THE MIXING OF SYNTACTIC PROPERTIES AND LANGUAGE CHANGE

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ABSTRACT

Constructions with mixed syntactic properties combine the external distribution of one category with the internal structure of another; for example, constructions with nominalizations often have a nominal distribution but partly verbal internal structure. Based on evidence from constructions that combine properties of noun phrases and verb phrases, this dissertation argues for a particular account of category mixing, which relies on the distinction between the lexical properties of the construction's head (most importantly, the set of abstract grammatical functions it subcategorizes for, such as subject, object, or oblique) and language-specific phrase structure constraints that determine whether and how these lexical properties can be instantiated (for example, whether an object function can be expressed within a noun phrase). The flexibility of the account is illustrated by two case studies in nominalization in Italian and in Wan (Mande), each dealing with its own kind of "unusual" mixed category that is problematic for the previously proposed approaches to category mixing.

The behavior of nominalized infinitives in Italian points to a discrepancy between the selection of an object function (nominalizations of transitive verbs must retain the verb's object) and the range of available syntactic configurations (object functions cannot be expressed in a construction with a nominal head). This discrepancy results in a somewhat surprising pattern of ineffability of arguments corresponding to the verb's objects: verbs that cannot occur without an object cannot be nominalized. Theories that do not treat lexical properties and syntactic configuration as two dissociated levels of structure have no way of accounting for the lack of a syntactic expression for an obligatory argument.

The unique features of nominalization in Wan are due to an unusual property of the syntax of PPs: instead of being realized NP- and VP-internally, next to the nominal or the verbal head that selects for them, PPs must appear at the level of IP and do not form a syntactic constituent with their subcategorizer. While regular nouns

never select for oblique functions and cannot be associated with PPs, nominalizations can retain the oblique function of their base verb. In this sense, deverbal nouns share some syntactic properties with verbs. At the same time, due to the non-local realization of oblique arguments, the mixed syntax of deverbal nouns is not captured by accounts that project argument structure directly into syntax, without the mediating level of grammatical function assignment. Similarly, this pattern of mixing cannot be explained by accounts that rely on mixed syntactic projections as the source of category mixing.

In addition to discussing the consequences of such unusual patterns of category mixing for syntactic theory, the study extends the investigation of category mixing beyond synchronic analysis proper. Properties of mixed categories are argued to depend in a predictable way on their historical source, and the proposed synchronic account is supported by the contrast in the development of two types of constructions combining verbal and nominal properties: mixed nominalizations (illustrated with Middle English, Basque, and Old Church Slavonic) and mixed nonfinite forms of the verb (illustrated with Vedic infinitives, Celtic verbal nouns, and the Slavic supine). More broadly, the analysis of the diachronic development of the two types of mixed categories illustrates how historical evidence can be used to justify a synchronic account, suggesting that the study of formal syntax should be integrated with the study of language change.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

Introduction and overview

The distinction between the categories of noun and verb is central to the study of syntax, and accounting for mixed category constructions, which combine properties of noun phrases and verb phrases, is a challenge that any syntactic theory needs to address. Typical instances of mixed categories are constructions headed by nominalizations and gerunds, which often exhibit partly nominal and partly verbal syntactic behavior (Comrie 1976; Comrie and Thompson 1985; Koptjevskaja-Tamm 1993, 2003, inter alia). For example, the English gerund can take an object like any transitive verb (as in *reading the book* vs. *read the book*), but it may also combine with a possessive noun phrase as if the construction were nominal (as in *John's reading the book* vs. *John's book*). Another example of a mixed category is the construction with agentive nominalizations in Gĩkũyũ, illustrated in (1). The nominalization itself clearly belongs to the category of noun: it behaves as a noun morphologically and combines with demonstratives just like any other noun does. At the same time, the nominalization can take an object (a) and may even be used in a double object construction (b), as if it were a verb (see more in Mugane 2003; Bresnan and Mugane 2006).

(1) (a) *mũ-thĩĩnj-i*   *mbũri*   *ũyũ*
          1-slaughter-NMLZ   10.goat   1.DEM
          'this goat slaughterer'; lit.: 'this slaughterer goats'

     (b) *mũ-in-ĩr-i*   *a-ndũ*   *nyĩmbo*   *ũyũ*
          1-sing-APPL-NMLZ   2-person   10.song   1.DEM
          'this singer of songs for people'; lit.: 'this singer people songs'

Constructions of this kind pose an obvious problem for traditional models of syntax. If the head of the construction is a verb, how is the construction's nominal distribution to be explained? If it is a noun, how can it take complements in the same way as verbs do? Does category mixing suggest that the view of syntactic categories as discrete entities has to be revised, and that notions like "noun" and "verb" are no more than the extremes of a continuum (see, e.g., Bauer 2005)?

Depending on their specific assumptions about the organization of grammar, different theories of syntax have to approach the phenomenon of category mixing in their own way. As a result, they run into different kinds of problems. The major goal of the present study is to argue for a particular account of category mixing and discuss this account's implications for syntactic theory in general. The discussion is intended to contribute to the development of a typologically adequate theory of category mixing.

In approaching the problem of category mixing, I complement my analysis with analysis of historical data. I believe that, since any synchronic account has implications for the theory of language change, the analysis of diachronic data should be regarded as essential in testing any theory's predictions. A discussion of how the proposed approach to category mixing accounts for the attested patterns of development of mixed categories is an important part of the present study.

It is hardly news that syntax is among the few subfields of linguistics that have been dramatically affected by the traditional divide between the study of languages and the development of formal theory. As descriptive grammars and theoretical studies rarely address the same kinds of problem, a sufficient amount of cross-linguistic data is rarely available for verification of a particular theoretical claim. This is one of the reasons why a study of a particular syntactic phenomenon often requires extensive fieldwork. In my case, a significant portion of the data I use to support my analysis comes from Wan, an understudied Mande language spoken in Côte d'Ivoire in West Africa. While this is only a first step in investigating the grammar of that language, I hope to show how valuable syntactic fieldwork on lesser-studied non-Indo-European languages can be for the study of category mixing and syntax in general.

Finally, a note is due on the formal representation used in this study. The representation is closely related to the one used within the framework of Lexical-Functional Grammar (Kaplan and Bresnan 1982; Bresnan 2001). I have tried, however, to make it more accessible to readers not familiar with that framework, by simplifying the annotation on syntactic structures and by explicitly stating all lexical

regularities in the text. A more formal version of the same structures is presented in Appendix 2, where the crucial examples are represented following standard LFG conventions. The presentation in general is intended to be theory-neutral and does not presuppose prior knowledge of any particular framework. The major assumptions about the organization of grammar are explained in Chapter 1.

The structure of the dissertation is as follows. In Part I, which comprises Chapters 1 through 4, I am concerned with the development of a typologically adequate formal account of mixed categories. Chapter 1 summarizes the major existing approaches to category mixing and the problems that face them; it also contains a brief summary of the theory developed in this study, which is intended to capture the crucial characteristics of mixed category constructions. I suggest that in order to represent adequately the properties of attested mixed category constructions, the theory has to make reference both to selectional properties of lexical items (the lexical component) and to a set of constraints on phrase structure (the syntactic component). Crucially, the two components have to be dissociated, i.e. phrase structure constraints have to be represented as a level of structure independent of the word's selectional properties. One way to do this is by allowing lexical items to select for abstract grammatical relations, or syntactic functions, such as subject and object, instead of mapping the word's arguments directly onto positions in syntactic structure. The realization of abstract grammatical functions would then be determined by an independent set of language-specific constraints on phrase structure configurations. This kind of dissociation is characteristic of Lexical-Functional Grammar, the theoretical framework adopted in this study, although the specific phenomena addressed here have not, to the best of my knowledge, been fully explained within that or any other formal framework.

In Chapters 2 and 3, I present two case studies that support the proposed theory; one deals with nominalized infinitives in Italian, the other, with nominalizations in Wan. The two patterns of category mixing are problematic for most alternative approaches. Finally, in Chapter 4 I summarize the advantages of the

proposed account and briefly discuss how it can be extended to patterns of category mixing that do not involve the selection of grammatical functions.

Chapters 5 and 6 comprise Part II of the study. It deals with the problem of historical development of constructions with mixed syntax and provides further empirical evidence in favor of the proposed account. In particular, I argue that the distinction between the lexical and the syntactic component of category mixing (i.e. the distinction between selection of grammatical functions and constraints on phrase structure) accounts for the two patterns of language change that lead to the development of two different kinds of mixed categories. Contrasting mixed nominalizations (e.g., deverbal nouns that can take accusative objects, like verbs) and mixed nonfinite forms (e.g., nonfinite verbs that can assign genitive case, like nouns), I show that the two have strikingly different paths of development. Mixed nominalizations arise as a result of lexical change that affects their selectional properties, while mixed nonfinite forms develop due to categorial reanalysis of a specific kind of construction. The proposed synchronic analysis not only accounts for the difference between the two types of mixed category – it also explains the attested difference in the way they develop.

Part III of the study consists of Chapter 7, which focuses exclusively on data from Mande languages. I suggest that categorial reanalysis, which often results in patterns of category mixing, should be treated as a powerful force in language change. In order to show this, I discuss a number of typologically rare "nominal" properties of the Mande verb and argue that all of them can be explained as a result of the same process of transfer of nominal syntax from noun phrases to verb phrases. This transfer was made possible by the process of categorial reanalysis that plays an unusually prominent role in the languages in question. Besides demonstrating the effect of categorial reanalysis on the development of individual languages, the case study suggests an explanation for the property of syntax of Wan that makes its pattern of category mixing so unusual. Part III is followed by the Conclusion, which summarizes the major findings of the study.

Part I: Towards a theory of category mixing

Chapter 1. Prolegomena to an account of category mixing

1.1.   Mixed syntax and its lexical determinants: Two problems to be solved

Despite the large number of studies dealing with the problem of category mixing in various languages, very few are explicit about the range of phenomena a theory of category mixing should account for or state a set of general properties such a theory should have (among the few exceptions is Bresnan 1997, where a number of different approaches are contrasted on theoretical grounds). In this chapter, I define two basic issues that any account of category mixing has to address, contrast some of the major approaches to these issues, and attempt to arrive at a set of basic assumptions that could supply a foundation for a foundation of an adequate, universally-applicable theory of category mixing.

As I already mentioned in the Introduction, category mixing is usually defined in purely syntactic terms, and individual studies of category mixing focus almost exclusively on the phrase structure of mixed category constructions. Paradigm instances of syntactic mixing are constructions with deverbal nouns that have the overall distribution of noun phrases but partly preserve the internal structure of a VP or a clause. Most commonly, a nominalization takes an object as if it were a verb, and it may often admit adverbs, either along with or instead of being modified by adjectives. Apparently less common are instances where a nominalization combines with a subject realized in the same way as the subject of a clause (the relative infrequency of this type is confirmed by Koptjevskaja-Tamm's 1993 typological sample). Accounting for the combination of nominal and verbal syntactic properties within the same construction is a challenge addressed by most studies of category mixing. Typically, such studies adopt an extended view of the X-bar schema, which subsumes certain kinds of hybrid configurations (for example, by allowing a category to "switch" projections at a certain point). The general kind of a syntactic structure generated by such accounts is illustrated in (1.1), where a construction with a single

lexical head (a deverbal noun) consists of two different phrasal categories, one embedded under the other. (The individual accounts vary in detail, and I will discuss some of the differences later in this chapter.)

