

The Construct PREDICATE: Empirical arguments and theoretical status

Farrell Ackerman (UCSD) & Gert Webelhuth (UNC)

1. Introduction

The past few years have witnessed increased attention within lexicalist frameworks such as Lexical Functional Grammar (LFG) and Head Driven Phrase Structure Grammar (HPSG) to the analysis of predicates expressed by syntactically independent pieces. The recognition of such phenomena, primarily represented in the literature by analytic or periphrastic causatives, raises central questions concerning the domain in which such complex predicates are composed. Given evidence for syntactic separability of the pieces of these predicates, is it compelling to assume that they must be formed in phrasal structure? Alternatively, are there reasons to argue that such compositions are still lexical, despite the obvious fact of surface independence for the pieces used to express these predicates? In related fashion, what would be the basis for a lexicalist perspective on such compositions and in what way would such a lexicalist approach differ from standard lexicalism?

In order to understand the nature of these questions consider the following. It is well-known that Russian contains morphological predicates consisting of a prefix and a verbal stem. These predicates are standardly analyzed as morphophonologically integrated units representing atomic entities with respect to syntactic structure. We will refer to them as synthetic forms of predicates. An example is provided in (1), containing the prefix *ob* 'around': this prefix correlates with an increase in transitivity for the verbal stem yielding the direct object argument 'lake'.

(1) *guljajuschie pary obxodjat ozero*

strolling pairs around-go-3/pl lake-ACC

'The strolling couples walk around the lake'

As is to be expected, given the morphological status of this wordform, predicates such as these have clear derivatives, both nominal (2) and adjectival (3), related to them:

(2) *obxod N* 'round' (as in 'make the rounds')

(3) *obxodnyj A* 'roundabout'

As in Russian, Hungarian has predicates where a preverbal (PV) element modifies certain lexical properties associated with the verbal stem. For example, in (4) we see an instance where the preverb *bele* 'into' correlates with an alteration of both the case government pattern and the meaning associated with the verbal stem *szol* 'speak, say, talk': whereas *szol* is a one-place predicate, *beleszol* is a two-place predicate which governs the illative case for its oblique complement.

(4) *András beleszolt a vitába*

András into spoke the dispute-ILL

'András intervened in the dispute'

Once again, as in Russian, the predicate appears to have a morphological status, serving as a base for derivational processes such as nominalization. In the present instance, the verb *beleszol* 'intervene' corresponds to the derived nominals *beleszolás* 'intervention' and *bele nem szolás* 'non-intervention'.

These obvious parallelisms between the predicates in Russian and Hungarian clearly suggest a uniform analysis. Such an analysis would appear to be compatible with standard lexical treatments, since, as presented thus far, we seem to be dealing with constructions that not only alter meaning, function assignments and determine case government, but are similar from a morphological perspective as well, since the predicates in both languages appear to be complex morphological compositions. Lexicalist accounts are well-suited to address such alterations of functional-semantic information when they are encoded by morphological entities. On the other hand, there is a property characteristic of the Hungarian predicates that distinguishes them from their Russian analogs: in Hungarian the preverb and the verb can function as independent elements in phrase structure. This independence is exemplified in (5) where the presence of the sentential negation element *nem* 'no' immediately to the left of the verbal stem correlates with the postposing of the preverb:

(5) *András nem szolt bele a vitába*
, *András not spoke into the dispute-ILL*
'*András didn't intervene in the dispute*'

Formations whose pieces exhibit this sort of syntactic independence are often referred to as phrasal predicates given their analytic or periphrastic expression.

Estonian, like Hungarian, possesses phrasal predicates. In (6) the preverb *ära* 'away' is associated with the predicate *ära ostma* 'corrupt, suborn'. This predicate is based on the simple verb stem *ostma* 'buy, purchase'. The preverb appears discontinuous from the verbal stem at the end of the clause in (6).

(6) *mees ostab ta sõbra ära*
man buy-3sg his friend-GEN away
'*The man is bribing his friend*'

Predicates consisting of a separable preverb and a verbal stem can serve as bases for derivational operations. The following deverbal adjectival and nominal forms related to *ära ostma* 'corrupt, suborn' typify this possibility:

(7)
äraostmatu A 'incorruptible *äraostmatus* N 'incorruptibility
äraostetav A 'venal, corrupt' *äraostetavus* N 'venality'

Finally, the phrasal predicates of Hungarian and Estonian resemble in relevant ways one type of German predicate, namely, predicates containing so-called separable particles. An example is provided below containing the predicate *abrufen* 'call up'.

(8) weil wir die Informationen jederzeit ab-rufen können

because we the information always call-up can

`because we can call up the information at any time'

(9) Wir rufen die Informationen jederzeit ab

we call the information always up

`We call up the information at any time

As can be seen, the separable preverb *ab* appears at the end of the finite matrix clause in (9): the verbal stem and preverb are discontinuous in the syntax. As in Hungarian and Estonian, German phrasal predicates may serve as bases for derivational operations. This is exemplified by the possibility for a phrasal predicate to participate in adjective formation with the suffix *-bar* 'able' as in (10):

(10) weil die Informationen jederzeit ab-ruf-bar sind

because the information always up-call-able are

`because the information is obtainable at any time'

The predicates in Russian, Hungarian, Estonian, and German all: (i) exhibit lexical effects, i.e., the preverb-V may differ from the verb stem with respect to adicity, semantics, case government, (and grammatical functions) and (ii) exhibit morphological effects, i.e., the preverb and V together constitute a morphological base for derivational and inflectional operations. On the other hand, Hungarian, Estonian, and German differ from Russian in allowing the preverb and verb to exhibit syntactic independence. The existence of phrasal predicates with the profile exhibited by Hungarian, Estonian, and German is widespread cross-linguistically and has elicited the following characterization by Watkins with respect to Indo-European (1964:1037):

PV V compositions constitute "single semantic words", comparable to simple lexical items; yet they permit tmesis, or syntactic separation, suggesting that internal parts are independent syntactic entities.

