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Lexical and phrasal approaches to argument structure: Two sides of the same coin

1 Introduction

Müller and Wechsler (M&W) argue that similarities exist in how lexical and phrasal approaches represent and account for argument structure, e.g., they "agree with (Goldberg, 1995; Tomasello, 2003; Goldberg and Jackendoff, 2004; Jackendoff, 2011) that grammars should contain a phrasal component for certain constructions, such as the N-P-N construction" (M&W, p. 9). At the same time, M&W claim that the two approaches differ in a number of important aspects, including the following: (1) the lexicalist's predicate argument structure abstracts away from the phrasal context, while the phrasal approach seeks to avoid such abstract entities (M&W, p. 2); (2) According to M&W, this abstraction allows lexical approaches to represent feeding relations among lexical rules such as passivization, and conversion to other part of speech categories (M&W, p. 2);[1] and (3) It also allows for some arguments to be expressed locally while saving others for expression elsewhere (partial fronting) and for the coordination of two or more verbs with matching argument structures (M&W, p. 2). The authors discuss a range of data from acquisition, psycholinguistics, and statistical distribution, which they claim "either fails to distinguish the two approaches, or supports the lexical approach" (M&W, p. 1). These points lead the authors to favor the lexical approach over the phrasal approach.

M&W's paper raises a number of important empirical, methodological, and theoretical issues surrounding the employment of the concept of argument

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1 Note that Berkeley Construction Grammar (Fillmore and Kay 1993, Fillmore 2013) also allows for similar types of interactions, where the passive specifies just one type of linking, that of the agent to oblique (active and passive are two different types of linking constructions). Also, Michaelis and Ruppenhofer (2001) and Michaelis (2004b) allow coercion for word-class shift.

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structure in a variety of different approaches, including Generalized Phrase
Structure Grammar, Head-driven Phrase Structure Grammar, Construction Grammar, Categorial Grammar, and Lexical-Functional Grammar, to account for a
diverse range of morpho-syntactic phenomena, including multiple argument
realization. The authors discuss important parallels and differences between individual theories over the past 75 years, giving the reader a much better understanding of the motivations behind particular theoretical decisions regarding argument structure.

At the same time, M&W's paper also includes a number of problematic points.
First, the authors appear to adopt a particular understanding of Construction
Grammar (CxG); the phrasal approach they describe does not apply to CxG per se,
insofar as no constructionist analysis actually implements the putative phrasal
approach. In other words, CxG is much more than what M&W make it out to be.
Second, their paper does not mention a number of relevant constructionist analyses that are important for understanding the complex nature of constructions,
including the status of valency information at different levels of constructional
schematization. Third, some of the data used by M&W are problematic. Taking
some of their data and arguments to their logical conclusion shows that the degree of idiosyncrasy in lexical selection is much higher than previously thought.
As I will argue, argument structure is instead best accounted for by a combination
of both lexical and constructional information. Fourth, taken together, the arguments in favor of the lexical approach over the phrasal approach are not entirely
convincing, because of several methodological and empirical problems. In the
following sections I address each of these points in detail.

2 The various facets of Construction Grammar (CxG)

Construction Grammar is not just a phrasal approach. However, M&W seem
to assume that constructional approaches are typically phrasal, stating that
"(. . .) *phrasal* (or *constructional*; but see footnote 1) approaches eschew the use of
lexical rules" (2). Footnote 1 on p. 2 reads: "The phrasal approaches are usually
called *constructional*, but we use that label cautiously since it is also used for approaches that are explicitly lexical. See for instance Kay (2005); Sag (2012)." M&W
then claim that "The construction carries a meaning that combines with the
word's meaning. In some versions the constructions are phrasal structures, while
in others, they are non-phrasal grammatical constructs called *argument structure
constructions* that resemble the lexicalist's predicate argument structure, minus
the specific verb or other predicator (Goldberg, 1995, p. 3)."

M&W subsequently point out that there are certain differences between different phrasal approaches: "(. . .) the construction carries a meaning, and so some of the phrasal approaches would replace standard phrase structure rules or syntactic valence frames with meaningful constructions" (M&W, p. 2).[2] Unfortunately, such statements cause difficulty in following M&W's line of argumentation completely, because M&W do not always clearly identify what they mean by "phrasal" and "constructional". In reading their paper, "phrasal" can be understood as a cover term for a wide range of very different analyses, including those of Borer (2003), Gazdar et al. (1985), Goldberg (1995), Marantz (1997), and Tomasello (2003).[3] Similarly, "constructional" seems to refer to theoretically very different (if not even diametrically opposed) approaches, including one particular version of Construction Grammar (Goldberg 1995, Goldberg and Jackendoff 2004) and the various neo-Davidsonian proposals within Mainstream Generative Grammar, such as Embick (2004), Hale and Keyser (1997), and Kratzer (1996). The use of the terms "phrasal" and "constructional" to address a wide range of very different theories and analyses may well lead to misperceptions (see also Goldberg 2006: 205–213). Space constraints prevent discussing all possible misperceptions that could arise from this terminological inconsistency, so this commentary focuses on a few important issues relating to the concept and use of the terms *construction* and *Construction Grammar* (CxG).

