# Word meaning, sentence meaning, and syntactic meaning

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#### Abstract

The lexicon has long been assumed to be the source of all conceptual content expressed by sentences. Syntactic structures have correspondingly been seen only as providing instructions for the assembly of the concepts expressed by words. Under this view, sentences have meaning, but the syntactic structures which sentences instantiate do not. This paper challenges this view: it uses the phenomenon of implicit type-shifting to demonstrate that constructions have meanings distinct from those of words and that, in cases of conflict, construction meaning overrides word meaning; and it argues that such overrides are predictable by-products of the general mechanism of construction-word integration. This mechanism will be described with respect to three different kinds of constructions: argument-structure constructions, which specify linkings of thematic roles to grammatical functions; aspectual constructions, which encode the situation type denoted by the verb or verb phrase; and sentence types, which pair a discourse function with a clausal structure. On the basis of these three short case studies, I will argue that appeal to constructional meaning greatly enhances the descriptive power of a theory of sentence semantics.

*Keywords*: argument structure, aspect, concord construction, Construction Grammar, implicit/explicit type-shifting, lexical projection, lexical semantics, sentence types; shift construction.

# **1. Introduction**<sup>1</sup>

In this paper, I will offer a general framework for understanding the relationship between lexical and syntactic meaning. In merely stating this intention, however, I have presupposed something controversial – the existence of syntactic meaning. The lexicon has long been assumed to be the source of everything conceptual expressed by sentences. Syntactic structures have correspondingly been seen only as providing instructions for the assembly of the concepts expressed by words. Accordingly, sentences have meaning, but the syntactic structures which sentences instantiate do not.

Strong challenges to this view, which is assumed either implicitly or explicitly by the majority of formal theorists, have been offered by cognitive-functional linguists. Section 2 will describe the nature of this challenge, and the alternative model which underlies it. In this model, grammatical constructions are viewed as the basis of syntax (Fillmore, Kay & O'Connor 1988; Pullum & Zwicky 1991; Zwicky 1994; Goldberg 1995, 1997; Michaelis & Lambrecht 1996; Kay & Fillmore 1999; Michaelis & Ruppenhofer 2001; Fillmore et al. to appear). Grammatical constructions are not arcane things; they are patterns of word combination that speakers use for specific communicative purposes – questioning, exclaiming, asserting, etc. – and the very idea that syntacticians could debate the existence of something so indispensable to language description and pedagogy must strike many scholars of language as absurd. Grammatical constructions have played a central role in linguistic description since ancient times (Harris & Taylor 1997), and for most of that history they have been treated no differently from words - forms with specific meanings and functions. However, with the advent of generative grammar, constructions came to be seen as something of an embarrassment. It is easy to understand why: the idea that principles of word combination could be intrinsically meaningful simply cannot be accommodated

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within the logical structure of the projection-based view. If, for example, we were to change the associations within an arithmetic sequence like 2 x (3 + 4) so as to create the sequence (2 x 3) + 4, we would clearly change what the sequence denotes – from 14 to 10 – but we would not thereby change what the numbers denote. Still, a coherent worldview is not necessarily an accurate one, and we will see that the lexicalist model of sentential meaning fails as an account of both usage and interpretation. In what follows, we will review findings which suggest that words do not designate in the way that numbers do and that word meaning is in fact malleable – the kind of event, property, or entity a word denotes shifts according to sentential context. It is precisely this malleability of open-class words which provides the strongest support for the construction-based view of grammar.

In construction-based grammars, constructions mean what they mean in the same way that words do: they denote types of things and relations. And like words, grammatical constructions feature idiosyncratic constraints on meaning and use. Given two sources of meaning in a sentence – "bottom up" words and "top down" constructions – we would predict that the potential for conflict exists, and this prediction is borne out. The idiosyncratic constraints which define constructions have been shown to interact in specific ways with the semantics of open-class words with which they combine. Section 3 will describe this interaction with respect to three different kinds of constructions: argument-structure constructions (Goldberg 1995, 1997), which specify linkings of thematic roles to grammatical functions, aspectual constructions, which encode the situation type denoted by the verb and verb phrase (Michaelis 1998, to appear), and sentence types, which pair a discourse function with a clausal structure (Zwicky 1994; Lambrecht 1994; Michaelis & Lambrecht 1996).

On the basis of these three short case studies, I will argue that appeal to constructional meaning greatly enhances the descriptive power of a theory of sentence semantics. First, it allows us to describe interpretation at all levels of linguistic combination – from word morphology to phrase formation. Second, it makes possible an account of sentence meaning in which one general interpretive

mechanism underlies both *elaboration* (in which lexical meaning and constructional meaning match) and *conversion*, in which semantic features intrinsic to a content expression conflict with semantic features intrinsic to the construction containing that expression. In the course of this exposition, I will demonstrate that the scope of the conversion phenomenon in grammar is very wide.

# 2. The challenge to lexical projection

Theories of sentence meaning are designed to describe the relationship between the meaning of a sentence and the meanings of the words of that sentence, both lexical and grammatical. Those who study this relationship have long focused on the connection between the semantic requirements of the content verb (i.e., its argument structure) and the event or state denoted by sentences in which that verb serves as a syntactic head. Theories of this connection, whether they are framed as models of phrase structure (Ritter & Rosen 1998), the syntax-semantics interface (Jackendoff 1990), or the mapping between syntactic and functional structure (Bresnan 1994, 2001), have been based upon some version of what has come to be called the *projection principle*. The projection principle holds that the basic scene denoted by a sentence (the set of participant roles expressed) derives from the argument structure of the head verb. Thus, for example, it appears clear that sentence (1)

(1) We gave the account to her.

denotes a scene of transfer involving an agent, a theme, and a goal because the semantic frame associated with the head verb *give* denotes a scene of transfer, and likewise requires the presence of these three participants. The projection principle is intrinsic to a compositional theory of semantics – a theory which has been deemed central to any account of syntax-semantics isomorphism, including cognitively oriented theories like that of Jackendoff, who states (1990: 9): "It is widely assumed, and I will take for granted, that the basic units

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out of which a sentential concept is constructed are the concepts expressed by the words in the sentence, that is, lexical concepts." A more recent version of this principle is stated by Jackendoff as the principle of syntactically transparent composition: "All elements of content in the meaning of a sentence are found in the lexical conceptual structures of the lexical items composing the sentence" (1997: 48).<sup>2</sup>

The projection principle has often been associated with a theory of syntax based on the autonomy of syntactic description. For example, in Government and Binding theory, the level at which thematic roles are represented (d-structure) represents those roles as grammatical functions, i.e., positions in syntactic structure. This syntacticization of semantic roles created the rationale for movement rules, by which, e.g., the passive linking is represented as the "movement" of an element from object to subject position. As Jackendoff (1997) has recently observed, the current consensus embraces *unification* rather than movement as the primary syntactic operation. However, whether or not the projection principle is regarded as a constraint on mapping between syntactic levels (e.g., d-structure and s-structure), it is cru-

<sup>2.</sup> This more recent compositional principle is framed within a model which allows for an enriched conception of composition. In the enriched conception, the principle of syntactically transparent composition is treated as a default. The extended conception of composition allows for cases in which material that is not expressed by lexical items of the sentence may nevertheless be part of the conceptual content of the sentence. These are cases of coercion, in which extra meaning is "added" in order to achieve well-formedness in conceptual structure and/or to "satisfy the pragmatics of the discourse or extralinguistic context" (1999: 49). For example, the "iteration" feature is added to a sentence like I blinked for two minutes because a single blink cannot plausibly be viewed as lasting two minutes. The problem with Jackendoff's analysis, as I see it, is that coercion does not seem to have anything to do with the meaning of the syntactic pattern employed; Jackendoff does not posit a locus of association between semantic properties and syntactic form, i.e., a construction. For this reason, it would seem that coercion phenomena described by Goldberg (1995) and discussed in this paper with respect to examples like (5-8) could not be easily handled by Jackendoff's coercion principle - the verb meaning is not modulated by particular co-occurring words or phrases, but by the particular linking configuration with which the verb integrates.

cial to a "rule-free" conception of universal grammar in which there are no category-specific phrase-structure rules. Under this conception, sentence structure is a result of the projection of the valence requirements of lexical heads *modulo* the constraints of X'-syntax.

Even among those syntacticians who, like Bresnan (1994, 2001), have laid out strong objections to accounts of typological variation based on constituent structure, the projection principle has remained central to the description of argument structure, since Lexical-Functional Grammar is also driven by the assumption that "argument roles are lexically underspecified for the possible surface syntactic functions they can assume" (Bresnan 1994: 91). Universal linking rules map these argument roles to grammatical and pragmatic functions, and these rules do not add to, subtract from, or alter the array of thematic roles associated with the verb. For example, in Bresnan 1994, locative inversion in English and Chichewa is represented as one linking possibility for verbs like *stand*, which subcategorize for locative and theme arguments. Such verbs are subject both to the linking rule which produces the configuration in (2) and to the linking rule which produces the configuration in (3):

- (2) *Two women stood in the plaza.*
- (3) In the plaza stood two women.