Phrasal predicates represent an "analytic paradox" with respect to standard assumptions of lexicalism [cf. Nash (1982)]. In particular, their semantic and morphological unithood conflicts with their syntactic separability if the lexicon is interpreted as the source for words employed as syntactic atoms and the syntax as a system for combining and ordering them.

From a cross-linguistic perspective phrasal predicates of the sort illustrated above represent only one type of predicate whose pieces are expressed by syntactically independent elements. For example, there has been an enormous amount of research into causative constructions suggesting that causatives expressed by a single complex wordform, i.e., typified by the Hungarian morphological causative in (11), may exhibit essentially identical semantic effects, grammatical function assignments, case government patterns, etc., as causatives expressed by syntactically

separate entities, i.e., typified by the Hungarian periphrastic causative in (12).

(11) a fiú elvonszoltatta Jánost (a hölgyel/a hölgy által)

the boy away-drag-CAUS-3sg/DEF John-ACC the lady-INSTR/the lady by

'The boy had Janos dragged away (by the lady)'

(12) a fiú hagyta Jánost elvonszolni (a hölgy által)

the boy let-PAST-3sg/DEF John-ACC away-drag-INF the lady by

The boy let Janos be dragged away (by the lady)'

Both (11) and (12) are arguably mono-clausal constructions containing identical causer arguments, i.e., 'the boy', patient arguments, i.e., 'John', and optional causee arguments, i.e., 'the lady'.

Recently there has been a move within lexicalist theories to explain such similarities by positing predicate composition operations which combine certain sorts of information associated with the syntactically separate pieces within phrase structure. This procedure, reminiscent in significant ways of proposals within Government and Binding theory such as Rosen (1989), Baker (1988) among others, is referred to as predicate composition by Alsina (1993) and Butt (1995) within the Lexical Functional Grammar framework. On this analysis, the a(-r)gument structures associated with each of the participating predicates combine to create a composite argument structure. This a-structure serves as the basis for assigning grammatical functions to arguments of the complex predicate.

It is important to note that this type of proposal represents a departure from certain long held assumptions concerning the locus for manipulations of lexical semantic information and grammatical function assignment within lexicalist theories. In particular, it departs from the common assumption that all meaning changing, function changing, valence changing and case-government altering operations are limited to the lexicon.

In section 2 of this paper we examine the nature of the assumptions at issue with respect to such a proposal and will offer an alternative interpretation of lexicalist assumptions. In section 3 we briefly examine some ways in which the construct PREDICATE has been entertained in the generative literature. In section 4 we examine how certain morphological and syntactic phenomena concerning predicate nominal constructions in Nenets (the Samoyedic branch of Uralic) provide empirical evidence for a notion of PREDICATE independent of surface expression. We conclude in section 5 with some speculation concerning what we believe to be the theoretical consequences of these data.

In general, we will argue that a demonstration of syntactic separability for pieces of complex predicates is independent of whether such predicates should be viewed as being composed in the lexicon or phrase structure. The view of lexicalism defended here will assume, however, that predicates expressed by a single syntactic atom as well as predicates expressed by several such atoms are profitably associated with lexical representations. We will forego in the present paper a detailed implementation of these latter assumptions and refer the reader instead to the detailed exposition in Ackerman and Webelhuth (forthcoming).

2. Conceptions of Lexicalism

In our view lexicalism may be regarded as a cluster concept admitting of some gradient among different approaches. In this section we identify three central proto-concepts associated with lexicalism. This will help us to characterize the nature of lexicalism propounded by several different recent approaches depending on which of the principles are recognized in the particular theory. In addition, we can compare the views developed in the present article to these other conceptions of lexicalism. The table in (13) provides an overview of our comparison and the following text explains the meanings of the principles and the values that we have assigned to the cells:

(13) Overview of Lexicalism

| Theory | Lexical Adicity | Morphological Integrity | Morphological Expression |
|------------------------|-----------------|-------------------------|--------------------------|
| Classical LFG and HPSG | yes | yes | Principle |
| Recent LFG and HPSG | no | yes | Principle |
| This article | yes | yes | Markedness Preference |

We will call the first lexicalist proto-principle Lexical Adicity since it relates to the locus for establishing a set of adicity structures for lexical items:

(14) Lexical Adicity

The adicity of a lexical item is lexically fully determined and cannot be altered by items of the syntactic context in which it appears.

Lexical adicity is intended to cover three different types of information associated with a lexical item: the number and type of its semantic arguments, the number and type of its functional arguments, and the number and grammatical categories of its phrase-structural dependents. For a verb such as the Hungarian predicate *vonszol* 'drag', lexical adicity would require that its semantic arguments "dragger" and "dragee", its functional arguments "subject" and "object", and its categorial arguments "NP[nom]" and NP[acc] already be specified in its lexical entry. The causative lexical entry (or predicate) in (11) based on *vonszol* "hit", specifically *elvonszoltat* 'make drag', likewise would be lexically completely specified for semantic, functional, and categorial selection, because (14) reserves the power of specifying these selectional properties for the lexicon and expressly withholds this privilege from the mechanisms applying in the syntactic component.

As the table indicates, classical LFG and HPSG both incorporated lexical adicity. In the context of the theories presented in Bresnan (1982) or Pollard and Sag (1987) the selectional properties of lexical items were completely determined in the lexicon and all changes in the meaning of a predicate or its selectional properties were achieved in the lexicon (via

lexical rules) and were independent of the syntactic context into which the lexical entry was inserted.

Recent LFG and HPSG analyses of complex predicate phenomena, however, extend the privilege of creating new argument structures from the lexicon to the syntax, in direct violation of Lexical Adicity. In the case of LFG, Alsina (1993, iv, v, 280) admits "partially specified predicates" whose adicity is only fixed in the syntactic component, as can be inferred from the two quotes below:

The operations that affect the way that arguments are overtly expressed are assumed

to be operations on the argument structure of a predicate and are treated as partially

specified predicates that must compose with other predicates to yield fully specified

predicates. Thus, predicate composition is responsible for operations such as passivization, causativization, applicativization, etc.

