5).

M&W note that the "-able" suffix in German (*-bar*) and in English can be applied productively to all and only verbs that have accusative (or direct object) arguments.[3] A difficulty arises for the lexical template proposal that M&W es-

3 In a footnote M&W acknowledge that *-bar*/*-able* also occurs with other 2-argument verbs, e.g., "dependable," "dispensable," and "laughable" despite the fact that the patient argument in question is not accusative, but oblique (*depend on; dispense with; laugh at*). They suggest that these cases should be distinguished because they are unproductive (M&W, note 4). Clearly these are instances that pattern with the "output" of a purported lexical rule without having the typical "input." The existence of such cases has in fact been one strong motivation for avoiding lexical rules, since they tend to obscure just this sort of surface or "product-oriented" generalization with their emphasis on "rules" that require a particular fixed "input" (e.g., Goldberg 2002).

pouse, however, since many *in*transitive, single-argument verbs can appear transitively when combined with certain lexical templates/ASCs. For example, the normally intransitive verbs, *sneeze*, *cough,* and *bark* can be used in the caused-motion construction as in (3):

(3) a. She sneezed the foam off the cappuccino.
b. He coughed the bug out of his mouth.
c. The neighbor's noisy dog barked us awake.

And yet counter to what M&W predict, these verbs do *not* freely occur with "*able*" at least not with the intended meaning corresponding to other *-able* forms.[4]

(4) *??sneezable*; *??coughable; ??barkable*

On the constructionist account, we can say that *able* applies productively only to (a subclass of) verbs that are *lexically* transitive. *Sneeze*, *cough*, and *bark* are lexically *in*transitive verbs that may under certain conditions occur in transitive constructions.

Similarly, while Müller (2006) had claimed that passive verbs may be productively causativized in Yucatec Maya, Müller (2007) corrects that claim and observes that while causativization is productive in Yucatec, passivized verbs *cannot* be causativized. Since the lexical template approach fails to distinguish a verb from its argument structure properties, phenomena that make reference to what on the ASC account would be the properties of the lexical verb are quite difficult to account for. These problems could be addressed by requiring that certain morphemes and constructions make reference to the *input* verb, but it undermines M&Ws argument that the necessarily recursive nature of lexical templates is a virtue.

To the extent that one argument structure pattern *can* serve as input to another one, we need to be able to combine phrasal argument structure constructions. This is not ruled out on a constructionist approach. The bookkeeping devices required simply require careful formulation.

4 The online Urban Dictionary lists *sneezable* but not with the predicted interpretation of being "able to be sneezed." They suggest, "A sneezable person may sneeze at random or awkward moments" http://www.urbandictionary.com/define.php?term=sneezable. There are 0 instances of *sneezable, coughable,* or *barkable* in COCA.

2.2 Let's not forget comprehension

The same verb can typically appear with a half dozen different argument structure constructions, with corresponding subtle differences in meaning or information structure. The notion that different verb templates "project" distinct argument structures can only possibly work from the perspective of language production. From the perspective of comprehension, the comprehender must attend to the phrasal array of grammatical relations; there is no other way to determine which "template" is involved. Therefore, at least from a comprehension point of view, the pairings of argument structure phrasal patterns with functions must be primary. An earlier emphasis on language being "generative" may have led researchers to adopt the perspective of the speaker instead of the comprehender, but clearly comprehension is equally important (see also Jackendoff 2002a).

2.3 Many argument structure patterns involve more than a single word

Assigning clause-level distribution solely to the main verb as the verbal template approach does requires ignoring the fact that various argument structure phenomena show every sign of involving more than the main verb. For example, the resultative construction, illustrated in (5a–6a), often pairs a verb with a resultative phrase in quite specific ways (Boas 2003; Goldberg 1995: 137ff):[5]

(5) a. "Ponies will eat themselves sick"
b. ??Ponies will eat themselves ill (0 tokens of *eat.[v] <reflexive> ill* in COCA)

(6) a. "I'll cry myself to sleep"
b. ??I'll cry myself asleep (0 tokens of *cry.[v] <reflexive> asleep* in COCA)

Certain resultative phrases that vary even minimally from the familiar form are markedly odd (5b, 6b). These patterns reflect the combined constraints of the verbs *and* the resultative phrases (Goldberg & Jackendoff 2004). The verb template approach is forced to posit argument structure patterns for the verbs in (5a) and (6a) that specify not only a semantic category, but also the particular lexical form of one of the arguments. Such an account might do this as in (7), leading to the unwelcome effect of specifying the word *sick* as part of the verbal representation of this sense of *eat*.