The syntactic structures of (2) and (3) are equivalent to subcategorization frames associated with the verb *stand*. However, assumption of lexical projection here makes it difficult for Bresnan to account for examples of locative inversion like the attested example in (4), which involves an interpretive phenomenon which we will refer to (following Talmy 1988) as *implicit conversion*:

(4) Down at the harbor there is teal-green clubhouse for socializing and parties. Beside it **sparkles** the community pool. (Vanity Fair, August 2001)

Examples like (4) are problematic in Bresnan's framework because the verb *sparkle* does not assign either a locative role or a theme role - it is a monovalent verb of light emission – and yet it can appear in the locative-inversion configuration. In examples like (4), Bresnan argues (1994: 91), a locative-theme argument structure imposed by the pragmatic requirement of presentational focus is "overlaid" on the argument structure of the base verb. The problem with this type of account is simply that it is not explicit. If argument structures are products of the linkings licensed by given verbs, and not independent form-meaning pairings, it is difficult to determine the source of the "overlay".

Adherence to the projection principle results not only in *ad hoc* devices like an "overlay theme" in cases like (4), but also, as Goldberg points out (1995, 1997), appeal to implausible verb senses. Goldberg discusses examples like the following:

- (5) Most likely they were fellow visitors, just **panting** up to the sky-high altar out of curiosity. (Lindsey Davis, Last Act in Palmyra, p. 28)
- (6) As they had **waved** us along the raised causeway and into the rocky cleft... (op. cit., p. 31)
- (7) If time is money, then save yourself rich at Snyder's! (= Goldberg 1997 (3a))
- (8) They can't just **analyze** away our data.

Goldberg points out that on the assumption that argument structure is determined exclusively by head verbs, we would need to assume the existence of a special verb sense for each of the usages exemplified in (5–8). Sentence (5) would require a special sense of *pant* equivalent to the formulation 'move while panting'; (6) would require a special sense of the verb *wave* whose definition would be 'signal permission to move to a place by waving'; (7) would require a sense of the verb *save* which might be captured by the formulation 'cause to be in a state by saving'; and, finally, sentence (8) would require one to view *analyze* as a verb which denotes (metaphorical) caused motion. Such word senses, as Goldberg points out, are not only *ad hoc* and unintuitive, but also compatible only with an assumption of radical and unconstrained polysemy.

Crucially, as Goldberg and Fauconnier and Turner (1996) have demonstrated, examples like (5–8) cannot easily be viewed as marginal or special cases. Sentence (5), for example, exemplifies a lexicalization pattern – conflation of manner and motion – which Talmy (1985) and Slobin (1997) have shown to be strongly entrenched in Germanic languages. Further, the examples in (5–8) cannot be regarded merely as violations of selectional restrictions associated with the verbal heads – or even as violations which might trigger mannerbased implicata. If, for example, sentence (8) merely exemplified a violation of the selectional restrictions associated with the verb ana-lyze, we would fail to predict its well-formedness – let alone the uniformity of its interpretation across speakers; sentence (8) is necessarily interpreted as denoting metaphorical caused motion.

In addition, as Michaelis and Ruppenhofer (2001) argue, linking accounts based exclusively on lexical projection cannot easily account for idiosyncratic semantic constraints associated with particular linking patterns. Such constraints go beyond those which require the input verb to license a certain theta frame. They include constraints on animacy or configuration of certain arguments. Michaelis and Ruppenhofer exemplify such constraints with respect to German beprefixation, an applicative construction whose core semantics involves the thorough coverage of a location by a theme. They observe with regard to an alternation regarding the verb wohnen 'live' that one can express the assertion "Peter lives in an apartment" either through the use of the be- linking pattern (Peter bewohnt ein Apartment in München), in which the location is linked to the direct object function, or through the use of the oblique-location pattern (Peter wohnt in einem Apartment in München). They notice, however, that if the denoted location is a large expanse of space relative to the denotatum of the theme argument, the *be*-pattern declines in felicity: the sentence Peter bewohnt Schwabing 'Peter occupies Schwabing' is odd. The oblique-location alternative is, by contrast, acceptable: Peter wohnt in Schwabing. In sum, they argue, if the location is large enough that thorough coverage by the theme argument is not possible, the be- linking pattern is not permissible. Such constraints are expected if linking patterns denote schematic scenes with specific

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properties (like thorough coverage); they are unexpected if linking patterns are transparent to verb meaning, and merely represent possibilities for the realization of a verb's arguments.

Cases like the German applicative alternation and the English examples in (4–8) give strong evidence that the projection principle, despite providing a parsimonious account of default cases like (1), is invalid. The alternative, construction-based model of argument structure outlined by Goldberg is founded on a body of work, of which Talmy 1988 is representative, which focuses on universal differences in the inventory of concepts expressed by open-class versus closed-class elements, and in particular on the nature of the semantic interaction between grammatical and lexical elements. Crucially, grammatical constructions are viewed as belonging to the general set of meaning-bearing grammatical elements, which includes prepositions and derivational markers, among others. An essential tenet of these works is expressed in (9) as the *override principle*:

(9) *Override principle*. If lexical and structural meanings conflict, the semantic specifications of the lexical element conform to those of the grammatical structure with which that lexical item is combined.

The operation of (9) can be illustrated with regard to nominal syntax in examples (10-12):

- (10) *Give me some pillow!*
- (11) *They have good soups there.*
- (12) *Did you get a pudding*?

These examples are closely analogous to those in (5-8), in that the syntactic requirements of the lexical heads in (10-12) similarly fail to determine the syntax of the phrasal projection of the category. As in the case of verbal argument-structures, we find that it would be implausible to propose special senses for each of the nouns involved in cases like (10-12). We also find that we would fail to capture an important generalization about nominal syntax and semantics if we

were to propose a special nominal construction for, e.g., (11), which would license the combination of a mass noun and plural suffix. Instead, in accordance with Talmy and others, we can presume that examples like (10–12) are licensed by the same constructions which license ordinary nominal constructs like *some water*, *cats*, and *a watch*. The accounts hinge on the presumption that nominal constructions have meaning independent of their nominal heads – they denote types of entities.

Thus, the nominal construction which licenses the combination of *some* and a nominal sister denotes a mass entity. It requires a nominal head which is also a mass. Although the noun *pillow* canonically denotes a count entity, it receives a mass construal in the context of (10) via (9). The nominal construction which licenses the combination of a noun and plural suffix *-s* requires that its nominal head denote a count entity. While soup, as a liquid, is prototypically viewed as a mass, the noun *soup*, when combined with the plural construction, as in (11), receives the individuated construal associated with count entities, and is thereby seen, via (9), as denoting a portion or type. Finally, (12) exemplifies an override involving that determination construction whose left daughter is the indefinite article. This construction requires a noun denoting a count entity as its right daughter. Via (9), the noun *pudding* receives the individuated construal associated with the class of count nouns.

In discussing the conceptual underpinnings of nominal syntax, Talmy (1988) introduces a distinction which has proven crucial to our understanding of linguistic overrides and how they are accomplished. Talmy classifies overrides into cases of implicit and explicit conversion. Cases of implicit conversion involve grammatical markers whose function is to signal a semantic feature intrinsic to the lexical item which serves as head. The marker and the head lexical element have the same specification for a given semantic feature. Let us call these constructions *concord constructions*. A nominal construction of this type is that which licenses indefinite NPs like *a jar*. This construction flags the uniplex feature of its head noun, in this case *jar*. As shown in (12), the uniplex feature associated with the indefinite article *a* can also be combined with a mass specification: *a* appears as the right sister of the mass noun *pudding*. As discussed, this situation creates conflict, which, via (9), is resolved in favor of the meaning of the closed-class element.

Cases of explicit conversion involve grammatical constructions in which the external semantics of the construction carries a value for a given feature (say, boundedness) that is distinct from the value associated with a lexical filler. Let us call these constructions shift constructions. Shift constructions do not signal concord between lexical and grammatical specifications, as do concord constructions like the indefinite article. The purpose of shift constructions is to alter the conventional designation of the lexical filler. Semantic shift is entailed by the semiotic function of the construction. The partitive construction in English (a unit of x) is an example of an shift construction. It is designed to shift the unbounded value of the (necessarily undetermined) lexical complement (say pie, as in a piece of pie) to the bounded value associated with the head (piece). An essential property of shift constructions is that they involve a distinction between internal and external semantics: the external semantics of the construction is the "output value", and the internal semantics is the "input value". The distinction between internal and external semantics can be manifested linguistically: shift constructions are often periphrastic, with the head of the construction representing the output value and the complement representing the input value. In the case of the partitive construction, for example, the head bears the count feature of the whole, while the complement (the niece of the head) denotes the mass feature called for as the internal semantics.