Most work within LFG, and other lexicalist theories, has assumed that predicate

composition, or the equivalent notion in each particular theory, can only take place

in the lexicon. However, the evidence indicates that causative (and other) complex predicates

in Romance are not derived in the lexicon because the two verbs that compose the complex predicates do not constitute a word. If the lexicon is the word formation module of the

grammar and words are the terminal nodes of the c-structure, we have to conclude that

causative constructions in Romance contain two words that jointly determine the predicate

of the clause. This forces us to design a theory that allows predicate composition to result

not only from combining morphemes in the lexicon, but also from combining words and

phrases in the syntax. In what follows, I will first present evidence that the causative

complex predicate in Romance does not correspond to one word (a morphological unit) or

even one single X₀ or terminal node in the syntax, and that it is, therefore not formed in the lexicon; and I will then indicate the necessary assumptions for an LFG theory to allow predicate composition in the syntax.

Within HPSG, the highly influential proposal of Hinrichs and Nakazawa (1989) allows lexical entries to subcategorize for another lexical entry

as a complement. As a consequence, the selecting lexical entry may inherit some or all of the selectional properties of that complement. This yields a configuration where a selector with an initially underspecified argument structure comes to have a fully specified argument structure. Thus, an auxiliary that selects for a main verb complement and inherits all of that complement's arguments will have a different number of arguments depending on whether the embedded complement has zero, one, two, or three arguments. Since the identity of the verb that serves as the complement to the auxiliary will only be known once the two verbs appear together in phrase structure, the argument structure of the auxiliary will be finally specified only in the syntactic component as a function of the syntactic context in which the auxiliary appears. This is in clear violation of the principle of Lexical Adicity.

LFG and HPSG thus have undergone a conceptual transformation in their recent history in that both theories have reset the boundaries between the applicability of lexical and syntactic mechanisms in favor of the syntax: whereas previous versions of both approaches gave certain analytical privileges to the lexicon and withheld them from the syntax, the recent versions of these theories allow the syntax to move further into the territory once held exclusively by the lexicon.

In this connection it is important to appreciate that the empirical motivation for this relative loss of distinction on the part of the lexicon is precisely the set of phenomena dealing with analytically expressed clausal heads (i.e. predicates). Alsina (1993), Butt (1995), and Hinrichs & Nakazawa (1989) all motivate the need for the creation of new argument structures in the syntax on the basis of constructions involving a combination of two verbs which jointly define the semantic, functional, and categorial properties of a clause, e.g. a combination of a causative verb and a main verb or a combination of an auxiliary and a main verb.

As the entry in the final row of table (13) indicates, the theory of predicates advanced in this article retains the strongly lexicalist position of classical LFG and HPSG: the lexicon and only the lexicon has the privilege of specifying the properties that make up the adicity of a phrase-projecting head. We believe that it is the wrong theoretical choice to weaken the influence of the lexicon relative to the syntax in the face of analytically expressed predicates and - as will be stated shortly - instead take the position that this problem is most effectively solved by realigning the relative influences of the lexicon and the syntax in the other direction. In other words, the type of theory assumed in the present article will force the syntax to cede some further analytical ground to the lexicon and hence in this respect is an even more strongly lexicalist theory than classical LFG and HPSG.

Our second proto-principle of lexicalism deals with the relationship between the lexical component and morphology:

(15) Morphological Integrity

Syntactic mechanisms neither make reference to the daughters of morphological words nor can they create new morphological words in constituent structure.

In the words of Di Sciullo and Williams (1987), Morphological Integrity creates a "bottle neck" represented by morphological words: the sole morphological information that syntax can access is the morphology of the root node of a morphological constituent structure tree. Syntax cannot "look" lower in the tree at the root's daughter constituents. Bresnan and Mchombo (1995) present this point as follows (note that these authors prefer the term Lexical Integrity to the somewhat more specific Morphological Integrity):

A fundamental generalization that morphologists have traditionally maintained is

the lexical integrity principle, that words are built out of different structural elements

and by different principles of composition than syntactic phrases. Specifically, the

morphological constituents of words are lexical and sublexical categories - stems and

affixes - while the syntactic constituents of phrases have words as the minimal,

unanalyzable units; and syntactic ordering principles do not apply to morphemic structures ...

it has been hypothesized that the lexical integrity principle holds of the morphemic

structure of words, independently of their prosodic or functional structure.

We take Morphological Integrity to mean that syntax and morphology are separate but interacting domains of grammar. Syntax, interpreted as phrasal structure, can neither "look into" morphological words to see internal structure nor can it create new morphological words. The lexicon is not subject to either of these two constraints and hence has a more privileged relation to morphology than the syntax.

Each of the theories compared in our overview table (13) claims this morphological privilege of the lexicon over the syntax and in so doing they all differ from other theories that do allow morphological and syntactic operations to be intermixed, e.g. many versions of Government and Binding Theory and classical Montague Grammar.

The third and final diagnostic entering into an explication of lexicalism will be referred to as Morphological Expression:

(16) Morphological Expression

Lexical expressions are uniformly expressed as single synthetic

(syntactically atomic) word forms.

The concept of morphological expression, we believe, has been mistakenly conflated with morphological integrity as characterized above. Specifically, whereas morphological integrity constrains syntactic operations from creating morphological wordforms, morphological expression concerns assumptions about the surface means by which lexical

representations are expressed. LFG and HPSG have traditionally held the lexicon to the strict requirement that each lexical representation be expressed by at most one single morphophonologically integrated word form. This requirement privileges the syntax to create all collocations that consist of more than one morphological piece, even if the ensemble of morphological pieces behaves as one functional-semantic unit with one argument structure, e.g. the analytical causatives discussed in Alsina (1993) and the auxiliary-verb combinations discussed in Hinrichs and Nakazawa (1989). It is precisely this required connection between clausal heads inserted from the lexicon and single morphological surface forms that leads these authors to abandon the restriction against the formation of new argument structures in the syntax as was discussed in connection with the principle of Lexical Adicity.