(1.1)   A generalized treatment of hybrid syntax

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              NP
           /      \
        N           VP
                  /     \
              (V)          NP_OBJ
```
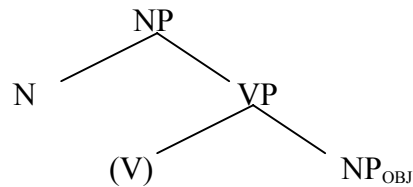
The fact that the structure as a whole is a noun phrase explains its nominal distribution, while the presence of an embedded verbal structure (here, a VP) allows the deverbal noun to combine with some of its dependents as if it were a verb, e.g., to take accusative-marked objects or admit adverbs.

The details of the hybrid structure in (1.1) vary depending on language-specific properties of mixed category constructions; for example, some languages may embed an IP or an S rather than a VP under the NP in (1.1), allowing deverbal nouns to combine with a nominative subject. Typically, however, such constructions can still be described as consisting of a combination of external nominal and innermost verbal phrasal units. Since the structure of hybrid configurations is highly language-specific, on the one hand, and violates the standard assumptions of X'-theory, on the other, it needs to be licensed in some special way by the syntax of a given language (this can be done, for example, by introducing into the grammar a special *exocentric* phrase structure rule or a movement operation).

Licensing a particular hybrid configuration is, however, not by itself sufficient for an account of category mixing to be considered complete. Besides generating the construction in question, the account should also impose additional restrictions on the set of words that can function as the construction's lexical head. Cross-linguistically, mixed syntactic properties tend to characterize only lexical heads of a particular morpholexical class. In the case of nominalizations, hybrid syntax typically characterizes constructions with deverbal nouns derived by a particular affix, while other kinds of nominalization may behave as regular nouns. A complete account

should predict precisely which words occur in a hybrid configuration, i.e. define the morpholexical restrictions on category mixing.

A number of accounts only focus on one of the two facets of category mixing, either looking for ways to accommodate hybrid constructions into an X'-based view of syntax or seeking to define lexical features responsible for a word's hybrid syntactic behavior. As a result of ignoring the other aspect of the phenomenon (morpholexical restrictions in one case, and fine-grained properties of syntactic configuration in the other), both approaches have important drawbacks, some of which are summarized below.

A treatment focusing on morpholexical restrictions is presented in the accounts by Aoun (1981), van Riemsdijk (1983), Grimshaw (1991, 2005: 1-73), inter alia; it is also adopted, to some extent, in Malouf (1998, 2000a, b), Hudson (2003). Accounts of this kind make use of underspecified, ambivalent, or neutral lexical categories, allowing some words to be classified as nouns and verbs at the same time. Category duality of lexical heads is assumed to result in mixed projections consisting of layers of nominal and verbal syntax.

Although theories of this kind give a precise account of morpholexical restrictions on category mixing (individual words or classes of words can be assumed to belong to the ambivalent lexical category), they often ignore the problem of defining the exact hybrid configuration in which ambivalent words appear, and hence fail to capture the precise set of the construction's syntactic properties.[1] In particular,

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[1] A notable exception is the treatments of Japanese verbal nouns by Manning (1993), where an underspecification analysis is combined with a theory of inflectional morphology developed for Japanese and Korean by Sells (1995) and Cho and Sells (1995). In addition to a category label, words are assumed to carry combinatorial information represented in terms of their *type*, which is contributed by inflectional morphology and specifies what kind of a head the word can be an argument of. For example, genitive and accusative-marked nouns are specified as N-SIS and V-SIS, which allows them to function as sisters to nominal and verbal projections, respectively. Combining the type information with underspecified syntactic categories

as discussed in Bresnan (1997), the layers of verbal and nominal syntax are never interspersed randomly but rather tend to conform to the principle of "phrasal coherence": a typical hybrid configuration consists of two categorially coherent subtrees, one embedded under the other, each subtree representing a phrase of an unambiguous phrasal category. The syntax of a coherent nominalization is consistently verbal to a certain point in the structure and consistently nominal at higher levels of projection. For example, while nominalizations often take objects as if they were verbs, but do not license nominative subjects, the reverse pattern is extremely uncommon: in a language with a VP, nominalizations that take a nominative subject but not an accusative object would violate the phrasal coherence principle, and even in those rare cases the layers of nominal and verbal structure do not seem to be interspersed randomly but conform to a language-specific pattern. The striking cross-linguistic similarities in the internal organization of mixed category constructions are left unexplained by accounts relying on category underspecification/neutrality. Despite their ability to capture the morpholexical restrictions on category mixing, such accounts are not restrictive enough to constrain the possible combinations of syntactic properties.[2]

In addition, classifying heads of mixed categories as a separate lexical class often obscures their morphological affinity with other lexical classes. The morphological behavior of nominalizations varies across languages from purely nominal (nominalizations inflect for the same categories as regular nouns, bear a noun

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accounts for mixed category constructions in a language like Japanese (see also Lapointe 1996 for a discussion of *type* in relation to mixed syntax). The analysis, however, seems unmotivated for languages with poor morphology and does not explicitly constrain the typology of mixed categories.

[2] Although Grimshaw (1991) derives some restrictions from a theory of extended projection, the restrictions are not elaborate enough to account for the typology of hybrid constructions. The same applies to other treatments under discussion, which tend to address a more general question of partial neutralization of categorial features, without articulating explicit constraints on syntactic configurations.

class affix, etc.) to partly verbal (nominalizations have a reduced paradigm, can be marked for aspect, etc.). Words with mixed syntactic behavior may also combine morphological features of two lexical categories in a variety of ways, suggesting that patterns of morphological category mixing are largely independent of those of syntactic mixing (Spencer 2005). Even if the mixed syntax of nominalizations is explained by their assignment to a dual lexical category, the account does not provide an obvious means of capturing the diversity of their morphological behavior.[3]

A different kind of problem is faced by accounts that focus on the syntactic aspect of category mixing but are inadequate at treating the lexical restrictions. A family of accounts explain the mixing of syntactic properties by certain kinds of movement (in earlier versions, by properties of nominalization transformations, cf. Lees 1960; Chomsky 1970; Fraser 1970). A generalized model of such accounts is presented in (1.2), following Bresnan (1997): the verb stem is generated as the head of the embedded VP but moves out of the VP to join the nominalization affix (in some versions, the nominalization affix moves instead to attach to the verb stem).

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[3] Malouf's (2000a) account is quite unique in encoding a large amount of both constructional and morphological information as part of a word's lexical entry. Although this account allows for stipulating an idiosyncratic set of properties for each individual instance of a mixed category, it still cannot rule out random and unattested combinations of nominal and verbal features, both morphological and syntactic. In order to do this, Malouf refers to sets of universal markedness constraints on lexical entries, which are modeled after functional implicational hierarchies; cf. Croft's Deverbalization Hierarchy (1991: 83-7), also Cristofaro (2007). (For other uses of functional constraints on hybrid configurations, see Malchukov (2004, 2006) and references therein, also the review by Nikitina 2007a.) By and large, the use of such additional markedness constraints appears to be analogous to relying on sets of phrase structure constraints.

(1.2)   A generalized model of movement-based accounts

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                    NP
                  /    \
                 N      VP
                / \    /  \
           vstem  nmlz  V   …
             ↑          |
             |          t
             └----------┘
```
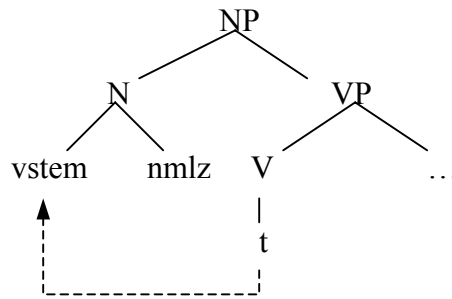
Examples of this kind of account include, among others, Drijkoningen (1992), Hazout (1991, 1995), as well as numerous studies of the English gerund, including Horn (1975), Jackendoff (1977), Baker (1985), Abney (1987), Milsark (1988), to mention just a few. Similar in spirit is the "mixed extended projection" treatment of Borsley and Kornfilt (2000), who analyze mixed nominalizations as verbs associated with nominal functional projections.

Although accounts of this kind capture precisely the required syntactic configuration, they do so at the expense of deriving its head in the syntax. This way of defining the morpholexical restrictions on category mixing relies crucially on the identity of the category-changing affix, which is assumed to function as an independent head and introduce its own syntactic projections. Unfortunately, such accounts predict that the verb stem and the derivational morpheme should always behave as syntactic units rather than parts of a lexically derived word.[4] In fact, however, heads of mixed categories often behave, both phonologically and syntactically, as if they were derived in the lexicon and not in the syntax. For example, as discussed in Bresnan (1997), they typically cannot include conjoined verb stems or

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[4] A possible exception is presented by radical decomposition accounts within the framework of Distributed Morphology, which derive words by merging a root with a head bearing an abstract category feature (Halle and Marantz 1993; Marantz 1997; see also Harley and Noyer 1998; Alexiadou 2001). On such accounts, all words are assumed to have a complex internal structure, and that structure is assumed not to be accessible at later stages of derivation (Arad 2003).

empty categories, suggesting that their properties are best treated within a lexicalist approach. Further arguments against syntactic derivation of heads of mixed categories can be found in Bresnan and Mugane (2006) and Lapointe (1999); in particular, Lapointe points out that the movement accounts are not directly applicable to heads of mixed categories in inflectional languages like Latin, where the nominalizing suffix is followed by case inflection, and the latter clearly displays properties of lexical, rather than syntactic, derivation.

Crucially, the inadequacy of morphological derivation in syntax is due to conflating different kinds of linguistic information in the same representation, subject to a uniform set of constraints on movement. This architectural decision limits the ability of movement-based treatments to account for complex interactions of morpholexical information and syntactic structure without assuming that the lexical information is represented by structure-projecting affixes. As a result, accounts based on derivation in syntax rule out the possibility of a non-syntactically derived head of a mixed category on theory-internal grounds.[5] This inherent limitation significantly restricts the range of phenomena that can be covered by movement-based treatments, making them less attractive as a basis for a general, cross-linguistically applicable theory of category mixing.

Summarizing the previous discussion, it appears that an adequate treatment of category mixing not only needs to define the exact structure of language-specific configurations; it also has to rely on some lexical information in constraining the set of words that can be admitted as heads of a hybrid configuration. As I tried to show in this section, ignoring either dimension seems to result in a theory's narrow empirical coverage. It appears that an account designed to generate an adequate typology of mixed syntactic patterns should be based on a meaningful interaction of the two kinds of information: the constraints on phrase structure configurations, and the

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[5] See Bresnan and Mchombo (1995), among other work, for a discussion of how a lexicalist theory can successfully model effects of movement without violating the Lexical Integrity principle, i.e. without conflating the structure of words with the structure of sentences.

morpholexical restrictions. Naturally, in this kind of account, defining the relevant lexical information will determine the best set of complementary syntactic constraints. In the following sections, I discuss which lexical features seem to work best in accounting for the typology of category mixing (section 1.2), and then introduce a view of syntax that relies on those lexical features (section 1.3).

1.2.   Choosing the lexical features

As discussed in the previous section, a theory of category mixing should define the class of words that can function as lexical heads of a mixed category construction. Even though such words tend to share a particular affix (such as a nominalizing morpheme), relating their mixed syntax directly to the presence of that affix creates the problem of morphological derivation in syntax: the fact that the affix can be clearly integrated into the word is difficult to reconcile with its independent representation in the syntactic structure. Rather than being directly related to the presence of a particular structure-projecting morpheme (as is typical of non-lexicalist approaches), the morpholexical restrictions can be stated on the lexical representation of the construction's head: according to lexicalist accounts, words derived by a particular affix are associated with certain lexical features, which are in turn correlated with mixed syntactic behavior. What features work best as determinants of the mixed syntax becomes the central question addressed by such accounts.

Lexical category

A solution to the problem of lexical determinants is represented in the "category switch" account of Lefebvre and Muysken (1988), as well as in the "dual lexical category" analysis of Lapointe (1993, 1999), where "category duality" is taken to be the lexical correlate of mixed syntax. Words that are lexically assigned the dual category $<N|V>^0$ can "project" mixed configurations of a certain kind, while projections of regular words must adhere to the X' schema. In other words, mixed configurations require that their lexical heads bear the lexical feature of "dual category", while regular nouns and verbs do not occur with mixed syntax.

Although theories based on dual categories account for the general properties of category mixing, they do so by postulating additional lexical categories: <N|V> for nominalizations, <A|V> for participles, <A|N> for relational adjectives, etc. Unlike the neutral/ambivalent category approaches discusses in the previous section, this treatment constrains to a certain degree the syntactic configuration of the hybrid construction; for example, in Lapointe's notation, the first part of a dual lexical category determines the external properties of the construction, the second part – its internal properties. However, being based on the lexical category, both kinds of approach share certain limitations. In particular, the proliferation of dual lexical categories has the consequence of obscuring the morphological relation between words with dual classification (such as N|V) and core members of a lexical category (V or N), while in fact nominalizations often inflect for the same morphological categories as nouns or verbs. In Korean, for instance, nominalizations reject verbal affixes but take nominal ones (Yoon 1996), while the English *-ing* form can admit nominal affixation (such as the plural suffix) only when used as a regular noun but not when used in a mixed category construction (as will be discussed below, the mixed gerunds of modern English should be classified with verbs, in spite of some "nominal" properties of the gerund construction).[6] The morphological difference between the two kinds of lexical heads is not explained by their assignment to a dual lexical category $<N|V>^0$.

