

## Constructions in Monostratal Syntax\*

Arnold M. Zwicky  
Ohio State University and Stanford University

1. A thumbnail history. The notion of a syntactic construction - in the sense of a (formal) syntactic pattern, or to speak more technically, a syntagmatic category, expressing a characteristic (functional) relationship among its parts - plays a central role in the Western grammatical tradition. In this tradition the English sentence *Kim does* see exemplifies at least two constructions, corresponding to a pattern in which S[+FIN] can comprise NP and VP[+FIN] and a pattern in which VP[+FIN] can comprise V[+FIN] and VF; we might want to say that this sentence exemplifies two further constructions, a pattern in which a VP[+FIN] coconstituent of NP must agree with it in certain morphosyntactic features and a pattern in which a VP coconstituent of V[+FIN] must bear the morphosyntactic feature [VFORM:BSE] when the V belongs to a particular lexical class (though we might instead want to say that the agreement and government are concomitants of a subject-verb and a verb-complement construction, respectively, rather than being constructions in their own right.)

As syntactic descriptions, and the linguistic theories with which they were associated, became formalized in this century, the relevance of this notion continued to be recognized. See the capsule discussion of constructions and syntactic functions in Ducrot and Todorov (1979: 213-6), and notice that Matthews (1981) begins his textbook summary of the subject-matter of syntax with a chapter on constructions.

A constructional high-water mark of a kind was reached in classical transformational grammar, building on the earlier work of Zellig Harris. TG emphasized the fact that the 'same' combination of categories (as in the familiar *easy / eager to please* examples, or in the phrase *that we advanced* understood either as a modifier of or as a complement to a head like *the idea*) can represent two or more formally distinct constructs - formally distinct in that they differ in both the details of their internal syntax (only the *eager* construct, for instance, can have absolute intransitives in it, as in *Lee is eager / \*easy to vanish*) and in their external distributional potentials (only the *easy* construct, for example, can take idiom-chunk subjects, as in *Tabs are \*eager / easy to keep on Marty*). The result was a more abstract conception of what a construction is, in which constructions correspond, not directly to patterns, but rather to rules describing those patterns; the English VP pattern *be + A + VP[VFORM:INF]*, for instance, is described by (at least) two separate rules. By associating constructions with rules, TG also made it possible to say that constructions can 'overlay' one another, so that a single combination of constituents can exemplify a number of constructions at once.

Meanwhile, Halliday's systemic grammar, with its focus on the (semantic, interpersonal, and discourse) functions of linguistic units of all sorts, also encouraged a more abstract conception, in which distinct constructions can be formalized via distinct features, as in Hudson's 1971 sketch of English syntax in the SG

framework and also in his 1976 departure from that framework.

There are aspects of classical TG that hamper the individuation of constructions in that framework. In particular, the distinction between two types of rules (phrase structure rules describing deep structures, transformational rules deriving surface structures) and the existence, in most detailed descriptions, of 'clean-up' transformations of various sorts both work against the simple identification of construction with transformational rule. These issues are even less clear in some of the frameworks descended from TG (for instance, GB, with its very general 'Move Alpha' transformation), or for that matter in Hudson's most recent (1984) nontransformational framework of Word Grammar.

Generalized phrase structure grammar looks much more promising in this respect. My purpose here is to explore what it might take to combine what I view as the cardinal virtues of GPSG (an autonomous syntax, full formalization of the syntactic component of grammar, a restricted generative capacity for this component, and explicit proposals for the interface between syntax and other components of grammar, in particular semantics) with an adequate description of syntactic constructions. First (in section 2) I follow the lead of Fillmore, Kay, Lakoff, and others (see, for instance, Fillmore (1985, 1987) and argue that constructions should be systematically represented in syntactic descriptions. Then (in section 3) I begin an exploration of how constructions of various sorts might be incorporated naturally within a phrase structure syntax.

2. Why care about constructions? My central claim is that constructions play the role in syntax that is usually ascribed to morphemes in morphology (though this role in morphology is more correctly assigned to morphological rules rather than the morphemes serving as exponents of those rules): They are conventional associations of form and meaning, and thus serve as the 'molecules' of syntactic description, just as morphemes (more correctly, morphological rules) serve as the 'molecules' of morphological description.