5 Examples in quotes here and below come from the Corpus of Contemporary American English (COCA) (Davies 2008).

(7) Hypothetical M&W style verb representation needed to account for e.g., *He ate himself sick*):

$$\begin{bmatrix} \text{Phon} \quad /\text{iyt}/ \\ \text{Arg-St} \quad \langle \text{NPx, NPx, } \textit{sick} \rangle \\ \text{Content: eat (x, x, } \textit{sick}) \end{bmatrix}$$

Similarly, verb particle constructions must likewise specify both the verb and the particle in order to capture the many noncompositional meanings (e.g., Jackendoff 2002b; Capelle 2006; Goldberg, to appear). The *way* construction must specify the specific noun *way*, and its possessive determiner, which must be coreferential with the subject argument (Jackendoff 1990; Goldberg 1995; 2013). Perhaps we may be willing to bite the bullet and accept such representations for main verbs. But the issue is magnified and the solution becomes clearly untenable in the case of verb phrase idioms, as discussed in the following section.

2.4 Idioms are phrasal & argument structure patterns can be idiomatic

The most potent problem for the verb template position is the relationship between idioms and argument structure patterns. As noted earlier, M&W acknowledge in passing that some idioms should receive a phrasal analysis. Below, I review the argument made in Goldberg (2013) – based on observations by Fellbaum (2007) – for treating many VP idioms as phrases. We will then see that it is a short step from recognizing phrasal idioms to recognizing phrasal argument structure patterns.

Fellbaum (2007) points out that the complex, full syntactic information associated with many VP idioms is far richer than that associated with individual verbs. She notes, for example, that idioms often require adjuncts, modifiers, or conjunction:

(8) modifier:
look on the bright side =/= *? look on the side*

(9) adjunct:
taking candy from a baby =/= *? Taking candy.*

(10) conjunction
eat <someone> out of house and home. =/= *eat <someone> out of house.*

In order to account for (8), the verb templates approach would require a verb *look* that specifies not only that it takes a PP phrase headed by *on* but also that this phrase must have the modification *bright* in the NP within the PP. Note that this is a dramatic violation of the "locality" condition (Sag 2007). Locality demands that constraints only hold of immediate sisters or daughters; they may not hold of nieces or grandnieces. While locality may be a soft constraint to allow for various long-distance dependencies, it is generally motivated by the fact that uncontroversial verbs rarely if ever specify non-local constraints on their arguments. That is, unique verbal roots only place restrictions on the subject argument and the verb's grammatical sisters, not on the verb's nieces or grandnieces. In order to treat (8) as a verb, one would need to stipulate a special sense of *look* that requires the modification *bright* of a grandniece argument, headed by the particular noun *side*.

To account for (9), the lexical template approach would require a verb *take* that specifies that it must occur with what is normally an adjunct, and thus optional: the particular phrase *from a baby*. The verb *eat* (in 10) would need to specify that it requires a prepositional phrase that contains a particular conjunction within its specific NP arguments, another drastic violation of locality.

Moreover, if VP idioms are treated lexically, they must regularly admit inflectional properties inside of lexical derivations, since idioms often specify inflectional properties of their complements. For example, *pull strings* must involve *strings* in the plural (11a–b),

(11) a. She pulled strings to get him admitted.
b. ??She pulled a string to get him admitted.

While inflection within derivation does occur in language in limited ways (e.g., Ackerman & Nikolaeva 2014; Goldberg, to appear), it would be ubiquitous if VP idioms are treated as verbs that require very detailed restrictions on their arguments and/or adjuncts. Unless we are willing to require that individual verbs routinely contain quite specific and dramatically non-local constraints, including constraints on adjuncts, inflectional properties of nieces, and so on, VP idioms such as these must be treated phrasally.

Relevantly to the general topic of argument structure patterns, the distinction between argument structure constructions and idiomatic phrases is often hard to detect, as the examples in Table 1 illustrate. It is thus theoretically desirable to treat idioms and argument structure constructions such as those in Table 1 alike, which means treating either both phrasally or both lexically.

Given the arguments in favor of treating VP idioms phrasally, it is advantageous to treat argument structure constructions as phrasal as well.