Similarly, as I already mentioned, words with mixed syntactic behavior may combine morphological features of two lexical categories in a language-specific way. The sets of the word's morphological properties could of course be encoded lexically

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[6] Note, however, that evidence from plural affixation should be treated with caution, since a deverbal noun may fail to take a plural marker for semantic reasons (e.g., if the nominalization denotes a general kind of activity). In the case of the English gerund, this evidence is backed up by a number of syntactic properties indicating that, when used with mixed syntax, the form is unambiguously a verb (e.g., the head of a mixed category cannot be modified by adjectives and combines with the verbal negation marker *not*; see, e.g., Wasow and Roeper 1972 and Chapter 5 for details).

independently of the dual category's lexical features, perhaps in a way similar to the one used by Malouf (2000a). Yet, positing such detailed lexical specification seems to undermine the elegance of the dual lexical category approach. The information about mixed properties ends up being encoded by two different sets of lexical features: the mixture of syntactic properties is indicated by a word's dual classification, but the word's morphological features are identified with those of regular nouns or those of verbs by a totally different mechanism of feature specification.

Another problem the dual category approach has to address has to do with multiple kinds of mixed categories coexisting within a language. In cases where different kinds of nominalization differ in their morphological properties, some kind of indexing would be required to associate each type of $<N|V>^0$ with its own set of morphological features. An even more serious problem arises when the different kinds of nominalization differ in their syntax. Assuming that the head's dual lexical category is the sole source of information about the construction's mixed properties, how can a language have two different kinds of nominalization, each associated with its own hybrid phrase structure configuration?

Lapointe (1999: 172-4) addresses this problem in his discussion of the relatively common pattern of a nominalization admitting either possessive or nominative encoding of the subject argument role, suggesting that further subdivision of lexical categories would be required to account for such instances. In particular, heads of constructions with nominative subjects would be assigned to a separate lexical category, such as $<N| I>^0$, while heads of constructions with possessors would be classified as $(<N|V>^0)$. As a result, the former type of construction would have the internal structure of an IP (which may include the nominative subject), while the internal structure of the latter would be restricted to that of a VP (excluding the subject). This amendment, however, has the obvious drawback of further proliferating lexical categories, making the category label sensitive to fine-grained information about syntactic configuration, including the structure of the word's functional projections.

Moreover, the nominative (clause-like) vs. possessive (NP-like) realization of the subject participant role is just one, and apparently the simplest, instance of multiple co-existing hybrid configurations. Others present more serious problems for the dual lexical category account. For example, Mugane (2003) contrasts the syntax of agentive nominalizations with that of infinitive/gerunds in Gĩkũyũ, suggesting that the two morphologically distinct forms occur in two kinds of a syntactic hybrid, only one of which (the infinitive/gerund construction) allows adverbs to appear after nominal modifiers.[7] If Mugane's analysis is correct, this pattern presents an empirical problem for an account relying on dual lexical categories: provided that the mixed syntax of both deverbal nominals is due to their classification as $<N|V>^0$, where could this subtle difference between the two constructions come from?

To summarize, the dual lexical category approach does not seem to be powerful enough to capture the attested diversity of mixed category constructions, both with respect to their morphology and with respect to their fine-grained syntactic properties. This problem becomes especially acute in cases where multiple kinds of category mixing are found in the same language. Because of this limitation, mixed syntax will not be correlated with dual lexical categories in this study.

Morphological form

A different kind of a lexicalist account of category mixing is represented by Pullum's (1991) analysis of the English gerund. Instead of locating the source of mixed syntax in the gerund's dual lexical category, Pullum treats gerunds as unambiguous verbs that are, however, licensed as heads of a special hybrid syntactic configuration, represented in (1.3).

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[7] According to Mugane, the structure of the infinitive-gerund violates phrasal coherence by allowing adverbs to be interspersed with nominal modifiers, while the structure of the agentive nominalization is coherent and consists of a VP embedded under an NP.

(1.3)   Pullum's (1991) analysis of the English gerund

```
                        NP
               _____/  _____
          NP[POSS+]            VP[VFORM: prp]
              |              ____/      \____
           your       V[VFORM: prp]          NP
                           |             ____/  \____
                        breaking       Det          N'
                                        |            |
                                       the           N
                                                     |
                                                   record
```
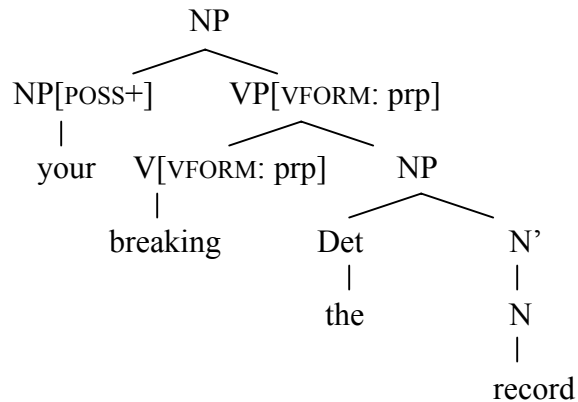
In (1.3), a noun phrase is allowed to have a verb-phrase head, provided that the verb
phrase bears the feature "prp", i.e. if its own head is a "participle".[8] Thus, in stating
the lexical restrictions on the hybrid configuration, Pullum refers directly to the
morphological form of the head and can thereby single out precisely the intended
morpholexical class without assuming morphological derivation in syntax or referring
to a particular affix. As a result, the approach has the potential of accounting for
multiple instances of category mixing in the same language (they can be associated
with heads of different morphological form) or stating a set of morphological
properties associated with a particular form.

        Pullum's account is based on an underlying assumption that syntax can be
sensitive to the morphological form of a lexical head, not just its lexical category (this
assumption is shared by the movement-based theories of category mixing, which
obtain essentially the same effect by attributing to affixes an independent syntactic
status). Not surprisingly, the account is powerful enough to provide an empirically
adequate account of the gerund's behavior: like any other morphological form, the
gerund can be associated with its own, unique syntactic configuration.[9] Yet, referring

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[8] The account elegantly treats verbal gerunds and participles as a single lexical form
(see also Blevins 2005).

[9] A somewhat similar approach is adopted by Schachter (1976), who derives a mixed
gerund construction non-transformationally, assuming that -ing is "an automatic

to morphological forms is of little help in a typological study, as long as the theory provides no principled explanation for why certain forms (such as nominalizations, participles, or infinitives) license idiosyncratic configurations in so many different languages, while others (such as plural, third person, diminutive, or comparative adjective) are largely irrelevant to the syntax.

Finally, a more subtle problem with relying on morphological form is pointed out by Yoon (1996). Cross-linguistically, it is common for the same form to occur both in constructions with mixed syntax and in regular configurations. In English, homophonous -*ing* forms are used in regular NPs (*your breaking of the record*) and in hybrid constructions (*your breaking the record*); similarly variable is the syntax of the infinitive/nominalization form in Italian or of nominalization in Wan (see Chapters 2-3). Ideally, a theory of category mixing should explain this typologically recurrent pattern, which remains a mystery on Pullum's account.[10]

Due to the limitations of using morphological form as a lexical determinant of mixed syntax, this strategy will not be adopted in this study. Instead, I will rely on a set of more fine-grained lexical features described in the rest of this section.

Subcategorization pattern

The two lexicalist approaches I have just discussed share one important property: both seek to relate a construction's mixed syntax to a single lexical parameter of the head, be it its lexical category or its morphological form. The diversity of mixed category constructions, both cross-linguistically and, for some languages, language-internally,

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consequence" of the occurrence of a verbal constituent in the context of this construction (226).

[10] Yoon essentially proposes that the same (phonologically null) nominalizing affix can attach either in the lexicon (producing a regular noun) or in the syntax through phrasal affixation (producing a mixed category). The analysis does not explain, however, why the same (null) affix should have the two functions in many different languages; other problems with this analysis are discussed in Lapointe (1999).

suggests, however, that a complete account of mixed properties should refer to a larger set of more fine-grained lexical features, which would determine, ideally, both a nominalization's morphological behavior and the exact syntactic configuration in which different kinds of nominalization appear.

An approach that relies on sets of such fine-grained lexical features is suggested in Bresnan (1997), where heads of mixed category constructions are characterized by combinations of lexical features characteristic of different categories, e.g., by features typically associated with nouns and verbs. Perhaps most importantly, nominalizations may combine verbal and nominal selectional properties (Bresnan and Mugane 2006). For example, one kind of nominalization may belong to the lexical class of nouns and behave as a noun morphologically, yet select for a full set of grammatical relations associated with the corresponding verb, such as subject and object. A different kind of nominalization may share only some selectional properties with the verb, e.g., selecting for an object but not for a subject. Due to the difference in the lexical selectional features, the two kinds of nominalization can be used in different kinds of syntactic configurations. The following sections describe in more detail how mixed lexical properties interact with constraints on phrase structure.

Besides accounting for subtle differences between different kinds of mixed categories both across and within languages, the account relying on multiple lexical features provides the flexibility necessary for defining, along with syntactically relevant properties, the word's morphological characteristics. (Although this study focuses on mixed syntax and does not address in any detail the phenomenon of mixed morphology, the same account can be extended to the mixing of verbal and nominal morphological properties.) In addition, instead of postulating special syntactically relevant lexical features with the sole purpose of accounting for category mixing, such as dual categories or idiosyncratic forms, the account makes use of independently motivated features, such as the word's selectional properties.

To summarize, in the account of category mixing to be presented below, the syntactic and the lexical aspect of category mixing are treated using two interacting components: the syntactic configuration is licensed by a set of constraints on phrase

structure, while the morpholexical restrictions are captured in terms of the word's lexical features, including, most importantly, its selectional properties. A major property of the account is the parallel use of the syntactic and the lexical components. Lexical information plays a role that is independent of constraints on syntactic configuration: although directly relevant to syntax, it is not its sole determinant. The typology of mixed category constructions, and more broadly, of patterns of syntactically relevant category mixing (which, as I will show, are not always instantiated by a special, hybrid *construction*) is constrained by a complex interaction of lexically encoded information and restrictions on syntactic structure. The details of the account are introduced in the rest of the chapter.

1.3. Lexical and syntactic licensing of category mixing

1.3.1. Grammatical relations and selectional properties

Contemporary theories of grammar differ in the role they attribute to abstract grammatical relations such as subject, object, oblique, and adjunct, which are also referred to as grammatical, or syntactic, functions. Some theories, and most notably those deriving from Chomsky (1965, 1981), deny grammatical relations an independent status, treating them as derivatives of phrase structure configurations in which they appear (see Davies and Dubinsky 2001 for an overview; also McCloskey 1997 on the treatment of subjecthood). On the other hand, there is evidence that certain phenomena, both in individual languages and cross-linguistically, are best captured in terms of grammatical relations such as subject and object, independently of their surface realization (see, inter alia, Johnson 1974, Grimshaw 1982b; also Shibatani 1977, Mohanan 1982, 1983, Chung 1976; Dalrymple 2001: 39-44). The phenomena that have been argued to refer to grammatical relations independently of their configurational or morphological realization include binding (Dalrymple 1993), passivization (Perlmutter and Postal 1983; Zaenen and Maling 1983), control (Bresnan 1982; Simpson and Bresnan 1993), and many others.

In this study, I will assume a more traditional view of grammatical relations as a basic level of representation: lexical items will be assumed to select for specific grammatical functions, which can be realized configurationally in some languages and by case in others. This view is consistent with theories of syntax that treat grammatical relations as primitives, such as Relational Grammar and Lexical-Functional Grammar, which is used as the basis in the following presentation. Having a means of representing grammatical relations independently of their syntactic realization is not only preferable for a typologically oriented study (since, arguably, not all languages encode their arguments configurationally, in the first place); it will also prove to be necessary for accounting for the peculiar patterns of category mixing discussed in the case studies presented in Chapters 2 and 3.

Words of different lexical classes, and most importantly nouns and verbs, differ in the set of grammatical relations that are typically associated with them. In particular, unlike regular nouns, regular verbs can select for subjects and objects.[11] In other words, as I illustrate below, semantic participant roles associated with nouns and verbs are mapped onto different sets of grammatical relations: although the verb *arrive* and the noun *arrival* describe situations involving the same participant roles – the theme and the destination, – the role of the theme is mapped onto a subject function in the case of the verb but either onto a possessor function or into a specialized oblique function in the case of a noun. As a result, the same participant role will be encoded in different ways with the noun and with the verb; cf. *The train arrived* (subject) vs. *the train's arrival* (possessor), *the arrival of the train* (oblique).

