Words by Default: Optimizing Constraints and the Persian Complex Predicate*

Adele E. Goldberg
University of California, San Diego

In *Berkeley Linguistic Society Proceedings. 1996.*

1 Introduction

Complex predicates (CPs) are predicates which act in some way as a single word, and in another way like more than one word. Persian (Farsi) has many such complex predicates that consist of a non-verbal element, the host, followed by a light verb. These CPs are of interest because they display both lexical and phrasal properties.

This paper offers an account in which the Persian CP is treated as a construction represented in the lexicon. It is argued that its expression as a simple word or as a phrasal entity is determined by the interaction of a set typologically natural ranked constraints. An outcome of this analysis is that the categorial status of the CP can be viewed as a simple verb *by default*. V0 status is motivated by the CPs lexical properties. It entails that the host and light verb be unseparated and that they may undergo derivational processes. The V0 status is a default in the sense that it can be overridden if and only if there is a competing higher ranked constraint.

One implication of this proposal is that words and phrasal constructions are treated as the same basic type of entity in that one and the same stored item can appear either as a lexical item or as a phrasal entity, depending on what other constructions it interacts with. This possibility is natural within theories such as Construction Grammar, Cognitive Grammar or HPSG, in which grammar consists of CONSTRUCTIONS which are not-strictly predictable form - meaning patterns that are morphological *or* phrasal (e.g., Fillmore, Kay, & O'Connor 1988; Pullum & Zwicky 1991; Fillmore & Kay 1993; Goldberg 1992, 1995; Jurafsky 1992, Lakoff 1987, Langacker 1987, 1991; Pollard & Sag 1987). The idea that there are general tendencies in languages that are sometimes violated due to competing motivations has been a long held tenet of functional approaches (cf. Haiman 1985, Bates & MacWhinney 1987, Langacker 1990, and Lakoff 1987).

For clarity, I adopt the representation of Optimality Theory to capture the ranked constraints (see Prince & Smolensky 1993; McCarthy & Prince 1993; Legendre et al. 1993; Grimshaw 1995). The formalism is attractive because it provides a concrete way of capturing defaults, overrides and motivating tendencies. The constraints required for the present analysis are argued to be typologically natural, but no claim is made that they are absolutely universal or that they are innate.

2 Identifying CPs

In Persian, I intend the term complex predicate to refer to cases in which the host appears in bare form, without plural or definite marking. In finite sentences with simple verbs, primary stress is placed on the main verb. But in finite sentences with CPs, primary stress falls on the host instead.

(1) Ali mard-râ **zád** (simple verb)
Ali man-acc hit.1.sg
Ali hit the man.

(2) Ali bâ Babak **hárf zad** (complex predicate)
Ali with Babak word hit
Ali talked with Babak.

3 Non-compositional semantics

The semantics of the complex predicate is often noncompositional in that it is not strictly predictable from the complex predicate's component parts. For example,

(3) guS kardan
ear do
"to listen"

(4) dust dâStan
friend have
"to like/love"

To listen is not literally "to do ear," to like is not literally "to have a friend."

It is argued below that the semantics is not naturally attributed either to the host or light verb in isolation, but rather to their combination. From this fact alone, it is clear that many CPs must be listed, presumably in the lexicon, or if we construe the lexicon more broadly to contain constructions as well as lexical items, they must be listed in the "constructicon."

Additional evidence argues that the CPs generally act as simple lexical items: they differ from their simple verb counterparts in argument structure properties, they can form nominalizations and they resist separation, for example, by adverbs and by arguments.

4 Lexical Properties

4.1 Changes in Argument structure

The complex predicate often differs in its argument taking properties from the corresponding simple verb. For example, in simple sentences, *gereftan*, "to take," may occur with an explicit source argument:

(5) ketâb râ *az man* gereft
book ACC from me took
S/He took the book from me.

When used as a light verb in the CP *arusi gereftan*, "to throw a wedding," the benefactive *barâye* phrase appears:

(6) *barâye u* arusi gereftam
for her/him wedding took
I threw a wedding for her/him.

