

Complex Predicates and Information Spreading in LFG,

Avery D. Andrews & Christopher D. Manning,

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This book is mainly concerned with the theoretical analysis and consequences of two phenomena which are found in a range of languages, namely complex predicate formation and serial verb constructions. The book concentrates on complex predicates in the Romance languages and of serial verbs in Miskitu (Nicaragua, Honduras) and Tariana (Brazil), but frequently mentions data from other languages as further support for certain proposals. The analysis is presented in terms of *Lexical Functional Grammar*. In particular, the authors argue that complex predicate formation motivates a parametric notion of ‘headship’ where different constituents can act as the morphological, functional, or categorial head of a phrase. The example used to illustrate the idea of complex predicate formation stems from earlier work by Butt (1995) on Urdu.

- (1) a. Anjum ne Saddam ko ciṭṭ^hii lik^h-ne ko kah-aa
Anjum ERG Saddam ACC letter.F(NOM) write-INF ACC say-PERF.M.SG
‘Anjum told Saddam to write a note.’
- b. Anjum ne Saddam ko ciṭṭ^hii lik^h-ne d-ii
Anjum ERG Saddam ACC letter.F(NOM) write-INF give-PERF.F.SG
‘Anjum let Saddam write a note.’

The analysis of (1a) is unremarkable, involving a biclausal structure in which a matrix verb (*kah/tell*) governs an infinitival complement. Example (1b) is mono-clausal, however, and involves a *complex predicate*. The arguments for adopting a monoclausal analysis come from agreement, binding, and control. Finite verbs in Urdu agree in person and number with the highest ranked nominative (unmarked) NP, and take the masculine, default, form if no such NP is available. Whereas the finite verb in (1a) takes the default pattern, the finite verb in (1b) agrees with the nominative object which is semantically an argument of the infinitive. This agreement pattern would be hard to account for under a biclausal analysis but follows immediately given a monoclausal analysis. In LFG terms, a monoclausal structure can be obtained by assuming a predicate *let-write*, which is composed of the meanings of the

individual verbs involved, and which licences the presence of three grammatical functions: subject, object, and secondary object. We return to the formal details below.

Causatives, permissives, perception verbs, and various aspectual verbs in Romance languages may be characterized as *light* verbs, and exhibit a number of properties which have been explained by appealing to a process of ‘restructuring’ or ‘reanalysis’ in the transformational literature. A well-known property of these verbs is that they allow ‘clitic-climbing’, i.e. an argument of a governed verb may be realized as a clitic on the governing verb, as in the following example from Italian:

- (2) Paolo la farà scrivere a Piero
 Paolo it make.FUT.3SG write.INF to Piero
 ‘Paolo will make Piero write it.’

The realization of clitics is subject to various lexical constraints, and does not seem to allow for unbounded movement. This suggests that the combination of the two verbs in (2) must, on some level of representation, form a unit. In the LFG literature, it has been assumed that this requires formation of a complex predicate. Even more compelling evidence for this line of reasoning comes from the realization of the ‘governed subject’ in Italian causatives:

- (3) a. Maria ha fatto lavorare Giovanni
 Maria has made work Giovanni
 ‘Maria made Giovanni work.’
 b. Maria ha fatto riparare la macchina a Giovanni
 Maria has made repair the car to Giovanni
 ‘Maria had Giovanni repair the car.’

When the governed verb is intransitive, its ‘logical’ subject is realized as an ordinary direct object, but when it is transitive, the logical subject is realized as an *a*-marked indirect object. In theories such as LFG of Relational Grammar, which assume that the mapping from arguments to grammatical functions is not necessarily constant but a consequence of general constraints, this can be explained by assuming a monoclausal structure, along with a principle which requires uniqueness for the direct object grammatical function.

