

Meanings of Constructions

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Summary. Meanings are assembled in various ways in a construction-based grammar, and this array can be represented as a continuum of idiomaticity, a gradient of lexical fixity. Constructional meanings are the meanings to be discovered at every point along the idiomaticity continuum. At the leftmost, or ‘fixed’, extreme of this continuum are frozen idioms, like *the salt of the earth* and *in the know*. The set of frozen idioms includes those with idiosyncratic syntactic properties, e.g., the fixed expression *by and large* (an exceptional pattern of coordination in which a preposition and adjective are conjoined). Other frozen idioms, like the unexceptionable modified noun *red herring*, feature syntax found elsewhere. At the rightmost, or ‘open’ end of this continuum are fully productive patterns, including the rule that licenses the string *Kim blinked*, known as the Subject-Predicate construction. Between these two poles are (a) lexically fixed idiomatic expressions, verb-headed and otherwise, with regular inflection, e.g., *chew/chews/chewed the fat*; (b) flexible expressions with invariant lexical fillers, including phrasal idioms like *spill the beans* and the Correlative Conditional, e.g., *The more, the merrier*; and (c) specialized syntactic patterns without lexical fillers, e.g., the Conjunctive Conditional (e.g., *One more remark like that and you’re out of here*). Construction Grammar represents this range of expressions in a uniform way: whether phrasal or lexical, all are modeled as feature structures that specify phonological and morphological structure, meaning, use conditions and relevant syntactic information (including syntactic category and combinatoric potential).

I. Grammar as a Repertoire of Constructions¹

For the construction grammarian, the grammar of a language is an inventory of patterns that range from those with invariant lexical make-up (‘fixed formulas’) to those that constrain their component parts only in very broad ways—according to their lexical class or grammatical category. A construction grammar models this range with an array of constructions of correspondingly graded generality (Fillmore et al. 1988). Construction-based approaches do not draw a theoretical distinction between those formal patterns thought to be in the ‘core’ and those considered ‘peripheral’. Instead, the grammar is conceived as an inventory of form-function-meaning complexes of varying degrees of internal complexity and lexical fixity:

¹ This article relies heavily on both Kay and Michaelis 2012 and Kay and Michaelis forthcoming. I gratefully acknowledge insights of Paul Kay’s that underlie most of the observations made here. I also thank two anonymous reviewers for insightful critiques that have enabled me to improve the clarity, coverage and coherence of this article.

The [Construction Grammar] approach supposes a grammar to consist of a repertory of conventional associations of lexical, syntactic, and pragmatic information called constructions. Familiar grammar rules are simply constructions that are deficient in not containing any lexical information except for specification of rather gross syntactic categories—and, in some cases, lacking any pragmatic values as well. Every such conventional association that must be learned or recognized separately by the speaker of a language is a construction. This includes all idioms and partially productive lexico-grammatical patterns (Kay 1992: 310)

These “conventional associations” range from single lexemes like the verb *deign* to multiword expressions like the VP *split the difference* to syntactic templates lacking any lexical content, like that used to form polar interrogative questions. Whether we are describing a lexeme, or class of lexemes, in terms of its combinatoric potential (its *valence*), describing a word that has highly constrained selection properties (e.g., the adjective *blithering*) or describing a way to create a headed phrase of a particular type, we are describing patterns. All such patterns are represented as feature structures to which type labels are attached. Generalizations are derived from the hierarchy of types (sometimes referred to as an *inheritance hierarchy*): the type hierarchy allows us to depict highly specified patterns as instances of more schematic patterns, and combine their idiosyncratic properties with those inherited from their supertypes.

This framework allows us to acknowledge a truth that might otherwise seem self-evident: most idiomatic expressions are not very much like words at all. While we have been encouraged to see idioms as meaning what they mean in a word-like way—as having meanings attached via convention rather than assembled via rule-to-rule semantic composition—many expressions that can plausibly be labeled idioms bear more resemblance to transparently interpreted, regularly assembled phrases than they do to words. This means that while idioms are ‘stored’ rather than built on the fly through the recursive application of phrase-structure rules, they are not merely words with spaces. They are flexible, in the sense that the patterns on which they are based can be used to produce novel instances. The so-called *snow clones* provide abundant illustrations. A snow clone is a phrasal template (an expression with one or more open slots and some fixed lexical material) derived from a quote that has gained the status of a funny or clever tagline. Examples from the archive snowclones.org include:

1. *This is your brain on x* (derived from the 1987 PSA slogan *This is your brain on drugs*, with accompanying frying egg graphic)
2. *I x therefore I am* (derived from *I think, therefore I am*, the translation of Descartes’ *Je pense, donc je suis*.)
3. *Consider the x* (derived from *Consider the lilies*, the translation of a Greek passage in Luke 12:24.)
4. *My kingdom for a(n) x* (derived from the King Richard’s statement “A horse, a horse, my kingdom for a horse!” in Shakespeare’s *Richard III*.)

Are snow clones grammatical constructions? The simple answer is yes: all snow clones qualify as phrasal patterns. The phrasal sign built up by means of the pattern may be a clause, as in (1-2), a verb phrase, as in (3), or a NP-PP combination, as in (4). Snow clones occupy an intermediate position between substantive idioms and formal idioms. Substantive idioms are expressions in which all lexical positions are fully specified (Fillmore et al. 1988: 505). Examples include *Takes one to know one*, *Not to worry*, *up in arms*, *once upon a time*. Formal idioms, by contrast, are “syntactic patterns dedicated to semantic and pragmatic purposes not knowable from their form alone” (ibid). Examples of formal idioms in English are given in (5-8):

5. The Split Interrogative: *Hey, hey, what are you, claiming to be a Christian now or something?* (Michaelis and Feng 2015)
6. The Binomial NP: *that bastard of a mic stand, a giant of a man, a skull cracker of a headache* (Kim and Sells 2015)
7. The Not That construction: *A lot of women would have voted for him just because he was nicer looking—not that I think he was good looking, but he was young.* (Schmid 2013)
8. Hypotactic Apposition: *I think that’s uh that’s the principal problem is that uh people no longer see it as uh as their problem and as an immediate problem.* (Brenier and Michaelis 2005)