Because they have distinct internal and external semantics, shift constructions, which, as we have seen, conventionally signal explicit conversion, also perform implicit conversion. This is so because each shift construction specifies something about the nature of the "input" lexical item – the content word that occupies the conceptual slot which Langacker (1987, 1991) refers to as the *elaboration site* of a construction. For example, as we saw above, the English partitive construction requires that the nominal complement of the PP headed by *of* denote a mass entity. What happens when a count entity instead

occupies the position reserved for a nominal complement denoting a mass? Implicit conversion results, as in (13):

#### (13) *Give me a shred of sheet.*

In (13), the noun *sheet*, which conventionally denotes a bounded entity, receives a mass construal. This is so because this mass construal is associated with the PP-complement slot of the partitive construction. Thus, shift constructions perform explicit conversion because the head of the construction (which in the case of the partitive construction denotes a *portion*) has semantic features distinct from those of the lexical complement; shift constructions perform implicit conversion because, just like concord constructions, they constrain the properties of the open-class words with which they combine.

Implicit and explicit conversion are concepts which both appeal to constructional semantics. Both concord and shift constructions designate something, e.g., an entity. Shift constructions have the functions they do because the entity designated by the construction is distinct from the entity designated by the item which occupies the elaboration site of the construction. It may be suggested that the existence of shift constructions does not provide a challenge to the projection principle, since the argument structure of a partitive construct<sup>3</sup> like *a piece of pie* can be attributed to the argument-structure requirements of the head noun denoting the portion (pie). A strong objection to this argument can be made by pointing to cases of implicit conversion involving the head-noun role of the partitive construction. Partitive constructs which exemplify this phenomenon are a splash of coffee and French une larme de vin (lit. 'a tear of wine'). While the words splash and larme (unlike, e.g., the words slice and *piece*) do not intrinsically designate units or portions, they do so in the context of the partitive construction. Hence, the argument structure of the NP a splash of coffee cannot be attributed to the valence

<sup>3.</sup> A *construct* is a linguistic expression which is licensed by a construction or combination of constructions (Kay & Fillmore 1999; Fillmore et al. to appear).

requirements of the word *splash*, but must instead be attributed to the semantic requirements of the partitive construction.

While shift constructions and concord constructions overlap in allowing instances of implicit conversion, shift constructions differ from concord constructions in that explicit conversion does not involve principle (9): explicit conversion does not hinge on the resolution of conflict between lexical and constructional specifications. Unlike shift constructions, concord constructions, which do involve conflict resolution of the type described in (9), are problematic for implementations of construction-based grammar based on unification grammar (Kay & Fillmore 1999). The reason for this is that in a unification-based grammar, the combination of lexical items and constructions, which can be understood as the superimposition of one set of specifications upon another, requires lack of conflict between those overlapping specifications. Thus, for example, the English determination construction whose left daughter is the indefinite article a requires a count noun as its right daughter. If a mass noun like pudding were to be combined with this NP construction, the result would be conflict, and therefore a failure of unification.

However, given the existence of well formed NP constructs like *a pudding*, Fillmore and Kay (1993) must find a way to license such constructs. Their solution to this problem within the unification framework is to propose several *type-shifting* constructions. Type-shifting constructions resemble shift constructions in that they perform conversions in a compositional fashion, but they are distinct from shift constructions in that they do not have constituent structure (i.e., branching structure). Each type-shifting construction has an *external semantic value* which is distinct from that of its sole daughter node. For example, the construction which shifts a mass noun to a count noun unifies with a mass noun, e.g., *pudding*. Its external semantics is that of a count noun, which can of course unify with the construction that licenses indefinite NPs.

The use of type-shifting constructions appears to be motivated entirely by a theory-internal consideration – the need to circumvent positive exceptions to unification. Type-shifting constructions are not only *ad hoc* mechanisms but ones which conflict with the goal of

parsimony. If we do not assume a strict model of unification, we need not resort to extra mechanisms to explain away well-formed constructs which represent failures of unification. In accordance with Talmy, Langacker, and Goldberg, we will assume that lexical specifications and constructional specifications *can* conflict, and that this conflict is resolved as per principle (9).

# 3. Case studies in conflict resolution

#### 3.1. Argument-structure constructions

As described in the previous section, the constructional analysis of argument structure offered by Goldberg (1995, 1997) is founded on the assumption that linking patterns are "directly correlated with one or more semantic structures" (1997: 83). Among the linking patterns considered by Goldberg are the *ditransitive* pattern (whose core semantics she captures with the formula 'X CAUSES Y TO RECEIVE Z'), the *caused-motion* pattern ('X CAUSES Y TO MOVE WITH RESPECT TO Z') and the *resultative* pattern ('X CAUSES Y TO BECOME Z'). Examples of each of these patterns are given in (14–16):

- (14) We gave her the account.
- (15) *She put the checkbook on the counter.*
- (16) We painted the walls white.

Goldberg uses the term *sentence type* to refer to these linking patterns. In accordance with Fillmore et al. (to appear), however, we will regard linking patterns not as sentence structures but as verblevel constructions, which unify with the lexical entries of verbs. The rationale for this terminological decision is twofold. First, we prefer to reserve the term *sentence type* for structural patterns like declarative, imperative, interrogative, with which speech-act functions are associated (see section 3.3.). Second, if we were to view patterns like the ditransitive linking pattern as sentence types, we would lose a generalization regarding passive instances of those patterns, as in the sentence She was given the account by us. Since this sentence has the same semantics as its active counterpart We gave her the account (viz., 'X CAUSES Y TO RECEIVE Z'), we would not wish to regard ditransitive semantics as uniquely associated with the active-form pattern. Instead, as per the practice of Fillmore et al. (to appear), we will assume the existence of an "nominal oblique theme" linking construction, which will add to the minimal valence of an appropriate verb the specification that the theme argument is linked to an oblique role that is necessarily encoded by a NP (rather than a PP). Via instantiation constructions (see Fillmore et al. to appear: chap. 5), this role will be realized in postverbal position in the case of the passive sentence and in the position following the direct object in the case of the active sentence. This unification has the effect of augmenting what Fillmore et al. (to appear) refer to as the minimal valence of the verb (the repertoire of semantic roles inherent to the meaning of the verb). The *fully specified* verbal valence which results from unification of a verb's lexical entry with a linking construction is one in which each semantic role is assigned a grammatical function.

Crucial to Goldberg's account is the idea that the repertoire of thematic roles assigned by the linking construction may *properly include* the repertoire of thematic roles in the verb's minimal valence. Examples of this phenomenon are given for each of the linking patterns exemplified in (14–16) in (17–19):

- (17) *We painted them a landscape.*
- (18) She blew the dust off the picture.
- (19) We cried our throats ragged.

The verb *paint*, a verb of creation, denotes a two-place relation, involving the creator and a created item. However, sentence (17), an instance of the ditransitive linking pattern, adds an additional participant to the making scenario – a potential recipient. This recipient is not intrinsic to the making scenario; it is instead instrinsic to the transfer scenario with which the ditransitive pattern is associated. Likewise, while the verb *blow* is a one-place relation, involving an agent, (18) adds two additional participants – a theme and a goal.

These participants are intrinsic to the caused-motion construction which the sentence instantiates. Finally, in (19), the verb *cry* appears with two more participants than it ordinarily has – a patient and a resultant state. The additional participants are intrinsic to the resultant-state construction which licenses (19).<sup>4</sup>

The examples in (17–19) strongly resemble the examples in (5-8), which were used to undermine the validity of the projection principle. Both sets of examples involve implicit conversion. We can regard linking patterns like the ditransitive and caused-motion patterns as concord constructions. These patterns may, and indeed typically do, reflect the inherent semantics of the verbal head. Examples of concord, given in (14–16) are those which provide the motivation for the projection principle. Goldberg (1997) refers to these kinds of

(b) *They drank all night*.

<sup>4.</sup> Goldberg argues (1995: chap. 8) that the so-called fake objects found in the resultative and caused-motion constructions are in fact semantic arguments – of the construction. That the transitivity of the verbal head is irrelevant to the well-formedness of a resultative or caused-motion sentence becomes evident when one considers sentences like the following:

<sup>(</sup>a) *I just can't seem to drink you off my mind*. (The Rolling Stones, "Honky Tonk Woman")

Although the verb *drink* is transitive, the NP *you* is not of a semantic type which would generally allow it to serve as the object of *drink*. Instead, the sense of *drink* which is found in (a) is the same intransitive activity sense found in sentence (b):

Therefore *drink* in (a) denotes an activity which provides the means by which metaphorical motion occurs. The same point can be made for examples like that in (c), in which the object-denotatum is clearly not the theme argument of the verb *eat*:

<sup>(</sup>c) They ate themselves sick.