Table 1: Idiomatic instances of argument structure constructions.

ditransitive
give <someone> a kiss
give <someone> a piece of <one's> mind.
way construction:
work <one's> way through (<type of>) school.
sleep <one's> way to the top.
caused-motion:
make <one's> hair stand on end.
resultative:
eat <someone> out of house and home
make <oneself> scarce

3 Accounting for lexical idiosyncracy

M&W state that the lexical template approach is in a better position to deal with lexical idiosyncracy (abstract). But let us consider an actual representation that M&W posit, namely the following representation of the verb *nibble*:

(12) (M&W p. 2; ex 1):

$$\begin{bmatrix} \text{Phon} & \text{<nibble>} \\ \text{Arg-St} & \text{<NPx, NPy>} \\ \text{Content} & \text{nibble (x, y)} \end{bmatrix}$$

M&W claim that "The information in (1) [repeated here in 12], taken in conjunction with the lexical rules of English, is adequate to determine the syntax of all the uses of this stem such as those in (2) ~~[13]~~" (p. 5). The examples in M&W's example (2) are given in (13)a–j below on the left side of Table 2.

Note that the argument structure for *nibble* given in (12) simply specifies two NP arguments. In order to allow for the wider variety of distributions evident in (13a–j), M&W assume (an unspecified set of) lexical templates that take verbs with two NP arguments and derive new verbs that then project the range of examples in (13)a–j. However, such lexical templates rampantly overgenerate and undergenerate. For example, *break,* like *nibble,* has two NP arguments, and yet *break* does not occur in nearly the same range of expressions (cf. 14b, c, f, h, i); conversely, *break* can occur intransitively (14k), while *nibble* cannot (13k).

Constructionist accounts vary in terms of how individual verbs are represented. Many adopt a fully bottom-up approach and specify all of the argument

Table 1 again?

Table 1: A subset of distributional properties of *nibble* and *break*

NIBBLE	BREAK
(13) a. The rabbits were nibbling the carrots.	(14) a. The boys were breaking the bricks.
b. The rabbits were nibbling on the carrots.	b. ??The boys were breaking at/on the bricks.
c. The rabbits were nibbling.	c. ??The boys were breaking.
d. The carrots were being nibbled (by the rabbits).	d. The bricks were being broken (by the boys).
e. a large, partly nibbled, orange carrot	e. A large, partly broken, orange brick
f. the quiet, nibbling, old rabbits	f. ??The quiet, breaking, old boys.
g. the rabbit's nibbling of the carrots	g. The boys' breaking of the bricks.
h. The rabbit gave the carrot a nibble.	h. ??The boys gave the bricks a break.
i. The rabbit wants a nibble (on the carrot).	i. ?? The boys want a break (on the brick).
j. The rabbit nibbled the carrot smooth.	j. The boys broke the bricks open.
k. ?? The carrots nibbled.	k. The bricks broke.

structure patterns that each verb may occur with (e.g., Boas 2010). At the same time, a case can be made that verbs' frequently polysemous meanings are generalized to some extent by more abstract representations in addition to (or even instead of) a full listing of all possible argument structures. Goldberg (2006, 2010) argues for verbal representations that are in one way, more specific, and in another way, less specific than what is specified by the templates M&W suggest. For example, such a constructionist representation for the verb, *nibble*, is provided in (15).

(15) Constructionist representation of *nibble*:
Phon: /nIbl/
Sem: "nibble" (**nibbler**, nibbled)

On most constructionist analyses, the *participant roles* of verbs are lexically rich in order to indicate that each verb is associated with its frame-semantic meaning (Fillmore 1977; 1985; Baker, Fillmore, & Lowe 1998). Whatever fills the "nibbler" slot must be construed as capable of nibbling and whatever fills the "nibbled" slot must be construed as being nibbled. It is also useful to specify which roles are central to the event, commanding a high degree of semantic prominence. Gold-

berg (1995) refers to these as "profiled" roles, extending a term first introduced by Langacker (1987) for a slightly different purpose. The semantically prominent or profiled "nibbler" role in (15) is indicated by boldface.