Along with specialized functions, these patterns exhibit certain grammatical peculiarities, and give the appearance of having been adapted from other, more transparent patterns in the grammar. The Split Interrogative indexes the user’s effort to attach the right value to a property variable in a contextually available open proposition and proposes the result of that effort in the form of a tag (referred to as ‘the proffer’ by Michaelis and Feng 2015). The proffer is what makes the construction idiomatic: it does not answer the question posed by the preceding interrogative: one could not reply to *What are you?* by saying *Claiming to be a Christian*. The Binomial NP appears to be a partitive construction akin to *a piece of the pie*, but is in fact an appositive construction—the head noun attributes a property to the noun in the PP complement. The Not That construction is used to preclude an invited inference (e.g., that the speaker of (7) shares the assessment of the women voters being described). It seems to be a fragment of a certain variety of *it*-cleft but, unlike an *it*-cleft, it cannot be embedded: *I think *(it’s) not that he was good looking*. The Hypotactic Apposition construction, a spoken-language construction exemplified by the boldface portion of (8), is used to announce a forthcoming illocutionary act (typically an assertion). It consists of a ‘set-up’ clause that contains a cataphoric demonstrative pronoun (in (8), *I think that’s the principle problem*) followed by a copular VP whose complement is the illocutionary act; in (8), this VP is *is that people no longer see it as their problem and as an immediate problem*. Brenier and Michaelis 2005 analyze this construction as a syntactic amalgam, observing that it lacks a coherent analysis in standard phrase-structure grammar: it is a phrasal unit consisting of a clause (the set-up clause) and a VP, but the set-up clause cannot be viewed as a sentential subject, because its VP sister is not predicated of the clause. For example, in (8), the VP *is that people no longer see it as their problem...* is predicated of the complement of the verb in the set-up clause (*the principle problem*) rather than being predicated of the set-up clause.

The foregoing survey should not be taken as suggesting that formal idioms are necessarily syntactically odd. As Fillmore et al. 1998 observe, there are syntactically regular structures that derive their idiomaticity only from the fact that they feature (conventional) interpretations distinct from what could be built up by ‘ordinary’ rule-to-rule semantic composition. One such pattern is the Pseudo-imperative, illustrated by the boldfaced portion of (9):

9. The weather is starting to cool (at least for now—**watch it be like 90 degrees tomorrow**. smh) and the only thing about that that excites me is the layering that comes with it.

The Pseudo-imperative does not share its function with the superficially identical string used to convey an order. The Pseudo-imperative instead performs an act of humorous pretense: “conjuring fate” (Kay and Michaelis 2012). The user of (8) suggests that what will occur will not only thwart her plans but also expose the folly of prediction more generally. While one could argue that the imperative plays some role in directing the addressee’s attention to the state of affairs conveyed by the complement of *watch*, the ironic interpretation seems impossible to compute; it is instead a matter of linguistic convention—in Morgan’s terms, a convention *of* language rather than convention *about* language (Morgan 1978). A naïve speaker of English might be unaware of this interpretive convention just as she might be ignorant of the phrase-construction strategies in (5-8).

If we want to create a complete picture of the language user’s competence, we cannot ignore these productive and yet idiosyncratic patterns, but to represent them we need something more than the standard descriptive tools—a system of general syntactic rules and a lexicon of words and fixed phrases (Fillmore et al. 1988: 534). We need the ability to build—and compose the meanings of—phrasal units that canonical phrase-structure rules (and their associated rules of semantic composition) do not capture.

As it happens, the descriptive machinery of Construction Grammar is sufficiently powerful to represent both core and non-core morphosyntactic configurations—a result of the exocentric approach taken to both phrase composition and phrase interpretation. In Construction Grammar, it is constructions, rather than lexical or ‘functional’ heads, that determine the possible syntactic combinations of the language, just as constructions determine what those combinations mean and how they are used. Thus, constructions, like lexical entries, associate form with meaning. Both constructions and lexical entries license signs, whether these signs are words or phrases. The treatment of syntactic rules as meaning-bearing distinguishes Construction Grammar from other formal syntactic theories, in which the head of a phrase provides the sole point of connection between syntax and semantics. In such frameworks, the head determines, on the basis of its meaning, what expressions can or may accompany it (i.e. its complements and adjuncts), it determines the syntactic category of the phrasal unit created to fulfill those combinatoric requirements and it determines what image-schematic or frame-semantic content is conveyed by that phrase, as, e.g., a verb phrase denotes the same kind of

relation or property as that expressed by its head verb. A look at patterns like the Pseudo-imperative suggests, however, that the head-driven model of the syntax-semantics interface is too restrictive. While the verb that heads the VP, *watch*, displays its ordinary selection behavior (it lacks a subject, in common with other imperative verbs, and it takes the kind of non-finite clausal complement typical of verbs of perception), the VP lacks an imperative interpretation entirely. Put differently, the meaning of (9) owes little or nothing to the meaning of its head verb, even though this particular verb, in this particular form, is a hallmark of the construction. The Pseudo-imperative is a complex structure that means what it means in defiance of its subparts.

Syntactically regular formal idioms are found outside of English as well. Michaelis (1994) identifies an idiom of this nature in Silver Age Latin, as a case of constructional (non-syntactic) ambiguity.² The relevant construction, a paratactic biclausal correlative pattern, has both a syntactically transparent meaning, as in (10), where it functions as a type of conditional sentence, and an apparently non-compositional meaning, as in (11), where it has a function like that of the English *as...as* construction:

10. *Quanto diutius abest, magis cupio tanto.*
 by.how.much longer he.is.away more I.desire by.that.much
 ‘The longer he is away the more I long for him.’ [causal linkage between variables]
 (=Michaelis 1994, example (5))
11. *Quanto altius elatus erat, tanto foedius conruit.*
 by.how.much higher risen he.was by.that.much more-fouly he.fell
 ‘To the degree to which he had risen high, he fell foully.’ [equivalence of fixed degrees]
 (=Michaelis 1994, example (2))

In (10), the paired comparative expressions *quanto diutius* (‘by how much longer’) and *tanto magis* (‘by that much greater’) convey, respectively, an increase in the value of one variable (duration) and a concomitant increase in the value of another (longing). These comparative expressions are like those used to convey ‘moving standard’ comparison more generally; for example, the comparative adjective *taller* in *She’s getting taller* conveys the sequential achievement of degree of tallness greater than each previously achieved value. In (11), by contrast, the comparative expressions *quanto altius* (‘by how much higher’) and *tanto foedius* (‘by that much more foully’) appear not to contribute comparative meaning: the sentence equates fixed degrees of height and foulness, respectively, rather than describing accretion of these values over time.

Let us assume, in line with head-driven accounts of meaning composition, that the meaning of each clause in the biclausal pattern includes the meaning of the comparative-expression daughter. Sag’s (2010) analysis of the analogous English construction (which he refers to as the Correlative Conditional or More the Merrier construction) includes this assumption: each clausal daughter instantiates the filler-gap construction also instantiated by various *wh*-phrase types; the comparative expression (e.g., *quanto altius*) is the filler

² In non-syntactic ambiguity, a given syntactic configuration has multiple meanings, and these meanings are not attributable to alternate syntactic parses of the relevant word string (Zwicky and Sadock 1975).

and the gapped clause (e.g., *elatus erat*) the head. Each clause in the parataxis expresses a differential (e.g., an increase in altitude), and the entire parataxis then predicates a relation of correspondence between the differentials evoked by the two clauses. This analysis offers no route to the (non-conditional, ‘as...as’) reading in (11): each clause in the parataxis, by virtue of semantic specifications passed up from its comparative-phrase daughter, would express a set of differentials rather than a single fixed value. While the equivalence reading is attached to the form used to convey the ‘linked variables’ reading, this appears to be a matter of convention rather than semantic composition: the paired comparative expressions in predications like (11) do not have the meanings that they have outside of this particular syntactic context.