We can then expect to find reasons for positing constructions within syntax itself, as in section 2.1; in the connection between syntax and other components of grammar, in particular semantics and the lexicon, as in section 2.2; and in the connection between 'linguistic items', the units of grammatical description, and linguistic pragmatics (understood in its broadest sense, as encompassing linguistic markings of social group membership, styles, registers, genres, discourse organization, interactional roles, and interactional goals), as in section 2.3.

2.1. Purely syntactic virtues. If this picture is even approximately accurate, we will have to distinguish the molecular level of analysis from the atomic. In syntax, we will have to distinguish constructions from the formal concomitants (FCs) of those constructions, just as we have to distinguish morphological rules (a particular rule realizing the feature [NUM:+] for nouns in German, for instance) from the formal operations associated with those rules (suffixation of -e and umlaut, for instance, to continue the German example). In the general case, a construction is associated with a set of FCs, and the same FC can be associated with several distinct constructions. The task of the linguist

describing the syntax of a language is then to specify the inventory of constructions for the language, the inventory of FCs for the language, and the mapping from constructions to FCs in the language.

Although it might not be obvious from such an abstract account, this is what syntacticians spend most of their professional time doing. Syntactic analysis depends crucially on distinguishing constructions that share certain formal features - to choose just four examples from the very rich literature on English, the many distinct WH constructions (Zwicky (1986b) lists a dozen, which is surely the right order of magnitude, if not perhaps the precise figure); the three constructions gapping, pseudogapping, and verb phrase ellipsis, all involving a missing main verb (Levin (1986: esp. sec. 2.9); deictic versus existential *there* constructions, and within each of these large groups, several distinct subtypes (for some recent discussion, see Lakoff (1987: 462-581) and Newmeyer (1987)); and various constructions involving a 'bare infinitive' VP, that is, VP[VFORM:BSE] (Zwicky (1987: sec. 4.2.5) lists around a dozen of these, including imperatives and certain exclamations, as well as certain verbal complements and of course the complement of verbal *to*).

2.1.1. Internal syntax. One way in which such partially similar constructions are distinguished is in their internal FCs. Green (1985), for instance, separates two classes of inversion constructions in English - the 'inversions over V', containing a fronted XP, a VP missing XP, and a subject NP (*At the table sat the Jackson Five*); and the 'inversions over first auxiliary V', containing an auxiliary V, a subject NP, and a VP complement to the auxiliary V (*Have you finished?*). Within each class are several distinct constructions, again differing from one another in the details of their composition. On this basis we can distinguish, for instance, inversions over V in which the fronted XP is an adverbial complement to an intransitive V (*Onto the rug were scurrying little grey mice*) and those in which the fronted XP is a participial VP complement to a V (*Scurrying onto the rug were little grey mice*).

2.1.2. External syntax. Partially similar constructions must also be distinguished on the basis of their external syntax. For instance, though the internal syntax of the *promise* + NP + VP[VFORM:INF] construction and of the *ask* + NP + VP[VFORM:INF] construction is virtually (if not fully) identical, the two cannot be treated as identical for the purposes of reduced coordination (*\*I promised and asked Kim to go*), only the latter combines with a passive (*Kim was \*promised / asked to go*), and they combine with a reflexive object in different ways (*I promised Kim to absent myself / \*herself; I asked Kim to absent \*myself / herself*).

2.1.3. Distribution of lexical items. Still another reason for distinguishing constructions systematically in syntax is that particular lexical items may have distributions restricted to specific constructions. This, for instance, is Fillmore's (1985) claim about the conditions on the distribution of 'redundant HAVE' in colloquial English, as in *If you had('ve) eaten it, you would have died*. Fillmore's generalization is that the item occurs in past counterfactual clauses.

2.2. Service to other components of grammar. Though distinctions between constructions can be motivated on syntactic

grounds alone, it is also true that the units of syntax can be expected to play roles in other components of the grammar, so that we expect that constructions can also be distinguished via their lexical, semantic, or phonological properties.

2.2.1. The lexicon. Different constructions may share some FCs but permit very different lexical items in their head positions, as in the familiar distinction in (1) below. That is, the connection of constructions to the lexicon is through subcategorization; only certain lexical items can appear in particular constructions.

- (1) VP ---> V NP VP[VFORM:INF] (\_\_\_\_\_ Terry to be a spy)
- a. V: expect, force, like, want,...
  - b. V: ask, tell, request, persuade,...
  - c. V: promise
  - d. V: believe, know, imagine, consider,...