Besides subjects (SUBJ) and objects (OBJ), grammatical functions selected by verbs (i.e. the verb's *argument functions*) include oblique arguments (OBL) and verbal complements (COMP); a separate grammatical function ADJ characterizes the relation between a verb and an adjunct. Argument functions, but not adjuncts, are encoded in

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[11] I will assume that both nouns and verbs can take arguments (see more below). Particularly well-studied among argument-taking nouns are nominalizations, but this class also seems to subsume, at least in some languages, the so-called relational nouns, or nouns that require the presence of an overt "possessor" of a certain kind.

the verb's lexical entry as its subcategorization pattern. For example, the predicate of the sentence *The train arrived at the station at noon* is associated with three kinds of grammatical functions: the verb selects for a subject and an oblique argument with the semantic role of goal of motion, and at the same time combines with a temporal adverbial (an adjunct).

(1.4)　I$_{\text{SUBJ}}$ arrived (at the station)$_{\text{OBLgoal}}$ (at noon)$_{\text{ADJ}}$

Unlike the adjunct, the subject and the oblique functions appear on the argument list of the verb *arrive*, as in (1.5). (Since the adjunct is not selected by the verb, it does not appear on the verb's argument list and functions as an optional modifier.)

(1.5)　arrive, V <SUBJ, OBL$_{\text{goal}}$>

Sometimes a verb selects for a grammatical function that must be introduced by a particular adposition; in such cases, the adposition will be encoded in the verb's lexical entry as a subscript on the grammatical function in question, cf. the lexical entry for *rely*, which takes an oblique argument function introduced by the preposition *on*:

(1.6)　rely, V <SUBJ, OBL$_{on}$ >

　　　　The account introduced in the following chapters is based on the assumption that nouns, like verbs, may select for argument roles, i.e. have an argument structure, or a thematic grid. One type of noun selecting for arguments is represented by certain kinds of action nominalizations (process nouns, or complex event nominals; Grimshaw 1990), which require event participants to be expressed (I discuss them in some more detail later in the study). Besides nominalizations, arguments may be selected by so-called relational nouns, which in some languages require the presence of an overt possessor (e.g., a noun like 'front' cannot be used without an explicit mention of the reference object, relative to which the front is defined). This property of relational nouns is discussed in Chapter 3 for Mande languages.

　　　　As nouns may have argument structure (in the sense of selecting for argument roles), they may also select for grammatical functions. Crucially, the grammatical functions selected by nouns differ from those selected by verbs, i.e. arguments of

verbs and nominalizations are often realized in different ways. The exact set of argument functions selected by nouns varies from one language to another. In some languages, this set consists of only one function. Such is the case, for example, in some Mande languages, including Wan (Chapter 3), where the only argument function associated with nouns is that of possessor, while nouns in general cannot take oblique arguments (thus, regular nouns cannot select for PPs but instead may require the presence of a preposed possessive NP, which realizes a specialized possessor function).

Other languages may allow more than one type of grammatical function to be selected by nouns. In English, arguments of a deverbal noun may be expressed either as prenominal genitives (a specialized possessor function) or as PPs, including PPs introduced by the possessive preposition *of* (a special type of an oblique function). Determining which argument functions are associated with nouns in a particular language requires an analysis of the behavior of argument-taking nouns (cf. Rappaport 1983 for English).[12]

As I show in the following chapters, some types of nominalization may behave in an exceptional way with respect to selection of grammatical function. Such nouns may violate the constraints on grammatical function selection associated with nouns in general, i.e. certain kinds of nominalization may differ from other nouns and select for an argument function that is otherwise restricted to verbs, such as object. Moreover, I suggest (Chapter 6) that certain forms of a verb may also exceptionally select for functions that are otherwise restricted to nouns (such as possessor). I will argue that

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[12] Besides taking arguments, nouns may also be modified by adjuncts, which may be realized as adjectives, PPs or even bare NP modifiers, depending on the language (see Chapter 3 for the latter, apparently more rare option). Quite often, an adjunct may be realized in a way similar to a nominalization's argument (cf. Grimshaw 1990 on "argument-adjuncts" and suppressed arguments of English nominalizations). Since my discussion focuses primarily on morphosyntactic realization of the retained arguments of nominalizations, rather than on general principles of retention of argument role or properties of the nominalization's argument structure, I leave this issue aside.

accounting for this kind of exceptional behavior is crucial for the analysis of mixed category constructions. I describe and illustrate this behavior later in the study.

In sum, the view of grammatical relations adopted in this study treats them as primitive elements that encode the lexical selectional properties of words. The surface realization of grammatical relations varies across languages and is determined by language-specific constraints on phrase structure, which are discussed in the next section.

1.3.2. Constraints on phrase structure

For the purposes of formal representation, I assume constraints on phrase structure similar to those used within Lexical-Functional Grammar (Kaplan and Bresnan 1982; Bresnan 2001), i.e. context-free phrase structure rules annotated for constituents' grammatical functions (see Appendix 2 for an explanation of the differences between my representation and the standard LFG conventions, as well as for standard LFG-style versions of crucial structures). The account, however, does not depend on that particular representation in any crucial way and is compatible with other ways of constraining the set of possible syntactic configurations (see, e.g., Bod 2006 on exemplar-based models). The example structure in (1.7) from the grammar of English generates combinations of a verb and its complement, where the verb selects for a grammatical function of object, which is realized as its complement.

(1.7)   Example of an annotated phrase structure: English VP

```
          VP
         /  \
        V    NP_OBJ
```
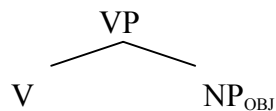
The entire space of possible English constructions is described by a set of structures of a similar kind. In particular, this set of structures specifies all possible ways in which a particular grammatical relation can be realized in the syntax. For example, the possessor function is realized in English as an NP preceding an N' head, while the oblique function introduced by the possessive *of* is realized as a PP following a nominal head.

Turning to mixed category constructions, on my account all hybrid
configurations should be licensed by the same kind of phrase structure constraints as
regular nominal and verbal structures. For example, in the case of agentive
nominalizations in Gĩkũyũ, which were briefly discussed in the Introduction, a
nominal head (the deverbal noun) should be allowed not only to select for an object
grammatical function (which is determined by the noun's lexical selectional
properties), but also to realize an object function in the same way as verbs do (which is
determined by the language-specific phrase structure constraints). In other words, an
example like (1.8), where the noun takes an object as its complement, would be
licensed by a structure that is represented in (1.9); see Appendix 2 for an LFG-style
fully annotated structure.

(1.8)   *mũ-thĩĩnj-i*   *mbũri*   *ũyũ*

1-slaughter-NMLZ   10.goat   1.DEM

'this goat slaughterer'; lit.: 'this slaughterer goats'

(Bresnan and Mugane 2006: 211)

(1.9)
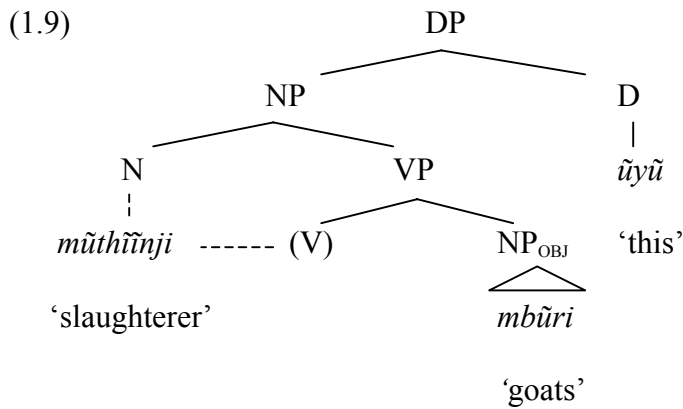
The distribution of the nominalization is nominal, but the nominalization combines
with an object NP as if it were a verb. This combination of properties is captured in
(1.9) by a head sharing relationship between an external noun phrase and a verb phrase
embedded in it (the dashed lines indicate that the same lexical item – a noun –
corresponds to two phrase structure heads in the syntactic structure). In other words, a
single head is allowed to instantiate two different syntactic units, a noun phrase (which

determines the nominal external distribution of the construction) and a verb phrase (which determines the construction's verbal internal syntax).

Most importantly, in order for the example in (1.8) to be generated, the configuration in (1.9) must be licensed by phrase structure constraints of Gĩkũyũ. Since the head of construction is morphologically a noun, it heads a nominal projection. At the same time, a noun is allowed to function as a co-head of a VP, simultaneously serving as a lexical head of the external NP (where it appears overtly) and contributing the functional information associated with the (unexpressed) head of the embedded VP (see Bresnan 1997 for details). The complement of the noun appears within a verbal structure and shares all syntactic properties with complements of regular transitive verbs. (The head of the VP is not required to be overtly present within the same VP, provided that the same lexical information is expressed elsewhere, such as by a deverbal noun or, in a language with a separate position for I, by a finite verb.)

Crucially, constraints on Gĩkũyũ phrase structure allow a noun to introduce a fragment of verbal syntactic structure in the absence of an overt verbal head. This possibility corresponds to the intuition that a deverbal noun can take an object or be modified by an adverb. Since hybrid constructions are licensed directly by language-specific constraints on phrase structure, the treatment does not rely on the assumption that deverbal nouns are derived in the syntax.

Using constraints on phrase structure to license mixed category constructions has the flexibility required of a typologically oriented account: different kinds of mixed configurations can be licensed by language-specific constraints on phrase structure, and more than one kind of mixed configuration may exist in a language. The account, however, is incomplete without a mechanism of restricting the use of a hybrid construction to words of a particular morpholexical class. One way of doing it is discussed in the next section.

1.3.3. Morpholexical restrictions

While constraints on phrase structure can license a hybrid configuration of a particular kind, they make no reference to affixes or morphological forms, and hence do not by themselves constrain the set of words that are acceptable as the construction's head. On the other hand, since the constraints on phrase structure refer to grammatical relations between the constituting elements and their lexical categories, the morpholexical restrictions can be stated naturally in terms of the head's lexical selectional properties. In particular, in order to appear in the hybrid configuration in (1.9), i.e. in order to function as a co-head of an object-containing VP, the noun should select for an object grammatical function, i.e. share some selectional properties with its corresponding verb. On this view, the word's subcategorization pattern functions precisely as a lexical determinant of its mixed syntactic behavior. (Although I concentrate in this study on the expression of subcategorized elements, and primarily arguments of deverbal nouns, the account does not exclude patterns of mixed modification; see more on this in Chapter 4.)

For the account to be complete, it should allow certain selectional properties to be inherited in the process of morphological derivation. Which, if any, grammatical functions of verbs are retained by deverbal nouns is determined by properties of individual lexical derivational rules, or individual lexical correspondences between the derived noun and the base verb.[13] For example, the derivation of agentive nominalizations in Gĩkũyũ would allow the retention of object grammatical functions on the argument list of the noun. Other kinds of nominalization do not have to retain any verbal grammatical functions, since they are derived by a different affix, and their correspondence to the base verb need not adhere to the same generalization. Similarly,

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[13] Throughout the study, I use the terms "lexical derivational rule" and "nominalization rule" as convenient labels for describing regular lexical correspondences between verbs and deverbal nouns. I do not, however, presuppose any directionality in this relationship, and all generalizations relevant to this study can be captured in terms of a constraint-based, non-directional model of morphology.

regular nouns cannot occur with mixed syntax for the simple reason that they are inherently incapable of selecting for an object, and there is no verb whose selectional properties they could retain as a result of derivation.

The Gĩkũyũ agentive nominalization can then be characterized as follows. The nominalization rule allows the derived noun to retain certain selectional properties of the corresponding verb, most importantly, its object grammatical function. The object function, when retained, can be expressed with a nominal head in the hybrid construction in (1.9), which is licensed by constraints on Gĩkũyũ phrase structure. Other nouns, either regular or derived by a different affix, cannot retain the object grammatical function and hence are banned from occurring in this particular mixed category construction (i.e. they cannot take objects in the same way as verbs do).