Head-driven accounts of syntactic meaning construction allow ‘bottom up’ semantic composition, but they do not admit ‘top-down’ meaning, in which phrasal units have meanings distinct from those of their subparts. This is a shortcoming that Construction Grammar was devised to remedy. Construction Grammar countered a reductionist tendency among formal syntactic theories. Rather than treating phrase-structural configurations as an emergent phenomena—effects of lexical dependencies combined with restrictions imposed by a (category-neutral) template for syntactic assembly, Construction Grammar assumes a wide array of category-specific phrase-structure rules, corresponding to the wide array of phrasal patterns that we actually encounter in the target language. Syntactic sisterhood relationships are licensed by constructions, and so heads play a limited role in determining how phrases are built and interpreted. While every phrasal template is presumed to have a syntactic head (the daughter that shares its syntactic category with that of the mother), not every phrasal template has a *semantic* head: the phrasal mother may feature semantic content (including argument-role arrays) not contributed by the head daughter. A case in point is valence augmentation; Goldberg (1995, 2006) uses motion sentences like (12), first described by Jackendoff (1992), to make the case that patterns of argument structure (so-called argument-structure constructions) exist independently of lexical argument-taking predictors:

12. *A patient at the Samsung Medical Center became a “superspreader” of Middle East respiratory syndrome after a misdiagnosis, leaving him to **wheeze and cough** around the hospital.* (NY Times 6/17/15)

The verbs *wheeze* and *cough* are, we assume, single-argument verbs that denote acts of sound emission. As such, they are presumably incompatible with any expression that denotes a trajectory of the agent. The fact that these verbs do combine with a path PP in (12) cannot therefore be attributed to lexical selection. Instead, the path-denoting PP is viewed as the product of constructional licensing; the construction in question is the Directed Motion construction. The construction’s valence properly includes that of the verb. When combined with the Directed Motion construction, what is otherwise a verb of sound emission is reinterpreted as a manner-of-motion verb in the appropriate syntactic context. While implementations differ—valence augmentation is an effect of semantic-incompatibility resolution for Goldberg while it is the product of a derivational construction for Kay (2005) and Sag (2012)—constructionists agree that the enriched

construal comes from a syntactic pattern to which a coarse-grained event-structure representation is attached. The idea that verbs have distinct entailments in distinct syntactic contexts is shared by non-constructional approaches to verbal argument structure, including Rappaport Hovav and Levin (1998) and Levin and Rappaport Hovav (2005), who attribute a verb's syntactic behavior to its event-structure representation. They propose a 'verb building' function that augments the verb's basic event-structure representation up to another one. This approach preserves the strict version of compositionality to be discussed in Section II below, in which conceptual content comes exclusively from lexemes (rather than both from lexemes and constructions). In this approach, a verb has the syntactic frame that it does because of its event structure, and a verb that has multiple syntactic frames belongs to multiple Aktionsart classes. This lexical-semantic approach yields insights about the meanings of argument-structure patterns similar to those offered by construction-based approaches, but also makes certain incorrect predictions about verb meaning and behavior. For example, according to the verb-building model, result verbs like *break*, which correspond to the accomplishment aspectual class, have maximally specified event-structure templates, and therefore cannot be further augmented; in this respect they contrast with activity verbs like *sweep*. Rappaport Hovav and Levin (1998: 103) offer ungrammatical examples like **Kelly broke the dishes off the table* in support of this claim.³ Counterexamples, however, are not hard to find: result verbs are attested in caused-motion predications like *She broke the crackers into the soup* and *She broke the branches off the tree*. Such combinations are not barred by the Goldberg (1995) model of valence variability, which requires only that the verb identify a subevent within the event sequence denoted by the construction. In the examples at hand, breaking is construed as an action ongoing during the movement of the theme element to its endpoint. In such sentences, the verb's direct object does double duty, fulfilling the patient role (for the verb) and the theme role (for the construction). In the construction-based model of argument structure, verb-valence variability arises from a reconciliation procedure (wherein the interpreter relates verb meaning to construction meaning). This procedure might be said to disrupt the verb's ordinary pattern of semantic-role assignment rather than merely adding semantic roles to the verb's existing repertoire.

While emphasizing the contribution of constructions to the argument arrays that words feature in particular contexts of use, the constructionists acknowledge the crucial role played by the combinatoric properties of words: many syntactic configurations, if not most, are owed to the syntactic potentials of their head words, including idiom words. The theory thus acknowledges that idiomatic expressions range from highly schematic formal patterns like the Split Interrogative and Pseudo-imperative to classic multiword expressions like *burn the midnight oil* and *under the gun*. The former are modeled as constructs (trees consisting of a mother node plus its daughters, with a feature structure at each node) and the latter as bags of idiom words, each of which has special combinatoric properties.

To discover what constructions mean we must first ask *how* they mean. The remainder of this article will be devoted to an exploration of the ways in which meanings are

³ The ungrammatical reading is that in which Kelly causes the dishes to be off the table by breaking them.

assembled in a construction-based grammar. In the following section, Section 2, we will ask whether a construction-based theory of meaning can also be a compositional one. In Section 3, we will explore the claim that all expressions of a language fall at some point on a continuum of idiomaticity. Section 4 will describe the formal representation of constructions and lexemes in construction-based grammar, illustrating its representational conventions by reference to Kay and Michaelis's (forthcoming) analysis of the English multiword expression *to do with*, as in, e.g., *something do with syntax*. Section 5 offers brief concluding remarks. The formal implementation of Construction Grammar to be assumed in this article is Sign Based Construction Grammar (SBCG; Sag 2010, 2012, Kay and Sag 2012, Michaelis 2012, Kay and Michaelis 2012, forthcoming).