Instead, in (c), as in (a–b), the theme argument of the verb is null-instantiated and has a non-specific interpretation. The crucial role played by null instantiation emerges clearly when one compares sentences (d) and (e). The anomaly of (d) is a function of the anomaly of (e): as shown by (e), the verb *devour* does not permit null complementation; it accordingly lacks the intransitive activity sense necessary for its successful use with a reflexive object in the resultative construction, as shown in (d):

<sup>(</sup>d) \**They devoured themselves sick.* 

<sup>(</sup>e) \*They devoured last night.

examples as instances of *elaboration*, in which the verb codes a more specific instance of the action designated by the construction.

Examples of implicit conversion, given in (5–8) and (17–19), show, as Goldberg points out, that while the head verb typically does elaborate the meaning of the construction, there are other relations which the verb may bear to the construction. A prominent relation, both across constructions and languages, is *means*: the verb may code the means by which the action designated by the construction occurs. Examples of the means relation are given in (18–19), in which, respectively, blowing is the means by which the dust is moved from one location to another and crying is the means by which the hoarseness is effected.

Because the means by which an action is accomplished is intrinsic to the causal event denoted by the linking constructions we have looked at, the means relation and the elaboration relations may often be difficult to distinguish. This is evident when we look at the verbs which combine with the German *be*-construction (Michaelis & Ruppenhofer 2001). An example of a *be*-construct is given in (20):

(20) Auch die Höhen um Fulda **bebauten** die Mönche des frühen Klosters mit Kapellen, Kirchen und Propsteien. (Pörtner, Die Erben Roms)

'The monks of the early period of the monastery also *be-built* the hills around Fulda with chapels, churches, and provosts' residences.'

It would be difficult to determine for (20) whether the verb denotes the means by which coverage is effected or an elaboration of the constructional meaning 'Theme covers location thoroughly', since erecting structures on a piece of land is a type of covering. Because both a means and an elaboration analysis would entail that the verb denotes an aspect of the causal sequence denoted by the construction, they are equivalent. In fact, it appears that the means and manner and elaboration relations are equally prototypical of verb-construction integration, despite the fact that the latter is compositional while the former is not. The prototypicality of the means relation is under-

scored by the fact that, as Goldberg observes (1997), the interpretation of denominal verbs is frequently instrumental, as in (21) and (22):

- (21) *She nailed the poster up.*
- (22) Message-Id: <4lq28k\$lsr@nz12.rz.uni-karlsruhe.de> Also \*m.E.\* regelt 41, wie ein Radweg zu beschildern ist und wer darauf was zu suchen hat und wer nicht...
  'Well, \*in my opinion\* [paragraph] 41 regulates how a bike path needs to be be-trafficsigned and who has any business on it and who doesn't.'

The examples in (21-22) again illustrate implicit conversion. In these cases, the construction does not merely augment the argument structure of the word which appears in the head-verb slot, but in fact creates an argument structure for that word. The creation of valence is strongly correlated with invocation of the means relation: the nail is understood to denote the means of causing motion, just as the traffic sign is understood to be the means by which coverage is effected. To account for the conceptual shift from noun to verb in contexts like (21-22), Goldberg (1997) proposes that denominal verbs like hammer metonymically stand for actions involving the source nouns. Notice, however, that it would be a mistake to claim, as Clark and Clark (1979) do, that denominal verbs denote a participant in the scene designated by the construction. According to this line of reasoning, for example, the denominal verb beschildern denotes the theme argument in the coverage scenario denoted by the construction. The theme argument, if present, would be denoted by a nominal expression, as we would expect, and the only reason that it is missing in (21–22) is that its type is recoverable from the syntactic context. If it were not, it would be expressed, as in the example She nailed the poster up with antique brass nails. Hence, there is a difference between identification of the theme argument, which is something that the verb can do, and expression of the theme argument, which is something that a verb cannot do.

The relationships that nouns and verbs may bear to constructional meanings are not as limited as the foregoing discussion has implied. Goldberg points out that verbs can designate *preconditions* for actions denoted by constructions. An example is found in (17): the act of creation denoted by *paint* represents a precondition to transfer. It is also evident that some of Goldberg's denominal examples can be viewed in terms of the precondition relation. A nominal example of this kind is found in (23) (= Goldberg 1997, (23a)):

#### (23) *They planned to vacation in Spain.*

In (23), the noun *vacation* metonymically denotes a precondition (having a vacation) for one's being located in Spain. As Goldberg argues, the concept of a precondition is intrinsic to the causal scenario – every causal sequence involves preconditions. Therefore, examples involving preconditions give support to Goldberg's contention, expressed in her 1997 paper, that verbs tend to denote aspects of the causal sequence denoted by a construction.

The various relationships (precondition, means, etc.) that constructions bear to verbs and nouns can be seen as distinct senses of the construction, with elaboration representing the core sense of each construction. Thus, 'Agent successfully causes Recipient to receive Patient' can be seen as the central sense of the ditransitive construction,<sup>5</sup> while the precondition reading exemplified in (17), which Goldberg (1995: chap. 2) represents by the formula 'Agent intends to cause Recipient to Receive Patient', can be seen as another sense of that construction. However, Goldberg (1995) maintains a distinction between (i) the set of relationships that verbs can bear to a given constructional meaning and (ii) the set of meanings that can be associated with that construction. She maintains this distinction because, for example, successful transfer is an entailment of both the means reading and the elaboration reading of ditransitive sentences. That is, the difference between a means reading (as in *She handed him the* 

<sup>5.</sup> Goldberg demonstrates the basic-level status of the 'successful receipt' sense by reference to interpretation of nonce forms, among other diagnostics.

*report*) and an elaboration reading (as in *She gave him the report*) does not accord with a difference in constructional meaning. (By contrast, the precondition reading in (17), which does not entail transfer, does represent a distinct meaning of the ditransitive pattern.) Therefore, different constructional meanings may each license several verb-construction relationships. An additional example of this principle comes from Goldberg's analysis of the caused-motion construction. This construction, as Goldberg observes (1995: chap. 7), has an *enablement* sense, in which the agent does not cause but merely *permits* directed motion by the theme. This sense can license both an elaboration reading (*She allowed him onto the stage*) and a means reading (*She invited him backstage*).

Thus, the interpretive latitude which characterizes linking patterns in context stems from two sources: the set of verb-construction relationships and constructional polysemy. The claim that linking constructions may be polysemous accords with the general idea, advanced here, that syntactic structures represent Saussurean signs – form-meaning pairs – and therefore have meanings assigned by linguistic convention rather than computed via composition. Thus, the fact that constructions, like words, exhibit polysemy makes sense. As shown by Michaelis (1994) with respect to the Latin correlative conditional, constructions, like words, are subject to systematic semantic extension over time, and like words, may denote an array of concepts whose interrelationships seem opaque from the perspective of synchrony.

The linking constructions which we have looked at in this section represent concord constructions. Like the set of nominal constructions, the set of linking constructions also includes shift constructions. Those linking constructions which are shift constructions do not license an elaboration relationship; verb meaning and construction meaning never match. Instead, the verb frame must invariably accommodate to the construction's frame. One example of an override construction is the *Way*-construction, analyzed in detail by Jack-endoff (1990), Goldberg (1995), and Israel (1996). This construction is exemplified in (24–25):

- (24) She chatted her way down the receiving line.
- (25) *He slashed his way through the brush.*

The meaning of the *Way*-construction, as described by the aforementioned authors, involves the notion of an agent creating a path by means of some activity – in the case of (24–25), chatting and slashing, respectively.<sup>6</sup> The verbal head, an intransitive, denotes an activity which does not involve directed motion (that is, neither chatting nor slashing intrinsically involves directed motion). The scene denoted by the construction as a whole denotes an act of motion along a path. As a shift construction, the *Way*-construction necessarily performs conversion. This is shown by the fact that verbs which *do* denote directed motion inherently are not welcomed by the construction, as shown in (26–27):

- (26) *??He walked his way into the meeting.*
- (27) *??She ran her way along the shore.*

As an override construction, the *Way*-construction also allows for implicit conversion. Since the verb which enters into the construction is necessarily construed as an activity (i.e., a process), verbs which do not otherwise have processual readings receive such readings in the context of the construction. Examples of implicit conversion involving the *Way*-construction are given in (28–29):

<sup>6.</sup> As Goldberg points out, the *Way*-construction is polysemous. In addition to a 'means' interpretation, the construction also has a 'manner' interpretation, exemplified in (a):

<sup>(</sup>a) ...anyone who has ever had the occasion to observe the average American family as they snack their way toward the departure gate... (Fran Lebowitz, Vanity Fair, October 1997)

The interpretation of (a) is one in which eating activity attends movement along a path. Since the *Way*-construction is polysemous, instances of it may be ambiguous:

<sup>(</sup>b) *He shmoozed his way through the meeting*.