In this case, the CP as a whole does not allow a source argument:

(7) * *az u* arusi gereftam
from her/him wedding took

4.2 Nominalizations

A critical piece of evidence often cited for lexical status is the ability to form nominalizations, since nominalization is taken to be a lexical process and as such, can only be fed by other lexical processes. Persian CPs can form nominalizations by attaching the present stem of the light verb to the host:

(8) V: bâzi kardan Lit., "game + do" ("play")
N: bâzikon "player" (as in soccer player)

(9) V: negah dâStan: Lit. "HOST + have" (to keep)
N: negahdâri: maintanance

A final piece of evidence arguing that the complex predicate is in some sense a lexical item comes from the fact that the host and the light verb resist certain types of separation.

4.3 Host and Light Verb Resist Separation

4.3.1 Separation by Adverbs

In sentences without CPs, adverbs can freely come directly before the verb:

(10) maSq-am-râ *tond* neveStam
homework-1.sg-def.ACC quickly wrote.1.sg
I did my homework quickly.

However in the case of CPs, the adverb does not separate host from light verb (11). Instead, the adverb precedes the entire CP (12):

(11) ?? **rânandegi** *tond* **kardam**
driving-N quickly did.1sg
Intended, "I drove quickly."

(12) *tond* **rânandegi kardam**
quickly driving-N did.1.sg
I drove quickly.

4.3.2 Separation by DO

In the case of transitive CPs, the direct object cannot intervene between the host and light verb in neutral contexts:

(13) ??**setâyeS** Ali-râ **kardam**
adoration Ali-acc did.1.sg
Intended, "I adored Ali."

Instead, the DO appears before the entire CP:

(14) Ali-râ **setâyeS kardam**
Ali-acc adoration did.1.sg
I adored Ali.

5 CPvo Constraint

The evidence presented so far indicates that Persian CPs have certain properties which are generally taken to be lexical. On the basis of these characteristics, we can posit the first general constraint:

(15) CPvo: Express the X0 and V0 of a complex predicate as a V0.

We will see below that this constraint can be violated. But before turning to the violations, I will point out why this constraint is a well motivated constraint.

The preference for treating the CP as a single syntactically integrated predicate is motivated by its status as a semantically integrated predicate. This can be seen to be a special case of a general iconic principle:

(16) ICONIC: A tight semantic bond between items tends to be represented by a correspondingly tight syntactic bond (Haiman 1983; Bybee 1985)

Ackerman and LeSourd (to appear) propose that the diachronically unmarked expression of complex predicates is as a single syntactically atomic lexical item In particular, they propose that once independent syntactic forms begin to be associated with non-compositional semantics or new argument structures, the syntactic separability appears to be a marked option. Over time, such syntactically separable items tend to coalesce into syntactically and phonologically atomic lexical items through a process of grammaticalization (see also Mithun 1984, Gerdts and Hinkson 1996 for discussion of this diachronic tendency in the phenomenon of noun incorporation). The suggestion here is that a violable constraint can capture the stage in the synchronic grammar in which the unmarked expression of a complex predicate is as a V0. Let us turn now to certain situations in which the host and light verb do not appear as a V0, but rather as two pieces of a phrasal structure.

6 Syntactic Properties

It turns out that the complex predicate can be separated by a number of elements: future, modal and progressive auxiliaries, an imperfective prefix, and direct object clitics. Space permits me to only consider two of these cases here, but they can be viewed as two types of constraints which can be used to characterize the other intervening elements as well (see Goldberg, in preparation).

6.1 CPs can be separated by future auxiliary

In formal contexts the future tense is expressed by adding the auxiliary verb *xastan* (Lit. "want"), inflected for person and number before the verb stem:

(17)	(man)	*xâham*	raft
	I	FUT-1.sg	went
	"I will go."		

When a CP is involved, the future auxiliary must intervene between host and light verb as can be seen in (18):

(18)	(man)	**telefon**	*xâham*	**kard**
	I	telephone	FUT-1.sg	did
	"I will telephone."			

Positioning the future auxiliary before the entire CP is not permitted:

(19)	* (man)	*xâham*	**telefon**	**kard**
	I	FUT-1.sg	telephone	did.3sg

Notice that the auxiliary cannot naturally be treated as an infix within a lexical unit because of its person and number inflection. Inflectional morphology occurs outside derivational morphology in the vast majority of cases. Therefore there must exist a constraint that is more highly ranked than the CPvo constraint. The relevant constraint is given in (20):

(20) FUT: The future auxiliary appears directly before the verb root.