II. Constructional Meaning and Compositionality

Is a construction-based grammar a compositional grammar? As discussed in Section 1, one of the major motivations for construction-based grammar is the observation that a given rule of syntactic assembly may be associated with more than one interpretation. A sentence (or other phrase) is viewed as having a non-compositional interpretation when its interpretation differs from what could be built up from its words and the constituent phrases in which these words serve as heads. The Pseudo-imperative is one such case: its head is an imperative verb but it does not count as an imperative VP. If we allow that rules of syntactic combination (descriptions of local trees) may be directly associated with interpretive and use conditions, then we are admitting two sources of conceptual content in language: (1) words, which feature combinatoric constraints, and (2) patterns of phrase assembly, which can, but need not, require specific words in their terminal nodes. The patterns in (2) are constructions. Constructions play no role in the prevailing account of meaning composition, where syntactic rules do nothing more than constrain what symbol sequences are treated as units by certain kinds of syntactic processes (displacement, anaphoric substitution, coordination, etc.). In this framework, meaning composition is, as Jackendoff (1997:48) puts it, *syntactically transparent*: syntactic rules assemble words and their dependent elements into phrases that denote complex concepts like predicates and propositions, but the rules do not add conceptual content beyond that contributed by the words; and they cannot change the combinatoric properties of the words (Kay and Michaelis 2012: 2272).

To take a construction-based perspective on semantic composition is not to deny the existence of syntactically transparent composition: if a class of expressions can be represented by means of a phrase structure rule that is paired with a rule that composes the semantics of the mother from the semantics of the daughters, “a construction-based approach would propose a construction that is functionally equivalent to such a rule-to-rule pair” (ibid). What distinguishes constructional approaches is the ability to represent linguistic structures, like the Pseudo-imperative, in which the meaning of a phrase cannot be attributed solely to the meanings of its daughters. Approaches admitting only syntactically transparent (or ‘rule to rule’) composition lack this ability. To see this, we need only look at standard definitions of compositionality, like that found in the online *Stanford Encyclopedia of Philosophy*:

13. “If a language is compositional, it cannot contain a pair of non-synonymous complex expressions with identical structure and pairwise synonymous constituents.” (Szabó 2007)

If we attempt to apply Szabó’s diagnostic to the Pseudo-imperative construction, the result is not sensible: we are forced to conclude either that English is not a compositional language or that Pseudo-imperative constructs are syntactically distinct from ordinary imperatives.⁴ As paradoxical as it might seem, a constructional approach may be needed in such situations to salvage compositionality. When a syntactic construct (a string of words with a particular hierarchical structure) has two distinct meanings, a constructionist attributes these meanings to two different collections of form-meaning licensors (Kay and Michaelis 2012: 2274). When a token like (9) is interpreted as a Pseudo-imperative, this is because it is licensed by the Pseudo-imperative construction rather than by the Imperative construction. Compositionality is preserved, since the meaning of a phrasal unit is still a function of the meanings of the words and their manner of combination—it is simply that there are many more rules of combination than countenanced in traditional approaches, and these may have meanings that owe little or nothing to the meanings of their daughters.

III. The Continuum of Idiomaticity

Meanings are assembled in various ways in a construction-based grammar, and this array can be represented as a continuum of idiomaticity. Figure 1 depicts this continuum as a gradient of lexical fixity; it is based on Kay and Michaelis 2012.

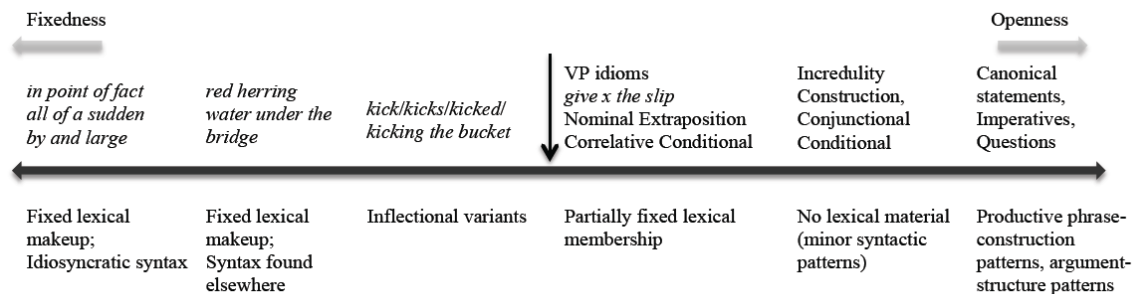


Figure 1. The idiomaticity continuum

This continuum distinguishes types of complex expressions according to their degree or productivity, and in particular the range of lexical, inflectional or syntactic variants attested for each type. The least lexically fixed type is one like the NP construction, which does not constrain either lexeme identity or lexeme form. What is crucial here is that every pattern of the language, from the fixed formulas to the fully productive phrase-structure rules, falls at some point along the idiomaticity continuum. Therefore, we address the question of how and what constructions mean by asking what idioms mean.

⁴ Note in addition that the difficulty remains even if we declare a special idiomatic meaning for the verb *watch*—it is still an imperative verb in a clause that lacks directive illocutionary force.

At the leftmost, or ‘fixed’, extreme of this continuum are frozen idioms, like *the salt of the earth* and *in the know*. As indicated, the set of frozen idioms includes those with idiosyncratic syntactic properties. For example, the fixed expression *by and large* represents an exceptional pattern of coordination, in which a preposition and adjective are conjoined. The expression *all of a sudden* is syntactically odd in a similar way: the complement of the quantifier head *all* is a PP whose complement is an adjective (*sudden*) rather than a NP. Other frozen idioms, like the modified noun *red herring*, feature syntax found elsewhere. As we move toward more expansible expressions, we encounter lexically fixed idiomatic expressions, verb-headed and otherwise, that are inflected in the same manner they would be if their meanings were non-idiomatic. One such expression is the VP idiom *chew/chews/chewed the fat*, meaning ‘engage in conversation’. A class of expressions that features still greater flexibility is that of patterns that have only partially fixed lexical membership; snow clones belong to this class. This class also includes phrasal idioms like *spill the beans*, whose component words map in a one-to-one fashion to their literal paraphrases (e.g., ‘tell the secret(s)’ in the case of *spill the beans* and ‘exercise influence’ in the case of *pull strings*). Crucially, such idioms behave just like non-idiomatic VPs with regard to the allowable syntactic instantiations of their arguments, as shown in (14-17):

14. Quantification: *The Washington Post spilled **lots of beans** on this Bush brother.*
15. Adjectival modification: *The pop icon’s estranged sibling [...] spilled **some dirty beans**.*
16. Wh-extraction: *the beans that were spilled under the effects of the drug*
17. Passive: *Beans will be spilled if they need to be.*

The syntactic flexibility exhibited by such VP idioms, which Nunberg et al. 1994 refer to as *idiomatically combining forms*, has led several theorists to analyze them as products of lexical selection (an idiomatic head verb selects for one or more idiomatic arguments), with phrasal properties determined by independently motivated phrasal constructions of the grammar (Kay et al. forthcoming, Kay and Michaelis forthcoming). The strategy used to prevent idiom words—like *beans* in *spill the beans*—from appearing without the appropriate idiom predicator is to constrain the valence properties of the idiomatic predicator, such that that an idiomatic *spill* verb (which carries semantic features that represent its ‘reveal’ meaning) seeks to combine with a definitely determined, plural nominal *beans*, which carries semantic features that represent its literal meaning (‘secrets’). Somewhat more open than idiomatically combining forms are those phrasal idioms that contain variables in place of lexically filled arguments; an example is the VP idiom *give x the slip* (‘abandon x’) and the NP idiom *thorn in x’s side* (‘persistent problem for x’).