Profiling has systematic syntactic consequences. In English and other "non-argument drop" languages, the profiled participant roles of a verb are either obligatorily expressed or, if unexpressed, receive a definite interpretation (Goldberg 1995). Since the "nibbler" role is profiled in (15), it cannot simply be omitted with an indefinite interpretation, and (13k) is predicted to be unacceptable. At the same time, certain constructions like the passive or middle (or the "deprofiled object construction") may specifically deprofile an argument (Goldberg 2001, 2006). When these constructions combine with verbs, what are normally profiled participant roles are treated as non-profiled roles; such deprofiled roles may be omitted or expressed as obliques. The fact that the "nibbled" argument is not lexically profiled in (15) implies that it is not obligatory, and, if expressed, it may be expressed by an oblique argument (as in 13b, c).[6]

On the other hand, *break* profiles only its patient, the "broken-entity" argument:

(16) constructionist representation of *break*:
Phon: /brek/
Sem: "break" (breaker, **broken-entity**)

The fact that the "breaker" argument is not profiled allows *break* to be used inchoatively as in 14k. Thus the constructionist approach details verb semantics in a more specific way than that advocated by M&W.

6 M&W misunderstand the correspondence principle proposed by Goldberg (1995) to be a "a meaningless algebraic rule that specifies the way to combine meaningful items" p. 19. However, the correspondence principle, a default principle, is intended to ensure that lexical semantics and discourse pragmatics are in general aligned. As is the case with verbs, only certain argument roles of ASCs are considered profiled: in particular, only those roles that are realized as Subj, Obj, or the second object in ditransitives are considered profiled. These are the same grammatical relations that receive a special status in most theories as the set of "terms" which correspond to "core," "nuclear" or "direct" arguments. Roles encoded by the subject, object or second object grammatical relations have a high degree of *discourse* prominence, typically being either topical or focal in the discourse (see Keenan 1984; Comrie 1984; Fillmore 1977, Langacker 1987 for arguments to this effect). Thus the correspondence principle ensures that the semantically prominent participant roles are encoded by grammatical relations that provide them a high degree of discourse prominence. Specifically, participant roles of the verb must be encoded by profiled argument roles of the construction, unless there are three profiled participant roles in which case one may be expressed by an oblique.

At the same time, the constructionist representation for verbs is *less syntactically* specific than M&W's lexical representation in (12) in that neither *nibble* (as in 15) nor *break* (as in 16) is directly associated with two NP arguments, although two *semantic* participants are specified. Syntactic underspecification allows both verbs to combine with a number of argument structure constructions, as well as with adjunct constructions, various long-distance dependency constructions, and/or nominalization constructions to yield a wide range of expressions.

4 ~~A new~~ example of an argument structure construction: the Rely On construction

In order to avoid rehashing the familiar resultative, double-object, and causative constructions, let us consider a construction that has not, as far as I know, been previously analyzed: the Rely On construction. The form of the construction involves a subject complement and an oblique complement headed by *on* and it is used to indicate a way of gaining sustenance. I use the label, Rely On, because *rely* is a verb that occurs in the formal pattern quite frequently.[7] The construction can be used with a class of verbs of eating including *nibble* as in (13a) or (17):[8]

(17) "she nibbled on the roll"

Other such verbs include *graze, gnaw, chew*, *dine*, *feast, munch, and fed* as illustrated in (18):

(18) The cow grazed/gnawed/chewed/dined/feasted/munched/fed on apples.

Due to the usage-based nature of our knowledge of language, the fact that speakers have witnessed these verbs in this construction is part of our knowledge of English, and we can assume there is a link between the representations of these verbs and the Rely On construction (cf. also Boas 2003, 2009; Booij 2002; Croft

7 Certain verbs also appear with oblique headed by *on* but their meanings involve a spatial interpretation (e.g., *was on; appeared on; stand on*) or some other meaning (e.g., *tell on*). Thus the formal pattern is associated with different, quite likely unrelated meanings: these are candidates for constructional ambiguity.

8 There is a clear semantic relationship between relying on something and eating. This is highlighted by the word *sustenance,* which allows either interpretation as indicated in (i).

(i) "groups who depend directly upon their immediate environment for both their physical and spiritual sustenance"

2003; 2012; Goldberg 1995, 2006). In fact, in acquisition, the construction itself emerges from generalizating across instances that share the same form and related meaning, and there is good evidence that these links from individual verbs to the more abstract construction are maintained (e.g., Boas 2010; Goldberg 1995; Stefanowisch & Gries 2003, 2009).