This constraint can be seen to be natural for the same reason the CPvo constraint was natural: elements that are closely related semantically appear close together in the syntactic string. The future morpheme is semantically a verbal operator in that it predicates something of the event described by the verb. What is unusual about this case is that FUT should outrank CPvo. The explanation of this fact relies on the diachronic history of the CP. Notice that the future auxiliary is a closed class or grammatical element. It is generally recognized that the ordering of grammatical elements is often motivated by an diachronically earlier stage of the language (Givón 1971; Bybee 1985) In a diachronically earlier stage of Persian, what are today complex predicates were verb + complement forms (Windfuhr 1979). This is generally case with this type of complex predicate cross linguistictally (Mithun 1984). At the time when the elements that today are the complex predicate were analyzed as complement and verb, it was completely natural that the verbal tense operator should appear between the complement and the verb. The ranking of the FUT constraint has simply remained fixed, as a high ranking constraint.

Interestingly, a similar verbal auxiliary intervenes between host and verb in the preverb + verb construction in Hungarian (Farrell Ackerman, personal communication), and also in Walpiri (Nash 1980). Therefore the FUT constraint and its ordering with respect to the CPvo is attested in other languages.

The interaction of the two constraints is shown in Figure 1:

Figure 1

On the left, various candidate forms are given. The constraints are given in the right hand columns, in order of decreasing strength from left to right. A '*' in a block indicates a violation of that constraint. The '!' indicates that this violation is fatal. Because FUT is ranked higher than CPvo, the candidate which satsifies it is preferred, even though the CPvo constraint is violated.

6.2 CPs can be separated by DO clitics

In the case of simple verbs, direct object clitics typically appear directly after the verb, as in (21):

(21) didam -aS
see.past.1.sg 3.sg.CL
I saw it.

In the case of CPs, the DO clitic can either appear after the light verb, or it may attach directly to the host, thus separating host from the light verb as in (22):

(22) **roSan** -aS **kard**
light -3.sg.CL did
S/He turned it on.

Pronominal elements may not appear in the middle of single zero level categories. That is, the clitic cannot occur between syllables in a multisyllabic single word, even after a stressed morpheme boundary. Therefore, the possibility of inserting the pronomial clitic within the CP provides a strong piece of evidence that the host and light verb should be analyzed as two separate words in (22). This implies that there is another constraint that serves to override the CPvo constraint. What is required is a constraint that positions the clitic in second position within the predicate. This constraint is given in (23):

(23) CL2: DO clitics are suffixed after the first X0 in the predicate

This constraint is typologically natural since it can be seen to be an instance of Wackernagel's Law that specifies that clitics should appear in second position in the sentence. This generalization holds of Walpiri, Serbo-Croation, Luiseño, Greek, Sanskrit and an earlier stage of Persian (Anderson 1994; Bubenik 1994; Halpern 1995). In the case of Modern Persian, the clitic appears in second position within the smaller domain of the predicate.[1] In the case of simple verbs, CL2 ensures that the clitic is placed after the verb as we saw was the case.

In the case of CPs, CL2 is in direct conflict with CPvo. In (24), CL2 is satisfied, but CPvo is violated. In (25), the opposite is true: CPvo is satsified but CL2 is violated.

(24) **masxareh** -aS **kardand**
joke -3.sg.CL did.3.pl
They made fun of him.

(25) **masxareh** **kardand** -aS
joke did.3.pl -3.sg.CL
They made fun of him.

Both (26) and (27) are acceptable and are found in free variation. Therefore constraints CL2 and CPvo are unordered with respect to each other. This is represented in Figure 2 by the dashed line between the two constraints. Both candidates (a) and (b) optimize the relevant constraints.

Figure 2

So far we have seen that FUT outranks CPvo and that CPvo and CL2 are unranked with respect to each other. This yields the following ranking:

(26) FUT >> {CL2, CPvo}

This ranking predicts that speakers will disprefer examples such as (27) in which the clitic follows the light verb in favor of (28), which is in fact the case:

(27) ?? bâź xâham **kard-aS**
open want.1.sg do.past.3.sg-3.sg
Intended, I will open it.

(28) **bâź -aS** xâham kard
open -3.sg want.1.sg do.past.3.sg
I will open it.