There is thus conceptual tension between Lexical Adicity and Morphological Expression, and this tension becomes most obvious in the treatment of analytically expressed clausal heads. Classical LFG and HPSG maintained both principles but were unable to provide optimal analyses of these types of heads. Two types of responses are possible to this state of affairs and both involve a realignment of the relative privileges of the lexicon and the syntactic component, albeit in opposite directions. Either one considers it of paramount importance to retain the morphological restrictions of the lexicon vis-a-vis the syntax: then one is led to create analytically expressed clausal heads in the syntax by allowing phrase-structural operations to invade into the previously exclusively lexical domain of the formation of new argument structures. This leads to the departure from classical lexicalism that is represented by works such as Alsina (1993) and Hinrichs and Nakazawa (1989). Accordingly, lexicalism is in a weaker position relative to the syntax in recent LFG and HPSG compared to the classical versions of these theories (see the first and second rows in (14)).

Alternatively, if one considers Lexical Adicity, i.e. the exclusive privilege of the lexicon to create and manipulate the functional-semantic information associated with clausal heads, to be the conceptual core of lexicalism, one can still maintain a principled role for Morphological Expression: interpreting it as a markedness preference for the encoding of lexical representations strengthens the relative analytical role of the lexicon vis-a-vis the syntax. Whereas classical lexicalism allowed the syntax to deal with collocations without joint morphological status and withheld this option from the lexicon, Morphological Expression as a markedness principle makes the syntax only the preferred locus of composition for analytically expressed elements but extends this option to the lexicon as a marked choice. The unmarked choice of expression for a lexical item is, of course, the sort of integrated morphophonological entity which motivates Lexical Integrity.

To sum up our discussion of lexicalism as a cluster concept: this article takes the view that the data from predicates expressed by syntactically independent elements do not warrant abandoning what we take to be foundational principles of lexicalism, in particular the principle we called Lexical Adicity which prevents the syntactic component from creating new argument structures. The argument developed in this article is guided by the conviction that this functional-semantic component of lexicalism should only be abandoned if the puzzles created by (complex) predicates prove to be thoroughly incommensurable with all defensible implementations of this view. From a more positive perspective, we will demonstrate that adherence to these functional-semantic principles raises important questions and yields important results. Accordingly, our overall view can perhaps best be characterized as follows:

(17) The Primacy of Function over Form

Lexicalism is first and foremost a hypothesis about functional-semantic information and secondarily a hypothesis about form.

Given this general perspective on lexicalism, we are led to postulate the profile of principles in the last line of the overview table of lexicalism. This proposal can be summed up for easy reference as follows:

(18) Assumptions of the Present Article

- Only lexical but not syntactic rules can create new argument structures (Lexical Adicity).

- Only lexical but not syntactic rules can create or analyze morphological

words (Morphological Integrity).

- Lexical representations are preferably expressed by single synthetic word

forms but can also be expressed by combinations of words without joint morphological status (Morphological Expression).

In effect these assumptions lead to two contending interpretations of predicates whose pieces exhibit syntactic independence. On the prevailing account, the pieces only interact with one another when they co-occur in phrase structure: information associated with the pieces can only be composed when these pieces co-occur. The alternative argued for below is to jointly associate the independent pieces with a single lexical representation. In section 4 we will explore a domain in which it appears useful to be able to appeal to lexical representations associated with syntactically independent elements.

3. Views of the PREDICATE

Chomsky 1965:68 presents the classic theoretical motivation against representing functional notions such as subject and predicate as labelled nodes in phrase markers and thereby of recognizing them as important and independent theoretical constructs. Providing a tree annotated with functions as in Figure 1: (Chomsky 1965:69)

Figure 1

he cites two reasons against such a move: (1) the identification of functional notions with categorial configurations fails to preserve the relational character of the functional notions, and (2) whatever functional notions are relevant are straightforwardly derivable from the right phrase structure representations.

He concludes that (1965:74): "Representations such as (6) and new or elaborated rewriting rules to generate them are unnecessary, as well as misleading and inappropriate."

The force of this argument is familiar and still obtains for variants of generative theory closely connected with Chomsky's work: functional notions are derivative and predictable from phrase structural

information. Chomsky proposes (1965:71) the correspondences between phrases and functions in Figure 2:

Subject-of: [NP, S]

Predicate-of: [VP, S]

Direct-Object-of: [NP,VP]

Main-Verb-of: [V,VP]

Figure 2

Despite these early efforts to restrict functions from appearing in rewrite rules, Chomsky's final rewrite rules contain an admixture of categories and functions, as indicated by the relevant expansions in Figure 3:

S --> NP, Predicate-Phrase

Predicate-Phrase --> Aux, VP, (Place), (Time)

VP --> Copula, Predicate

V, Predicate

Predicate --> Adjective

(like) Predicate-Nominal

Figure 3

As can be seen in Figure 3, both the function Predicate and Predicate-Phrase play a prominent role. As can be seen, the notion Predicate (i) was considered to be on par with other functional notions such as Subject, (ii) was interpreted as independent of categoriality since the Predicate-Phrase (as specified above) has indeterminate categorial status, the Predicate being stipulated as associable with either the category A or N, and (iii) appeared to constitute an unresolved problem since this functional notion alone was encoded in phrase structure representations. Though the rules in Figure 3 have been superceded by others, the derived status of standard grammatical functions such as subj and obj is still assumed within the P(rinciples) and P(arameters) and the Minimalist frameworks where syntactic and morpho-syntactic phenomena receive essentially categorial explanations: in contrast, a comprehensive notion of predicate has received less attention.