Importantly, the Rely On construction is used to construe an activity that occurs over a period of time. One cannot nibble, gnaw, feast, or dine on something in a single gulp. The construction is thus atelic even with a definite complement such as *the apple* as is illustrated in (19):

(19) The cow grazed/nibbled/dined/feasted/chewed/fed on the apple for an hour/??in an hour.

In fact, the verbs that can occur in the Rely On construction resist an instantaneous construal even when they appear in *other* constructions such as the transitive construction as illustrated in (20, 21):

(20) She nibbled/chewed the candy.

(21) ??She nibbled/chewed the candy in a flash.

Thus the Rely On construction appears to require verbs that are obligatorily atelic. We return to this point below.

To see that the construction can at least occasionally add meaning not independently contributed by the verb, consider the verb *live*. While *live* is atelic, it does not imply ingestion or reliance *unless* it is used in the Rely On construction, in which ingestion (22a) or reliance (22b) are implied:

(22) a. She *lived* on potato chips/sushi/grass. (ingestion)
b. She *lived* on $10 a month. (reliance)

Individual verbs can add restrictions beyond those imposed by the construction. For example, *prey* lexically requires that the theme argument be animate, a constraint that is not imposed by the construction.

(23) a. The hyenas preyed on giraffes.
b. ??Hyenas preyed on apples.

The Rely On construction, like all other constructions, can be used metaphorically. As is generally true, the constraints only hold on the source domain of

the construction (Goldberg 1995: chapter 6). Thus no literal ingestion need be entailed if verbs from the source domain of ingestion are used:

(24) The landlord preyed on foreigners.

(25) She chewed on the idea.

The Rely On construction is represented in Figure 1:

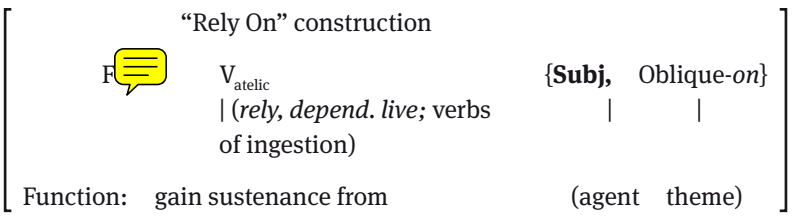

Fig. 1: The Rely On construction: central sense

The Rely On construction, like other constructions, is polysemous. In particular, the construction can be used with certain verbs to imply a hope or intention of gaining some sort of substance or support as in (26):

(26) a. "Mitt Romney called on Republican conservatives to unite behind him"
b. "He bet on sporting events, dogfights"

The minimal extension of the Rely On construction required for the examples in (26) inherits most of its properties from the prototypical Rely On construction, although the requirement that the activity be atelic is not inherited.

A more general point of this section is methodological. One could ultimately call the Rely On construction a lexical template. But if we don't hold the formal pattern constant and look across a range of related and not so related verbs (e.g., *nibble, graze, feast; rely, depend; live* etc.), we will fail to see the systematicity that exists. An overemphasis on purported "inputs" and "outputs" can easily prevent us from noticing the relationship between verbs like *nibble* which can occur both

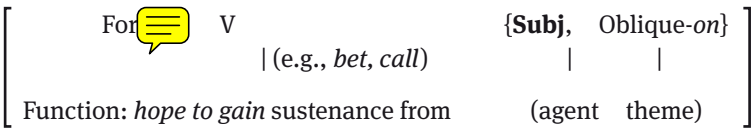

Fig. 2: The Rely On construction: extended sense

transitively and in the Rely On construction, and verbs like *feast* which does not allow the transitive use. The fact that verbs like *live* and *rely* have related uses is also likely to be obscured. On the other hand, by focusing on the construction and determining which verbs may appear in it with related meanings, the existence of a Rely On construction with at least one related extension becomes clear.

5 Capturing lexical distinctions

We are now in a good position to explain how a constructionist approach is able to capture the classic distinctions between *eat*, *devour*, and *dine*. These differences can be captured by the lexical entries suggested in (26)–(28).

(26) again?

(26) "devour" (**devourer, devoured**)
  a. She devoured her dinner.
  b. ??She devoured.
  c. ??The dinner devoured.

(27) "eat" (**eater,** eaten)
  a. She ate her dinner.
  b. She ate.
  c. ??The dinner ate.