2.2.2. Semantics. The connection to semantics is twofold. Most strikingly, it comes through distinctions in compositional semantics, with different constructions being associated with distinct interpretations, as in the easy / eager to please distinction again, or in the contrast between imperatives like *Be here tomorrow!* and 'imperative-like conditionals' (Davies 1986: sec. 6.2) like *Be here tomorrow and/or I'll kiss you*.

Consider the four constructions in (1) again. They have roughly similar internal syntax, but are understood in rather different ways. In all except (1c), the NP and VP[VFORM:INF] are understood as logical subject and predicate, respectively, in a proposition P that functions as the patient of the verb's action; (1c) is also understood as having such a patient proposition P, but P's argument is represented not by the NP in (1), but instead by the subject NP of the mother VP. These facts might be taken to be the basis for an account of the reflexivization data cited above.

Next, in (1b) and (1c), but not in the other constructions, the NP in (1) refers to the recipient of the verb's action and the subject of P is understood to be an agent. As a result, these constructions are odd with an inanimate, dummy, or idiom-chunk NP: *??I asked / promised the rock to sing; ??I asked / promised there to be rain; ??I asked / promised it to rain; ??I asked / promised tabs to be kept on Sandy*.

Finally, the construction in (1d) differs from the one in (1a) in conveying the additional assumption that P refers to a currently obtaining state; the construction in (1a) is consistent with such an assumption but does not require it: *expect* and *believe* both occur with *it plus to be raining*, but *expect* is much more natural than *believe* with *it plus to rain very little in Beijing*; similarly, *expect* and *believe* both occur with *Kim plus to be shy, to be a spy, to be the Senator from Kansas, to be taking a nap, to have won often, to have no friends, to need money, and to constitute a problem for us*, but *expect* is much more natural than *believe* with *Kim plus to win often, to go to work by bus, to have a party every week*.

These observations are not intended to constitute an informal sketch for a formal account of the semantics of (1a)-(1d); I am maintaining only that the aspects of meaning I have mentioned must

be in some way derivable from a semantic description of these constructions.

The other connection to semantics is in word semantics. On the whole, the lexical items subcategorized to occur in a particular construction form a natural semantic class. I am not claiming that subcategorization classes are identical to semantic classes, only that there are default relationships between them, which can be expressed implicationally. We expect future-oriented verbs like *expect* and *want* to occur in the construction of (1a) and simple 'mental action' verbs like *think* and *imagine* to occur in the construction of (1d), for instance, but there can be exceptions - like the future-oriented *try*, which nonetheless fails to occur in the construction of (1a) (\**Robin tried Sandy to run faster*), and the mental-action verb *reflect*, which nonetheless fails to occur in the construction of (1d) (\**Robin reflected Sandy to be a spy*).

2.2.3 A few words about phonology. The syntactic structures in (1) are all tripartite. Indeed, the major difference between accusative+infinitive structures with *expect*, *ask*, *promise*, or *believe* in them lies not in this FC, but in more abstract constructional distinctions. As the details of the Celtic consonant mutations make clear (see Zwicky (1986a)), individual syntactic features can condition or constrain (mor)phonological rules. Whether constructional distinctions like the ones in English can have such effects remains an open question.

2.3. Service to pragmatics. Different constructions may share some FCs but have very different pragmatic values, as when gappings (*Robin hates beans, and Jackie peas*) tend to be reserved for formal discourse, pseudogappings (*Robin and Jackie hate beans, and they do peas as well*) for informal, conversational discourse, while VP ellipses (*Robin hates peas, and Jackie does too*) are stylistically neutral.

Pragmatics (in the very inclusive sense I have adopted here) is relevant to constructions by virtue of the fundamental assumption that any linguistic item - lexical item, syntactic construction, morphological rule, prosodic pattern, or phonological rule - can be invested with a pragmatic value. So if we find different pragmatic values associated with structures that have formal properties in common, we have evidence that there is some difference in linguistic items constituting the structures.

In (1), for instance, there are special pragmatic values associated with the structure in the *believe*, or (d), case. The existence of these values then supports the claim that there is more than one linguistic item, in particular more than one construction, here.

The (d) case differs pragmatically from the other three, and also from constructions involving mental-action verbs like *believe* with finite-clause complements, in two ways, its stylistic level and its discourse functions. Stylistically, (2) must be classified as formal, in contrast to the neutral (3) and (4).