These facts are expected since (27) violates both CL2 and CPvo, while (28) only violates CPvo. This is represented in Figure 3:

Figure 3

A question arises, if CPvo is violated, can anything at all intervene between host and light verb? The preceding case indicates that the DO clitic can in fact intervene, but it turns out that adverbs and arguments still cannot. Thus, it appears that the CP prefers to be treated as a simple V0, but if that constraint is overridden by a higher ranked constraint, the CP still prefers to be separated only by closed class elements. One way to capture this fact would be to assume that when closed class elements intervene between host and light verb, the complex forms a $\bar{\mathrm{V}}$. Allowing adverbs and arguments between would result in the CP appearing only as part of a full VP. CPs prefer to be expressed as V0's, but if that is not possible, they prefer to be expressed within a $\bar{\mathrm{V}}$. To capture this idea, an additional constraint is required, CP$\bar{\mathrm{v}}$:

(29) CP$\bar{\mathrm{v}}$: Express the X0 and V0 of the CP as a $\bar{\mathrm{V}}$

Figure 4

This constraint can be viewed as an instance of the above mentioned ICONIC constraint, assuming an adequate characterization of the correspondence between semantic closeness and syntactic closeness can be explicated. Ultimately, the CPvo and CP$\bar{\text{v}}$ constraints should be combined into a single gradient constraint. What is clear from the interaction of the clitic and future auxiliary described above, is that simply counting the number of intervening morphemes between host and light verb is not what determines their syntactic "closeness." Rather, it appears to be the type of the first mother node that dominates both host and light verb that is relevant.

7 Summary

To summarize, I have claimed that although the CP is necessarily listed in the lexicon, it is not necessarily treated as a single indivisable word. This analysis at once motivates why it is that certain elements can intervene between the host and light verb, while others cannot: elements can only intervene if there is an independently motivated higher ranked constraint that conflicts with the preference for treating the host and light verb as a single simple word.

Diachronic Shifts

Viewed this way, it is clear that the strength of the CPvo constraint could increase over time, moving up the ordered set of constraints. It may over time begin to compete, for example, with FUT, resulting in the future marker optionally appearing outside the entire CP. Ultimately, it may increase in strength so as to outrank FUT resulting in the future marker obligatorally appearing outside the entire CP. Alternatively, diachronic change could lead to CL2 growing in strength resulting in the obligatory separation of host and light verb when a DO clitic is present.

Typological Variability

Crosslinguistically, various orderings of similar constraints are attested. Mithun (1984) mentions Samoan as a case in which particles which normally appear directly after the V instead appear outside the entire N+V complex predicate. She also mentions Micronesian languages in which aspectual makrers which normally appear directly after the V appear instead outside the CP.

Therefore viewing the preference for treating the CP as a word, as one constraint interacting with other independently motivated constraints, does more than provide a way to capture the relevant data in Modern Persian. It offers the potential to capture diachronic shifts and cross-linguistic variability in similar constructions.

8 Alternative Accounts

Complex predicates have been the focus of a great deal of attention lately. Theories which draw a strict division between lexical and phrasal entities do not allow for the possibility that one and the same stored entity could appear as either lexical or phrasal depending on what other constructions it interacted with. Instead, researchers have attempted to retain the strict division in various ways. Below are several alternative proposals.

8.1 A Scrambling Analysis

Ghomeshi & Massam (1994) also note the fact that direct object clitics and auxiliaries can intervene between host and light verb in Persian CPs as we already saw, and they therefore conclude that the CPs cannot be lexical. However, their analysis seems to actually propose a lexical and not a phrasal account of Persian CPs. Specifically, they propose that CPs are formed by adjoining an X0 to V0 under a *V0* node (as a base generated structure). Since positing the mother V0 node seems to make the claim that the CPs are lexical items,[2] the various lexical-like properties of Persian CPs can in fact be accounted for straightforwardly on their analysis. In fact, I have argued that the idea that the CP can be treated as a V0 is essentially right.

It is the phrasal properties that are not sufficiently accounted for. Ghomeshi and Massam invoke scrambling to explain how certain entities are allowed to intervene between host and light verb. However, various word order possibilities in Persian involve maximal categories, not X0 categories as would be required to separate host from light verb. In addition, no constraints on the scrambling operation are discussed; for example, no account is offered as to why the direct object clitics and certain auxiliaries in particular can intervene between host and light verb. The scrambling account is therefore not fully explanatory, since it is not independently motivated and is not adequately constrained.

Other accounts propose generating the complex predicate phrasally. One obvious question such accounts need to address is how the often non-compositional meaning of the complex predicate is to be captured. One way of avoiding the need to argue that the CP as a whole is listed in the lexicon is to argue that the apparently non-compositional semantics is actually specified solely in either the host or the light verb.

