

Transitive and Predicated Nominals in LFG

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Although in some formal models the possibility is excluded, a number of languages attest transitive nominals, that is nouns or adjectives that syntactically govern object arguments; the existence of transitive adjectives, at least, has recently been discussed by Vincent and Börjars (2010). I provide evidence from a variety of languages, primarily but not exclusively Indo-European languages, for the existence of both transitive adjectives *and* transitive nouns. Moreover, I show that in most of these languages, syntactic context can restrict nominal transitivity; specifically, there is a clear association between predication and nominal transitivity, such that in a number of languages nominals can only be transitive when predicated.

In this paper, I develop a formal LFG model of the connection between nominal transitivity and predication, which involves complex interactions between syntax and semantics. I also consider the semantics of copular clauses more generally, and consider further consequences and applications of this study for other contexts of variable transitivity.

In Avestan (exx. 1, 2), Old Persian, Gothic, Old High German (exx. 3, 4), early Latin and the Uto-Aztecan language Nahuatl, certain categories of nouns and adjectives can govern object arguments, but only when predicated (exx. 1, 3): non-predicated examples of the same words never display such government (rather they appear either with no dependent, as in exx. 2, 4, or an optional nominal adjunct, e.g. an objective genitive). A formal treatment of nominal transitivity in these languages, then, must account for this clear syntactic restriction.

- (1) *yaθra narō... ašəm zrazdātəma*
where man.NOM.PL truth.ACC most_faithful_to.NOM.PL
'...where the men (are) most faithful to truth.' (Yt. 13.25)
- (2) *yauuat āžūš +zrazdištō būnōi haxtiiā*
yoke.FUT penis.ACC most_faithful_to.NOM base.LOC.SG thigh.GEN.SG
'The most faithful one will yoke (his) penis at the bottom of the (female) thighs.' (Y. 53.7b)
- (3) *mīh ist uuúnder*
me.ACC is wonder.NOM
'I wonder' (lit. '(there) is wonder (to) me').
(Notker)
- (4) *uuir gisahumes uuuntar hiutu*
we.NOM see.PF wonders.ACC today
'We have seen wonders today.' (*Tatian*)

I also reconsider the relation between nominal predication and licensing of subject arguments in two of the three possible analyses of copular/verbless clauses (on which among others Dalrymple et al., 2004; Nordlinger and Sadler, 2007; Laczkó, 2012), which is at least superficially similar to the relation between nominal predication and licensing of non-subject arguments (i.e. transitivity). Under the 'single tier' analysis (ex. 6) and the open complement 'double tier' analysis (ex. 7) of copular/verbless clauses, nouns and adjectives that do not lexically select for subject arguments (9) must do so in order to produce a coherent f-structure.

- (5) *On student*
he student
'He is a student' (Russian, example from Dalrymple et al., 2004)
- (6)
$$\left[\begin{array}{l} \text{PRED} \text{ 'student' } \langle \text{SUBJ} \rangle \\ \text{SUBJ} \left[\begin{array}{l} \text{PRED} \text{ 'he'} \end{array} \right] \end{array} \right]$$
- (7)
$$\left[\begin{array}{l} \text{PRED} \text{ ' (null)be } \langle \text{XCOMP} \rangle \text{SUBJ}' \\ \text{SUBJ} \left[\begin{array}{l} \text{PRED} \text{ 'he'} \\ \text{XCOMP} \left[\begin{array}{l} \text{PRED} \text{ 'student' } \langle \text{SUBJ} \rangle \\ \text{SUBJ} \left[\quad \right] \end{array} \right] \end{array} \right] \end{array} \right]$$
- (8)
$$\left[\begin{array}{l} \text{PRED} \text{ ' (null)be } \langle \text{SUBJ, PREDLINK} \rangle' \\ \text{SUBJ} \left[\begin{array}{l} \text{PRED} \text{ 'he'} \\ \text{PREDLINK} \left[\begin{array}{l} \text{PRED} \text{ 'student'} \end{array} \right] \end{array} \right] \end{array} \right]$$

Although it is possible, given the LFG view of the lexicon, to assume pairs of lexical items such as 'student' and 'student(SUBJ)', I argue that it is preferable to seek an analysis that accounts for subject selection by predicated nominals *syntactically*, since the context for this selection is entirely syntactic. I propose that predicate composition (similar to that of Arka et al., 2009) or 'modification' can involve both lexical material and syntactic information associated with c-structure nodes, to introduce a subject argument for predicated nominals.