First, M&W employ the term "construction" throughout the paper to refer to different types of phenomena, but do not define the term explicitly, resulting in difficulty in following their argumentation. Goldberg (2006: 5) defines construction as follows:

> Any linguistic pattern is recognized as a construction as long as some aspect of its form or function is not strictly predictable from its component parts or from other constructions recognized to exist. In addition, patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency.

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2 The term "phrasal approach" is a misnomer in this context. Of course CxG uses phrasal constructions, called combinatoric constructions, to represent phrases. However, it does not use combinatoric constructions to license argument-realization patterns. For discussion, see Kay and Michaelis (2012).

3 Note also that the stand taken on constructions is also diametrically different. At least two of these authors, Borer (2003) and Marantz (1997), ally themselves with neo-constructionist approaches and rely to varying degrees on Minimalism. The choice of "phrasal" to lump together constructionist and minimalist researchers obscures the fact that these take very different views on a number of substantive issues mentioned by M&W, such as the motivation vs. autonomy of syntax and a nativist vs. constructivist view of language acquisition, among others.

Goldberg's (2006) definition of the term has gained prominence in the CxG community, though other researchers also regard other aspects of constructions (e.g. degree of formalization, psychological motivation, frequency and productivity, among others) as important.[4] Further, it is critical to note that recent formal implementations of CxG, in particular Sign-Based Construction Grammar (Boas and Sag 2012) rigorously distinguish between lexemes and combinatoric constructions (a class which includes both 'phrasal' constructions and unary-branching constructions that capture derivational/inflectional processes), so not appropriately describing what a construction is to a constructionist is indefensible.

Another misperception about the architecture of constructions arises on p. 32, where M&W discuss Kratzer's (1996) neo-Davidsonian (or rather, mixed) account of argument structure. In discussing Kratzer's agent-assigning silent predicate 'little *v*', the authors claim that "[t]hese extra-lexical dependents are the analogues of the ones contributed by the constructions in Construction Grammar." Most constructionists would disagree vehemently with such a comparison, because CxG in fact does not allow silent elements. All elements "contributed" by constructions in CxG are audible, be they morphemes such as the *-er* of the comparative construction, words, or particular postverbal phrases like the ditransitive construction. Thus, M&W's analogous comparison of the extra-lexical dependents of Kratzer's (1996) analysis with elements "contributed by the construction in Construction Grammar" (p. 32) is questionable.[5]

The terminological issues surrounding constructions discussed so far raise another problem, namely M&W's general use of the term Construction Grammar (CxG). It is important to note that there are different versions of CxG, such as Berkeley Construction Grammar (BCG) (Fillmore and Kay 1995, Fillmore 2013, Michaelis and Ruppenhofer 2001), Sign-based Construction Grammar (SBCG) (Sag 2012, Michaelis 2013), Embodied Construction Grammar (Bergen and Chang 2013), Cognitive Construction Grammar (Goldberg 1995/2006), Fluid Construction Grammar (Steels 2013), and Radical Construction Grammar (Croft 2013).[6] M&W do acknowledge this, as when they mention that there are "some versions" (M&W,

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4 For an overview, see Croft (2001: 17–21), Fillmore (2013: 112–126), Fried and Östman (2004: 18–23), and Jackendoff (2013: 71–78).

5 Note that Kratzer's analysis, like most other approaches in Generative Grammar, assumes a rather rigid syntax-semantics interface. CxG, like Jackendoff's modularist theory, allows elements in the semantics that do not have syntactic reflexes. Many Chomskyan approaches assume that only logical forms (LFs) are interpreted, which allows for mismatches between "surface syntax" and "interpreted syntax." Also, some people have used the identity function for interpreting "meaning-neutral" categories. Thanks to Hans-Martin Gärtner for pointing this out to me.

6 See Ziem and Lasch (2013: 31–66) for an overview.

p. 2) of CxG, and that "constructional approaches are often affiliated with usage-based theories" (M&W, p. 2). But they do not spell out clearly enough which exact version of CxG they are addressing, resulting in difficulty for readers not familiar with the various versions of CxG to understand important subtleties. On pages 2, 10, and 24 M&W cite Goldberg (1995), and throughout their paper they talk about meaningful constructions and argument structure constructions (ASCs), one of the hallmarks of Goldberg's theory. These statements give the impression that their discussion of CxG focuses solely on the role of ASCs in one particular version of CxG, namely Goldberg's (1995/2006) Cognitive CxG. That version of CxG is perhaps best known for its novel thesis that patterns of argument structure (so-called argument structure constructions) exist independently of lexical argument-taking predicates.[7] Other versions of CxG do not subscribe to all of Goldberg's ideas, meaning that the authors should have been clearer about which version of CxG they are discussing.