8.2 An Argument Transfer Proposal

Mohammad and Karimi (1992) argue that the entire semantic content comes from the nominal element, and that the verbal element is semantically empty. The evidence given to support this claim is the existence of a few cases wherein varying the verb does not result in a noticable change in meaning. For example,

(30) ezhâr kardan/dâStan
statement + to do/to have = “to state”

Interestingly, *ezhâr dâStan* above is archaic and is only used in literary contexts. In fact, the actual number of such doublets in current use is vanishingly rare. It is clear that in the majority of cases, a change in the V does result in a change in meaning. For example,

(31) gul zadan / gul xordan
deceit + strike / deceit + eat
“to decieve” / “ to fall for the deception ”

(32) dar âvardan / dar âmadan
door + bring / door + come
"to take off/out" / " to come out"

In addition, if the light verb were truly semantically vacuous, with the host supplying all of the semantics, one might expect that there would be only one or two light verbs. However, there are a large number of light verbs, which implies that the language would have to tolerate many trivially synonymous forms. The following are just a subset of the verbs that appear as light verbs: *kardan* "do"; *zadan* "strike"; *gereftan* "take"; *dâStan* "have"; *dâdan* "give"; *bordan* "take (away)," *xordan* "eat."

Alternatively, one might expect that the existing light verbs would be in free variation with each other: any host combining with any light verb. However, hosts are quite particular about which light verbs they can occur with. For example:

(33) *komak zadan / komak kardan
help strike / help do = " to help"

Therefore, the semantics of the Persian CP is not naturally assigned to the host in isolation.

8.3 Idiomatic Argument Analysis

An alternative would be to posit the full meaning in the light verb. The host could be claimed to be a regular argument of the verb, semantically selected for by the special meaning of the verb.[3] For example, *kâr kardan*, Lit. "job + do," meaning "to work," would be analyzed as a special sense of *kardan* which would mean "to work" and which would be understood to semantically select for the nominal argument *kar*.

The non-compositional meaning and changes in argument structure would not be mysterious on this account because those special properties would be captured in the special sense of *kardan.* Also no explanation would be required to explain why the host can be separated from the light verb: the host and light verb would be separable just as any argument + verb combination is separable.

However there exist properties of Persian CPs which remain unmotivated on this account. The light verb would have to select, not only for the semantic type of its argument (which would be unremarkable), but also for its definiteness and specificity characteristics: the hosts must be indefinite and nonspecific. These characteristics usually mark the particular noun's role in discourse, and are not specified by the verb. That is, we do not generally find unique stems in a language that are differentiated only by the definite/specificity characteristics of their arguments: such specifications are not typically part of a verb's meaning.

In addition, if the host is treated as an argument, it would presumably be a direct object argument, since it generally has the semantics of a direct object and it does not occur with a preposition. However, several of the Persian CPs are transitive, taking a(nother) direct object. Therefore, the light verbs involved would have to be analyzed as double object verbs. But there are no verbs in Persian other than CPs that take two objects. Therefore the double object option would have to posited only to account for certain CPs.

In short, there are ways in which the host does not act like a regular argument of the verb. Therefore simply treating the host as an argument does not account for the full range of data.

Finally, neither the Argument Transfer proposal nor the Idiomatic Argument analysis explains why the host and verb can undergo word formation processes, creating derived nominals. One might suggest in response that such argument + verb combinations exist both as syntactic phrases and as lexical items. This brings us to another possible proposal.

8.4 Creating the CPs either in the lexicon or in syntax

There has been a growing body of work that allows complex predicates to be formed either in the lexicon or in the syntax (Butt to appear, Butt, Isoda and Sells (1990), Matsumoto 1992, Mohanan 1994, Williams, to appear.) Alsina (1993) for example, has argued that causatives in certain languages, e.g. Chichewâ, are formed in the lexicon, while those in other languages, e.g. Catalan, are formed in the syntax. Only CPs formed in the lexicon are understood to undergo nominalizations. Only CPs formed in the syntax are claimed to be separable.

Nothing prevents such a theory, though, from claiming that a single language has both types of complex predicates (see in fact Mohanan 1994 for such an analysis in Hindi). And in fact, this option would be necessary to account for languages like Persian. We have already seen that the Persian CP allows nominalizations, while at the same time it allows its pieces to be separated in certain circumstances. Therefore the CPs have one property of lexical entities and another property of phrasal items. Such predicates would presumably have to be generated *both* lexically and phrasally.