In addition to flexible and partially open multiword expressions, this class includes clausal constructions that resembling multiword expressions in evoking particular words (rather than word classes more broadly) The downward arrow in the diagram indicates a decreasing amount of pre-specified lexical content among the expressions in this class. One such construction is Nominal Extraposition (Michaelis and Lambrecht 2006), exemplified in (18-19):

18. *It's amazing the difference.*
19. *It's remarkable the people you see here.*

Nominal Extraposition is an exclamatory pattern in which an epistemic adjective (e.g., *amazing, remarkable, unbelievable*) takes dummy *it* as its subject and a definite NP as its complement; the complement NP metonymically denotes a scalar degree (amount, number, magnitude, etc.). The set of partially lexically fixed constructions also includes the Correlative Conditional construction (Fillmore 1986, Michaelis 1994, Culicover and Jackendoff 1999, Capelle 2011), as illustrated by the proverbial expressions in (20-22):

20. *The more, the merrier.*
21. *The bigger they come the harder they fall.*
22. *The more you have, the more you want.*

This biclausal construction (which has elliptical variants, as in (20)) is formally characterized by the presence of two clause-initial comparative phrases, each of which is introduced by the word *the*—a reflex not of the definite article but of Old English instrumental-case demonstrative pronoun *þy* ‘by that much’. In this construction, *the* serves as a degree marker. Predications built from this construction express a causal relationship between the values of two variables, with first clause expressing the independent variable and the second the dependent (Fillmore 1986, Michaelis 1994). In the case of (22), for example, the independent variable is the number of possessions, while the dependent variable is the degree of desire for possessions.

As we move toward fully open patterns, we encounter specialized syntactic patterns without lexical fillers, including the Incredulity Response (23), analyzed by Lambrecht (1990) as an unlinked topic construction, and the Conjunctive Conditional, illustrated in (24):

23. *What, me go to the gym? Never! I do ride my bike round Richmond Park, though, and I play a bit of golf, but that's all.*
24. *One more remark like that and you're out of here.*

While containing no lexical fillers, these minor patterns are not fully open: an Incredulity Response must contain a non-finite (or non-verbal) predicate and the Conjunctive Conditional must contain the conjunction *and*. At the rightmost, or ‘open’ end of this continuum are fully productive patterns without lexically fixed portions (although they do contain lexical-class constraints of varying grains). This group of patterns includes the argument-structure constructions mentioned in Section 1 above, e.g., the Caused Motion construction (e.g., *The kids swam the logs upstream*), the Resultative construction (e.g., *You hurt my eyes open*) and the Ditransitive construction (e.g., *We recently adopted her a sister*). These correspond to both derivational constructions and lexical-class constructions in SBCG. As described by Goldberg, these constructions express kinds of actions (e.g., transfer, caused motion, directed motion). Frame-semantic representations are used to represent these meanings. Each of these representations includes the array of

participant roles appropriate to the denoted event type (agent, theme and recipient in the case of the Ditransitive construction). When ‘constructional’ participant roles are distinct from those of the verb lexeme with which the construction combines, the construction alters the combinatoric potential of the verb lexeme. As an illustration of this effect, consider again (12), repeated here as (25):

25. *A patient at the Samsung Medical Center became a “superspreader” of Middle East respiratory syndrome after a misdiagnosis, leaving him to **wheeze and cough around the hospital.*** (NY Times 6/17/15)

In (25) the verbs *wheeze* and *cough*, which are otherwise single-argument verbs of sound emission, are combined with a PP describing direction of motion (*around the hospital*). The interpreter’s challenge in such contexts is to combine verb meaning and construction meaning in a coherent way. This exercise involves identifying the agent of motion with the emitter of the sound: wheezing and coughing are construed in this context as manner-of-motion verbs.

As is widely acknowledged (Pinker 1989, Goldberg 1995, 2006), argument-structure constructions have restricted or ‘partial’ productivity owing to lexeme-class restrictions (e.g., certain classes of transfer verbs, including most Latinate verbs, do not generally combine with the Ditransitive construction). By contrast, phrase-building patterns exhibit few lexical-class restrictions; these are the patterns that correspond to the local trees built by phrase-structure rules. Among these rules (constructions) are those that license canonical *wh*- and polar-interrogative questions, imperatives and declarative sentences like *Kim blinked*, known as the Subject-Predicate construction. Constructional meanings are the meanings to be discovered at every point along the idiomaticity continuum. Constructional meanings are as rich and varied as the frames evoked by lexical items: they include metaphorical figures like that associated with the VP idiom *spill the beans* (Kay et al. forthcoming), event-structure frames like those associated with the ditransitive construction (Goldberg 1995), temporal schemas like those associated with the progressive and perfect constructions (Michaelis 2011), scalar and conditional meanings like that associated with the Correlative Conditional (Fillmore 1986, Michaelis 1994, Sag 2010), exclamatory meanings like that associated with Nominal Extraposition (Michaelis and Lambrecht 1996) and information-packaging functions like those associated with various cleft constructions (Lambrecht 2001). Constructional meanings include those traditionally analyzed as conventional implicatures, as well as less commonly recognized illocutionary forces like the ‘allusive pretense’ function of the Split Interrogative (Michaelis and Feng 2015) or the ‘fate conjuring’ function of the Pseudo-imperative (see Kay and Michaelis 2012 for a fuller discussion of this range of meanings, including indexical and metalinguistic meanings).

Is it in fact appropriate to regard the space of construction types as a continuum? A reviewer remarks that the idiomaticity continuum appears to be a set of discrete types rather than a gradient of the type described by Wulff (2009) in her treatment of idiomatic expressions. Wulff observes, as do Kay and Michaelis (2012), that there are several dimensions of flexibility that can be used to distinguish idiomatic expressions (syntactic

flexibility, lexical flexibility, inflectional flexibility). Her treatment, however, more closely resembles a prototype-based model than a continuum: she describes logically separable properties that coalesce in the best exemplars of the idiom category. The continuum discussed here distinguishes types of complex expressions according to a single parameter: the range of permutations attested for each type—whether these are lexical variants, inflectional variants, syntactic variants or a combination thereof. Critically, it is not a ‘continuum of compositionality’, as the reviewer appears to assume. While Wulff, for example, treats compositionality as a gradient property (the extent to which the component words contribute to the meaning of the particular complex expression), Kay and Michaelis do not. A complex expression cannot be more or less compositional. As they put it (2012: 2273), “[i]f the grammar accords to a sentence a different interpretation from what could be built up piece by piece from its words and constituent phrases, syntactically transparent compositionality scores this as an instance of non-compositionality”. Their point, however, is that given a sufficient number of rules of composition, and a lexicon that is rich enough to capture meanings of words that are particular to a given construction (as the special imperative *watch* is particular to the Pseudo-Imperative), we can build a compositional grammar of idiomatic expressions.