3 Lexical valence and argument structure constructions

In Goldberg's view, constructions such as the ditransitive, caused-motion, or the *way*-construction are capable of supplying a verb's semantics with additional arguments. One of Goldberg's central arguments for positing meaningful constructions that exist independently of the words instantiating those constructions relies on the observation that the combinatoric needs of a verb can be altered by the clausal context in which it occurs (Goldberg 1995: 224). According to Goldberg, this view has the advantage of not requiring implausible verb senses for cases in which verbs occur in an unusual environment as in the ditransitive, caused-motion, resultative, and the *way*-constructions, among others. For example, in sentences such as *Joe sneezed the napkin off the table*, the intransitive verb *sneeze* occurs with caused-motion syntax. Because the verb has fused with the independently existing caused-motion construction, which supplies two additional argument roles to the verb, it licenses the two postverbal phrases (Goldberg

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7 See Michaelis (2012) on other "myths" about CxG and Boas (2013a) for a discussion of the similarities and differences between the various versions of CxG, such as Berkeley Construction Grammar (Fillmore 2013), Sign-based Construction Grammar (Sag 2012, Michaelis 2013), Embodied Construction Grammar (Bergen and Chang 2013), and Radical Construction Grammar (Croft 2013). See van Trijp (2013) for a comparison of Sign-based Construction Grammar and Fluid Construction Grammar, including a detailed discussion about formalizing constructional insights.

1995: 163). M&W's (p. 24) claim that "the lexical approach is essentially parallel" is in my view not accurate, since the lexical approach does not posit independently existing meaningful constructions (or some other type of parallel concept or mechanism) capable of supplying additional arguments to a verb's argument structure. Other crucial parts missing from the "essentially parallel" lexical approach are (1) the sets of semantic constraints that regulate the fusion of verbs and constructions in CxG (see Goldberg (1995: 50–53) and Boas (2003a: 100–104)), and (2) specific coercion effects allowing particular types of interpretations (and therefore changes in argument structure) based on contextual background information (see Boas (2003a: 264–277) and Boas (2011c: 1290–1295)). The constructional view of semantic compatibility and coercion effects based on background knowledge is quite different from that assumed by lexical approaches (see Briscoe and Copestake 1999).

The reader must keep in mind that the types of meaningful ASCs proposed by Goldberg might represent only a relatively small fraction of the inventory of constructions in English (compare Fillmore et al.'s 2012 typology of constructions). At this point, we do not yet have a complete inventory of all English constructions, let alone complete analyses of these constructions, though efforts are under way to build such a corpus-based resource, also known as the "constructicon" (for details, see Fillmore 2008, Boas 2010, Fillmore et al. 2012, Lyngfelt et al. 2012, and Boas in press).

I now turn to one of the main claims of M&W's paper, namely that ASCs are problematic for a number of reasons. While the authors acknowledge "that grammars include meaningful phrasal constructions" (p. 9), M&W do not think that argument structure should be represented phrasally.[8] That position stems from their seeing phrasal constructions as replacing "the phrase structure rules or valence frames of other syntactic theories" (M&W, p. 10). Using data on morphological derivation, partial fronting, and coordination, M&W argue strongly for including relevance valence information as a part of lexical entries that serve as the input for lexical rules.

Scholars have recognized the importance of including valence information as a crucial part of lexical entries for many decades; it has been one of the main tenets of Valency Theory since the 1950s (see, e.g. Tesnière 1959, Helbig and Schenkel 1971, Herbst 1983, Welke 1988, Fischer 1997, Ágel et al. 2003, Herbst et al. 2004, Fillmore 2007, Faulhaber 2011b, Welke 2011, Herbst 2014). In some of my own constructional research I have also argued for the integration of more de-

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8 At the same time, it should be noted that all scholars in the constructionist community endorse this view as well, rendering M&W's point otiose.

tailed valence information into lexical entries (Boas 2002, 2003a, 2003b, 2005, 2008a, 2008b, 2009). The motivation for this proposal rests on the observation that some of Goldberg's ASCs, specifically the resultative construction, over-generate because the fusion of verbs and constructions is not sufficiently con-strained. This has led me to propose so-called mini-constructions, which encode for individual frame-evoking (Fillmore 1985) senses of verbs different types of information, including detailed information about argument structure.[9] Boas (2003a) argues that stating such information explicitly for resultatives yields a more precise characterization about the types of verbs that occur in resultatives, and the types of postverbal phrases for which they subcategorize. Thus, that pro-posal shifts the information needed for licensing resultatives from the level of Goldberg's abstract resultative construction to the lexical level by proposing that valency information, together with framal specification, plays an important role in determining the licensing of resultatives (see also Croft (2003), who distin-guishes between verb-class-specific constructions and verb-specific construc-tions). Other research on resultatives addresses some of the issues for which M&W criticize Goldberg's (1995) approach to ASCs (see also Nemoto 1999, Gold-berg and Jackendoff 2004, Boas 2005, Goldberg and Jackendoff 2005).[10]

Returning to the status of valency information in Construction Grammar, note that other constructional approaches, such as Berkeley Construction Gram-mar (Fillmore et al. 2013) and Sign-based Construction Grammar (Sag 2012, Michaelis 2013) explicitly encode valency information as a list-valued feature in lexical-class constructions and so-called listemes (lexemes and multi-word ex-pressions). These more formalized versions of CxG are well-suited to express in-sights from other constructionist theories, such as Goldberg's Cognitive CxG (see Sag, Boas, and Kay 2012).