It is important to distinguish the property of retaining the verb's grammatical functions from the retention of the verb's semantic argument roles, or participant roles. Nominalizations of certain kinds may retain argument roles of the verb while expressing them in a totally different way. Grimshaw (1990) characterizes such role-retaining (or argument-supporting) nominalizations as nouns denoting complex events, which have an associated event structure (see also Rappaport Hovav and Levin 1992 for an account of English -*er* nominals; Laczkó 2000 for deverbal nouns in Hungarian; Markantonatou 1995 for Modern Greek; Siloni 1997 for Modern Hebrew; Rozwadowska 2000 for Polish; Cornilescu 2001 for Romanian; Schoorlemmer 1998 for Russian, among others). Complex event nominals require that their arguments be overtly expressed, just as arguments of a verb are, yet they do not impose any specific restrictions on the way they are realized. Argument roles are mapped onto grammatical functions that are typically available to nouns (such as possessors), and their expression no longer depends on the realization they had with their corresponding verb.

For example, as argued convincingly by Rappaport (1983), although English deverbal nouns like *destruction*, *command*, or *knowledge* may retain argument roles of the verb, the way in which those roles are expressed is largely independent of the way they are realized with the corresponding verb. There is no direct correspondence

between objects of verbs and, say, prenominal genitives of the derived noun, neither do subjects of verbs correspond to one particular kind of expression with nouns. In other words, the realization of an argument role with a verb is largely irrelevant to its realization with a deverbal noun, and the latter is determined instead by the semantic role of the argument (see also Amritavalli 1980). For example, argument roles linked to an *of*-PP with deverbal nouns are better characterized in terms of a semantic notion of theme, rather than in terms of their realization as subject or object with the corresponding verb (cf. *the destruction of the city* vs. *the arrival of the goods* or *Bill's impression of John*).

Rappaport's characterization fits precisely with what goes on in the case of deverbal nouns that do not retain the verb's grammatical functions while retaining its argument roles: argument roles are mapped onto grammatical functions commonly available to nouns, such as the possessor function. As a result of this mapping, the syntax of such nominalizations should not differ from that of regular, non-derived nouns, just like the syntax of English deverbal nominals, rather than being mixed, conforms to the syntax of non-derived nouns.

The properties of the two different kinds of nominalization are summarized in (1.10). Both kinds of nominalization retain the verb's argument roles, yet only one of them also retains its grammatical functions, so that the derived noun seeks to realize the argument *in the same way* as it is realized with the verb. This kind of nominalization is of primary concern for the study of category mixing, since in most cases (but not always, cf. Chapter 3), realizing arguments of nouns in a way characteristic of verbs (e.g., as object functions) would require a mixed category construction.[14] The other kind of nominalization does not share with the verb its selection of grammatical functions. No mixed category construction is required in such cases, as the noun's set of subcategorized elements does not differ from those of regular nouns.

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[14] In the case of subjects and object, this generalization follows from the relation-based view of syntactic categories adopted in most standard theories of syntax (see Jackendoff 1977: 31-3; Bresnan 1982: 300-2).

(1.10) Two kinds of lexical nominalization

nominalization	argument roles	selection of grammatical relations
regular	may be retained	not retained; argument roles, if retained, are mapped onto new grammatical functions, such as possessor, e.g.: V → N <(POSS)>
function-retaining	retained	retained (partly or in full), e.g.: V <OBJ> → N <OBJ>

Quite often, a particular kind of nominalization allows optional retention of the verb's grammatical functions. In the case of agentive nominalizations in Gĩkũyũ (Bresnan and Mugane 2006), the derived nominal has two options for realizing its arguments: in (1.11), the same argument role can be either expressed as an object in a mixed category construction (when the noun retains the verb's selectional properties, 1.11a) or realized in a way typical of possessors of regular nouns (when the noun remaps the argument role onto a new grammatical function, the one available with regular non-derived nouns, 1.11b).

(1.11) a.   *mũ-thĩĩnj-i*   *mbũri*   *ũyũ*

1-slaughter-NMLZ   10.goat   1.DEM

'this goat slaughterer'; lit.: 'this slaughterer goats'

       b.   *mũ-in-i*   *ũyũ*   *w-a*   *nyĩmbo*

1-sing- NMLZ   1. DEM 1-ASSOC   10.song

'this singer of songs'

German infinitival nouns are another example of optional retention of the verb's object function, which corresponds to optional use of a mixed category construction. In German, nominalizations derived from the infinitival form of the verb can appear either in purely nominal or in mixed configurations. In the purely nominal construction, illustrated in (1.12a), the argument corresponding to the base verb's object is realized as a possessor function and appears as a genitive NP. Because of the construction's nominal syntax, it can also be modified by an adjective (1.12a), while adverbs are not allowed (1.12b).

(1.12) a.   das   häufige   Streicheln   kleiner   Katzen

                 the   frequent   pet.NMLZ   small.GEN.PL cats.GEN

                 'the frequent petting of small cats'   (Höhle 1985: 364)

      b.   *das   oft   Streicheln   kleiner   Katzen

                 the   often pet.NMLZ   small.GEN.PL cats.GEN

Instead of combining with a possessor, the same nominalization can retain the verb's selection of an object function. The object function is realized in a mixed category construction that combines the external distribution of a noun with an embedded structure of a VP: while taking an object, the nominalization is also modified by an adjective, as in (1.13a). Because of the construction's mixed syntax, it can also be modified by an adverb (1.13b).

(1.13) a.   das   häufige   kleine   Katzen   Streicheln

                 the   frequent   small.ACC.PL cats.ACC   pet.NMLZ

                 'the frequent petting [of] small cats' (Höhle 1985: 364)

      b.   Karl macht   sich   die Freude des   kleine   Katzen

                 K.   makes   himself the joy   the.GEN small.ACC.PL cats.ACC

                 oft   Streicheln-s

                 often   pet.NMLZ-GEN

                 'Karl allows himself the joy of petting small cats often' (Höhle 1985: 363)

The optional retention of the verb's selection of grammatical functions explains the cross-linguistically common pattern discussed in Yoon (1996): the same deverbal noun can be associated either with mixed or with regular nominal syntax. On the account presented here, such nouns can function either as a noun derived by a function-retaining nominalization or as a regular deverbal noun. In this sense, the variation in the syntax of German infinitival nouns is parallel to the variation discussed for Gĩkũyũ, and is an instance of the same typologically common phenomenon.

      To summarize, the account of category mixing adopted in this study relies on the interaction between a word's lexical selectional properties (which may be partly

determined by derivational rules) and constraints on phrase structure configurations in which the word may appear. On the one hand, the lexical entry encodes the set of abstract grammatical relations (such as subject and object) associated with a given word (each corresponds to a particular argument role). On the other, the realization of the grammatical relations has to conform to the language-specific constraints on syntactic configurations. On this view, the syntax constrains the expression of abstract relations that the word "seeks" to express. Although the two types of information interact in determining the realization of argument roles, they cannot be reduced to one level of representation, as they are logically independent and often dissociated. In the case studies that follow, I show that this view of syntax makes it possible to account for certain patterns that are otherwise left unexplained. In Chapters 2 and 3, I present two case studies in nominalization that are problematic for most alternative theories of category mixing, and in particular, for theories providing no way of referring to grammatical functions independently of the way they are expressed. In Chapter 4, I summarize the crucial properties of the proposed account and address some further issues.

Chapter 2. Ineffable arguments: Nominalized infinitives in Romance

2.1.   A puzzling pattern

2.1.1. Introduction

As I discussed in the previous chapter, nominalizations vary in the amount of lexical information they share with the corresponding verb. Some nominalizations (which may be defined, following Grimshaw 1990, as complex event nominals; see Chapter 1, section 3.1) retain the verb's argument selection, i.e. select for the same participant roles as the ones associated with the verb. A subset of such role-preserving nominalizations can also retain the verb's selection of grammatical functions, i.e. require that the argument roles be expressed in a particular way. In my presentation in the previous chapter, I postponed providing independent motivation for the distinction between the two kinds of lexical information – argument structure, on the one hand, and selection of grammatical relations, on the other. If, however, no theory-independent motivation is given for such a distinction, the same phenomena could be alternatively described in terms of some sort of a structured representation of argument structure alone, with no reference to abstract grammatical relations (cf., e.g., Williams 1981).

In particular, semantic participant roles selected by verbs and nominalizations could be assumed to be projected directly into the syntax and expressed in whatever structural positions are available for them with nouns and with verbs. Even though some deverbal nouns share their argument structure with their base verb (as suggested, e.g., in Chomsky 1970), the same arguments will be expressed in different ways depending on the syntactic category of the head, since nouns and verbs are associated with different kinds of projections (nominal and verbal, respectively).[15] Certain types of nominalization, however, can project a "mixed" structure and express their

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[15] Within transformational models of syntax, this way of explaining the common properties of verbs and deverbal nouns is often taken to be an "a priori null hypothesis" (see, e.g., Giorgi and Longobardi 1991: 3-4).

arguments in a way that is typical of arguments of verbs, rather than of nouns. In other words, on this alternative, "argument projecting" view, mixed nominalizations would differ from regular nouns in the range of syntactic options available for the expression of their arguments: apart from realization normally licensed with nouns (such as in *of*-phrases in English), they would include realization options found exclusively in verbal constructions (and requiring a verbal projection).[16]

In this chapter, I argue against this alternative view of mixed nominalizations and provide further empirical support for a distinction between retention of argument structure (understood as the set of participant roles), on the one hand, and retention of grammatical functions, on the other. I claim, in particular, that the difference between regular and mixed nominalizations cannot be derived solely from a difference in projections, i.e. a difference in the syntactic structures associated with them; rather, it has to be encoded in the lexicon as a difference in their associated grammatical functions.

The crucial evidence comes from the behavior of nominalized infinitives in Italian and some other Romance languages. In a number of Romance languages, infinitival forms can be used in nominal environments in combination with an article. In Italian, for example, they are typically introduced by the definite article *il/lo*, by demonstratives *questo*, *quel/quello*, and sometimes by the indefinite article *un/uno* (Skytte, Salvi, and Manzini 1991: 559-560, 562). Such infinitival forms have a nominal distribution: they appear in nominal positions like regular noun phrases.[17]

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[16] This explanation has to rely on some version of morphological derivation in syntax, since the difference in the range of syntactic options available to arguments of different kinds of nominalization has to depend on the nominalization's morphological type. The inherent limitation of this approach was already discussed in the previous chapter; since my aim in this chapter is the assessment of the same kind of approach on independent grounds, I will not take that argument into account.

[17] The construction is attested in the majority of Romance languages, including Old French (Schaefer 1910; Togebey 1957), and most likely has its roots in late Latin (Wölfflin 1886; Schaefer 1910; Vanvolsem 1983: 11-24).

Constructions with such forms fall into two major classes that differ with respect to the category of the head and, accordingly, with respect to the construction's internal structure. The two types can be roughly characterized as infinitival and nominal, as the head functions as a non-finite form of the verb in one but as a deverbal noun (a lexically nominalized infinitive) in the other. I briefly review the properties of the infinitival construction before discussing the behavior of nominalized infinitives, which is the major concern of this chapter.

2.1.2. Infinitival constructions

Romance infinitives are allowed to combine with an object and be modified by an adverb within a mixed category construction, as illustrated in (2.1). As I already mentioned above, the construction as a whole behaves as a DP.

(2.1) il   suo   scrivere   quella lettera improvvisamente

the   his/her write.INF   that   letter   suddenly

'his/her suddenly writing that letter' (Zucchi 1993: 54)

In this mixed category construction all elements following the infinitival form behave as if the head were a verb, while all elements preceding the infinitival form are consistent with the head being a noun. In particular, the infinitival form can take an object and be modified by an adverb while at the same time it is preceded by a possessive pronoun, as in (2.1), or by an adjective, with or without a possessive pronoun, cf. (2.2).

(2.2) il   suo   continuo   eseguire   la canzone   impeccabilmente

the   his/her continual   perform.INF   the song   impeccably

'his/her continually performing the song impeccably' (Zucchi 1993: 55)

The structure of the mixed category construction is represented in (2.3), where the infinitival form introduces a VP structure but all higher nodes are nominal, hence the preceding adjectives. The unusual combination of verbal and nominal projections is licensed by phrase structure constraints of the language, which allow a non-finite VP

to function as an intermediate nominal projection (N') in the mixed category construction.