IV. Formal Implementation

Construction Grammar provides a uniform treatment of the range of expressions that comprise the idiomaticity continuum: all such expressions are modeled as feature structures that specify phonological and morphological structure, meaning, use conditions and relevant syntactic information (including syntactic category and combinatoric potential). The most important type of feature structure (FS) in SBCG is the *sign*, with subtypes *word*, *lexeme* and *phrase* (Sag 2012: 71).

Each sign has a FORM feature, whose value is a morphological representation of the expression, notated in standard English orthography. The other features of the sign are PHON(ology), ARG-ST (argument structure; for lexical signs only), SYN(tax), SEM(antics), and CONTEXT. The value of SYN is a feature structure that specifies the features CAT(egory), VAL(ence), and MRKG (marking). CAT values are FSs assigned to various word-class types (*noun*, *verb*, etc.), and specify values for the features appropriate to that type, including XARG (a predicative lexeme’s external argument or ‘subject’) and Lexical Identity (LID), whose value is a list of frames.

Another type of feature structure is the construct. Constructs are local trees that are licensed by a particular kind of construction: a combinatoric construction. A construct is represented in the FS-based system of SBCG as a FS that specifies values for the MOTHER (MTR) feature and the DAUGHTERS (DTRS) feature. The value of MTR is a sign and the value of DTRS is a nonempty list of signs.

These feature structures are typed and the types are hierarchically organized such that, for example, the inverted exclamatory phrase exemplified by *Am I tired!* is a subtype of auxiliary-initial phrase. A licit expression of the language, whether word or phrase, is one that is describable by some combination of constructions and *listemes*. Constructions include *lexical-class constructions*, lexical descriptions that capture semantic and

syntactic properties common to a group of lexemes (e.g., all ditransitive verbs), and *combinatory constructions*, like the Subject-Predicate construction, which licenses basic finite clauses, and the Head-Complement construction, which licenses units like verb phrase and preposition phrase. Combinatory constructions describe constructs (local trees with syntactic and semantic features at their nodes). Listeme is a generalization of the concept *lexeme*: each lexical sign or multi-word expression is licensed by some listeme.

In thinking about SBCG and other construction-based formal framework, it is important to recognize a distinction between the term *construction* as we use it in a pre-theoretical sense, to denote a construct or construct type, and the term *construction* as it is used in the theory. Although one might, for example, refer loosely to a given instance of the Subject-Predicate construction (say, *Kim blinked*) as a construction, an actual linguistic token is no more a construction than a sound is a phoneme. In SBCG, a construction is a description of a class of FSs—whether the FS is used to represent a lexical class or a class of constructs (local trees). A construction can, be said to *license* a range of constructs—as the Subject-Predicate construction licenses a class of clausal constructs—but a construction is not a construct; it is a description rather than a language object.

What exactly is licensing? The difference between a construction-based approach to grammar and one based on interacting universal principles can be viewed in part as a distinction between a positive licensing strategy—ruling certain structures in—and a negative suppression-based strategy—ruling certain structures out (Zwicky 1994, Malouf 2003, Duffield and Michaelis 2011, Michaelis 2012). A suppression-based theory is deemed successful if each of the ill-formed sentences of the language under study violates at least one constraint.⁵ By contrast, according to the licensing-based view of grammar adopted by SBCG

[a]n expression is syntactically well-formed if its phonological form is paired with its semantics as an instance of some syntactic construction. It follows that an expression is ungrammatical only because there is no combination of constructions that license it, not because there is some cross-constructional filter that rules it out. (Zwicky 1994: 614)

Because both phrases and lexemes are modeled as feature structures of the type *sign* in SBCG, the question of what forms the grammar licenses comes down to the question of whether a given FS of the type *sign* is well formed. Well formedness in turn is based on the Sign Principle (Sag 2012: 97) as given in (26):

26. The Sign Principle

Every sign must be listemically or constructionally licensed, where:

- a. a sign is listemically licensed only if it satisfies some listeme, and
- b. a sign is constructionally licensed only if it is the mother of some well-formed construct.

⁵ This is not to suggest that licensing-based theories like SBCG lack general principles that rule out certain structures, only that most such constraints can be seen to arise from discourse-pragmatic or processing factors. These constraints include island constraints, as described by Hofmeister and Sag (2010), and constraints found in a variety of languages that bar focal referents from appearing in subject position (Duffield and Michaelis 2011).

The Sign Principle allows SBCG analyze lexical signs and constructs in much the same way: each kind of model object is deemed well formed (or not) according to its conformity to an FS description of the type *sign* in the grammar. However, the well formedness of a construct (a model object) is determined indirectly, according to whether the construct's *mother sign* conforms to a phrasal sign of the grammar (recall that a construct is a local tree with signs at its nodes). As Sag points out (Sag 2012: 91), “the model that SBCG provides for each expression of a language is a sign, even though the analysis (or the ‘construction’) of that sign if it is not ‘listemically licensed’ [...] must involve a construct with that sign as mother and one or more signs as daughters”. What is critical here is that the uniform approach to lexical signs and constructs allows for a uniform approach to all of the expressions—both lexemic and templatic—that populate the idiomaticity continuum.

While it seems reasonable to equate open patterns with combinatory constructions and fixed expressions (like *water under the bridge*) with listemes, the picture is not quite that simple. Some patterns that are intuitively describable as sentence types, like Nominal Extraposition (e.g., *It's amazing the difference*), are appropriately modeled instead as lexical-class constructions. In the case of Nominal Extraposition, the class described is a class of exclamatory predicators with a shared valence value: $\langle it, NP \rangle$ (Michaelis 2015). The epistemic adjectives *amazing*, *remarkable* and *astonishing* belong to this class, among others. And most multiword expressions, e.g., *spill the beans*, are not represented as ‘words with spaces’ but rather through combinatoric restrictions on individual idiom words, e.g., idiomatic *spill* (Kay et al. 2015). The meanings of the phrases and sentences in which idiomatic multiword expressions occur are built up by the same procedure that composes the meanings of phrases and sentences that contain no idiom words: namely, recursive licensing by phrasal constructions.⁶ As a consequence, most multiword expressions need not contain information about the phrasal configurations in which they occur. This is the right result, because, as we have already seen, idiom components are not always realized in their canonical syntactic positions. Examples (14-17) showed that an idiomatic direct object (the beans NP of *spill the beans*) is subject to a variety of permutations—it is extractable, it can be realized in subject position and it is modifiable. If *spill the beans* is viewed as a stored VP, there is no way to capture this flexibility. If instead, we assume that there is an idiomatic verb *spill* whose valence requirements include a NP headed by an idiomatic lexeme *beans*, syntactic flexibility is follows (Kay et al. forthcoming). The lesson here is that a multiword expression can contain words that are picky selectors of other words without being ‘frozen’.