- (2) I believed/considered/understood Gerry to be a Ruritanian spy.
- (3) I believed/considered/understood that Gerry was a Ruritanian spy.
- (4) a. I expected/intended/caused Gerry to be a Ruritanian spy.  
b. I asked/convinced/told Gerry to be a Ruritanian spy.  
c. I promised Gerry to be a Ruritanian spy.

In addition, (2) is in some sense more 'about' the referent of its NP object (at least when there is a concrete referent) than the sentences in (3) and (4) are. In consequence, the *believe* construction is odd when the referent of this NP is inherently unlikely to be topical (*?I believe some anonymous peasant to have written these verses*), and when it is not topical in the discourse context (so that *I treasure every moment I spend with my friends Kim, Sandy, and Robin; they truly enjoy life* is naturally followed by *And I believe that their dog Arf is rather amusing* but not by *?And I believe their dog Arf to be rather amusing*). Also note Borkin's (1974) observation that speakers found that 'NPs such as superlatives, generic *any* phrases, and parts of idioms (such as *tabs*) made poor' NPs in this construction (Davison & Lutz 1985: 57), a tendency Davison & Lutz attribute to a conflict between the topicality associated with the construction, on the one hand, and the low referentiality of these NPs, on the other.

The differentiation of constructions in their pragmatic values is what makes syntactic research directly relevant to sociolinguistics and discourse analysis, which will be seriously confounded if they are based on a flawed analysis of the meaningful units of the language in question. It is this fact that makes constructions so prominent in SG, with its focus on the functions of linguistic units. And it is this fact that explains the excursions into syntactic description in virtually every work on syntactic variation, even works that try to sidestep theoretical issues. Thus we find Weiner and Labov (1983) obliged to distinguish, among other things, true agentless passives (like *The watch was stolen at ten o'clock*) from predicate adjective constructions also involving *V[FORM:PSP]* (like *The watch was suspicious, probably stolen*).

The differentiation of constructions in their pragmatic values is also what makes work in sociolinguistics and discourse analysis directly relevant to syntactic description. Such work gives important evidence about the individuation of constructions in particular languages, and syntacticians ignore this work at their peril.

2.4. Practical matters. I should also point out that an individuation of syntactic constructions might have some practical applications - suggesting useful ways to label errors in student writing; to assess syntactic differences in dialects and idiolects for classroom purposes; to characterize the syntax of particular genres, styles, or registers; and so on. Indeed, it is hard to imagine how these enterprises can advance without an analysis of constructions that is both detailed and extensive. Any linguist who has taught a language, or who has advised those who do, will appreciate the point; such a linguist will have a file of constructional puzzles, like the gerund / infinitive puzzle distinguishing *I had a hard time solving / \*to solve the problems* from *I took a long time solving / to solve the problems*, which I owe to my colleagues at the Beijing Language Institute.

Geoffrey Pullum has also pointed out to me that individuating syntactic constructions might provide a way of comparing the coverage of different grammars or parsers. The Robolingua Labs computer system, which recognizes 127 constructions, might then be adjudged significantly superior to the one from Technoglossa

Institute, which recognizes only 53 (though as we shall see, counting constructions is no easy job).

3. Incorporating constructions in monostratal syntax. I turn now to some remarks - which are intended to be exploratory rather than definitive - about how constructions can be incorporated within a framework that has the advantages of GPSG. In a monostratal framework constructions are represented either by individual rules, as in TG, or by construction features (CFs), as in SG.

The treatment suggested by early GPSG (Gazdar 1982), in which the difficulties of TG are to some extent averted, is that we can view each immediate dominance (ID) rule as a description of a construction.

3.1. Lexical constructions. Each ID rule introducing a head that belongs to a lexical category corresponds to a construction, of a type I will refer to as a lexical construction.

In the early GPSG literature there are frequent occurrences of distinct ID rules with identical categorial content, along the lines of (5), the parts of which correspond to the parts of (1). Two things distinguish one such ID rule from another: its index and its translation principle.

- (5) a. <17, VP ---> V, NP, VP[+INF], t<sub>17</sub>>
- b. <18, VP ---> V, NP, VP[+INF], t<sub>18</sub>>
- c. <19, VP ---> V, NP, VP[+INF], t<sub>19</sub>>
- d. <20, VP ---> V, NP, VP[+INF], t<sub>20</sub>>

The indices for each ID rule serve as lexical subcategorization features. The verb *expect* then has [17] as one of its syntactic features in the lexicon, and *believe* has [20] as one of its features. (Lexical redundancy rules can state default relationships between aspects of the lexical semantics of a verb and these syntactic features.)