(2.3)

```
                    DP
          ┌──────────┴──────────┐
          D                     N'
          │          ┌──────────┴──────────┐
          il         A                     N'
                     │          ┌──────────┴──────────┐
                    suo         A                     N'
                                │                     │
                             continuo                 VP
                                              ┌───────┴───────┐
                                     eseguire la canzone impeccabilmente
```
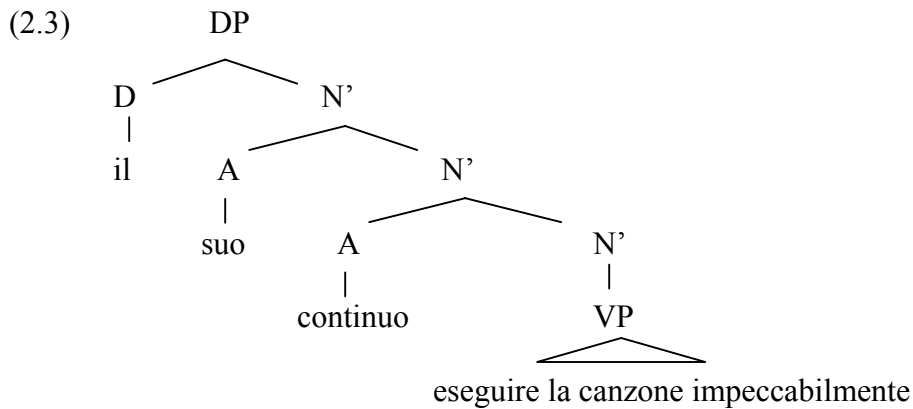
In (2.3), the infinitival form is assumed to function as a head of a VP, which is dominated by a nominal projection (the lexical head itself is analyzed as a verb, in spite of the construction's nominal distribution). As will become obvious later, the construction is somewhat similar to constructions with English gerunds, which are also headed by verb forms but at the same time function as DPs.

　　　　Another type of mixed structure involving an infinitival form (which is not directly relevant for the purposes of this study), is a construction where the infinitive is followed by an overt nominative subject, as in (2.4a,b). (This construction is also reminiscent of the gerund construction in English, in particular, the use of the gerund with an accusative subject.)

(2.4)　a.　l'　　avere　　　egli　scritto　　　quella　lettera
　　　　　　the　　have.INF　　he　　written　　　that　　letter
　　　　　　'him having written that letter'　　　(Zucchi 1993: 227)

　　　b.　l'　essere　　egli　a corto di　　denaro
　　　　　　the　be.INF　　he　　short　of　　money
　　　　　　'him being short of money'　　(Zucchi 1993: 228)

I assume, following Zucchi, that the mixed structure of (2.4a,b) differs in two respects from the mixed construction in (2.3). First of all, an IP, rather than a VP, is embedded under a nominal structure; and secondly, the IP is embedded directly under a DP, without an intermediate N-bar level (see 2.5). The former property accounts for the

35

presence of a nominative subject along with the accusative object; the latter explains why the infinitives in (2.4a,b), unlike the infinitive in (2.3), cannot be modified by adjectives (see the discussion of the difference in Zucchi 1993: 230-2).[18]

(2.5)

```
              DP
          ___/ \___
       D           IP
       |          /  \
       l'     avere egli scritto quella lettera
```
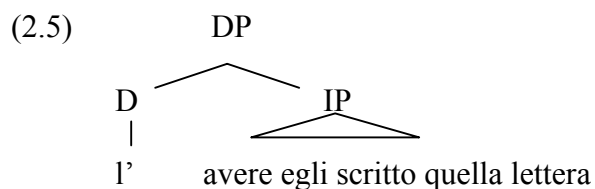
On the present analysis, the ability of infinitival clauses to project a nominal structure is licensed by language-specific constraints on phrase structure (VPs can be dominated by N', and IPs can be dominated by a DP), and hence no covert nominalizing morphology needs to be postulated (cf. the discussion of the English gerund in Chapter 5). Other examples of nominalization licensed by phrase structure rules without category-changing affixation will be mentioned in subsequent chapters.

An alternative analysis of the same construction would represent the infinitival form as a nominal co-head of the VP, derived by a null nominalizing affix or by conversion (cf., e.g., the analysis implied in Bresnan 1997). Although I am unaware of any *incontrovertible* evidence in support of the one or the other version of the analysis for Italian (but see the discussion of (2.7b) below), my choice of the "infinitival" rather than the "nominal" version is supported primarily by evidence from Spanish. First of all, just like the English gerund, the infinitival form in Spanish combines with the verbal negation marker *no* when used in the mixed construction; this negation

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[18] I assume, for the purposes of the present discussion, that Italian has two subject positions, one preceding and one following the verb. The former can be analyzed as a grammaticalized discourse function (topic), which accounts for the SVO word order of finite clauses. The latter is not associated with any discourse function, which accounts for the VSO word order of nominalized infinitival clauses. This is just one possible analysis of the word order difference between finite and nominalized infinitival clauses; a more detailed analysis of the syntax of this construction goes beyond the scope of this chapter, which deals primarily with lexical nominalizations, not with infinitives or nominalized clauses.

marker is found with verbs but not with deverbal nouns used in regular nominal constructions (Plann 1981: 225; the regular nominal construction is discussed in detail later in the chapter; see 2.6-2.7 for examples). Similar facts are reported for Italian in Pérez Vázquez (1999: 159, 162).

Secondly, according to Yoon (1996: 334), Spanish infinitival forms can take nominal plural markers when nominalized (and used as regular nouns) but not when used in a mixed category construction, suggesting that in constructions analogous to (2.3) they behave like verbs morphologically. On the other hand, evidence from plural marking alone is hardly sufficient for establishing the categorial status of the form, since the lack of plural marking could be due to semantic reasons (cf. the semantically motivated lack of the plural with mass nouns or on generic readings). Thus, Zucchi (1993) argues for a semantic difference between Italian infinitival forms used with mixed syntax and their nominalized counterparts that are used nominally: according to his argument, the former denote proposition-like entities, while the latter denote events. Similarly, Hernanz Carbó (1982: 481-3) discussed quite substantial and apparently semantic restrictions on pluralization of Spanish nominalized infinitives even in unambiguously nominal environments. (In addition, the infinitives need not of course have exactly the same syntax in Italian and in Spanish.) In any case, while either characterization of the mixed category construction in (2.3) would be compatible with the present analysis, treating its head as a verb seems to account better for the difference between that construction and regular NPs to which I now turn (as well as for evidence from negation).

2.1.3. Nominal constructions

Besides being used in mixed category constructions that have a nominal distribution, infinitival forms can be nominalized lexically. The corresponding deverbal nouns (nominalized infinitives) appear in purely nominal constructions, where they can co-occur with genitive *di*-phrases and be followed, as well as preceded, by adjectives (2.6a,b). (The difference between deverbal nouns and infinitives is reflected in the gloss: what appears to be the same form is glossed as INF in the case of the infinitival

construction, as in the previous section, but as NMLZ in the case of lexically nominalized infinitives, as in the examples below).

(2.6) a. il   suo   partire   improvviso
          the   his/her   depart.NMLZ   sudden
          'his sudden departure'   (Skytte, Salvi, and Manzini 1991: 563)

      b. il   mormorare   sommesso   del   mare
          the   whisper.NMLZ subdued   of.the sea
          'the soft whispering of the sea'   (Zucchi 1993: 222)

Such forms function essentially as deverbal nouns and do not preserve any verbal syntactic characteristics. When used in a regular NP, nominalized infinitives cannot admit adverbs (2.7a) or take bare NPs as objects in the same way as verbs do (2.7b).

(2.7) a. lo scrivere   interminabile / *interminabilmente di   Sibilla
          the write.NMLZ   unending   unendingly   of   Sibilla
          'the unending writing of Sibilla'   (Zucchi 1993: 222)

      b. il   rievocare   (*la guerra)   degli   anziani
          the   recall.NMLZ   the war   of.the elders
          'the recollection (*of the war) by the elders' (Zucchi 1993: 223)

The purely nominal structure of examples with infinitival nouns is represented in (2.8). Unlike the mixed category construction in (2.3), this construction is headed by a lexically derived noun and does not include any verbal projections. Hence, no adverbial modification is allowed in (2.7a), and the noun cannot take objects in the same way as verbs do (2.7b).

(2.8)
```
                    DP
            _____|_____
           D               N'
           |           ____|____
           il        N         PP
                     |        /___\
                 rievocare  degli anziani
```
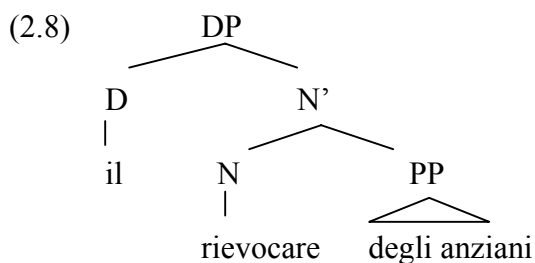
2.1.4. The crucial evidence

Given the data presented so far, the behavior of infinitival forms and their nominalized counterparts could be accounted for in terms of the argument projecting approach, without any reference to abstract grammatical functions. Infinitival forms can function as verbs (including the mixed category construction (2.3), in which they are embedded under a nominal projection) or be nominalized and as such function as nouns heading a regular NP (2.8). Accordingly, their arguments can be realized VP-internally, like objects of verbs (when the verbal projection is available), or in genitive *di*-phrases, as predicted with nouns (i.e. in nominal projections). However, a closer inspection of argument realization in the nominal construction in (2.8) reveals a pattern that cannot be explained on the argument-projecting view.

How does the nominal construction in (2.8) realize argument roles corresponding to objects of the base verbs? In (2.6b) and (2.7a,b), the roles corresponding to subjects of verbs are realized as *di*-phrases. It would be natural to expect that roles corresponding to objects should be realized in the same way, especially on the assumption that argument realization is determined exclusively by the set of available syntactic options. Surprisingly, however, *di*-phrases cannot be used to express such argument roles with nominalized infinitives.

(2.9) a.   * il   recitare   della   poesia

                the   recite.NMLZ   of.the poem   (Zucchi 1993: 237)

       b.   * l'   esporre   del   libro   al   pubblico

                the expose.NMLZ of.the book   to.the public (Skytte et al. 1991: 560)

The ungrammaticality of the examples in (2.9) is puzzling, since the same argument roles can be realized in a *di*-phrase with a different kind of nominalization, which does not involve a nominalized infinitive. This is illustrated in (2.10) with deverbal nouns in *-zione*, which are derived by a nominalizing suffix.

(2.10) a.   la   recitazione   della   poesia

                the   recitation   of.the poetry (Zucchi 1993: 237)

       b.   l' esposizione del   libro   al   pubblico

                the exhibition of.the book   to.the public (Skytte et al. 1991: 560)

The examples in (2.10) demonstrate that the ungrammaticality of (2.9) cannot be due to a semantic constraint on the mapping of certain kinds of argument roles onto *di*-phrases, since participants with the same role can be expressed in a *di*-phrase with other kinds of nominalization. Similarly, this restriction cannot be explained in any obvious way by a purely syntactic constraint on the use of *di*-phrases. In the following examples, as in (2.6b) and (2.7a,b), a nominalized infinitive combines with a *di*-phrase when that *di*-phrase does not refer to the argument corresponding to the verb's object (see also Gaeta 2004: 321).[19]

(2.11) a.　il　　solenne　tuonare　　　　　della　　sua　　voce

the　solemn　thunder.NMLZ　　of.the　　his/her　voice

'the solemn thundering of his voice'　(Skytte et al. 1991: 561)

b.　il　　recitare　　di Gianni

the　recite.NMLZ　of Gianni

'Gianni's reciting'　(Zucchi 1993: 237)

Finally, the restriction cannot be due to the fact that with nominalized infinitives, the *di*-phrase is somehow "reserved" for the expression of the most prominent argument role, i.e. the role corresponding to the verb's subject. The examples in (2.12a,b) show that more than one *di*-phrase can combine with the same noun, and the subject participant can also be introduced in an alternative way, by *da parte di* 'on the part of'.

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[19] In (2.11b), the noun derived from a transitive verb apparently does not retain all of the verb's arguments, hence the absence of overt specification of the argument corresponding to the verb's object, cf. a similar situation in (2.7b). The fact that some nominalized infinitives are not required to fully retain the verb's argument structure is apparently due to the availability of what Grimshaw (1990) calls simple event or result reading, which does not have to retain all of the verb's argument roles. The ambiguity between an (argument-retaining) complex event reading, on the one hand, and a simple event or result reading, on the other, characterizes other types of Italian action nominalization (Gaeta 2004: 314-6).