(28) "dine" (**upscale eater**, upscale_food-Oblique$_{on}$)
  a. She dined on sushi.
  b. She dined alone/at The Blue Point Grill.
  c. ??The sushi dined.

Since *devour*'s two arguments are both profiled, neither can be omitted (26b,c) unless *devour* combines with particular constructions that are designed to deprofile a particular argument, such as the passive.

Eat's "eaten" argument is not profiled and so that argument may be omitted (27b), although the "eater" argument cannot (27c), except again in a construction designed to deprofile that argument such as the passive (see also Croft 2009 for much more detailed analysis of *eat*'s frame semantics).

Dine, like *nibble* has two participant roles with only the actor (here the "upscale_eater") role profiled. The "upscale-food" role is unprofiled and therefore optional. It is distinct from the "nibbled" role of *nibble* because when it occurs, it *must* occur as an oblique phrase headed by *on*. This fact can be captured by a lexical specification in the case of *dine* as indicated in (28). That is, such lexical restrictions can easily be captured when needed.

Notice that neither *devour* nor *eat* can occur in the "Rely On" construction:

(29) The mouse **devoured*/**ate* on the apple.

Intriguingly, both verbs can occur with a construal of immediate ingestion as in (30):

(30) The snake devoured/ate the mouse in a flash.

Thus these verbs do not lexically require an event that occurs over time, so they are arguably incompatible with the Rely On construction on aspectual grounds. Without attending to the nuances of meaning differences, it is easy to assume that lexical variation such as that between *eat*, *dine* and *devour* is wholly idiosyncratic.[9]

The partial productivity of constructions is a complex and still outstanding issue for every account, and it is in fact a major empirical focus of our lab. Productivity appears to depend on general induction and statistical preemption, which in turn involve type frequency, type variability, similarity, and context, in complicated ways (e.g., Boyd & Goldberg 2011; Goldberg 1995, 2006, 2011; Perek, to appear; Suttle & Goldberg 2011; Wonnacott et al. 2012; cf. also Pinker 1989; Ambridge et al. 2012a,b,c). What we have seen in this section is that constructionist representations are at least as capable of capturing the constraints of individual verbs as the lexical template representations offered by M&W.

6 Conclusion

There are large issues about the nature of language that are at stake when choosing a theory of argument structure. These include the relationship between form and function (including semantics and discourse function), the extent of cross-linguistic variability and similarity, and the degree to which knowledge of language involves item-level knowledge as well as generalizations – i.e., the extent to which our knowledge of language is *usage-based*. Since M&W do not address

9 On Rappaport Hovav & Levin (2010)'s proposal, the distinction between *nibble* type verbs on the one hand, and *eat* and *devour* on the other could be claimed to be a distinction between manner verbs and result verbs, which are argued to form complementary classes. However, *devour* seems to imply both manner and result insofar as it implies voracious eating. Therefore the distinction is treated more neutrally here in terms of aspect.

these issues in their article, I side-step them in this comment as well, even though I feel that these topics are more central to distinguishing various approaches to argument structure than the issue of whether argument structure patterns are captured by verb templates or underspecified phrasal patterns.

It is clear that in many ways, the verb template approach espoused by M&W is a close cousin to approaches that recognize argument structure patterns as multiword constructions (ASCs). Both recognize that (root) verbs *and* argument structure patterns typically contribute to the meaning of a clause. More detailed work on lexical semantics is needed in order to determine how little or how much we need to specify in individual verbal entries, and this may well vary across verbs (and also across languages). I have argued here that verbs need to *at least* lexically specify their rich frame semantic meanings, information about their participant roles, including which of those roles are particularly semantically prominent (what I have called "profiled"), and that a certain degree of syntactic underspecification is advantageous.

M&W appear to have misinterpreted the claim that ASCs are "phrasal" to imply that ASCs specify fixed tree structures. In fact, ASC approaches simply argue that argument structure patterns specify grammatical functions, that they can combine with verbs, and they can contribute meaning not necessarily independently specified by the verb itself. The arguments based on recursion and conjunction that M&W offer do not adjudicate between the two approaches. But there are clearly strong reasons to treat idioms as a multi-word level phenomenon, and many argument structure patterns are partially idiomatic. Moreover, from a comprehension perspective, it is clear that an entirely verb-centered approach is untenable. This leads to the conclusion that the argument structure constructionist approach has the advantage over the verb template approach. But it is only possible to slip a thin dime between the two.

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