It has been observed by a number of critics that statements like those in (5) are redundant, since each index serves simply to pick out a particular translation principle. If we eliminate this redundancy, and just have lexical entries refer directly to translation principles, then there is no reason to have separate ID rules. The result is the scheme advocated by Klein and Sag (1985) and adopted in two different variants by Gazdar et al. (1985) and Pollard (1984), a scheme in which there is only one ID rule for the constructions in (1). Dowty's (1985) approach also would have only one ID rule, lexical entries for the different verb classes differing not in the compositional semantic principles they call up but in their lexical semantic content. These details, though important in other contexts, do not matter here. What is relevant is the fact that these approaches posit only one syntactic rule for the four constructions, so that each ID rule no longer represents exactly one construction.

Given my earlier discussion, I view with some suspicion the move that has been made within GPSG and categorial grammar to describe categorially identical constructions via a single syntactic rule, and to treat the differences among such constructions entirely as differences in their semantic values (whether compositional or lexical). Earlier versions of GPSG, in which each ID rule could be taken as representing a single

construction, seem to me to be nearer to the mark, and easier to integrate with phonology and with the various extragrammatical domains subsumed under the general heading of pragmatics.

Note that the treatment I am advocating presupposes that subcategorization is distinguished from agreement and government in a principled way. Each lexical construction is associated with a subcategorization, but agreement and government must (in general) be described by principles that 'cut across' a number of distinct ID rules.

3.2. Phrasal constructions. Other ID rules - for instance, S ---> NP, VP giving a hierarchical structure to S, and S ---> V[+AUX], NP, VP giving the flatter 'inverted' alternative in English - correspond to constructions too, of course. But in addition there are constructions that overlap with these, for example, the passive and such focus constructions as WH-questions and pseudoclefts in English. The latter correspond not to phrasal ID rules but to CFs, like [+PAS] and [+FOC].

CFs constitute a distinguished subset of the syntactic features, each with a stipulated categorial domain (for instance, [+PAS] is a VP feature) and consequences for the distribution of purely syntactic, lexicosyntactic ('foot') and morphosyntactic ('head') features within that domain. In the Zwicky (1987) analysis of the English passive, for instance, [+PAS] entails the absence of an object NP, via a special feature-valued (purely syntactic) feature with some of the properties of the standard GPSG SLASH feature; the possibility of a modifying agent phrase, via the applicability of a special type of ID rule that licenses optional daughter constituents within certain constructs; the presence of the morphosyntactic feature [VFORM:PSP], which is realized as an inflectional form of the head V; and coconstituency with V[+AUX] (belonging to a lexical subclass comprising *be* and *get*) described via a government rule requiring VP[+PAS].

Some CFs (I assume that [+PAS] is one such) will be head features, shared by the head lexical category within the construction's domain, while others (like [+FOC]) will be nonhead features. A head CF *F* can then have lexical exceptions, lexical items belonging to the head lexical category but idiosyncratically bearing either the feature [+*F*] or [-*F*]. Nonhead CFs will not be open to such lexical exceptions, so that the head/nonhead distinction will correspond roughly to the TG distinction between (potentially) governed, or cyclic, and ungoverned, or postcyclic, rules.

3.3. Puzzles and prospects. Up to this point I have sketched a program for syntactic description that (like SG and the 'grammatical construction theory' being pursued in several forms at Berkeley) treats constructions as central and that also has (what I see as) the virtues of GPSG. At the moment this is only a program, not a actual theory of syntax. I close with an inventory of ten problem areas within the approach, hoping thereby to encourage others to explore these topics.

3.3.1. Linear precedence rules. The paradigmatic LP rule (like the English rule ordering V before an object NP when these are sisters) is a principle that (a) is obligatory, (b) generalizes across ID rules, and (c) lacks semantic or pragmatic function of its own. Not infrequently, however, the ordering of sister constituents is not fixed, and the alternatives differ in



their characteristic functions; for details on a typical case, see Uszkoreit (1987) and the references cited therein.