There are several drawbacks to this approach. First, is not clear where the idiosyncratic semantics of certain CPs "formed in the syntax" would be specified. As discussed in the previous two sections, there are problems with positing the semantics exclusively either in the host or in the light verb. Instead, the semantics seems to be in their combination.

In addition, if lexical CPs were available along with phrasal CPs, we would expect that speakers would never be required to separate host from light verb: the option of using an inseparable lexical CP should exist. However as we saw above, the future auxiliary does necessarily intervene between host and light verb. Therefore the lexical-and-phrasal account would have to constrain the lexical CPs from ever appearing with the future tense. Unless some independent motivation can be found, this stipulation is unmotivated.

Finally, while the Persian CP is separable under certain conditions, claiming that the CP is formed "in the syntax" does not explain the constraints on separability described earlier. That is, the way in which the Persian CPs fail to show the full range syntactic properties, particularly in being not freely separable, remains unaccounted for.

9 Conclusion

To summarize, I have argued that the Persian complex predicate is represented in the lexicon as a unit, despite the fact that it does not necessarily appear as a syntactically atomic lexical item This possibility is natural in theories like Construction Grammar, Cognitive Grammar and HPSG, in which no strict division is drawn between lexical items and phrasal constructions. See also Ackerman & LeSourd (to appear) and Matsumoto (1992) for similar proposals. This idea, that items with some phrasal properties can be listed in the lexicon alongside syntactically atomic lexical items is also supported by a fairly large body of work on idioms and idiosyncratic phrasal patterns (e.g., Jackendoff 1975, 1994; Nunberg et al. 1994 and references therein).

Added to the recognition of the fact that status as a stored entity does not entail atomic syntactic status, is the claim that status as a word can be assigned on a default basis. This claim implies that there can be no strict division within the "constructicon" between words and phrasal elements. One and the same stored item can be realized as either a zero-level word or a phrasal entity, depending on what other constructions it interacts with.

The notion of a default constraint was made concrete by specifying other general constraints that serve to override the constraint. The interaction of the set of constraints was made explicit, using the formalism of Optimality Theory. Motivation for each constraint was suggested by noting its typological naturalness and/or its adherence to more general tendencies in language. Using ranked violable constraints to capture the word order facts allows for the possibility of accounting for diachronic shifts and of typological variation in terms of alternative orderings of the constraints.

10 Endnotes

*I would like to thank Elham Sadegholvad, Michael Azarnoosh, Maryam Hafezi, Kathy Soltani and Ali, Parivash and Faizallah Yazdani for their insightful consultant work. This paper has benefited greatly from conversations with Farrell Ackerman, George Bergman, Joan Bresnan, Gholamhossein Karimi Doostan, Kathleen Hubbard, Saeed Ketabi, Elahe Mir, Orhan Orgun, Karin Pizer, Masha Polinsky and Ivan Sag. Any remaining errors are solely my own.

1. See Anderson 1994 for an OT analysis of second position clitics. He proposes that clitics are placed by the combination of three constraints: Noninitial(cl1, domain), Leftmost(cl1, domain) and Integrity (word). These constraints could be substituted for the present CL2 constraint without affecting the overall argument proposed here.

2. Although see Sells (1994) for an account in which X0 phrases are generated syntactically. Taking this option would mean that Ghomeshi and Massam would not account for the various lexical-like properties of the CP.

3. A parallel analysis has been suggested by Nunberg, Wasow and Sag (1994) for "deformable" idioms in English.

11 References

Ackerman, Farrell and Philip LeSourd. 1992/to appear. Toward a Lexical

Representation of Phrasal Predicates. In *Complex Predicates.* A. Alsina, J. Bresnan and P. Sells, eds. Stanford: CSLI Publications.

Anderson, Stephen. 1994. How to put your clitics in their place. Manuscript. Yale University.

Bates, Elizabeth and Brian MacWhinney. 1987. Competition, Variation and Language Learning. In B. MacWhinney (ed) *Mechanisms of Language Acquisition.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Bresnan, Joan and Sam Mchombo. 1995. The Lexical Integrity Principle– Evidence from Bantu. *Natural Language and Linguistic Theory.*

Butt, Miriam. 1995. *The Structure of Complex Predicates in Urdu.* Stanford: CSLI Publications.