To illustrate the SBCG approach to idiomatic multiword expressions, we will briefly examine the multiword expression *to do with*, as analyzed by Kay and Michaelis (forthcoming). Examples are given in (27-29):

27. It has (much) to do with religious values. (cf. *It does (much) with religious values, ??I believe it to do with religious values.)
28. What does that have to do with me?

⁶ Recursive constructional licensing is analogous to the recursive application of phrase-structure rules in context-free grammars.

29. I asked a question to do with money.

The expression *to do with* (henceforth TDW) is analyzed as a two-place intransitive predicator meaning roughly ‘be related to’. For example, a question to do with money is a question relating to money. TDW is frequently, but not necessarily, governed by the verb *have*, as in (27-28); it is not a complement of *have* in (29), where it is an infinitival relative clause modifying *question*. The idiomatic lexeme *have* is analyzed as a trivalent subject-raising verb that takes a subject, an infinitival VP and an indefinite-NP object. This means that the subject of *have* is coindexed with the subject of the infinitival VP headed by *to*. The indefinite NP object need not be overtly expressed; this NP indicates the degree of relatedness, as in (27), where *much* serves this function. This degree-denoting NP may be extracted, as in the *wh*-question (28).⁷ In the Kay and Michaelis analysis, the idiomatic intransitive verb *do*, an intransitive verb akin to that found in *I’m doing fine* and *This will do nicely*, has the following properties:

- As indicated by the ungrammatical version of (27), the subject cannot be locally instantiated: it must be expressed as the subject of the subject-raising verb *have*, as in (27-28), or as the head of a subject modifying relative clause, as in (29);
- It is necessarily in infinitive form;
- It is invoked by other lexemes, including *to* (treated as a subject-raising auxiliary) and a special subject-raising lexeme *have*, which contributes a (potentially unexpressed) degree argument;
- Its valence includes a PP headed by the preposition *with*.

These analytic moves reveal a good deal about the SBCG approach to multiword expressions in general: rather than being treated as words with spaces or as phrases, idiomatic multiword expressions are given a compositional, lexically based analysis: each lexeme in the idiom evokes or is evoked by other lexemes, some of which are idiomatic and others of which are non-idiomatic. The means by which words evoke other words is the LID feature: LID values are passed up from heads to their phrasal mothers, this makes the identity of the lexical head ‘visible’ at the phrasal level.

In sum, Kay and Michaelis treat TDW as the product of head licensing: both *to* and *do* are verbal heads with valence requirements: *to* selects a VP headed by *do* and *do* selects a PP headed by *with*. The expression so composed, *to do with*, is then selectable by an idiomatic subject-raising verb, *have*. A TDW phrase can constitute an infinitival relative clause, in which case it can modify an NP whose head is a common noun, e.g., *a question* in (29).

The core of the TDW idiom is idiomatic *do*, a verb that denotes an association between two arguments, the first of which is expressed by a non-local subject NP and the second

⁷ One of many idiomatic features of the TDW construction is the construal of *wh*-questions in which the degree-denoting NP is extracted. While one might predict that ‘a great deal’ or ‘nothing at all’ would be valid responses to (28), the only valid response to such a question is an assertion (e.g., ‘You were the one who encouraged her to take that risk in the first place’). This may or may not be a quirk unique to TDW *wh*-questions. It is suggestive that while complex predicates like *have x in common* also take degree-word objects (e.g., *They have a lot in common*), the responses ‘a great deal’, ‘something’ and ‘nothing at all’ are not valid answers to a question like *What do they have in common?*

of which is expressed by the object of the *with*-headed PP. The listeme used by Kay and Michael to represent idiomatic *do* is shown in (30).

30.

<i>intrans-v-word</i>													
FORM	⟨do⟩												
ARG-ST	⟨X:NP _x , Y:PP _y [LID ⟨with[null]-fr⟩]⟩												
SYN	<table style="border-collapse: collapse; margin-left: 20px;"> <tr> <td style="padding-right: 10px;">CAT</td> <td> <table style="border-collapse: collapse; margin-left: 10px;"> <tr> <td style="padding-right: 10px;">LID</td> <td>⟨Z⟩</td> </tr> <tr> <td>XARG</td> <td>X</td> </tr> <tr> <td>VF</td> <td><i>base</i></td> </tr> </table> </td> </tr> <tr> <td>VAL</td> <td>⟨Y⟩</td> </tr> </table>	CAT	<table style="border-collapse: collapse; margin-left: 10px;"> <tr> <td style="padding-right: 10px;">LID</td> <td>⟨Z⟩</td> </tr> <tr> <td>XARG</td> <td>X</td> </tr> <tr> <td>VF</td> <td><i>base</i></td> </tr> </table>	LID	⟨Z⟩	XARG	X	VF	<i>base</i>	VAL	⟨Y⟩		
CAT	<table style="border-collapse: collapse; margin-left: 10px;"> <tr> <td style="padding-right: 10px;">LID</td> <td>⟨Z⟩</td> </tr> <tr> <td>XARG</td> <td>X</td> </tr> <tr> <td>VF</td> <td><i>base</i></td> </tr> </table>	LID	⟨Z⟩	XARG	X	VF	<i>base</i>						
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XARG	X												
VF	<i>base</i>												
VAL	⟨Y⟩												
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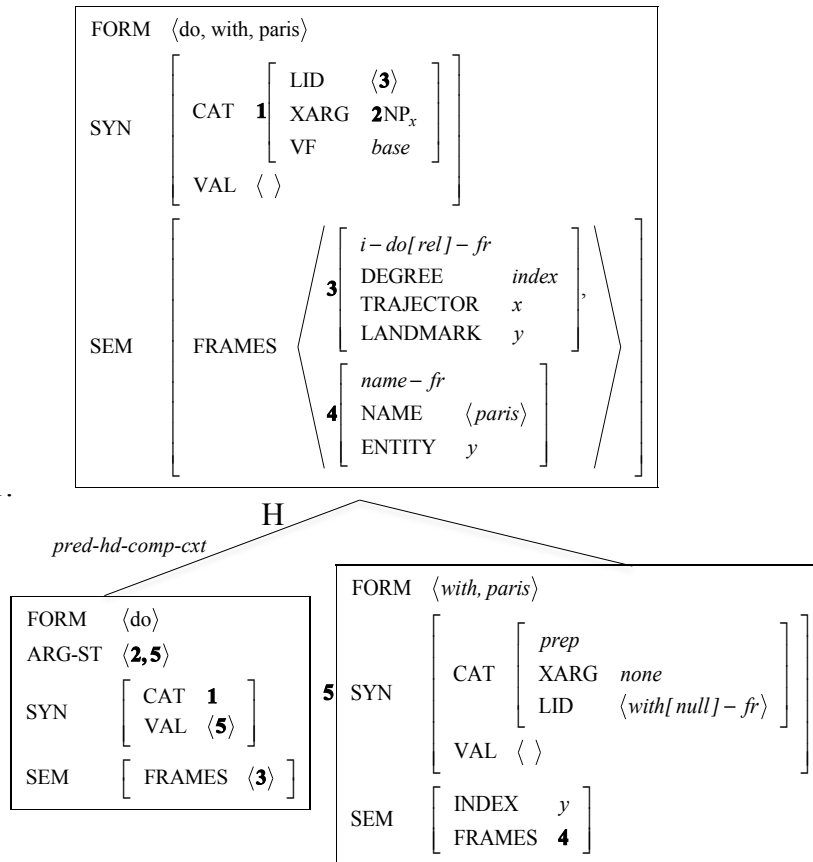
While space constraints prevent a thorough discussion of the properties of this listeme, we can make a few observations about it. First, the specification VF *base* insures that this lexeme appears only in infinitival form. Second, the LID value of its second argument (which bears the index *y*) ensures that its ‘landmark’ is realized only as a *with*-headed PP. Third, the respective values of ARG-ST, VAL and FRAMES (all list-valued features) are distinct. This verb lexeme has three semantic roles, two arguments and only one valence member. What accounts for this mismatch? While the ‘degree’ participant is part of the semantic frame underlying the concept of relatedness (labeled *i-do[rel]-fr*), ‘degree’ is not an argument of idiomatic verb *do*; rather, as mentioned earlier, it is an argument of the idiomatic verb *have*, which takes the TDW VP as its complement. The sole element on the VAL list of this *do* lexeme is the *with*-headed PP. The exclusion of the subject (the ‘trajector’ participant in the FRAMES list) ensures that it is not locally realized, but rather realized through a raising predication or relative-clause modification. At the same time, the ‘trajector’ participant is present: its index is the value of the XARG feature, ensuring that it is ‘visible’ to the subject-raising lexemes *to* and *have* (if the latter is present). Raising is represented in SBCG via coindexation of the XARG of the particular raising verb (in this case, *to* or *have*) with the XARG value of that verb’s non-finite complement.