What is at issue in this situation is whether (a) the LP rule is an FC of one or more constructions, in which case the characteristic functions are associated with the constructions rather than with the LP rule directly (so that the functions in a sense imply the ordering), or whether (b) it is a CF in its own right, in which case the characteristic functions are associated with the LP rule itself (so that the ordering implies the functions). The fact that the principles 'determining' constituent order can involve not only thematic roles and topicality, even in languages in which these have no other consistent formal correlates, but also the length and complexity of particular constituents (as in the common tendency for shorter constituents to be ordered before longer) suggests that possibility (b) should not be discounted.

3.3.2. Nonappearing constituents. A constituent that does not appear can, in principle, be treated in GPSG as (a) an empty constituent; that is, a category that appears in ID rules and bears a special feature, which I will label [+NULL]; (b) a missing constituent, that is, one that is represented via a SLASH-like feature on its mother category, and might be realized in a [+NULL, +TRACE] daughter or via the absence of one daughter; or (c) a truly absent constituent, that is, one that has no representation of any sort in ID rules. In case (c) at least, an actually occurring constituent might be analyzed as bearing a feature of anaphoricity, as in Napoli's (1985) treatment of VP ellipsis as involving anaphoric auxiliary Vs. It might be that various analyses from this list are appropriate for different phenomena in the same language, or parallel phenomena in different languages.

In none of these analyses, however, is the nonappearing constituent treated as a construction. Any differences in the syntactic distributions of different nonappearing constituents would have to follow from syntactic conditions on semantic interpretation principles (or on discourse interpretation principles, as in the proposals surveyed in Zwicky (1985)). But then we would be hard put to describe some of Levin's observations about the distribution of these items - that pseudogapping occurs in noncoordinate structures (*I like beans more than I do peas*) but gapping does not (*\*I like beans more than Terry peas*), or that VP ellipsis occurs in complement clauses (*I'm surprised that Marty can*) but pseudogapping does not (*\*They're surprised that they can*).

What seems to be required is a set of CFs for which nonappearing (and anaphoric) constituents are treated as FCs.

3.3.3. Government and agreement. I have already proposed that subcategorization be distinguished from government and agreement. An adequate theory of feature distribution also requires that agreement be distinguished from government, so that we can say that a particular functor agrees with its argument in certain features but governs other features on this argument - so that we can say, for instance, that Vs agree with their direct object NPs in certain features (of gender, say) but govern other (case) features on these objects, or that the same holds for certain quantifiers with respect to a sister N'.

In a monostratal syntax this means that there are two sets of principles imposing restrictions on the distribution of features in sister constituents: agreement rules (in the simplest cases, instances of the Control Agreement Principle of GPSG) and government rules. However, there is good reason for denying such rules construction status, since they are not meaningful on their own. Instead, such rules describe the distribution of marks that are redundant expressions of other relationships - which suggests that they should be treated as FCs rather than as constructions in their own right.

But what other relationships are they marks of? I suggest that they are FCs of a third set of ('grammatical relation') constructions, overlaying those described by ID rules and by the CFs I have already mentioned.

3.3.4. Locality. Such grammatical relation constructions are not necessarily strictly local; unlike the principles of standard GPSG, they do not always pick out mother-daughter or sister-sister constituent relationships. 'Raising of subject to subject' (in the useful TG terminology), for instance, involves a subject-predicate construction relating the subject NP of one V to the head of that V's complement VP (they to *perjure* in *They appeared to ~~perjure~~ themselves*, for instance;). Nor is such a construction limited to a single configuration. The subject-predicate construction (on this interpretation) also relates *they* and *appeared* in *They appeared to ~~perjure~~ themselves*, and it relates *them* and *perjure* in *I expected them to ~~perjure~~ themselves*.

Violations of strict locality, involving reference to syntactic structures specified several layers deep, have also been proposed by Fillmore (1985) for the description of syntactic constructions. As Jack Hoeksema has pointed out to me, such reference seems frequently to be called for in the analysis of idioms. Certainly there are many classes of idioms (the *give rise to* class, the *shrug one's shoulders* class, and so on) with fixed content stretching across more than one level of constituency.

In all these cases it seems possible to maintain that the number of levels of structure to which individual principles refer is bounded, perhaps even that there is a universal bound of 2 or 3, so that the framework can still require locality, though not strict locality.

3.3.5. Primary and secondary occurrences of CFs. An adequate theory of CFs must permit these to occur on their own, so to speak, and also as FCs of other constructions.