Bubenik, Vit. 1994. On Wackernagel's Law in the History of Persian. *Indogermanische Forschungen, 99.* 105-122.

Bybee, Joan. 1985. *Morphology.* John Benjamins Press.

Fillmore, Charles, Paul Kay and Mary Catherine O'Connor. 1988. Regularity and Idiomaticity in Grammatical Constructions: The Case of *Let Alone. Language* 64: 501-538.

Fillmore, Charles and Paul Kay. 1993. Construction Grammar. University of California, Berkeley.

Givón, Talmy. 1991. Isomorphism in the Grammatical Code: Cognitive and Biological Considerations. In *Studies in Language* 15-1. 85-114.

Gerdts, Donna and Mercedes Hinkson. 1996. Salish Lexical Suffixes: A case of decategorialization. In A. Goldberg (ed) *Conceptual Structure, Discourse and Language.* Stanford: CSLI Publications.

Ghomeshi, Jila and Diane Massam. 1992. Lexical/Syntactic Relations without Projection. *Linguistic Analysis.*

Goldberg, Adele E. forthcoming. Optimization of Constraints and Complex Predicates: the Case of Persian. University of San Diego, California.

Goldberg, Adele E. 1995. *Constructions: A Construction Grammar Approach to Argument Structure.* Chicago: University of Chicago Press.

Grimshaw, Jane. 1995. Projection, Heads and Optimality. Rutgers University.

Haiman, John. 1985. *Natural Syntax: Iconicity and erosion.* Cambridge: Cambridge University Press.

Halpern, Aaron. 1995. *On the Placement and Morphology of Clitics.* Stanford: CSLI Publications.

Jackendoff, Ray. 1975. Morphological and Semantic Regularities in the Lexicon. *Language 51 3*:639-371.

Jackendoff, Ray. 1994. The Boundaries of the Lexicon. Brandeis University.

Lakoff, George. 1987. *Women, Fire and Dangerous Things.* Chicago: Chicago University Press.

Lambrecht, Knud. 1994. *Information Structure and Sentence Form: topic, focus and the mental representations of discourse referents.* Cambridge: Cambridge University Press.

Langacker, Ronald. 1990. *Concept, Image, and Symbol: the cognitive basis of grammar.* New York: Mouton de Gruyter.

Legendre, Géraldine, William Raymond and Paul Smolensky. 1993. An Optimality-Theoretic typology of case and grammatical voice systems. *BLS 19.*

Massam, Diane and Jila Ghomashi. 1992. Lexical/Syntactic Relations without Projection. In *Linguistic Analysis.*

Matsumoto, Yo. 1992. On the Wordhood of Complex Predicates in Japanese. Stanford University dissertation.

McCarthy, John and Alan Prince. 1993. Generalized Alignment. In *Yearbook of Morphology* 1993, ed. G. Booij and J. van Marle. 97-153. Dordrecht: Kluwer.

Mithun, Marianne. 1984. The Evolution of Noun Incorporation. *Language 60*: 4. 847-894.

Mohammad, Jan and Simin Karimi 1992. Light Verbs are Taking Over: Complex Verbs in Persian. *Western Conference on Linguistics* Joel

Mohanan, Tara. 1994. *Argument Structure in Hindi.* Stanford: CSLI Publications.

Nash, David George. 1980. Topics in Walpiri Grammar. MIT Dissertation.

Nevis and Vida Samiian (eds). Dept. of Linguistics. Cal State University, Fresno.

Nunberg, Geoff, Tom Wasow and Ivan Sag. 1994. Idioms. *Language.*

Prince, Alan & Paul Smolensky. 1993. *Optimality Theory: constraint interaction in generative grammar.* RuCCS Technical Report #2. Rutgers University Center for Cognitive Science. Piscataway, NJ.

Pullum, Geoffrey K. and Arnold M. Zwicky. 1991. Condition Duplicatoin, Paradigm Homonymy and Transconstructional Constraints. *BLS* 17:252-266.

Sells, Peter. 1994. Sub-Phrasal Syntax in Korean. *Language Research.*

Williams, Edwin. to appear. Notes on Lexical and Syntactic Complex Predicates. In A. Alsina, J. Bresnan, and P. Sells (eds) *Complex Predicates.* Stanford: CSLI Publications.

Windfuhr, Gernot. 1979. *Persian Grammar.* New York: Mouton.