- (9)
$$\boxed{\begin{array}{l} \text{student: N} \\ (\uparrow \text{PRED}) = \text{'student'} \\ \lambda x. \text{student}(x) : ((\uparrow_{\sigma} \text{VAR}) \multimap (\uparrow_{\sigma} \text{RESTR})) \end{array}}$$

$$(10) \quad S \rightarrow \dots \left(\begin{array}{l} \text{NP} \\ \uparrow/\text{PRED} = \downarrow/\text{PRED} \\ (\uparrow\text{PRED}) = \text{'PRE_NOM}(\langle \uparrow\text{SUBJ} \rangle, \downarrow\text{PRED}(\langle \dots \rangle))\text{'}} \\ \lambda P. \lambda x. P(x) : ((\uparrow_{\sigma} \text{VAR}) \multimap (\uparrow_{\sigma} \text{RESTR})) \multimap (\uparrow\text{SUBJ})_{\sigma} \multimap \uparrow_{\sigma} \end{array} \right) \dots$$

This PS-rule applies to NPs filling the functional head of the clause ($\uparrow=\downarrow$, except for the PRED value). The PRED value of the f-structure corresponding to the clause ($\uparrow\text{PRED}$) is obtained by predicate modification specified in the syntax. The annotations on the NP node in the above PS-rule will combine with the PRED specified in the lexical entry for *student* to produce the functional structure in ex. (11), i.e. effectively the structure in (12). A very similar rule can account for predicated adjectives, though there are some differences due to the more complex semantic properties of adjectives.

$$(11) \quad \left[\begin{array}{l} \text{PRED} \quad \text{'PRE_NOM}(\text{SUBJ}, \text{'student'}) \\ \text{SUBJ} \quad \left[\begin{array}{l} \text{PRED} \quad \text{'he'} \end{array} \right] \end{array} \right] \quad (12) \quad \left[\begin{array}{l} \text{PRED} \quad \text{'student}(\text{SUBJ}) \\ \text{SUBJ} \quad \left[\begin{array}{l} \text{PRED} \quad \text{'he'} \end{array} \right] \end{array} \right]$$

Although apparently similar, the licensing of non-subject arguments with predicated nominals is in fact shown to be in some ways the converse of subject licensing. Crucially, there exist some examples of predicated nominals that select for multiple non-subject arguments, e.g. an OBJ and an OBJ_θ or an OBL. This means there can be no generally applicable rule of argument addition; rather transitive nominals are idiosyncratic in their selection of non-subject arguments. Transitive nominals therefore select for their non-subject arguments in the lexicon; the question then is not how to license them when the nominals are predicated, but how to suppress them when the nominals are not predicated. (They select only for non-subject arguments in the lexicon; under a single-tier / XCOMP analysis of predication, the subject argument will be introduced if required by the rules above.)

(13) OHG *uuuntar/uuunder* ‘wonder’:

wonder: N
 $(\uparrow\text{PRED}) = \text{'wonder}(\langle \text{EXPERIENCER} \rangle)$
 $\lambda x. \text{wonder}(x) : (\uparrow_{\sigma} \text{VAR}) \multimap (\uparrow_{\sigma} \text{RESTR})$
 $(\lambda y. \lambda x. \lambda P. P(x) \wedge \text{experiencer}(x, y) : ((\uparrow_{\sigma} \text{VAR}) \multimap \uparrow_{\sigma} \text{RESTR}) \multimap$
 $((\hat{*}_{\alpha} \text{THEME})_{\lambda\sigma} \multimap ((\uparrow_{\sigma} \text{VAR}) \multimap \uparrow_{\sigma} \text{RESTR})))$

$$(14) \quad \text{NP} \quad ((\downarrow = (\uparrow\text{GF})) \vee \downarrow \in (\uparrow\text{GF})) \rightarrow \dots \left(\begin{array}{l} \text{N} \\ (\uparrow\text{PRED}) = \text{'ATT_NOM}(\langle \downarrow\text{PRED_FN} \rangle) \end{array} \right) \dots$$

The lexical entry of OHG ‘wonder’ selects syntactically for an experiencer object argument, but semantically this argument is optional. By the predicate modification specified in the PS-rule in (14), when an NP is used in a context other than predication, any arguments lexically selected by the head noun are effectively removed from the f-structure. A coherent semantic representation will result by the non-application of the optional meaning constructor in the noun’s lexical entry. In a context of predication, of course, the optional meaning constructor will be necessary.

In regard to both ordinary nominal predication and the specific phenomenon of transitive predicated nominals, then, it is possible to account for both the syntactic and semantic consequences of argument addition/elimination in the PS-rules rather than in the lexicon; this appropriately reflects the fact that the variation is dependent purely on syntactic context.

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