Regarding the status of valence specifications in CxG, regrettably M&W seem not to be aware of important research on this subject matter, because the integra-tion of valence information into constructions has been under discussion for sev-eral years. For example, a special issue of the *Zeitschrift für Anglistik und Ameri-kanistik* (Herbst and Stefanowitsch 2011) is devoted to the question of whether argument structure should be represented as a part of a verb's valency or at the constructional level. Pursuing earlier discussions of this topic by Hens (1996), Boas (2002), Hampe and Schönefeld (2006), Engelberg (2009), and Knobloch

9 See also Croft (2003), who argues that the distinction between lexical rules and constructions is a false dichotomy. Within Sign-based Construction Grammar (Sag 2012, Michaelis 2013) lexical class constructions can be employed to represent (groups of) mini-constructions.
10 In this respect, see Müller's (2006) review of Boas (2003a).

(2009), and Engelberg et al. (2011), among others, the individual contributions
to the special issue suggest "that the different perspectives of valency grammar
and construction grammar may not be incompatible so much as incomplete, and
that they have the potential to complement each other" (Stefanowitsch and
Herbst 2011: 316). To this end, Stefanowitsch and Herbst (2011: 316) point out that
"both theories acknowledge the fact that argument-structure in natural lan-
guages sometimes behaves like an item-specific phenomenon, and sometimes
like an independent level of linguistic structure, but they differ in where they
place their focus." What follows is a brief review of two accounts addressing how
valence information can be combined with constructional information to form a
constructional network. My goal is to show that it is possible to maintain Gold-
berg's schematic ASCs while at the same time specifying relevant predicate argu-
ment structures at the level of (the senses of) individual verbs.

Boas (2011a) presents a network analysis of resultative constructions that
posits abstract ASCs of the type proposed by Goldberg (1995) at the highest
level of schematization, and Boas (2003a) proposes low-level partially filled
(mini-)constructions at the lowest level of schematization, with constructions of
different intermediate levels of schematization in between.[11] Such a network cap-
tures both the relevant detailed valency information of specific verbs and abstract
constructional knowledge, thereby combining the main ideas of Goldberg (1995),
Boas (2003a), and Croft (2003). Grounded in usage-based data, such a network
also reflects how abstract ASCs emerge when multiple exemplars pattern in a sim-
ilar way, given their shared form-meaning correspondence. Integrating token and
type frequency also accounts for the interaction of schematicity and type fre-
quency in determining productivity, as well as the question of the effects of differ-
ent levels of token frequency (Bybee 2013). Such a network approach allows the
capturing of both item-specific and abstract knowledge at the same time, together
with different degrees of (non-)compositionality (see Wulff 2013).[12] Such differ-
ences in knowledge are relevant depending on whether one tries to interpret an
utterance based on compositionally computing the meaning of constructions in
an utterance, or whether one tries to produce an utterance, which often requires
different, more lower-level constructional knowledge, involving detailed valency

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11 This proposal is similar to Traugott's (2008) macro-, meso-, and micro-constructions. See
also Croft (2003), Felfe (2012), and Wulff (2013: 286–287).
12 Such a network approach can be formalized using Sign-based Construction Grammar, in
which lexemes contain argument structure information, as do lexical-class constructions and
derivational constructions. In fact, the English ditransitive tokens are licensed by all three. Deri-
vational constructions are used for the ditransitive cases in which there is valence augmentation
(e.g., verbs of creation).

information (Boas (2003a), Faulhaber (2011b), and Herbst (2011/2014); see also Fillmore et al. (1988) on idioms of encoding and idioms of decoding). This approach also eliminates the need to fuse lexical entries with abstract meaningful constructions, thereby avoiding some of the problems that arise due to the separation of syntax and the lexicon in other approaches.

The lack of a mechanism that fuses verbs with constructions, as in Goldberg (1995), also distinguishes the alternative constructional proposal in Boas (2011a) from lexical approaches of the sort that M&W propose, in which rules operate over argument structures of verbs. Another crucial difference concerns the relationship between syntactic valency and semantic relations. M&W claim that lexical and constructional approaches are identical "with respect to the semantic structure, the number and plausibility of senses, and the polyadicity of the semantic relations" (M&W, p. 24). However, in a network model of constructions, these purported similarities between lexical and constructional approaches do not exist. Consider the constructional account in Boas (2010), which examines the distribution of communication verbs in the ditransitive construction. That analysis shows that Goldberg's (1995) approach cannot constrain the fusion of lexical entries with the ditransitive construction. Based on valency data from the FrameNet database (http://framenet.icsi.berkeley.edu), I argue for a more finely-grained frame-semantic approach to the description and analysis of the ditransitive, which leads to a network of semantic frames that are linked to syntactic information to arrive at different levels of schematization. This view differs from both Goldberg's approach and the lexical approaches discussed by M&W in that each "verb" is regarded as a collection of different senses (lexical units, LUs), each evoking a different semantic frame (see Fillmore 1985, Fillmore et al. 2003, Boas 2005b/2013b). For example, the lemma *tell* gives rise to at least three LUs, which each evoke a different semantic frame (Telling, Request, and Reporting, see Boas 2010: 66). The entry of a LU contains information about the semantic frame it evokes, together with a very detailed list of valence information, including how different combinations of frame elements (specific instantiations of more abstract semantic roles) of the evoked frame may be realized syntactically. On such a view, the different levels of syntactic schematization (abstract ASCs vs. partially filled (mini-)constructions specifying the type of valence information contained in lexical entries in FrameNet, with intermediate levels of schematization in between) in a network have direct semantic counterparts in terms of the semantic frames evoked by LUs.