Sentence (b) is ambiguous as to whether shmoozing is the means or the manner of his getting through the meeting.

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- (28) *She blinked her way into the light.*
- (29) *He dove his way into the hearts of millions of viewers* (??with a single dive).

While the verbs *blink* and *dive* have momentaneous (semelfactive or achievement) readings under ordinary circumstances, they are interpreted as iterated, and therefore processual events in the context of the *Way*-construction: the subject-denotatum in (28) is necessarily construed as having blinked numerous times; the subject-denotatum in (29) is necessarily understood as having performed a series of dives.

Thus, it can be shown that argument-structure constructions, like nominal constructions, are used to perform explicit and implicit conversion operations. And as is the case of nominal syntax, implicit conversion is achieved both through concord constructions and override constructions.

#### 3.2. Aspectual constructions

The effects of grammatical context on the interpretation of verb semantics has long been of interest to investigators of aspectual meaning. Aspectologists have in fact often argued that aspectual categorization does not concern verbs by themselves, but instead verb-plusargument combinations (Dowty 1979; Foley & Van Valin 1984; Van Valin & LaPolla 1997). In particular, it has been claimed, e.g. by Dowty (1986), that the Aktionsart classes originated by Vendler (1967) (activity, accomplishment, etc.) are classes of situations rather than of verbs. Dowty (1986), among others, assumes a distinction between the *lexical aspect* of the verb and the situation type denoted by the sentence as a whole, as well as a mechanism by which, e.g., the boundedness of an argument may impose a bounded construal on the verb. An alternative to a model based on feature passing is one based on conceptual gestalts. In accordance with Langacker (1991) and Smith (1986, 1991), Michaelis (1998) adopts the view that distinctions like telic-atelic, bounded-unbounded and dynamic-static

arise from scene construal, and are not lexical features. Thus, while (30–32) denote events without intrinsic stopping points (i.e., activities), (33–34) denote scenes which have inherent points of culmination (accomplishments and achievements):

- (30) *He scrubbed dishes.*
- (31) *She walked.*
- (32) *Tourists entered the temple.*
- (33) *He scrubbed the dishes.*
- (34) *She walked home.*
- (35) *A tourist entered the temple.*

While the examples in (30–35) concern the telicity distinction, the examples in (36) show that argument structure also influences a more fundamental distinction made in scene construal: the *event-state* (or, equivalently, *dynamic-static*) *distinction*:

(36) a. She reminded me of my mother.b. She reminded me of my dentist's appointment.

Sentence (36a) denotes a state – a situation which does not involve change over time and which has no intrinsic endpoint. Sentence (36b) denotes an event – a situation which does involve change over time and which does have an inherent stopping point (in the case of (36b), a resultant state in which the speaker recalls the appointment). Stative situations can be said to obtain at a single moment alone, while events can only be said to be instantiated over a period of time (how-ever small that period might be). In English, as observed by Langacker, Smith, and others, the (simple) present tense is understood, as a matter of linguistic convention, to denote full instantiation now.<sup>7</sup>

<sup>7.</sup> There is evidence to suggest that the prohibition on present-tense reporting of events does not, as claimed here, arise from the momentaneous conceptualization of the present tense per se, but instead more generally from a momentaneous conceptualization of the time of encoding, be is past or present. The evidence for this broader semantic analysis comes from the interpretation of

Therefore, only states can be reported by means of the simple present tense, as shown by the contrast between (37a) and (37b), where (37b) is assigned a star only on the 'ongoing right now' reading (and not, e.g., on a habitual reading):

# (37) a. She reminds me of my mother.b. \*She reminds me of my dentist's appointment.

The contrast in (37) can be explained by reference to the *subinterval* or *distributivity* property of states (Herweg 1991a, 1991b): any temporal subpart of a state is equivalent to the whole. An event is only instantiated over the course of time. Therefore, to report an event is to report its completion; events require past-tense reporting.<sup>8</sup> Further, when events are reported in the past, they are viewed as wholly contained within the relevant past interval, while states reported in the

clausal complements of *verba sentendi ac declarandi*, in which those clausal complements exhibit secondary sequence of tense:

<sup>(</sup>a) I said that she reminded me of my mother.

<sup>(</sup>b) I said that she reminded me of my dentist's appointment.

In (a), the stative clause *She reminded me of my mother* can receive either a past-in-past or a present-in-past interpretation. That is, either the speaker is purported to have said "She reminds me of my mother" or "She reminded me of my mother". As Declerck (1995) observes, the eventive clause *She reminded me of my dentist's appointment* can receive only a past-in-past interpretation. That is, one cannot reconstruct the speaker's past speech act as either "She reminds me of my dentist's appointment" or "She is reminding me of my dentist's appointment". This restriction on the interpretation of (b) parallels that restriction which is manifested as a well-formedness constraint in (37b). The parallel suggests that the time of encoding, whether past or present, has a punctual interpretation in English, and therefore cannot accommodate the temporal profile of an event.

<sup>8.</sup> In this discussion, I am focusing on default reporting contexts, and not such special-case reporting contexts as the so-called play-by-play context, the performative context, or historical-present narrative; see Langacker 1991 and Michaelis 1998, e.g., for discussion of these special-case reporting contexts. (I thank an anonymous referee for pointing out the need to circumscribe the class of cases I have in mind here.)

past are viewed as *including* that past point: since states are internally homogenous, a momentaneous 'sample' is sufficient to verify the presence of a state.

Given the fundamental analogy between space and time (Talmy 1988), aspectologists have been inclined to exploit the parallels between entities, which occupy space, and situations, which obtain or occur over time. The postulation of parallels between mass entities and states, on the one hand, and count entities and events, on the other, has been fundamental to explanation in aspectology (Mourelatos 1978; Langacker 1991; Michaelis 1998). And since nominal syntax reflects the distinction between implicit and explicit conversion, it should come as no surprise that aspectual syntax does as well. In this section, we will briefly look at concord and shift constructions whose meanings hinge on the event-state distinction. Concord constructions are discussed in section 3.2.1., and shift constructions in section 3.2.2.

#### 3.2.1. Aspectual concord constructions

In this section, we will look at two classes of aspectual concord constructions: adverbial constructions and tense constructions. The adverbial constructions which we will consider are VP-level constructions which pair a V' with an aspectually sensitive adjunct. We will examine two such constructions: the frame-adverb construction and the frequency-adverb construction. The tense constructions that we will consider are verb-level constructions which pair a verb with a suffix that expresses past tense. We will look at two such constructions: that past tense which selects for a state verb, the so-called *imperfective past*, and that past-tense which selects for an event verb, the so-called *perfective past*. Examples of concord involving the two aspectually sensitive adjuncts at issue are given in (38–39):

- (38) a. She recognized him in a minute.b. We fixed it in an hour.
- (39) *They went to France twice.*

As shown in (38), the frame adverbial can be paired with an achievement predicate like *recognize him*, in which case it has a reading in which the event occurred *after* the denoted period of time elapsed. This durative phrase can also be paired with an accomplishment predicate like *fix it*, in which case it has a reading in which the event denoted occupied the period, culminating at the end of it. Via the logic of containment, (38b) entails that the fixing event can fit within any interval larger than an hour, and (via quantity implicature) implies that this event cannot fit into an interval smaller than an hour.

Stative predications are not compatible with *in*-phrases of duration. The reason for this is that states, unlike events, have the subinterval property: any interval at which a state goes on might on might also be a subinterval of a larger interval at which that state goes on (see Herweg 1991a, 1991b). As Michaelis argues (1998: chap. 1), a sentence like *He was in London yesterday* can always be interpreted in such a way that the state of being in London is not circumscribed by (and in fact contains) the temporal boundaries denoted by *yesterday*. Since the *in*-phrase of duration (by the logic of containment) entails that the situation denoted is wholly circumscribed by the expressed interval, state predications are incompatible with *in*-phrases of duration.

The frequency adjunct exemplified in (39) can be viewed, in accordance with Herweg (1991a), as specifying the number of applications of the event-type predicate *We go- to France*. As Herweg argues, only events are countable. States are not countable because the application of a state-type predicate is infinite, owing to the subinterval property: every subinterval of the overall period for which a state obtains is also a period at which that state obtains. An event-type predicate applies only once to the interval of which it is predicated, and therefore counting events amounts to counting the intervals which are arguments of a given event-type predicate. The application of the spatial analogy is straightforward: individuated entities, like events, are countable because the application of a categorizing predicate (e.g., *Jar*'(x)) is not infinite; masses, like states, are not countable because the application of a categorizing predicate, e.g., Pud-ding'(x), is potentially infinite.