As observed, independently motivated constructions of the grammar determine the phrasal configurations in which TDW constellation of words appears. As an illustration, consider the phrasal construct in (31), numbered (30) in Kay and Michaelis (forthcoming). This construct is used by Kay and Michaelis to represent the *do*-headed VP that is subject to selection by the auxiliary *to*. The VP shown is *do with Paris* (as in, e.g., *This film has to do with Paris*). This construct is licensed by the Predicational Head-Complement construction (as proposed by Sag 2012). The reader is referred to Kay and Michaelis (forthcoming) for more detailed discussion of this construction, but we can sketch out the major properties here as follows. First, the phrasal mother inherits its CAT value, including its non-finite form, from its head daughter (indicated by the boldfaced **H** on the left branch of the construct), but the VAL value of mother and head daughter

differ. Why? As explained in the description of (30) above, the ‘trajector’ argument of *do* is absent from that verb’s valence list, to ensure that this argument is not locally instantiated as the subject of *do*. This prevents the grammar from licensing examples like **I saw a film doing with Paris*. The lexeme *do* therefore seeks only the *with*-headed PP as a valent, and this valent is satisfied at the level of the mother VP. As a result, the VAL list of the mother (VP) phrase is empty. At the same time, however, the ‘trajector’ argument is present as a value of the XARG feature, ensuring that is available to the raising lexemes *to* and *have*. Second, the index of the *with*-headed PP is identified with that of its complement (the NP that expresses the ‘landmark’ argument), indicating that is a case-marking preposition rather than a locative preposition. Finally, the semantic frames of the mother combine the ‘relational’ frame of the head daughter with the ‘proper name’ frame percolated up from the PP complement daughter. The analysis is thus a compositional one.

While there are numerous properties of the TDW idiom that are special, there are numerous properties that are not. TDW, like many multiword expressions, contains words found elsewhere—in particular the infinitive marker *to* and the case-marking preposition *with*. In addition, TDW is composed (and interpreted) in the same way that any VP is composed (and interpreted)—by means of the phrasal construction that licenses VPs, as well as those PPs, NPs and APs that serve predicative functions. This is not to say that phrasal constructs cannot contain semantic features not projected from their daughters—formal idioms are such phrasal constructs—it is simply to say that the phrasal realizations of TDW are unremarkable. What makes the expressions *to do with*, *have to do with*, *have something to do with*, etc. idiomatic is the array of idiomatic words within these expressions.

31.



V. Constructional Meaning

Construction-based grammar offers a uniform approach to word meaning and phrase meaning because it treats both words and phrases as signs. A construction-based approach uses a single mechanism—listemic/constructional licensing of signs—to describe every licit combination in a language, whether it is a frozen idiom or the product of a canonical phrase-structure rule. But if it is the case that all construct (phrases) types, including maximally ‘open’ patterns like the Subject-Predicate construction, are idiomatic to some extent, the reverse is not the case: not all idioms can be modeled as phrasal patterns. Certainly, phrasal patterns have played a larger role than lexemes in syntactic argumentation; syntax is, after all, about constructing bigger units from smaller units. Phrasal patterns have had special relevance for constructionists:

- Syntactically irregular, communicatively specialized formal idioms like the Split Interrogative, Binomial NP, Not That and Hypotactic Apposition constructions have enabled constructionists to make the case that the existing mechanisms for assembling phrasal patterns must be greatly expanded.
- Syntactically regular but semantically opaque formal idioms like the Pseudo-imperative suggest that not all productive rules of syntax are compositionally interpreted: a phrasal mother can contain frame-semantic meaning not contributed by its daughters.

- The phenomenon of valence augmentation has been used to show that the rules regulating the realization of a verb's argument roles, e.g., the Caused Motion linking rule, are templates with their own argument arrays, which may 'overwrite' those of the lexical verb.
- Many idioms can be described as fixed phrases, e.g., *all of a sudden* and *by and large*.

But many, if not most, idiomatic expressions contain no phrasal information. These expressions, like *have to do with* and *spill the beans*, can, as we have seen, be resolved into their component words, each of which has idiomatic selection properties. Such idioms are like transparently interpreted word strings: they have the structures they do because of the valence requirements of their lexical members and their phrasal properties are determined by the independently needed phrasal constructions of the grammar.

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