We will assume that the construct PREDICATE can be informally characterized as follows: it is the determiner or projector of certain core properties of clauses ordinarily associated with a category such as verb, i.e., argument structure, function sets, morphosyntactic information such as tense, mood, aspect etc: in effect we are suggesting that the predicate possesses a subset of the information content associated with the Predicate-phrase, Predicate and Main-Verb-of in Figure 2. The postulation of an accessible information unit consisting of grammatical information such as agreement, tense, mood, etc. as well as the projection of argument structure (and associated functions) clearly parallels the intuitions underlying Grimshaw's Extended Projection as well as earlier (K.P Mohanan 1983, Ackerman 1987) and recent work within LFG on the organization of phrase structure (for an overview see Bresnan

1996). It is information of the sort characteristic of skeletal functional structures within LFG. These types of information are often associated with a single morphological element in languages, though they are sometimes distributed among several independent elements in constituent structure. In fact, we will encounter both encoding types in Nenets below.

Research within R(elational) G(rammar) and L(exical) F(unctional) G(rammar) has provided evidence for distinguishing between the categorial versus functional (relational) status for complements of predicators realized as a single morphological object: it has argued for the explanatory value of notions such as SUBJ, OBJ, OBL, etc. In an innovative departure Perlmutter 1979 argues for distinguishing between the categorial and the functional (relational) status of the predicate (see Davies and Rosen 1988 and related work for recent developments): he provides several types of evidence for positing a predicate function (relation) independent of its categorial expression.

From the present perspective these research traditions have provided evidence on occasion for the postulation of a PREDICATE function or relation on par, in some sense, with the standard syntactic functions or relations. Since the argument forms that we will employ resemble in some measure those employed by these traditions in support of a syntactic PREDICATE relation it is important to note, in contrast, that we will examine certain sorts of data in order to argue for the need to posit a construct PREDICATE as the head of a syntactic domain and we will assume that even when realized by discontinuous pieces there is a single head of that domain. We will argue that such heads are explanatorily associated with a lexical representation. This lexical item (or the phrase it heads) can bear a syntactic relation in constituent structure, like other lexical items. In other work we have formalized this by representing such predicates as lexical combinatorial items: these are lexical items (possibly expressed by syntactically independent elements) which combine with other lexical items in constituent structure. In conformity with the assumptions stated in section 2, we are assuming that lexical combinatorial items are precisely what function as heads of various clausal domains irrespective of whether they are expressed synthetically or analytically. As mentioned in above, the types of non-morphological information associated with lexical combinatorial items are the sorts associated with skeletal f-structures in LFG.

In the remainder of this paper we examine two types of evidence that support the need for positing a PREDICATE. In this respect, we provide additional evidence of the sort provided in T. Mohanan 1994 for the theoretical importance of a construct such as predicate, although she conceives of this PREDICATE in grammatical function structure, rather than as having a lexical representation. From a morphological perspective, we examine markers from the subject or indeterminate agreement paradigm in the Samoyedic language Nenets in order to show that inflectional distributions in this language must refer to functions which particular lexical categories bear in a clause, rather than solely to the categorial status of elements. From a syntactic perspective, we examine basic word order sequences for simple and complex predicates in Nenets, in order to demonstrate that purportedly "neutral" or "unmarked" orders are best analyzed in terms of the functional notions subj, obj and predicate (i.e., sop etc.). We argue on the basis of morphological and syntactic evidence from Nenets that this language possesses a construct predicate encoded by different syntactic categories and exhibiting surface expression by one or more elements. The nature of the argument form employed exemplifies the strategy for demonstrating the need for a

predicate relation presented in Perlmutter (1979): to show that a (1979:130)

given notion is relational [= functional GW/FA] rather than categorial is simply to show its independence of category membership... the arguments used here show that elements that differ in category membership behave alike in cases where they bear the same grammatical relation - the predicate relation.

We conclude by speculating on how the results here might be incorporated into grammatical theory.

4. A Morphological Phenomenon: Nenets Subject/Predicate Agreement

4.1 The Functional Status of Inflected Elements

In several languages the distribution of agreement morphology cannot be unified by referencing the categoriality of the morphological base. Within generative frameworks it has been standard to provide feature analyses of syntactic categories such that combinations of features yield natural classes. For example, one well-known set of binary features is $\pm N$ and $\pm V$ to define the four categories V (= +V, -N), N (= -V, +N), P (= -V, -N) and A (= +V, +N). As in phonology, entities contained in the same class are supposed to share behaviors, while entities in different classes are not.

On all such feature decompositions of categories there is a sharp disjunction between Noun and Verb: there is accordingly a prediction that entities expressed by these categories will not share any grammatically significant behaviors. However, as the examples from Samoyedic below indicate, the distribution of agreement morphology in some languages references an "unnatural class" covering Noun and Verb from a categorial perspective.

The Samoyedic language Nenets contains a so-called indeterminate paradigm or subject reflecting agreement the person and number features of a subject argument for three persons (1st, 2nd, and 3rd) and three numbers (i.e. singular, dual, and plural): markers from this paradigm appear on verbs as well as the class of substantivals, inclusive of common nouns, pronouns, proper nouns, numerals and adjectives. The present tense paradigms are presented in Figure 4.

Substantival: (Hajdu 1968:47) Verb: (Hajdu 1968:59)

Allo 1 Allo 2

Sg. 1 -dm, -tm -dm?, -m?

2 -n, -t -n

3 -∅ -∅

Du. 1 -ni? -ni?

2 -d'i?, -t'i? -d'i?

3 -xV?, -k(a)? -xV?

Pl. 1 -wa?, -ma? -wa?

2 -da?, -ta? -da?

3 -? -?

Figure 4: Indeterminate Agreement Paradigms - Present Tense

As can be seen the paradigm for substantives generally contains two allomorphs, i.e., Allo 1 and Allo 2, while the paradigm for verbs, with the exception of 1 person singular, contains a single suffixal form identical to Allo 1 of the Substantive agreement paradigm.