This is the sort of analysis I would suggest for the English CF [+IMP], which has primary occurrences in imperatives, where it has as its three FCs the morphosyntactic feature [VFORM:BSE], the optionality of the subject NP, and obligatory auxiliary *do* with negation and emphasis (see Davies (1986)); I leave open here the question of whether these FCs are described by ID rules that are not strictly local or by CFs. In any event, [+IMP] also has secondary occurrences in such 'imperative-like conditionals' as *Don't be noisy or you'll get in trouble* and *Let them in and they'll stay all day*.

3.3.6. What can be a FC. Among the sorts of FCs I have already mentioned are feature-valued features, morphosyntactic features, lexicosyntactic features, (secondary) CFs, optional ID

rules, agreement rules, government rules, and LP rules. To these must certainly be added features triggering phrase phonological rules (as in the Celtic mutations) and prosodic patterns (like the rising intonation conventionally associated with main yes-no questions in English). And phrasal ID rules, as when main-clause interrogatives in English require the flat 'inverted' structure licensed by the branching rule  $S \rightarrow V[+AUX], NP, VP$ .

What else is possible? In particular, can a feature for an ID rule - a lexical construction feature like [17], as in (5a) above - be introduced as a FC of another construction?

3.3.7. What is semantically interpreted. The sort of monostratal syntax I have in mind is sternly nonderivational. Syntactic rules, on this view, are simply restrictions on free branching or free feature distribution, and there is no sense in which syntactic representations are constructed directionally (top down or bottom up).

On this view each ID rule is associated with a compositional semantic principle, and no LP rule, agreement rule, or government rule is. In addition, a syntactic feature contributes semantic content in some of its occurrences but not in others. Most strikingly, the [+POSS] feature in *the queen of England's hat* must be interpreted in its occurrence in the 'top' NP category and not in any lower category. Gazdar et al. (1985: sec 10.5) provide a principle that allows such features to contribute to interpretation only in their highest occurrences. Something analogous is needed for primary versus nonprimary occurrences of CFs; we want [+IMP] to contribute to interpretation only when it is 'freely chosen', not when it is implied by (is an FC of) another CF, as in imperative-like conditionals.

3.3.8. Classes of constructions. There is no question that constructions group together into classes defined by the sharing of FCs - two large classes of inversion constructions in English, for instance, or two large classes of *there* constructions.

Whether such classes have a special status in grammar (beyond what follows from their sharing FCs) is an open question. Lakoff (1987) supposes that they do, that at least some of these classes constitute construction categories centered on particular prototypical constructions. I am not convinced that construction categories play a role in the synchronic grammar of any language, but the issue is certainly one that formal grammarians should examine carefully.

3.3.9. Universality. In the best of all possible worlds, universal grammar would specify (in some fashion) the list of all possible constructions, the semantic or pragmatic functions expressed by each construction, and for certain constructions necessary FCs.

The CF [+PAS], for instance, would appear on the universal list, with the necessary FC [/NP[R]] (where *R* is some set of grammatical relations including the direct object relation), and would be associated with a semantic interpretation principle that 'looks for' a subject NP whose interpretation depends on what sort of NP appears as the value of SLASH. Everything else is parochial.

For this program to make sense, there must be no lexical CFs like [17]-[20] (corresponding to the ID rules in (5) above), for these are arbitrary and parochial. Such CFs must be identified

with features on the universal list.

3.3.10. The association between CFs and FCs. Though I am claiming that the grammars, in particular the syntactic components, for individual languages must list the associations between constructions and FCs, I do not deny that certain FCs are (from the semiotic point of view) especially good marks of certain constructions and can be expected to be associated with these constructions with more than random frequency. Lakoff's (1987) discussion of deictic there constructions emphasizes the goodness of fit between a construction and its FCs, suggesting indeed that virtually the full set of FCs for a construction can be predicted from the functions it serves.

Such predictability in detail is scarcely characteristic of constructions in general, however. One of the main points of Sadock & Zwicky (1985) is that though certain classes of constructions (declaratives, interrogatives, and imperatives) can be identified with one another across languages, any given type of FC can be associated with any of these constructions in a particular language. Sadock & Zwicky noted that yes-no questions, for instance, can be marked by verb inflection, a particle word, a prosodic pattern, a constituent order, or some combination of these. There might be semiotic reasons why some of these marks would be frequently associated with certain constructions, but there is no reason to think that (beyond any universal entailments of the sort referred to in the preceding section) universal grammar bars any particular formal property from serving as a mark of a construction with any particular function.