Both frame and frequency adjuncts represent concord constructions: in each construction, the head daughter (a V') and its sister (the adjunct) share a semantic feature: the *event*, or equivalently, *perfective*, feature. That is, any verb or verb projection which denotes an event can unify with the construction, and the adjunct has a valence member which calls for an event (see Michaelis 1998: chap. 5 for formal details of this unification). This general pattern of mutual invocation is of course identical to that found among nominal concord constructions like indefinite determination: the open-class daughter denotes a bounded type, be it a situation or an entity, and its sister is a grammatical expression which calls for that same type.

The examples in (40) illustrate implicit conversion involving the two adjunct constructions:

(40) a. She was outside in three minutes.b. We were in France twice.

In (40a), we see that a stative situation, which can be represented by the tenseless proposition She be- outside, is construed as an event when combined with the frame adverbial in three minutes. Via (9). the event feature associated with the head of the construction overrides the stative feature of the input V'. This means that the predicate She be- outside receives an achievement interpretation, in which the event of her beginning to be outside occurs within the three-minute time span. This type shift is minimal in the sense that it merely adds an onset transition to the input state representation. The override which occurs in (40b) is similar, although in this case the enriched construal resulting from the override imposes both an offset and an onset transition on the state. That is, the event denoted by (40b) is not merely the onset of a state but instead a full state phase, with beginning and endpoints entailed. This episodic or 'closed' interpretation is required by the frequency-adverb construction: because a single state cannot begin more than once, enumeration entails that for every onset counted there must be an offset as well. Of course, the forego-

ing observation leads us to ask why the enriched representation associated with (40a) does not contain an offset transition as well. Certainly, the presence of an offset transition would not conflict with the semantics of the frame-adverbial construction. The answer appears to be simply that the offset transition is not entailed by the semantics of the frame-adverbial construction, and that override interpretations tend to be economical: they add no more structure than what is required to resolve conflict between lexical and constructional semantics (see Michaelis to appear for a detailed exposition of this constraint on operations which add aspectual structure).

Herweg (1991a) sees the meanings of sentences like (40a–b) as *non-compositional*: they cannot be assigned a meaning under the ordinary combinatory constraints of the two adjuncts, since the theta frame for each adjunct presumably requires an event argument. In the constructional model, in which the pairing of predication and adjunct is licensed by a construction, we need not presume that the interpretation of these sentences is idiomatic. As discussed, the interpretation of these sentences is in fact compositional, via (9) (see Goldberg 1995: chap. 1 for arguments concerning the compositional nature of the constructional account of argument structure).

Like the adjunct constructions discussed, morphological constructions which license perfective and imperfective past-tense inflections in languages like French are concord constructions whose meanings are exploited for the purpose of implicit conversion. Examples of concord involving the two constructions are given in (41–42):

- (41) *Elle préférait le vin blanc*. 'She preferred white wine.'
- (42) *Elle est venue à deux heures.* 'She arrived at two.'

Sentence (41), whose verbal head is marked as imperfective, illustrates the concord usage of the construction which licenses the imperfective past tense. The predicate *préférer le vin blanc* canonically denotes a stative situation. The imperfective ending exhibits concord with this state feature; that is, this ending selects for a verb denoting the stative type. The verb *venir* in (42) canonically denotes an event. Accordingly, the perfective past-tense inflection exhibits concord with this event feature.

Sentences (43–44) exemplify implicit conversions involving the two morphological constructions in French; the relevant verbs are in boldface.

- (43) Raymonde: Qu'est-ce qu'ils voulaient, les deux messieurs? Robert: On s'échangeait nos adresses!
  'Raymonde: What did they want, those two men? Robert: We were exchanging addresses.'
  (Binet, Les Bidochon 2, p. 50)
- (44) Henri s'est retourné. Margot a eu l'air heureuse.
  'Henri turned around. Margot cheered up (lit. 'started to look happy').'

The verb in (43), *échanger*, is one whose situation aspect is perfective, and yet this perfective verb is paired with a past-tense suffix which calls for a state verb. Via (9), this pairing results in an override whereby an otherwise perfective verb receives a stative interpretation: the address-exchanging situation is understood to include the past reference time evoked by Raymonde's question, rather than being included within it. In terms of Michaelis (to appear), this stative construal is a chained transition. First, the activity component of the causal chain denoted by the predicate échangernos adresses is selected. This activity component is the series of transfer events which leads up to the state at which each participant has the other's address. Second, this series of grossly identical transfer events is construed at a level of granularity which renders its internal structure irrelevant, leading to the stative construal. In (44), by contrast, the situation aspect of the verb avoir is imperfective. In (44), avoir is paired with perfective past-tense inflection, which is otherwise compatible only with an event-type predicate. Via (9), an override occurs in which the verb receives an event construal: as reflected in the English translation, the event denoted is the *beginning* of the state in which Margot looks happy. This event occurs within a reference time just after the

time of Henri's turning around; Margot's looking happy is accordingly understood not to obtain prior to the first-mentioned event.<sup>9</sup>

# 3.2.2. Aspectual shift constructions

The shift constructions which we will look at in this section are the English perfect and progressive constructions, exemplified in (45-46), respectively:

- (45) *They have now visited us twice.*
- (46) *The dog was digging a hole in the yard.*

Investigators of tense and aspect have long debated the appropriate characterization of these constructions: are they tense markers or aspect markers? Each exhibits semantic properties associated with tense markers. The progressive construction alternates with the simple present-tense in reporting contexts: as we have seen in the discussion of (35–36), the simple present is used to report states which overlap with the time of speaking, while the present progressive is used to report events which overlap with the present. The perfect construction denotes anteriority of an event or series of events with respect to the present. The present perfect in particular denotes anteriority with respect to speech time, a function associated with the past tense. Despite functional and semantic overlaps with tense markers, one can make a convincing case that these two constructions are aspectual, in that each performs a stativizing function. Perfect and progressive predications qualify as stative predications on a number of diagnostics. Both perfect and progressive predications can be used as simple present-tense reports – a property shown above to be unique to stative predications. Both perfect and progressive sentences pass the *when*-test for stativity: the situation which they denote can be

<sup>9.</sup> Notice that in English, by contrast, a sentence like (a) is vague as to whether Margot's looking happy started after Henri's turning around (and observed it) or obtained for some time prior to Henri's turning around:

<sup>(</sup>a) Henri turned around. Margot looked happy.

construed as holding prior to the event denoted by a subordinate clause introduced by *when*. This is shown for past progressive and perfect sentences in (47-48):

- (47) When we came in, they were playing cards.
- (47') When we came in, they played cards.
- (48) When we arrived, they had packed up everything.
- (48') When we arrived, they packed up everything.

The sentences in (47') and (48') are distinct from their non-prime counterparts in that (47') and (48') contain perfective main-clauses. Since these sentences have perfective-form main clauses, they cannot be construed as denoting a situation in which the main-clause event was going on for some time prior to the event of the subordinate clause. Instead, the main-clause situation is necessarily understood to begin *after* the event denoted by the subordinate clause. By contrast, (47) and (48) are compatible with a construal in which the mainclause situations began *prior* to the event denoted by the subordinate clause. In allowing this construal, (47) and (48) are identical to stative sentences like (49):

(49) When we got home, she was upset.

A likely interpretation of (49) is one in which the situation of her being upset obtained prior to the event denoted by the subordinate clause. Given that perfect and progressive sentences class as stative sentences according to several diagnostics, we can conclude that perfect and progressive sentences denote stative situations. In accordance with Herweg (1991a, 1991b), we can view the perfect construction as denoting a state of aftermath following the culmination of one or more events, and the progressive as denoting a state that obtains during the time at which an event occurs. In other words, perfect and progressive predications denote a state defined with respect to a background event. The state is denoted by the auxiliary head; the background event (which Michaelis (1998) refers to as the *reference situation*) is denoted by the participial complement. While

progressive and perfect constructions denote states defined relative to background events, other shift constructions, like the inceptive, may denote events defined relative to background states. An example of this usage of the inceptive is given in (50):

#### (50) *She began to look sad.*

The periphrastic structure of aspectual shift constructions like the perfect and inceptive mirrors that of shift constructions like the partitive in the domain of nominal syntax. Again, we see that the analogy between entities and situations is useful in thinking about aspectual meaning: just as the partitive construction denotes a count entity defined with respect to a backgrounded mass entity, so constructions like the inceptive can denote a bounded situation (an event of inception) defined with respect to an unbounded situation (a state like looking sad).