In sum, combining concepts from Valency Grammar and CxG allows the integration of valency information into a constructional network, thereby adopting M&W's view "that the verb has a lexical valence structure" (p. 16) (see also Welke 2009 and Herbst 2014). However frame elements (or semantic roles), syntactic

categories, or grammatical functions are assigned to semantic valents, different
versions of CxG will all have some array of combinatoric constructions, such as
the VP construction, the subject-predicate construction, the filler-head con-
struction or some other combination of constructions, which combine (via em-
bedding) with the fully specified lexeme entry to ensure that the verb has the
proper phrasal sisters.[13] This view also means that phrasal constructions and lex-
ical constructions are not mutually exclusive.[14]

4 Some issues with lexical rules

In comparing Goldberg's (1995) analysis of the caused-motion construction (fus-
ing a verb with a construction), M&W point out that "the lexical approach is es-
sentially parallel, except that the lexical rule can feed further lexical processes
like passivization . . ." (p. 24).[15] Let us now turn to some data showing that lexical
rules exhibit some of the same problems as Goldberg's (1995) ASC approach when
dealing with argument structures associated with certain types of verbs. First,

13 There is also the view that not all phrases need to be constructions per se. For example, the
subject-predicate construction can also be regarded as an epiphenomenon because there are no
VPs without subjects in sentences with a finite verb. As such, the subject-predicate construction
is rather an argument structure construction that is projected from the verb. Thanks to Klaus
Welke for reminding me of this important point.
14 M&W also do not take into account the relevant constructionist literature on coercion (e.g.
Michaelis 2004a, Boas 2011c, Gonzálvez-García 2011), which addresses important data regarding
otherwise puzzling contrasts in the caused-motion construction, such as the following:

(i)   They stared/laughed him out of the room
(ii) *They killed/caught him out of the room

This coercion is paralleled by a categorial conversion (from *laugh/stare at* to *laugh/stare*). The
use of these verbs in the caused-motion construction is licensed by the "an experiential action
is an effectual action" metonymy (see Gonzálvez-García 2011: 1321–322). M&W's account of
coercion effects in the light of pragmatic factors obscures the fact that coercion effects are very
often inextricably linked with form-function pairings in specific contexts. Thanks to Francisco
Gonzálvez-García for this point.
15 M&W seem to misunderstand Goldberg's (1995) approach, which also allows for a verb li-
censed by the caused-motion construction to combine with the passive (see also the BCG account
of Fillmore and Kay (1993)). In Goldberg's account there have to be overrides of grammatical
function assignments, but Sag's (2012) Sign-based Construction Grammar approach requires
something very similar, in that passive is a derivational construction that 'changes' case assign-
ments of the daughter verb (cf. Michaelis 2013: 137). For a critique of such grammatical categories
and constructional taxonomies, see Croft (2013: 219–220).

consider M&W's predicate argument structure of the verb *nibble* in (1) on p. 4, whose predicate argument structure, consisting of two NPs, is abstract.[16]

(1) A predicate argument structure:

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\begin{bmatrix}
\text{PHON} & \langle \textit{nibble} \rangle \\
\text{ARG-ST} & \langle \text{NP}_x, \text{NP}_y \rangle \\
\text{CONTENT} & \textbf{nibble}(x, y)
\end{bmatrix}
$$

According to the authors, "this abstraction captures the commonality across different syntactic expressions of the arguments of a given root" (p. 4). One of the advantages of this approach is that "the effects of lexical rules together with the rules of syntax dictate the proper argument expression in each context" (M&W, p. 4), such as the following.