Representative constructions are illustrated by the partial paradigm in Figure 5 where we find the present tense dual forms of the predicate nominal xasawa 'person' and the verbal form nus 'stand' and where the identical agreement suffixes are underlined: (from Hajdu 1968)

Noun: xasawa 'person' Verb: nus 'stand'

1 mani xasawa-ni? 'we (2) are people' nu-ni? 'we (2) stand'

2 pidari? xasawa-d'i? 'you (2) are people' nu-d'i? 'you (2) stand'

3 pid'i? xasawa-xa? 'they (2) are people' nu-xu? 'they (2) stand'

Figure 5: Representative Agreement Forms - Dual Forms

Whereas a generalization for agreement marker distribution in purely categorial terms, stated as the Category Condition in A, is clearly unilluminating, i.e. N and V do not represent a natural class, an explanation in terms of function is easily motivated. That is, the relevant agreement markers are not solely sensitive to the categoriality of host, but are sensitive to whether elements function as predicates in a clause. This is stated as the Function Condition in B.

A) Category condition: agreement markers appear on disjunction of categories.

i.e., no need for reference to predicate.

B) Predicate condition: agreement markers appear on the predicate of a clause.

It bears noting that similar agreement patterns have been reported in Tzotzil (Mayan), Mordvin (Finnic), Chuckchee (Chukotka-Kamchatka), among other languages.

If we assume that morphology is essentially limited to the lexicon, i.e., inflected forms are not created in constituent structure but appear there already inflected, then we must identify the type of lexical item which agreement inflection appears to be sensitive to in Nenets. On the present account these items are all lexical combinatorial that are heads of clauses, i.e., they are PREDICATES.

4.2 The Categorial Status of Inflected Elements

Now it might be argued that subject agreement is actually categorial in nature and, as per standard assumptions, sensitive to the verb(al) status of the base: predicate nominals and adjectives would be construed as undergoing zero conversion into verbs. This is formulated as Hypothesis 1

below. The alternative Hypothesis is that they remain substantival. This is formulated as Hypothesis 2.

Hypothesis 1: Zero category conversion of substantival into verb.

Hypothesis 2: No category conversion - substantival remains substantival

There are two types of morphological evidence which speak in favor of Hypothesis 2, and against Hypothesis 1: (1) stem allomorphy in verb, (2) paradigm allomorphy in substantivals and (3) restrictions on tense marking.

4.2.1 Paradigm and Stem Allomorphy

As seen previously in Figure 4, the markers in the subjective conjugation are not identical for verbs and nouns. It turns out that this difference bears on the issue of the categoriality of the base which hosts these suffixes.

The first argument for Hypothesis 2 is that in the indeterminate conjugation, Nenets verbs exhibit stem allomorphy with an effectively invariant set of agreement markers, while nominal stem types correlate with allomorphic variations characteristic of nominal suffixal paradigms such as possessive marking and case. So, in particular and simplifying for expediency, verbs are divisible into two basic declensional classes, namely, Class 1 and Class 2. Whereas the verbal personal endings appear immediately after the vowel stem in Class 1, as illustrated by the partial paradigm for the verb *nus* 'stand' in Figure 7, in Class 2 an augment *-Ña* is followed by the personal ending, as illustrated by the partial paradigm for the verb *si'rc%* 'look at', in Figure 7: the augment is underlined. (from Hajdu 1968: 60)

Class 1 Verb: *nus* 'stand' Class 2 Verb: *si'rc%* 'look at'

nu-ni? 'we (2) stand' *si%rÑani?* 'we (2) look at'

nu-d'i? 'you (2) stand' *si%rÑad'i?* 'you (2) look at'

nu-xu? 'they (2) stand' *si%rÑaxa?* 'they (2) look at'

Class 1: Stem + AGR Class 2: Stem + *Ña* + AGR

Figure 7: Indeterminate Agreement Paradigms for Verb Types

As can be seen, the indeterminate conjugation is associated with stem allomorphy keyed to the declension class of categorial verbs. Unless all substantival predicates are converted into Class 1 verbs, we would expect to see augments associated with them.

Turning to nominals we see a different pattern and an argument of another form. Once again simplifying, there are two basic nominal declension classes: Class 1 and Class 2. Whereas Allo 1 of the indeterminate agreement paradigm in Figure 4 co-occurs with nominals from Class 1, Allo 2 co-occurs with nominals from Class 2. Tereshchenko 1973:164 comments:

In the Nenets (and Enets) languages personal predicate suffixes joined to nominal bases of the second class undergo several phonetic changes in comparison with those suffixes when added to nominals stems of the first class.

This distribution is illustrated in Figure 8 with partial paradigms for the Class 1 noun xan%ena 'hunter' and the Class 2 noun jane? 'neighbor': (adapted from Décsy 1966: 29)

Class 1 Noun: xan%ena 'hunter' Class 2 Noun: jane? 'neighbor'
xan%enani? 'we (2) are hunters' jane?ni? 'we (2) are neighbors'
xan%enadi? 'you (2) are hunters' janeti? 'you (2) are neighbors'
xan%enaxa? 'they (2) hunters' janek? 'they (2) are neighbors'
Class 1: Stem + AGRALLO1 Class 2: Stem + AGRALLO2

Figure 8: Indeterminate Agreement Paradigms for Noun Types

In other words, the different allomorphs in the indeterminate agreement paradigm are keyed to the declension class of the nominal which serves as its host. Crucially, the nominals here exhibit declension class based allomorphy reflecting contrasts seen elsewhere in nominal paradigms, such as possessive marking and case. This can be seen by comparing the allomorphy patterns in Figure 4 to the allomorphy patterns for the possessive and determinate or objective agreement paradigm in Figure 9. Possessive morphology reflects the person/number of the possessor and the number of the possessed, while determinate agreement reflects the person/number of the subj and the number of the obj. The possessive paradigm in Figure 9 displays two allomorphs, while the determinate paradigm displays a single variant identical to Allo1 of the possessive paradigm. As was evident in the indeterminate paradigm, the determinate verbal paradigm shows no suffix allomorphy, while the possessive paradigm shows systematic allomorphy: (adapted from Hajdú 1968:42 & 59)

Possessive Paradigm: Single Possessor Determinate Conjugation: Single Object

Class 1 Noun: Class 2 Noun: Verb:

Allo 1 Allo 2

Sg. 1 -w, -m%i -m%i -w

2 -r -l -r

3 -da -ta -da

Du. 1 -m%i? -m%i? -m%i?