In light of this evidence, there is no obvious reason why both arguments could not be similarly expressed with nominalized infinitives.

(2.12) a.
La	descrizione	di Maria di Gianni / da parte di	Gianni
the	description	of Maria of Gianni on part of	Gianni

è   troppo   lusinghiera
is   too   flattering
'Gianni's description of Maria is too flattering'   (Giorgi 2001: 293)

b.   L' attesa di Maria di Gianni / da parte di Gianni è durata tre   ore
the wait   of Maria of Gianni   on part of Gianni   lasted   three   hours
'Gianni's waiting for Maria lasted three hours.'   (Giorgi 2001: 293)

The restriction on the expression of certain arguments in the nominal construction with nominalized infinitives seems puzzling on accounts that make no reference to grammatical relations. If nominalized infinitives inherit the argument structure of verbs, why can't the arguments be expressed in the nominal construction, just as with other kinds of deverbal nouns? Theoretically, any argument realization option that is available to a regular noun should be available to a nominalized infinitive as well; yet, for some unexplained reason, nominalized infinitive do not allow the expression of argument roles that correspond to the verb's object.[20]

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[20] Cf. Zucchi (1993: 237): "But I don't have any principled account of why only intransitive verbs are allowed to undergo infinitival nominalization" (here, "infinitival nominalization" refers to the derivation of nouns that are used in regular NPs). More precisely, only verbs that do not require an object can undergo lexical nominalization. There is a small class of apparent exceptions to this generalization, which seem to be due to lexicalization of some forms as regular nouns that are no longer perceived as derived from verbs by a productive rule (and are somewhat similar to the deverbal nouns in -*zione* in this respect). Such nouns need not retain the verb's argument structure and can therefore appear without the argument corresponding to the verb's object.

A similar restriction on realization of certain arguments of nominalized infinitives is attested in Catalan (Alsina 1996) and, to some extent, in Spanish (Plann 1981; Ramírez 2003; Pérez Vázquez 1999). In Catalan, participants corresponding to objects of verbs cannot be expressed in the nominal construction in (2.13), where the nominalized infinitive is followed by an adjective.[21]

(2.13) *el despullar   de les nimfes   sorollós   (per part del   centaure)

        the undress.NMLZ   of the nymphs noisy   (on part of.the   centaur)

        'the noisy undressing of the nymphs (by the centaur)'   (Alsina 1996: 90)

As in Italian, the same argument roles can be expressed by genitive prepositional phrases with other deverbal nouns, cf. (2.14a). Moreover, more than one genitive PP can modify a single deverbal noun, as in (2.14b), suggesting again that the restriction cannot be due to a lack of an appropriate syntactic configuration, such as a syntactic constraint on modification of the same nominal head by more than one genitive PP.

(2.14) a.   la transcripció   d'un text medieval   per part d'en Joan

              'the transcription of a medieval text on the part of Joan'

              (Picallo 1991: 289)

       b.   la transcripció   d'en Joan   d'un text medieval

              'the transcription of   Joan   of a medieval text'   (Picallo 1991: 289)

Furthermore, Picallo (1991: 289-290) argues for Catalan that deverbal nouns of the *transcripció* type with overtly expressed arguments can have either the event/process or the result reading; these correspond to Grimshaw's (1990) *complex event* and *simple event/result* readings, respectively. The difference between nominalized infinitives and other kinds of nominalization is therefore independent of possible differences in their interpretation, and cannot be explained by a difference in the set of inherited argument roles.

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[21] Cf. Alsina (1996: 90): "a transitive verb, with an obligatory object, cannot be nominalized in Romance, because its object argument is obligatory but cannot be expressed in the nominalized form."

In Spanish, there is a similar puzzling restriction on the expression of certain participants in nominal constructions with nominalized infinitives. As in Catalan and Italian, the ineffable participant roles correspond exactly to argument roles realized as objects with verbs, and the restriction only applies to nominalized infinitives but not to other kinds of nominalization (Pérez Vázquez 1999; Ramírez 2003: 129).[22]

(2.15) a.   * el   declamar   de la poesía

               the   recite.NMLZ   of the poem

               'the reciting of the poem'

        b.   la   declamación de la   poesía

              the   recitation   of the poem

Such examples are again problematic for the argument-projecting approach, which assumes that an argument present in the word's argument structure is projected directly into the syntax. As stated by Ramírez (2003: 129), "[t]here is no principled account <…> of why nominal infinitives are limited in their capacity to project an argument structure, with the exception of the PP with the subject function."

In sum, in Italian, Catalan, and Spanish argument realization with nominalized infinitives is subject to additional restrictions as compared to other kinds of nominalization. Certain argument roles, more precisely, those corresponding to objects

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[22] This statement is in apparent contradiction with the example discussed in Yoon and Bonet-Farran (1991: 354, 362): *el tocar de la guitarra de María* 'Maria's playing the guitar'. It is possible that speakers vary in their acceptance of such examples; note that constructions with *de*-phrases apparently were in wider use until relatively recently and some speakers remark on their "literary flavor". It seems likely, however, that the example actually involves an intransitive infinitive, with only one *de*-phrase, which itself contains a possessive NP and corresponds to the subject of the intransitive verb ('the playing of Maria's guitar'). In addition, as I already mentioned for Italian, some apparent individual exceptions to the restriction on nominalization of transitive infinitives are due to lexicalization of certain nominalized infinitives and the consequent loss of their connection with the verb.

of verbs, cannot be realized outside of the VP. Unlike with other deverbal nouns, they cannot in general be expressed in possessive PPs with nominalized infinitives. This restriction is unexplained on the assumption that realization of arguments is determined by the range of options provided by the syntactic structure. Since nominalized infinitives are used in constructions with regular nominal syntax, i.e. they project regular nominal structures, they are expected to have the same range of syntactic options for the expression of their arguments as other kinds of nominalization. In other words, accounts lacking the notion of grammatical relation, and in particular, accounts projecting argument structure directly into the syntax, offer no explanation for this pattern, since nominalized infinitives, which can function as regular nouns syntactically, are predicted to be able to project their arguments in the same way as other kinds of deverbal nouns.

On the other hand, an analysis referring to the abstract grammatical relation of "object" not only handles the puzzling restriction, but actually predicts such patterns to be found in some languages or at certain points of historical development. As I show in the next section, the Italian pattern of category mixing receives a straightforward explanation once abstract grammatical functions selected by a word are represented independently of constraints on phrase structure configurations.

2.2.   An explanation and further evidence

To explain the difference in argument realization with nominalized infinitives and other kinds of deverbal nouns, reference should be made not to the set of available syntactic options for argument expression (which do not differ in the two cases in any relevant respect), but rather to the set of abstract grammatical relations associated with the noun. As described in Chapter 1, the set of grammatical relations associated with a deverbal noun is partly constrained by individual properties of nominalization: the selectional properties of the verb may be retained with some types of nominalization but not with others. I distinguished between two major kinds of nominalization: *regular*, which may retain the verb's argument structure but not the way arguments are expressed, and *function-retaining*, which not only retains the verb's argument

44

structure but also requires that the arguments be realized according to the grammatical relation they were assigned with the verb (cf. 1.10). This difference explains the contrasting behavior of nominalized infinitives and other nominalizations in Italian.

In Italian and other Romance languages, the major argument function associated with regular nouns is an oblique function (OBL$_{di}$) that is realized as a PP introduced by the possessive preposition.[23] Regular deverbal nouns of the *recitazione* type may retain the argument structure of the corresponding verb but never retain any grammatical functions selected by the verb. As a result, argument roles are mapped onto grammatical functions that are commonly associated with nouns (*di*-obliques), independently of the way they were treated with verbs. Consequently, such nouns are not restricted in the expression of argument roles corresponding to objects of verbs.

The situation is different with nominalized infinitives, which not only preserve the verb's argument roles but also partly retain the verb's selection of grammatical functions. In particular, the derivation of nominalized infinitives requires the retention of object functions selected by transitive verbs. As a result, nominalized infinitives cannot realize argument roles corresponding to objects of verbs in a possessive PP, since such PPs realize a different kind of grammatical relation (an oblique function, but not an object). The restriction on the expression of certain arguments with nominalized infinitives follows from the fact that constraints on phrase structure do not allow an object function to be expressed outside of a VP;[24] hence, object functions are ineffable, or inexpressible within the nominal construction.

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[23] I assume that a different function (possessor) is available for pronominal arguments. Just like the oblique function, possessors cannot realize arguments corresponding to objects of verbs; this follows directly from my explanation of the restriction on the expression of such arguments in oblique functions, so I do not specifically address this issue.

[24] This restriction follows directly from the relational theory of syntactic categories, which relates phrase structure categories, such as N and V, to specific restrictions on the encoding of certain grammatical functions (Jackendoff 1977: 31-3; Bresnan 1982:

The difference between nominalized infinitives and regular nominalizations is summarized in (2.16), where selection of grammatical functions is treated separately from the syntactic realization of those functions.

(2.16) Properties of nominalized infinitives and other kinds of nominalization in Italian

Nominalization type	Selection of grammatical functions	Realization of grammatical functions
regular (the *recitazione* type)	object not retained; argument roles mapped onto oblique functions associated with nouns, e.g.: N <OBL*di*>	oblique functions are realized as PPs within a nominal structure
function-retaining (nominalized infinitives)	the verb's object function retained: N <OBJ>	object function cannot be realized outside of a VP and remains ineffable

The analysis of nominalized infinitives as nominalizations retaining the verb's object grammatical function is further supported by the behavior of clitics. In Italian, Catalan, and Spanish infinitives of reflexive verbs can be used with nominal syntax.

(2.17) a.   Italian (Zucchi 1993: 245, citing Grimshaw and Selkirk 1976):

    il   rader-si   di Piero

    the   shave.NMLZ-REFL   of Piero

        b.   Catalan (Alsina 1996: 91):

    el   despullar-se   sorollós   de les nimfes

    the   undress.NMLZ-REFL   noisy   of the nymphs

    'the noisy undressing of the nymphs'

300-2). Thus, only the "transitive" categories V and P, but not the "intransitive" N or A, can take object NP complements.

c.   Spanish (Ramírez 2003: 132, citing Grimshaw and Selkirk 1976):

        el   afeitar-se   de Juan

        the   shave.NMLZ-REFL   of Juan

Unlike an object NP with a transitive verb, the reflexive clitic does not prohibit nominalization, since it functions as a valence-reducing marker and eliminates the object function from the set of argument functions associated with the verb (see Alsina 1996: 81-114; also Grimshaw 1982a for French). The structure of examples with a reflexive nominalized infinitive can be represented as follows.[25]

(2.18)

              DP

   D   N'

   |

   il   N   PP

      N   Cl   di Piero

      | |

    rader   -si
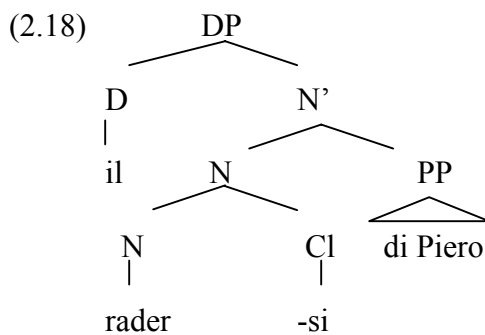
The function of the reflexive clitic is to bind two arguments in the argument structure, which can then be expressed by the same grammatical function – the subject when the host is a verb or an oblique function when the host is a nominalized infinitive. In this

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[25] I assume that in Italian, clitics differ from regular affixes in being "post-lexical", and in particular, that they are zero-level adjoined to their hosts. This treatment, represented in (2.18) and (2.20), is consistent with the representation of Romance pronominal clitics in sentence structure in Grimshaw (1982a,b), Bresnan (2001: 147-148), Dalrymple (2001: 79-81), Alsina (1996: 238). It is also supported by the variable position of object and reflexive clitics with respect to their host (they follow infinitives but precede finite verbs) and by phonological evidence suggesting that the clitics and their host do not form a phonological word (Peperkamp 1996, Gerlach 2002 for a summary; but cf. Monachesi 1996, 1998). Thus, for example, the initial of the reflexive clitic does not undergo intervocalic devoicing in northern varieties of Italian, and the presence of object and reflexive clitics does not affect the stress pattern of the verb.

sense, reflexivization is a lexical operation that reduces the valence of a transitive verb, and the reflexive verb behaves as an intransitive verb in all relevant respects (see Alsina 1996 for details and further evidence for a-structure binding; also Sells, Zaenen and Zec 1987 for a comprehensive overview of cross-linguistic variation in the behavior of reflexives). As a result of this lexical operation, the argument corresponding to the object of the transitive verb need not correspond to an object function with a reflexive verb (instead, it is mapped onto the subject function). Accordingly, it also need not be expressed as an object function with a nominalized version of the reflexive verb (the verb has no object function that could be retained), hence the acceptability of reflexive nominalized infinitives in nominal constructions, where the clitic functions as a structural (zero-level adjoined) co-head of the nominalized infinitive, but not as an expression of its object function.