(2) a. The rabbits were nibbling the carrots.
    b. The rabbits were nibbling at/on the carrots.
    c. The rabbits were nibbling.
    d. The carrots were being nibbled (by the rabbits).
    e. The rabbit nibbled the carrot smooth.   (Müller and Wechsler: p. 4)

In the lexical rule approach, the lexeme *nibble* is involved in licensing multiple argument realization patterns as in (2a) (transitive), (2b) (conative), (2c) (intransitive), (2d) passive, and (2e) (resultative). In such cases, a lexical rule takes the abstract predicate argument structure as an input and licenses a verb with a different argument structure as an output (pp. 7, 9). In many ways, the results of this process are roughly parallel to the results of the type of fusion between verbs and ACSs as proposed by Goldberg (1995), except there are no overrides. Moreover, the lexical rule approach encounters some of the same problems as Goldberg's ASCs, i.e. ruling out unacceptable argument realization patterns of verbs closely related in meaning presents difficulties. For example, consider other ingestion verbs that are closely related in meaning with *nibble*, such as *devour*, *gobble*, *ingest*, and *munch*. Presumably, the predicate argument structures of these verbs parallel that of *nibble* in (1), i.e. they contain two NPs in their argument structure lists. Therefore, the same set of lexical rules and other processes applying to the predicate argument structure of *nibble* should in principle also be applicable to the predicate argument structures of other ingestion verbs as well, thereby

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16 M&W's representation of *nibble* in (1) looks completely parallel to the one in Sign-based Construction Grammar, except that there is no frame-based semantics (see Sag 2012).

licensing multiple argument structure realization patterns that parallel those of *nibble*. However, the following examples show that these verbs do not exhibit parallel argument realization patterns.[17]

(3) a.   The children were devouring the carrots.
　　b. *The children were devouring at/on the carrots.
　　c. *The children were devouring.
　　d.   The carrots were being devoured (by the children).
　　e. *The child devoured the carrot smooth.

(4) a.   The children were gobbling the carrots.
　　b. ?The children were gobbling at/on the carrots.
　　c. *The children were gobbling.
　　d. ?The carrots were being gobbled (by the children).
　　e. *The child gobbled the carrot smooth.

(5) a.   The children were ingesting the carrots.
　　b. *The children were ingesting at/on the carrots.
　　c. *The children were ingesting.
　　d.   The carrots were being ingested (by the children).
　　e. *The child ingested the carrot smooth.

(6) a.   The children were munching the carrots.
　　b.   The children were munching {*at/on} the carrots.
　　c.   The children were munching.
　　d.   The carrots were being munched (by the children).
　　e. *The child munched the carrot smooth.

The data in (3)–(6) suggest that verbs closely related in meaning to *nibble* do not exhibit parallel argument realization patterns, despite their assumed parallel predicate argument structures. This observation leads to the conclusion that the information contained in lexical entries of the type in (1) is not sufficiently detailed to bar lexical rules from applying to lexical entries of verbs that are closely related in meaning to those types of verbs to which they can apply. Thus, lexical rules exhibit the same problems as some of Goldberg's ASCs exhibit, where fusion with lexical entries are not sufficiently constrained because they contain too little information (cf. Boas 2008a).

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17 I have changed *the rabbits* and *the rabbit* to *the children* and *the child*, respectively, so that the sentences describe a broader set of scenarios, thereby sounding less awkward).

This point is particularly interesting, because M&W repeatedly emphasize the importance of lexical valence structures when discussing their absence in phrasal approaches to argument structure, such as Goldberg's (1995) account of some ASCs. For example, M&W (p. 38) point out that "it is not sufficient to have general lexical items without valency information and let the syntax and world knowledge decide about argument realizations, because not all realizational patterns are determined by the meaning." The data in (2)–(6) support M&W's point, and, in my view, they also show that the types of information contained in lexical entries in many lexical approaches as those that the authors discussed are not sufficiently detailed.

M&W argue for the inclusion of lexical valence structures in lexical entries, and appear to want to keep the amount and level of detail of lexical valence structures to a minimum. In discussing data on idiosyncratic syntactic selections, M&W acknowledge that it is "utterly pervasive in human language" (p. 39), citing data from English and German. Yet, at the same time, M&W indicate that "the grammar must specify for specific verbs that certain arguments are necessary for a certain verb meaning or a certain perspective on an event" (p. 40). Given the data in (2)–(6), I suggest that M&W have not taken their stance in favor of the relevance of predicate argument structures far enough. In particular, the variation of argument realization patterns exhibited by the few ingestion verbs cited above show that the predicate argument structure(s) that M&W propose along with many other lexical approaches is not detailed enough.

Moreover, the data in (2)–(6) are only the tip of the iceberg, so to speak. A cursory comparison of the lexical entries of 35 different ingestion verbs in FrameNet (http://framenet.icsi.berkeley.edu) shows at least 18 different lexically determined valence patterns,[18] only some of which are shared by some ingestion verbs across the board. Such data strongly suggest the need to arrive at much more detailed lexical valence specifications for each (sense of a) verb (see also Boas 2011b, Faulhaber 2011b, and Gonzálvez-García 2011). In other words, predicate argument structures are indeed crucially important, in fact even more so than M&W claim. To illustrate this point, consider the role of lexical valence specifications in different approaches to classifying verbs.