2 -r%i? -l'i? -r%i?

3 -d'i? -t'i? -d'i?

Pl. 1 -wa? -ma? -wa?

2 -ra? -la? -ra?

3 -do? -to? -do?

Figure 9: Possessive Paradigm and Determinate Conjugation

The Nenets possessive paradigm is sensitive to nominal stem type, while the clearly related determinate conjugation for verbs does not display suffixal allomorphy.

Noun stem types consistently correlate with suffixal allomorphy in Nenets: this is evident both when the nominal hosts indeterminate agreement markers, functioning predicatively, and when it hosts non-verbal markers such as those from the possessive paradigm. If predicate nominals maintain their categoriality when inflected, as on Hypothesis 2, then their behavioral differences from verbs are easily explicated: if, on the other hand, zero conversion applies, as on Hypothesis 1, it becomes unclear why the nominals functioning as predicates do not exhibit the same inflectional repertoire as indisputable verbs and, additionally, why they do exhibit the suffixal allomorphy patterns characteristic of nominals. In other words, both stem and suffixal allomorphy patterns suggest that the subject agreement markers are differentially sensitive to the category of the host. This conclusion is further supported with respect to a 3rd argument for Hypothesis 2, namely, restrictions on the inflectional markers accessible to nominals and verbs functioning as predicates.

4.2.2 Restriction on Tense Marking

Among other modifications, categorial verbs in Nenets can be inflected for three tenses (present/indeterminate, past, and future, while a substantival predicate cannot host markers for the future tense. The expression of future tense for categorial verbs is a new development which interacts with aktionsart (see Hajdu 1968:62), and is based on the continuative markers -Ñko, -pa, or -ta. This is exemplified by madaÕ-Ñko 'will cut' and m%i-pa-dm? 'I will give' (from Hajdú 1968: 62). For predicate nominals the future tense is expressed by the inflected form of the predicate nominal/adjective followed by an inflected form of an auxiliary verb. For example, the predicate adjective in (19) is inflected for 1 singular and precedes the similarly inflected form of the existential verb Ñes% 'to be':

(19) m%er?, naĩrkadm?, ÑeÑgudm?

soon, big-1SG, is-1SG

'Soon I will be big' (adapted from Tereshchenko 1973:159)

In summary, the data from morphology show that the distribution of the markers from the indeterminate paradigm are sensitive to the predicate status of various categories, while conditions on observable stem and suffixal allomorphy, as well as restrictions on affixal tense marking are sensitive to the different categorial status of the elements functioning as the predicate. Both functional and categorial properties must be accessed for a full explanation of agreement and its expression in Nenets. If these entities are given lexical representations with different categorial values, then the fact that an inflectional operation such as agreement applies to both substantivals and verbs when they head clauses can be accounted for, as can the fact that allomorphic differences sensitive to the categoriality of the heads of the clause are observed. Such categorial information is a part of the lexical representation of these predicates and therefore accessible to morphological operations. In the following section where we examine basic word orders we will see additionally that there are certain syntactic differences between categorial verbs and other categories used predicatively.

4.3 A Syntactic Phenomenon: Nenets Basic Word Order

Perlmutter (1979) examines basic word order sequences and demonstrates that purportedly "neutral" or "unmarked" sequences in several languages yield the best typological generalizations when analyzed in terms of the functional notions subject, object and predicate, (SPO etc.) In this connection it is important to observe that Perlmutter explicitly excludes from consideration instances of predicates expressed by several syntactically independent pieces: he examines languages in which the predicate is expressed by a single syntactically atomic element. We show below that the behaviors identified by Perlmutter are also characteristic of predicates expressed by multiple independent elements in syntactic structure such as a non-finite verbal element and a co-occurring tense/agreement bearing auxiliary as well as predicate adjectives with a co-occurring tense/agreement bearing copular element. This is, of course, expected if the functional notion predicate is truly independent of morphological or syntactic expression. As with the morphological evidence presented previously, we will see that word order generalizations in Nenets appear to require reference to the construct predicate as well as its particular expression in terms of categoriality. This result serves as a corrective to the standard way of describing word order in terms of an admixture of functional and categorial notions, i.e., subject, object and verb (SVO etc.). In this sense the (possibly discontinuous) lexical item we identify here can in fact bear the relational or functional status of predicate, much the way that a lexical item can bear a standard syntactic function.

4.3.1 Basic Word Order in Nenets

Tereshchenko (1973) and Hajdú (1968) describe the basic word order in Nenets as subject object predicate. For convenience we refer to simple expressions of the predicate when we are concerned with a single categorial expression, but to complex expressions when we are concerned with multiple categorial expressions. The basic order for affirmative clauses containing simple expressions is presented schematically below which spells out in categorial terms the order SOP:

S ----> Xn V/N

Figure 10: Word order for simplex predicates

The disjunction concerning lexical category in the schema is motivated by the hypothesis that predicate nominal agreement synchronically belongs to the morphology of this language, rather than to, say, constituting a null verb in c-structure, despite its diachronic status as having derived from an elided existential verb stem. This schema is exemplified in (20), containing a verbal predicate in (from Tereshchenko 1978: , and by (21), containing a nominal predicate (from Tereshchenko 1978:165):

Verbal Predicate: (20) xasava xaja

man left-3SG

`The man left' (from Tereshchenko 1973: 139)

Nominal Predicate: (21) man_ n%uõdm?

I son-1SG

`I am the son' (from Tereshchenko 1973:165)

We have provided very simple sentences in order to avoid introducing irrelevant grammatical phenomena.