The process of complex predicate formation in Romance is restricted to *f*-structures (i.e. the level in LFG representing grammatical relations) and does not, as Andrews and Manning argue, imply a single phrase structure. Serial verb constructions, however, require a mon-

oclausal analysis at the f-structure level as well as at the phrase structure level. Examples from the South American language Tariana are given in (4):

- (4) a. nhaRitu na-inu=pidana ñaña
 3PL.fish 3PL-kill=REMPAST:INFR madi
 ‘The caught [fish-killed] madi fish.’
- b. na-na du-ra=nhi du-ita depita
 3PL-OBL 3SGF-order=DUR 3SGF-bathe at night
 ‘She ordered them to bathe at night.’

Note that (4a) describes a single event, but involves two verbs, both with finite morphology. The adverb *depita/at night* in (4b) exhibits a scopal ambiguity which suggests that serial verbs are not just lexical units. At the same time, the agreement of the verb *du-ita/bathe* with the Causer suggests that there is no embedded clause either. Andrews and Manning argue that such constructions are best analyzed as involving a verbal complex at the level of phrase structure, and a complex predicate at the level of f-structure.

From a formal point of view, the introduction of complex predicate formation poses two puzzles which have not been fully resolved in previous work. In LFG, the analysis of sentences consists of two components: a c-structure, not unlike X-bar trees in transformational grammar, and f-structure, a representation of the grammatical relations and morphological properties of words and phrases assembled into a single complex feature-structure. The key elements in f-structures are the PRED-attribute, and its associated grammatical function attributes. For instance, a verb like *write* has PRED-value *write*(*SUBJ, OBJ*), indicating that it licences f-structures in which both a subject and object can and must occur. Complex predicate formation has been presented as involving a process which produces PRED-values such as *let-write*(*SUBJ, OBJ2, OBJ*), but, as Andrews and Manning point out, there is really nothing in the formal machinery of LFG (which basically is restricted to resolving constraints on feature-structures) which would allow such values to be created during grammatical processing. The alternative put forward by Andrews and Manning is to split PRED-values into two components, one being the *lexical conceptual structure* (LCS), a hierarchical representation of the predicate-argument relation, and the other being a list of *terms*, representing the arguments of the (complex) predicate. Thus, the complex predicate *let-write* would consist of an LCS *let*(*X, write*(*Y, Z*)), while its terms-list would consist of $\langle X, Y, Z \rangle$. The relationship

between arguments of a predicate and grammatical functions is not encoded directly, but is assumed to follow from mapping principles relating terms and grammatical functions. The advantage over previous proposals is that the effect of complex predicate formation on both LCS and TERMS can be defined in terms of constraints on feature-structures.

The second challenge posed by complex predicate constructions is the fact that phrases must be allowed in which there is no longer a single daughter qualifying unambiguously as the ‘head’. At the same time, it is clearly inadequate to treat all verbs in a complex predicate construction as heads. The solution Andrews and Manning propose is to restrict sharing of information, which is typical for mother-head relations, to specific dimensions of grammatical information. Thus, in Romance complex predicates, both the light verb and its complement VP may share information about grammatical functions, while at the same time the light verb uniquely determines the morphological properties of the mother VP. As Andrews and Manning show, this notion of ‘information spreading’ can be captured nicely in feature-theoretic terms by defining sets of attributes as being ‘grammatical function’, ‘morphological’, or ‘categorical’. A single constraint then suffices to ensure that, for instance, all morphological features are shared between mother and (morphological) head daughter. This solution seems elegant, and should be contrasted, for instance, with theories such as *Head-driven phrase structure grammar*, where each linguistically relevant grouping of features leads to the introduction of an attribute dominating all and only these features (e.g. the attribute HEAD identifies (morphological) head-features). The latter approach can easily lead to highly complicated and deeply embedding feature-structures, whereas the parametric ‘information spreading’ approach preserves a more intuitive feature-structure representation.

By demonstrating that complex predicate formation, as well as the complex interaction between phrase structure and f-structure which results from introducing ‘multi-headed’ phrases, can be accounted for using the standard machinery of LFG, this book makes a valuable contribution to the theory of LFG and related feature-based theories of grammar. By providing a unifying perspective on complex predicates and related constructions in a wide range of languages, it makes an equally interesting contribution to the theoretically motivated study of language typology.

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References

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