The degree of idiosyncrasy of lexical valence specifications of verbs closely related in meaning is no isolated phenomenon. The topic has been addressed by

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18 These valence patterns are distinct from constructionally licensed valence patterns, see Fillmore (1986), Fillmore et al. (2012), Lambrecht and Lemoine (2005), and Lyngfelt (2012). Michaelis (2012) describes the Sign-based Construction Grammar approach to null complementation extensively, as do Ruppenhofer and Michaelis (2010), with specific focus on genre effects.

research on various phenomena, including the locative alternation (Salkoff 1983, Levin 1993, Baker and Ruppenhofer 2002, Boas 2003b, Iwata 2005/2008, Nemoto 2005), the applicative alternation (Ruppenhofer and Michaelis 2001), the ditransitive construction (Nemoto 1998, Kay 2005/2013, Timyam and Bergen 2010, Colleman 2011, Faulhaber 2011b, Stefanowitsch 2011), the resultative construction (Levin 1993, Goldberg 1995, Boas 2003a/2005, Leino 2010, Engelberg et al. 2011), and the caused-motion construction (Goldberg 1995, Timyam and Bergen 2010, Engelberg et al. 2011, Fillmore et al. 2012). A cursory glance at Levin's (1993) pioneering work on verb classes lends further support to this observation. The first part of the book (Levin 1993: 25–110) describes the many types of syntactic alternations and other constructions, together with the verb classes participating in them. Each of Levin's descriptions also contains helpful comments about particular aspects of individual alternations and constructions. Many of these comments point out that not all members of the same class do in fact participate in an alternation or construction under discussion: "Some of these verbs allow a range of objects, including several body parts" (Levin 1993: 35); "Most of the verbs showing this alternation are found in causative/inchoative pairs . . ." (Levin 1993: 58); "Some of the verbs showing the fulfilling alternation . . ." (Levin 1993: 66), etc.

Levin's (1993) insightful observations demonstrate her own awareness of the often difficult task of using syntactic criteria for defining verb classes: ". . . the verb classes identified in this book should be "handled with care," since there is a sense in which the notion "verb class" is an artificial construct" (1993: 17). Other researchers have subsequently drawn on Levin's (1993) observations to show that defining verb classes is a rather complicated enterprise.[19] More recently, corpus-based methods have revealed that the degree of idiosyncrasy in established verb classes appears to be far greater than previously thought.[20] This has led to a discussion of the types of criteria to apply to verb classification, namely syntactic criteria, semantic criteria, lexical relations, event structure, or a combination of these (see Boas 2008a, Schulte im Walde 2008, Baker and Fellbaum 2009, and Croft 2012, among others).

Regarding M&W's claims, I have argued that lexical approaches face some of the same issues as Goldberg's (1995) analysis of some ASCs. That is, neither

19 See Gross 1994, Francis et al. 1996, Faber and Mairal Usón 1999, Rappaport Hovav and Levin 1998, Wanner 1999, Hunston and Francis 2000. For a cross-linguistic perspective, see Levin (to appear).
20 See Baker and Ruppenhofer (2002), Fillmore et al. (2003), Herbst et al. (2004), Engelberg (2009), Proost (2009), Winkler (2009), Fillmore and Baker (2010), Boas (2011b), Engelberg et al. (2011), Faulhaber (2011b), Goschler (2011), and Hanks (2011).

approach pays sufficient attention to the importance of including more detailed information about a verb's argument structure in its lexical entries. One problem faced by the lexical rule approach (but not by the constructionist approach) is that lexical rules have difficulties with overriding cases like resultative constructions. Müller (2002) analyzes resultatives by means of a lexical rule which abruptly changes the valence property of the verb without any explanation of why or how this comes about. Another problem is that lexical rule approaches are necessarily derivational (see M&W, p. 14) and therefore suffer from ordering paradoxes, as discussed by Koenig (1999) and Iwata (2005, 2008). M&W claim that "-*able* derivation (. . .) is possible with transitive verbs only". Note, however, that words such as *laughable* or *dependable* are not rare. In order to account for such instances, the lexical rules approach would have to say that *laugh* and *depend* are first converted into transitive verbs, which are then inputs to the -*able* derivation rule. However, *laugh* and *depend* as transitive verbs would exist only for this purpose alone, and never "surface." Goldberg's (1995: 35) example *She topmassed him something* would run into similar problems under a lexical rules approach. In such cases, a hypothetical verb would have to be a three-place predicate, otherwise it could not appear in the ditransitive syntax. However, it is difficult to determine the valency of a non-existing verb until it appears in ditransitive syntax. In a way, M&W's argument in favor of lexical rules pointing to their derivational character can thus be interpreted as an argument against lexical rules.[21]

    One way of addressing this problem is first to focus on the identification of more fine-grained valency patterns of verbs to arrive at a complete inventory of the verbs' associated valency patterns. Such efforts are already under way by various research projects developing on-line lexical databases, which include valency information, such as the Erlangen Valency Pattern Bank (http://www.patternbank.uni-erlangen.de/cgi-bin/patternbank.cgi) (Herbst et al. 2004), FrameNet (http://framenet.icsi.berkeley.edu) (Fillmore and Baker 2010, Ruppenhofer et al. 2010), and WordNet (http://wordnet.princeton.edu/) (Fellbaum 1998).[22] Both lexical and phrasal approaches should incorporate the insights of these lexical databases to arrive at a more adequate empirical representation of predicate argument structures and valency information.