Like several Finnic languages, Nenets expresses clausal negation by means of a negative verb. The Nenets negative verb serves as the host for elements from all agreement paradigms, tenses, moods etc, while the `core' or `base' verb appears in a (negative) stem form identical to the 2nd person singular imperative of the indeterminate conjugation, which can also host certain aspectual markers as well as the future tense marker. For present purposes it is important to observe that the negative verb appears with a particular form of the core verb and that it precedes the core verb. A representative example is displayed below: (adapted from Décsy 1966:78)

(22) man_ ni-dm xant?

I not-1SG leave

`I am not leaving'

In contrast, the negative variant of predicate nominal constructions exhibits the following properties: (1) both the nominal and the negative verb host subjective agreement markers, (2) the negative verb follows the predicate nominal and optionally precedes an invariant negative stem form of the existential verb. This pattern is exemplified below: (adapted from Décsy 1966: 49)

(23) man_ jort'adm nidm (-ah)

I fisherman-1SG not-1SG (is))

`I am not a fisherman'

In summary, affirmative clauses contain simple expressions of categorially diverse predicates, while negative clauses contain complex expressions of categorially diverse predicates. Positing that Nenets is predicate final, we see that there are, additionally, more refined generalizations concerning the categoriality of predicate. For example, if the predicate is simple, then it is final irrespective of categoriality, while if the predicate is complex, then the clause is verb final irrespective of whether we are dealing with a verbal or nominal predicate. In general, there appears to be a preference for categorial verbs to be final, but when the simplex predicate does not contain a categorial verb, the element expressing this predicate is final. Additionally, one must know whether the predicate is verbal or nominal in order to know how the negative is formed, i.e., the categoriality of the predicate is relevant to syntactic sequencing as well as to morphological expression (i.e., double marking with nominals). This would suggest the relevance for the typing of predicates, understand here as lexical combinatorial items, in terms of a multiple inheritance hierarchy, as done in HPSG (see Sag and Pollard 1994, Carpenter 1992) possessing such features as features simplex, complex, nominal and verbal. As mentioned previously, we will not present the relevant representations here, instead it is sufficient for present purposes to observe that the heads of clausal domains in Nenets can be either simplex or complex and that inflectional information as well as linearization information must have access to the categorial composition of these predicates.

5. A Lexical Representation for predicates

In this paper we have identified certain morphological and syntactic phenomena which suggest that rules of grammar in some languages, specifically, Nenets, need to access the construct predicate. both simplex and complex, as well as the categorial status of its constitutive pieces. Having demonstrated that certain morphological and syntactic phenomena are keyed to this construct, we are left with the question as to how to express this construct within a theory of grammar. In the work of T. Mohanan (and analogously in the work of Perlmutter 1979) the construct predicate is represented at the level of GF-structure: much recent work within LFG on complex predicates with periphrastic surface expression assumes that some notion of predicate is reconstructable at the level of a-structure, after composition of the pieces of the predicate has occurred in c-structure. Deviating somewhat from these assumptions, in several places in this paper we have suggested that predicates are explanatorily associated with a lexical representation. In Ackerman and Webelhuth (forthcoming) these representations are formulated in terms of word-based morphological systems (Mathews 1991, Anderson 1992, Orgun 1995, Stump, Spencer 1996 among others) and embedded within a hierarchical lexicon (Flickinger 1987, Riehemann 1993). In effect we develop an approach where these predicates are constructions contained and fully specified in the lexicon, often entering into the sorts of paradigmatic relations (see Börjars, Vincent, and Chapman 1996) and derivations characteristic of lexical items: the predicate is interpreted as an information unit which receives variable categorial expression in c-structure, sometimes as a single morphological object, sometimes as several independent morphological objects. These representations contain the types of information, both morphological and syntactic, which we have shown to be necessary for an adequate treatment of agreement and word order in Nenets. Among the information associated with such lexical representations is the information generally assumed to correspond with what is found in a skeletal functional structure within LFG. In Nenets, for example, we need representations to model the patterns of inflectional distribution characteristic of substantival and verbal predicates in both affirmative and negative clauses. Whereas the representations for lexical combinatorial items which we develop are stated in a vocabulary suitable for cross-linguistic application, language particular utilization of these notions is reflected in the necessity to specify actual language patterns based on the empirical facts of a given language: the presence of double agreement marking on the pieces of the predicate in Nenets substantival negative clauses is a particular property that needs to be stipulated for this language, since, for example, in related languages the analogical construction exhibits different patterns of agreement. On the other hand, the fact that double agreement distributes over the pieces of what we characterize as the predicate on a language independent basis is precisely the sort of universal which we expect to find and which lexical combinatorial items are designed to reflect.

We can here only allude to the manner in which such a proposal would address the empirical phenomena exhibited by Nenets, drawing some parallelisms with recent work within LFG that appears motivated by similar intuitions. On the assumption, previously posited, that the predicate is the projector of basic information associated with a clause, it seems reasonable to assume that, for simplex predicate, either the verb or the noun (or other lexical category) is associated with a lexical representation. That is, the predicate is coextensive with a lexical representation. The phenomenon of complex predicates expressed by independent elements in c-structure, such as negative verb constructions,

raises some crucial questions in this connection. For example, should the negative verb be treated as a raising predicate heading its own clause nucleus and taking the core noun or verb as a complement, as on standard LFG accounts of auxiliary-like elements (see Falk 1984)? Is there sufficient parallelism between the simplex and complex predicates in terms of the non-categorial information they contribute to clauses to warrant treating them similarly, and if so, specifically in what way? As mentioned previously, in other work (Ackerman and Webelhuth, forthcoming) we follow Ackerman 1987, K.P. Mohanan 1983, Falk 1984 for the analysis of English `do', Butt et. al. 1996 and recent work within LFG on x-bar theory (see Bresnan 1995 for an overview) in assuming that such auxiliary-like elements do not head their own clauses, but contribute grammatical information to a clause nucleus headed by the main or core piece of the predicate. We develop in that work lexical representations for predicates irrespective of their categorial composition or c-structure realization

Finally, it bears saying that the challenge posed by the data discussed here, of course, not only arise for how to represent the predicate in frameworks where some such construct is sanctioned, but also how to yield the appropriate effects in frameworks where it is not.

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