#### Notes

- \* Earlier versions of some of the material in this paper were presented at Berkeley on 10 February 1987 and at UCLA on 5 March 1987, and a still earlier version of some of it appeared as Zwicky (1986c). My thanks to members of the Berkeley and UCLA audiences and to Belinda Brodie, Jack Hoeksema, James McCawley, Fritz Newmeyer, and James Watters for their comments and encouragement at various stages in the development of the ideas reported here.

#### References

- Borkin, Ann. 1974. Raising to Object Position: A study of the syntax and semantics of clause merging. PhD dissertation, Univ. of Michigan.
- Davies, Eirlys. 1986. The English Imperative. London: Croom Helm.
- Davison, Alice & Richard Lutz. 1985. Measuring syntactic complexity relative to discourse context. In David R. Dowty, Lauri Karttunen, & Arnold M. Zwicky (eds.), *Natural language processing: Psychological, computational, and theoretical perspectives* (Cambridge: Cambridge Univ. Press), 26-66.
- Dowty, David R. 1985. On recent analyses of the semantics of control. *L&P* 8.3.291-331.
- Ducrot, Oswald & Tzvetan Todorov. 1979. *Encyclopedic dictionary of*

- the sciences of language. Baltimore: Johns Hopkins University Press. Translation by Catherine Porter of 1972 French original.
- Fillmore, Charles J. 1985. Syntactic intrusions and the notion of grammatical construction. BLS 11.73-86.
- Fillmore, Charles J. 1967. Varieties of conditional sentences. ESCOL 3.
- Gazdar, Gerald. 1982. Phrase structure grammar. In Pauline Jacobson & Geoffrey K. Pullum (eds.), *On the nature of syntactic representation* (Dordrecht: Reidel), 131-86.
- Gazdar, Gerald, Ewan Klein, Geoffrey Pullum, & Ivan Sag. 1985. *Generalized phrase structure grammar*. Oxford: Basil Blackwell.
- Green, Georgia M. 1985. The description of inversions in generalized phrase structure grammar. BLS 11.117-45.
- Hudson, Richard A. 1971. *English complex sentences: An introduction to systemic grammar*. Amsterdam: North-Holland.
- Hudson, Richard A. 1976. *Arguments for a non-transformational grammar*. Chicago: Univ. of Chicago Press.
- Hudson, Richard A. 1984. *Word grammar*. Oxford: Basil Blackwell.
- Klein, Ewan and Ivan A. Sag. 1985. Type-driven translation. L&P 8.2.163-201.
- Lakoff, George. 1987. *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago: Univ. of Chicago Press.
- Levin, Nancy S. 1986. *Main-verb ellipsis in spoken English*. New York: Garland. PhD dissertation, OSU, 1979.
- Matthews, Peter H. 1981. *Syntax*. Cambridge: Cambridge Univ. Press.
- Napoli, Donna Jo. 1985. Verb-Phrase Deletion in English: a base generated analysis. JL 21.2.281-319.
- Newmeyer, Frederick J. 1987. Presentational there-insertion and the notions 'root transformation' and 'stylistic rule'. CLS 23.
- Pollard, Carl J. 1984. *Generalized phrase structure grammars, head grammars, and natural language*. PhD dissertation, Stanford Univ.
- Sadock, Jerrold M. & Arnold M. Zwicky. 1985. Speech act distinctions in syntax. In Timothy Shopen (ed.), *Language typology and syntactic description. Volume I: Clause structure* (Cambridge: Cambridge Univ. Press), 155-96.
- Uszkoreit, Hans. 1987. Linear precedence in discontinuous constituents: Complex fronting in German. In Geoffrey J. Huck & Almerindo D. Ojeda (eds.), *Syntax and semantics 20: Discontinuous constituency* (Orlando: Academic Press), 405-25.
- Weiner, E. Judith & William Labov. 1983. Constraints on the agentless passive. JL 19.29-58.
- Zwicky, Arnold M. 1985. On appealing to discourse interpretation. ESCOL 1.321-32.
- Zwicky, Arnold M. 1986a. The general case: Basic form versus default form. BLS 12.305-14.
- Zwicky, Arnold M. 1986b. WH constructions in English. OSU WPL 32.114-24.
- Zwicky, Arnold M. 1986c. What's become of construction types? OSU WPL 32.157-62.
- Zwicky, Arnold M. 1987. Slashes in the passive. Linguistics 25.4.