By thinking of the progressive as a shift construction, we find an answer to a question frequently asked not only by aspectologists but also by native English-speaking learners of Romance languages like French: what is the difference between the progressive construction in English and the imperfective in a language like French? Clearly, the two constructions overlap in many contexts, including that in (43), where a French imperfective sentence is translated by an English progressive. However, they are not functionally identical, as one can see from the impossibility of translating an imperfective sentence like (41) by means of an English progressive sentence like the anomalous sentence \**She was preferring white wine*.

The simple answer to the puzzle relies on a distinction which we have already made: the English progressive is a shift construction, while the French imperfective is a concord construction, in particular a past-tense construction which selects for a particular aspectual class, that of states. The lexical complement of a progressive sentence must be eventive, since the purpose of the construction is to derive, so to speak, a state predication from an eventive predication. Therefore, a stative predicate like *prefer- white wine* cannot unify with the progressive construction, while its French equivalent can unify with the imperfective construction.

As it stands, however, this explanation overlooks the fact that, as pointed out by Langacker (1991) and others, stative predicates certainly are sometimes compatible with the progressive construction, as shown in sentences (51-52):

- (51) *I am really liking your explanation.*
- (52) We are living in Boulder.

Speakers report that (51) has an interpretation in which the state of liking is developing toward some point of culmination, and that (52) has an interpretation in which living in Boulder is a temporary state. These observations indicate that progressive-form statives are construed as events. It is easy to see that development toward a point of culmination is an eventive property; eventive (activity) predicates like grow exemplify this property. It is somewhat more difficult to see temporality as an eventive property. After all, living in Boulder, however short its duration, is a situation that is internally homogeneous. However, as Langacker (1991) shows, there are a number of internally homogeneous situations, like wearing a sweater and sleeping, which qualify as events with regard to the present-tense reporting diagnostic (\*The baby sleeps! \*He wears a red sweater.). In terms of their Aktionsart classification, such situations are most closely aligned with activities, since they are bounded in time but lack an inherent point of culmination. Therefore, it seems reasonable to conclude that progressive-form statives are construed as activities. The fact that state predicates which appear as complements in the progressive construction are construed as events makes sense in light of what we now know about shift constructions: such constructions, in addition to performing explicit conversion, are also used for implicit conversion. The examples in (51–52) illustrate the use of the progressive construction to signal implicit conversion: each denotes a state which holds during the time at which an event occurs. The participial complement is one which otherwise denotes a state, but receives an activity reading by virtue of its constructional context.

An example of implicit conversion involving the perfect construction is given in (53):

#### (53) *I've been rich and I've been poor.*

There is a straightforward shift interpretation of *I've been rich* in which *I be- rich* is a state phase whose terminus is the present (this is the so-called continuative reading of the perfect). Michaelis (1998: chap. 5) argues that this reading is licensed by the continuative construction, whose participial complement denotes a state phase and has a stative head (see Herweg 1991a for arguments that state phases qualify as events). There is another reading of (53), sometimes referred to as an existential reading, in which I've been rich asserts the occurrence of one or more episodes of being rich prior to now. This is the reading associated with (53), which invokes an alternation between rich and poor episodes in the past. The existential reading of (53) involves implicit conversion: a stative complement receives an episodic reading in the context of a construction (the existentialperfect construction) whose participial complement denotes an event. Although this event is a state phase on either the continuative or existential reading, it is only on the existential reading that this state phase has an episodic interpretation, in which its duration is not foregrounded. This is the reading associated with inherently perfective complements like visit, which unify with the existential-perfect construction in straightforward cases like (45).

#### 3.3. Sentence types

A sentence type is a conventional pairing of form and discourse function. Traditionally recognized sentence types are declaratives, imperatives and questions. Beyond those types targeted by speech-act theory, we find expressive types like exclamations and focus constructions like presentationals. Descriptive grammar is largely based on sentence types, but the relationship of form to function is not a straightforward one. As Michaelis and Lambrecht (1996) argue with respect to English exclamations, the relationship between form and discourse function is many-to-one, both within and across languages. Further, as Levinson (1983) points out, there is a good deal of formal overlap among sentence types. The purpose of this brief section is not, however, to defend a particular theory of sentence types. Instead, it is to examine the way in which sentence types are relevant to a theory of conversion.

There are two aspects of the conversion phenomenon that I wish to consider here. Both involve accommodation to constructional pragmatics. The first involves the manner in which sentence-type constructions override the function of sentence types with which they unify. The second involves the way in which sentence types override inherent semantic specifications of open-class items within them, including argument structure. Exploration of the second phenomenon will return us to a consideration of problems which stem from the assumption of lexical projection.

#### 3.3.1. Function override

Function override is illustrated in English by the use of *wh*-question complements in factive contexts. A main-clause usage of a *wh*-question form is given in (54):

## (54) Who spoke up?

The *wh*-question construction, when used in a main-clause context, presupposes the speaker's ignorance of the identity of the element coded by the question word or phrase. For example, sentence (54) presupposes that the speaker does not know the identity of the person or persons who spoke up. *Wh*-questions also presuppose a *propositional function* in which the element represented by the question word or phrase appears as an unbound variable. For example, (54) presupposes a propositional function of the form *X spoke up*. As Lambrecht and Michaelis (1998) argue, *wh*-questions assert the

speaker's desire to know the identity of this variable.<sup>10</sup> When used as complements, the semantic properties of *wh*-questions change. Sentences (55–56) illustrate two contexts in which *wh*-questions appear as complements:

- (55) *I realize who spoke up.*
- (56) *I can't believe who spoke up!*

Both (55) and (56) presuppose that someone spoke up. Sentence (55) asserts that the speaker is aware of this proposition, while (56) asserts that the speaker is surprised by some aspect of this proposition. Both (55) and (56) presuppose that the speaker knows the identity of the person who spoke up. Hence, the use of wh-questions as complements in factive contexts not only changes what the form is taken to assert, but also overrides the presupposition of speaker ignorance associated with matrix wh-questions. The semantic content preserved across factive and question contexts is the presupposed open proposition; factives, by definition, presuppose the truth of their complements. Factive constructions call for complements which express a proposition known to both speaker and hearer; this proposition may be coded by a *that*-clause, but, as we have observed, it may also be coded by a wh-complement whose question word has a denotation known to the speaker. The presuppositional shift undergone by the question-form complement is a result of the semantics imposed by the factive construction via (9).

Another aspect of functional override is evident when we look closely at exclamations like (56). Such sentences do not simply assert the speaker's surprise at the proposition "Someone spoke up". Instead, (56) is taken to assert something relative to a pragmatic scale. Sentence (56) presupposes, or rather creates the presupposition that

<sup>10.</sup> Assert here is not to be taken as synonymous with the speech-act function of declaratives. Instead, assertion is used to describe the effect of an utterance on the addressee's knowledge state. E.g., as a result of hearing (54) the hearer knows the speaker's desire to learn the identity of the person who spoke up. On this understanding, it is not only declaratives that assert, but also questions (see Lambrecht & Michaelis 1998 for further discussion of this point).

the individual in question is ranked on scale of, e.g., speakers with regard to their reticence. Why should this be? Exclamations, as argued by Michaelis and Lambrecht (1996), are used to express surprise at the high degree to which a given property has been manifested on some occasion, as in (57):

#### (57) I can't believe how smart she is!

In accordance with Fillmore, Kay and O'Connor (1988), we assume that individuals are assigned positions on a given property scale. The purpose of (56) is to invoke a high point on the relevant property scale (a point associated with the individual in question), and express surprise that this point has been reached. The interpretation in which the question word *who* denotes a degree on a property scale is not a fact about *wh*-question forms, but instead a fact about the interpretation.

As observed by an anonymous reviewer, the override phenomenon at issue is difficult to describe by means of (9), as that principle is stated. *Wh*-question complements are not lexical items, and therefore the semantic conversion which they undergo when embedded as complements in exclamative constructions cannot be described as the result of an interaction of lexical and grammatical semantics. I will leave open the question of how (9) should be broadened in order to embrace the types of conversion which occur when sentence types combine. However, it is appropriate to observe that the example at hand is one in which a sentence type (the *wh*-question complement construction ) is *embedded* in another. Insofar as this embedded construction serves as a complement, it occupies a role (that of argument) that is canonically filled by a lexical item.

But what sort of argument relation does the embedded-question complement bear to the construction as a whole? As Michaelis (2001) has argued, exclamations are double predications. That is, they not only predicate a scalar property (e.g., smartness in (57)) of a referent (e.g., the denotatum of *she* in (57)), but also predicate an epistemic property (that of inducing disbelief, etc.) of a *degree*. Insofar as this degree is the argument of a predication, the complement of

an indirect exclamative may be a noun phrase denoting a degree, either directly or metonymically (see the discussion of (65) below and other examples discussed by Michaelis and Lambrecht (1996), including predications like *It's amazing the DIFFERENCE!*). The alternation between *wh*-clause complements and NP-form complements in indirect exclamations – initially observed by Grimshaw (1979), among others – is explicable insofar as degrees are entities. The entity status of degrees is evidenced by the fact that languages may index them by means of anaphoric words (as in, e.g., *He's that tall.*). If degrees are entities, it stands to reason that they may be referred to by means of noun phrases, which canonically denote entities (Croft 1990: 64–154). If we view degrees as arguments of exclamative predications, we have some basis for treating complements of indirect exclamatives like (56) as analogous to lexical items, in particular nouns.