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21 I thank Seizi Iwata for discussion of these points.
22 See Fillmore (2007), Herbst (2010), and Fellbaum and Baker (2013), for how these projects identify valency patterns at the lexical level. For an extensive typological project comparing and contrasting verbs and valency classes, see the Leipzig Valency Classes Project at http://www.eva.mpg.de/lingua/valency/index.php.

4 The status of ASCs and other constructions

In my view, M&W's arguments against some of Goldberg's ASCs (along with other so-called phrasal approaches) and in favor of lexical rules are not very convincing. First, much of the data they discuss to show that ASCs are ill-equipped to handle issues such as morphological derivation (p. 14/30) and partial fronting (M&W, p. 15) does not seem not to be directly relevant for the theoretical status of most of Goldberg's ASCs. In other words, Goldberg (1995) does not claim that her ASCs play a crucial role in licensing these phenomena. However, constructionist proposals about how morphology interacts with what is traditionally known as the lexicon and syntax do exist (see e.g. Booij 2010/2013). That Goldberg's ASCs do not address the morphological issues raised by M&W does not mean that constructionist accounts cannot handle morphological derivation or other morphological phenomena.

Similarly, Goldberg does not claim that her ASCs are involved in determining whether a verb licenses fronted and unfronted arguments in a sentence. Licensing linear order phenomena such as partial fronting is not the role of ASCs, but instead of other types of constructions that do not involve augmentations of a verb's argument structure.[23] Goldberg's proposals can be adopted straightforwardly into more formalized versions of CxG, such as Berkeley Construction Grammar (Fillmore 2013) and Sign-based Construction Grammar (Sag 2012), both frameworks that also developed analyses of other types of constructions. Therefore, M&W's points regarding the status of ASCs are not that problematic if one assumes constructional networks in which Goldberg's ASCs are left in place as highly schematic abstractions over partially filled lexical mini-constructions, which in turn provide the types of valency information recorded in lexical databases such as FrameNet.

Another issue that M&W raise concerns unexpressed arguments that present difficulties for pattern-based constructional approaches (*John tried to sleep* / *John tried to be loved* (p. 51/52). However, several detailed constructional accounts that address different types of unexpressed arguments do exist, e.g. Fillmore (1986, 2013), Ruppenhofer and Michaelis (2010), and Lyngfelt (2012). In addition, the FrameNet database records detailed information about the types of arguments that can be left unexpressed in specific contexts, making a distinction between definite null instantiation, indefinite null instantiation, and constructional null

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23 See, e.g. Fillmore (1999) on subject auxiliary inversion constructions, Kay and Fillmore (1999) on the left isolation construction, Sag (2010) on filler gap constructions, Fillmore et al. (2012) on gapping constructions and clause-defining constructions, and Kay and Sag (2012) on discontinuous dependencies and complex determiners.

instantiation (see Ruppenhofer et al. 2010). Taking the types of valence information about verbs that include detailed information about null instantiation as augmenting Goldberg's ASCs and other types of constructions within constructional networks successfully resolves the problems that M&W point out regarding unexpressed arguments.

5 Conclusions and outlook

I have argued that M&W's lexical rule approach exhibits some of the same issues as Goldberg's ASC approach in accounting for multiple argument realization. To some extent, both approaches share these problems with other frameworks such as Rappaport Hovav and Levin's (1998) event structure approach (see Boas 2003a). That is, these frameworks all include difficulties accounting for multiple argument realization patterns based on a relatively minimal lexical entry together with some mechanism such as a lexical/syntactic rule, argument structure construction, or event structure template augmentation. Given these problems, the arguments that M&W present against ASCs are not entirely convincing.

I have tried to address these problems by proposing constructional networks that incorporate argument structure information at different levels of schematicity (Boas 2011a; see also Herbst 2011 and Wulff 2013). The proposals described above seek to combine the various insights from CxG and Valency Grammar, together with detailed lexical valence information drawn from knowledge bases such as FrameNet. This alternative approach shows that detailed lexical specifications of argument structure are even more important than that suggested by M&W. Note that I am not claiming that the types of detailed valence structures resolve all of the problems that M&W address.

Fillmore et al.'s (2012) typology of constructions suggests the contrary, i.e., that the constructionist enterprise is only at its beginning. Expanding the format of lexical descriptions to cover more abstract constructional phenomena (Fillmore et al. (2012) and Boas (in press)) for a so-called "constructicon" may perhaps even show that verbs (or verb senses) must be defined vis-à-vis the constructions in which they occur, and vice versa (see Boas 2010, 2011b). Croft (2013: 216) holds a similar view, namely that "each construction defines its own distribution, which may be (and usually is) distinct from the distribution of other constructions containing the same words or phrases."

In sum, W&M provide at best negative arguments against constructions, most of which appear to be based on an incomplete understanding of CxG. They do not provide compelling arguments that the lexical rule approach is more adequate than a constructionist approach.

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