# 3.3.2. Sentence types and lexical projection

Zwicky (1994) suggests that a theory of sentence types might explain exceptions to a principle which he refers to as *strictly categorial determination*, i.e., the assumption that the syntactic category of a given maximal projection is entirely determined by the syntactic category of the head. An example of an exception involving a sentence type is given in (58):

(58) As smart as she is, she is having difficulty getting a job.

The phrase in boldface receives the interpretation associated with a concessive clause like *Although she is smart* or *Despite the fact that she is smart*. This phrase is not inherently a clause – let alone a concessive one. Its head is an adjective, and it functions as an AP in contexts like (59):

(59) We are as smart as she is.

The interpretation of (58) as a clause, with a factive interpretation, is a function of its embedding in a concessive construction. It is this construction which imposes the concessive interpretation upon what is in other contexts merely an AP.

Examples like the foregoing clearly illustrate exceptions to the principle of lexical projection at the syntactic level. Exceptions at the semantic level, which may involve either the inherent semantics of a lexical head or the semantic requirements (valence) of a lexical head, also reveal themselves when we look at sentence types. One such exception was discussed in section 2 with regard to Bresnan's (1994) analysis of locative inversion. That sentence, sentence (4), is repeated here as (60):

(60) Down at the harbor there is teal-green clubhouse for socializing and parties. Beside it **sparkles** the community pool. (Vanity Fair, August 2001)

As discussed in section 2, Bresnan's model has some difficulty accounting for this type of example under the assumption that locative inversion is an alternative linking possibility for some set of unaccusative verbs. If, however, we abandon this assumption in favor of the assumption that locative inversion is a sentence type, accounting for examples like (60) is straightforward. Locative inversion can be considered an instance of a presentational sentence type referred to by Lambrecht (1994) as the sentence-focus type. Sentence-focus constructions, also known a *thetic* sentences, report events and states, and in so doing introduce the referents which serves as arguments in the predication. Lambrecht (1995) argues that while sentence-focus sentences tend to contain unaccusative verbs and verbs of location, this tendency is a function of the semantic-pragmatic properties of presentational constructions, whose function is not to predicate something of an entity under discussion, but to introduce an entity into a conversation or narrative, making it available for predications subsequently. Hence, as Bresnan herself observes, the semantic role that an entity would ordinarily play with respect to a verb like sparkle is in a context like (60) overlaid by another role - in Lambrecht's

terms, this role is not the role of theme, but rather the role of *focus*. The focus role is more salient in the presentational context than the semantic role assigned by the lexical head. Accordingly, as Lambrecht (1995) points out, the agency of the caller role vis-à-vis the verb *call* is backgrounded relative to its focal status in the English prosodic construction in (61). Similar interpretive effects can be observed for the pragmatic equivalent of this construction in French (a cleft construction) and Italian (an inversion construction):

- (61) BOB called.
- (62) Il y a Bob qui a téléphoné.
- (63) *Ha telefonato Bob.*

Presentational constructions like those in (61)–(63) give us evidence for implicit conversion involving the presentational sentence type, and against an account like Bresnan's, which reduces presentational constructions to lexical linking rules.

Conversion phenomena involving modulation of the meanings of epistemic adjectives give evidence against another account in which sentence types are derived from the subcategorization possibilities of lexical items: Grimshaw's (1979) account of exclamations. In Grimshaw's account, exclamations are complements which are called for by a specific class of lexical verbs and adjectives, including the negated verb *believe* and the adjective *amazing*. However, an important point about adjectives which denote the property of causing disbelief is that they do not form a circumscribed set. Adjectives which do not intrinsically denote the property of causing disbelief may nevertheless appear as matrix predicators in exclamatives which take the form of extraposition structures. When this occurs, the semantics of the adjective is modified in such a way that it is compatible with the semantics of the construction. Examples of this phenomenon are given in the boldfaced portions of (64–65):

(64) Allen served just two years there and it was a transforming experience. 'It was frightening, that whole time, how much

anger I had.' (Time 12 December 1994) (= Michaelis & Lambrecht 1996, (32a))

(65) 'The cops? Are they friends of yours?' 'Hardly', I said, but I sat there smiling. It was terrible, really, the joy I took at the notion of skunking Pigeyes. I already had a few ideas. (S. Turow, Pleading Guilty) (= Michaelis & Lambrecht 1996, (1e))

The adjectives *frightening* and *terrible* do not denote the property of inducing disbelief. Instead, *frightening* denotes the property of inducing fear and *terrible* the general property of inducing a negative response (censure, disgust, etc.). In the context of an exclamative construction, however, the fearful and censorious responses invoked by these adjectives are understood as entailed by a judgement about the degrees of anger and joy, respectively. E.g., the degree of anger is high enough to induce fear. In other words, the extraposed exclamative construction – whose semantic-pragmatic properties are those of the exclamative sentence type – appears to impose its meaning on the matrix adjectives with which it combines. The existence of conversion examples like (64–65) suggests that the source of exclamative meaning is an exclamative construction, rather than the argument structure of a set of psychological adjectives which commonly combine with this construction.

In concluding this section, we should observe that although we have focused on sentence types which are concord constructions, and therefore on instances of implicit conversion – examples in which sentence types modulate the semantic or pragmatic features of their parts – there are also straightforward examples of sentence types which perform explicit conversion. Examples are found, e.g., in Vietnamese, in which sentence-final particles are used to override the illocutionary force of the clauses to which they are attached. For example, the sentence-final particles di (lit. 'go') and không (a negative marker) function to impose, respectively, an imperative reading and a yes-no interrogative reading on clause which would otherwise have declarative force.

# 4. Conclusion

We have seen that appeal to constructional meaning provides a unified treatment of two very different kinds of semantic interactions: the 'unmarked' type, in which lexical items match the meanings of the constructions with which they are combined, and the 'marked' type, in which the meanings of lexical elements conflict with constructional meanings. On the constructional account, the 'marked' combinations, far from being unexpected or exceptional, behave in accordance with the override principle, and serve a function identical to that of demonstrably compositional constructions like the partitive and progressive, i.e., type shifting. In fact, as we have seen, describing the semantics of nominal constructions, linking constructions, aspectual constructions and sentence types requires reference to both explicit type-shifting (as performed by shift constructions) and implicit type-shifting (as performed by both shift and concord constructions).

Our exploration of shift and concord constructions at several morphosyntactic levels has shown that an understanding of sentence meaning relies on the study of syntactic meaning. The study of syntactic meaning relies in turn on an understanding of concepts and distinctions that are fundamental to construal (entity types, the eventstate distinction, causation, plexity, boundedness). In addition, it requires an elaborated model of the functions served by syntactic forms like exclamatory and presentational constructions - a model which includes discourse-pragmatic roles like focus and discourse-theoretic properties like presupposition. Since constructions, like words, freely combine semantic features (like image schemas) with pragmatic features (like use conditions), the study of constructional meaning entails the integration of cognitive and discourse-functional explanation. This integrated approach to the study of meaning and use is already widely precedented in the cognitive sciences: studies of language acquisition, language breakdown due to focal brain injury, and sentence processing place increasingly strong emphasis on the role of usage factors, in particular the frequency of words and morphosyntactic patterns. Such studies have shown, for example, that the onset of verb over-regularization errors in early language is triggered by a marked increase in the proportion of regular to irregular verbs in the child's vocabulary (Marchman & Bates 1994), that sentence interpretation becomes harder for both Broca's aphasics and normal adults when there is conflict between the preferred syntactic frame of the lexical verb and the syntactic frame in which it is encountered (Gahl 2002), and that the likelihood of a garden-path 'detour' during sentence processing is a function of the prior probability of a given constituent-structure assignment (e.g., reduced relative vs. main verb) combined with the transitivity bias of the lexical verb (Narayanan & Jurafsky 1998).

Such studies uphold the view, advanced by both Langacker (1987, 1991) and Bybee (2001), that linguistic knowledge is to a large extent the knowledge of routines. Significantly, such studies have also provided evidence that, as Bates and Goodman (1997: 59) put it, "grammatical and lexical forms are handled by the same large and heterogeneous processing system." In light of such findings, it is reasonable to ask what theory of grammar could best capture the properties of this non-modular representational system. Whatever the ultimate answer, it seems safe to say that it will almost certainly involve reference to grammatical constructions.

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