On the other hand, the presence of pronominal clitics, unlike the reflexive clitic, blocks nominalization of an infinitive, since pronominal clitics overtly express an object function. As nominalized infinitives require the verb's object function to be retained, and that function can only be realized in a verbal construction, pronominal clitics are not allowed within regular NPs, as in (2.19) from Catalan (see Zucchi 1993: 245; Skytte, Salvi, and Manzini 1991: 564 for Italian; Ramírez 2003: 131, Pérez Vázquez 1999: 158, de Miguel 1996: 35 for Spanish).

(2.19) Catalan (Alsina 1996: 92):

?* La llebre va intuir el mirar-la fix del caçador
   the hare PAST sense the look.NMLZ-it.ACC fixed of.the hunter
   'the hare felt the fixed looking at him of the hunter'

The unacceptability of a pronominal clitic in the nominal construction is explained by a phrase structure constraint that does not allow nouns to combine with objects, even as zero-adjoined clitics. In other words, the configuration in (2.20a), where an object clitic combines with a noun, is apparently not allowed in Romance. Due to the lack of this construction, pronominal object clitics can only be licensed by verbal hosts, as in

(2.20b), but not by nouns, be it a regular noun or a nominalized infinitive (see footnote 24).[26]

(2.20)　　a.　　* N　　　　　　　　　　b.　　　　V

```
      * N                              V
     /   \                           /    \
    N    Cl_OBJ                     V     Cl_OBJ
    |     |                         |      |
  mirar  -la                      mirar   -la
```
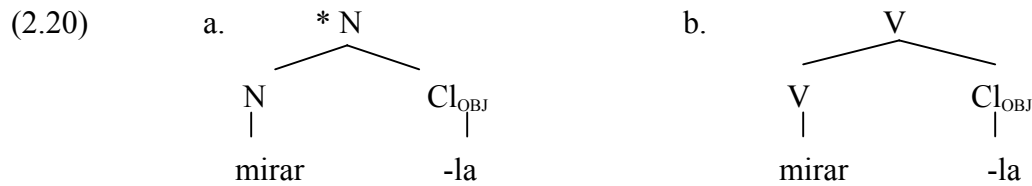
As a result, pronominal object clitics can only appear in infinitival DP constructions, but not with nominalized infinitives; hence, the unacceptability of (2.19), where the form is unambiguously nominal, as it is modified by a postposed adjective and a genitive PP (see the structure in 2.21).

(2.21)

```
                    *N'
                   /    \
                 N'      PP_OBL
                /  \      /\
               V    A   del caçador
              / \   |
             V  Cl_OBJ fix
             |   |
           mirar -la
```
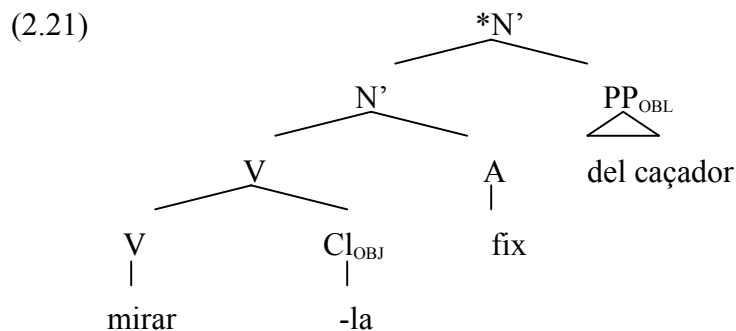
The difference in acceptability of pronominal and reflexive clitics with nominalized infinitives is explained by the function-retaining properties of infinitival nominalization. Pronominal clitics are ruled out by phrase structure constraints (2.20a) that do not allow nouns to combine with an object (just as they do not allow nouns to combine with a bare lexical NP expressing an object function). Reflexive clitics, on the other hand, do not themselves introduce an object, and are therefore not affected by the same phrase structure constraint. Rather, reflexive clitics serve as valence-reducing markers that bind two arguments in the argument structure of their host, intransitivizing it. They function syntactically as co-heads of their hosts and can adjoin

---

[26] The similar behavior of object pronominal elements and lexical objects with respect to nominalization of infinitives supports their treatment as clitics occupying their own position in the syntactic structure rather than lexical affixes; additional arguments for this view were summarized in the previous footnote.

to both nouns and verbs (provided that the noun or the verb has the relevant type of argument structure). Their compatibility with nominalized infinitives supports the idea that whether a noun can be derived from an infinitive depends on whether the verb selects for an object function.

The analysis is consistent with Alsina's (1996: 241-9) observation that the same constraint on nominalization of infinitives holds for object pronominal clitics and for independent forms of the reflexive pronoun, but not for reflexive clitics. While reflexive clitics reduce the valence of the verb, turning a transitive verb that selects for an object function into an intransitive one, independent forms of the reflexive pronoun, just like the object clitics or lexical NPs, contribute their own value for the object function (in this sense, independent reflexive pronouns function as syntactic anaphors). This is demonstrated for Italian in (2.22), where the independent reflexive is ruled out in the nominal construction (cf. 2.17a).

(2.22) Italian:[27]

* il	radere	se stesso	di	Piero
the	shave.NMLZ	himself	of	Piero

'Piero's shaving himself'

A similar restriction is found, according to Alsina (1996: 248-9), in Catalan and Spanish, where the use of the independent reflexive, however, requires the use of the reflexive clitic. This complication is a consequence of the phenomenon of "clitic doubling" and does not affect the analysis. Essentially, in such languages, the reflexive clitic has two different functions and can be used either for valence reduction (as in 2.17b,c) or for the purposes of clitic doubling (as in 2.23 below); in the latter function, it does not intransitivize the predicate and thus the nominalization remains unacceptable (cf. 2.17b).

(2.23) Catalan (Alsina 1996: 248):

* <…> el	despullar-se	a si mateixes	sorollós	de les nimfes
the	undress.INF-REFL	themselves	noisy	of the nymphs

'<…> the noisy undressing of themselves by the nymphs'

---

[27] I thank Lino Mioni for his help with the Italian data.

2.3.   Summary

To summarize, in this chapter I have shown that besides being used as verbal heads in mixed category constructions (2.3, 2.5), Italian infinitives can be nominalized and as lexical nominalizations appear in purely nominal configurations; no mixed category construction can be headed by a nominalized infinitives. Nominalized infinitives exhibit a rather surprising property in not allowing the argument corresponding to the infinitive's object to be expressed, even though the same kind of argument can be realized as a possessor function with other kinds of lexical nominalization. My analysis of this unusual property of nominalized infinitives is based on the distinction between lexical selectional properties (nominalization requires retention of some of the verb's grammatical functions) and constraints on phrase structure (i.e. constraints on the expression of various grammatical functions within noun phrases and verb phrases). The distinction explains restrictions on the expression of argument roles corresponding to objects of verbs, which apply specifically to nominalized infinitives: the nominalized infinitives are required to retain a grammatical function (the object) that cannot be expressed within a nominal structure. As a result, infinitives that must take an object cannot be nominalized.

Crucially, the pattern of Romance category mixing remains unexplained on the argument-projecting view that makes no reference to abstract grammatical relations. The mixed properties of nominalized infinitives are manifested not in additional argument realization options available to them but rather in restrictions on the expression of certain arguments. In a sense, the mixing of verbal and nominal properties results in the *absence* of an expected construction, which is problematic for argument-projecting accounts.

The account based on the selection of abstract grammatical functions avoids this problem. Since selection of functions is determined by properties of derivational rules (or by regular lexical correspondences between a nominalization and the corresponding verb), and is not directly related to constraints on phrase structure, the account can handle the retention of functions independently of whether they are expressed overtly. In fact, the account predicts that sometimes, when constraints on

phrase structure do not license the expression of a particular grammatical relation within a nominal construction, a function-retaining nominalization may not be able to realize its arguments. In other words, the syntax of some languages is predicted not to allow the expression of functions that a nominalization "seeks" to express. The behavior of nominalized infinitives in Romance bears out this prediction.

Chapter 3. Category mixing without mixed syntax: Nominalization in Wan

3.1.   Introduction

In the previous chapter, I discussed an instance of category mixing that does not involve a specialized hybrid construction but is instead manifested in the ineffability of certain arguments of a function-retaining nominalization. I argued that patterns of this kind are problematic for a view of argument realization that makes no reference to abstract grammatical relations and assumes instead that argument structure is projected directly into the syntax, i.e. that the realization of arguments is determined primarily by the range of syntactic positions available for their expression. In this chapter, I discuss evidence of a slightly different kind that appears to be problematic not only for most instantiations of the argument-projecting approach, but also for lexicalist theories that rely on dual projections or postulate idiosyncratic constructions for certain morphological forms (see Chapter 1 for the general overview). In sum, the pattern I will present provides further support for a lexicalist theory of a particular kind, namely, for a theory that assumes partial independence of phrase structure constraints and lexical selectional properties, represented in terms of abstract grammatical functions.

The evidence to be discussed comes from the syntax of nominalizations in Wan, a Southeastern Mande language. Wan is spoken in a number of villages in central Côte d'Ivoire, in the districts of Kounahiri and Beoumi (for a brief characterization and a word list, see Ravenhill 1982). The material presented in this study was collected in Kounahiri and in Abidjan as part of a language documentation project (some other material collected as part of the same project is presented in Nikitina 2007b, 2008a, forthc.,a, forthc.,b). There are two dialects of Wan, Kenmu and Myanmu, which differ mostly in their vocabulary and, to my knowledge, are very close in their syntax. My discussion is based on data from Myanmu; the Kenmu data that I have in my collection is analogous to the Myanmu data and conforms to the same analysis.

Before addressing the issue of realization of arguments of deverbal nouns, I introduce the basic properties of Wan sentence structure that are directly relevant for the discussion of a nominalization's syntactic properties. In particular, I show that Wan differs from more familiar Indo-European languages in its treatment of PPs, in a way that is by itself problematic for certain versions of argument-projecting theories of syntax (section 2). I then discuss the major differences between regular nouns and nominalizations, arguing that such differences cannot be explained solely in terms of phrase structure (section 3). An explanation should rely on the lexical component of category mixing, and in particular, on the selection of abstract grammatical relations, which interacts with, but is independent of phrase structure constraints (section 4).

3.2.   Basic facts about the syntax of nouns and verbs

3.2.1.   The syntax of verbs

In terms of traditional word order typology, Wan is an SOVX language. Objects are placed before the verb, while all other arguments and adjuncts follow it, as in (3.1).

(3.1)   S   O   V   [PP   ]

      è   *klɛ́nɛ̰̏* *tálā* *bɔ̀lè* *mù*   *klā*

      3SG.SBJ   stone   threw bird   PL   behind/after

      'He threw stones at birds.'

The SOVX word order pattern, which is rather unusual from the typological point of view, is due to an extremely reduced structure of the constituent headed by the verb (Nikitina forthc.,b). In Wan, verb phrases consist of a verb and a single complement, which can be an object NP or an infinitival complement (referred to as XCOMP in the structure below), depending on the verb. No other complement of the verb can appear in the same VP.

(3.2)   The structure of the verb phrase in Wan

                               VP

                       ╱‾‾‾‾‾‾╲

   NP_OBJ | VP_XCOMP   V
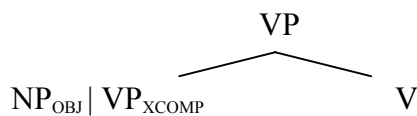
Transitive verbs and their objects or infinitival complements clearly form a syntactic constituent and invariably appear next to each other, in fixed order. All other arguments of the verb, however, are excluded from the VP and appear in a position following the main verb of the sentence. Major evidence for this structure comes from embedded verbs, which are *always* separated both from their oblique arguments and adjuncts. Consider, for example, the sentences in (3.3)-(3.4). In (3.3), the verb *ságlà* 'start' selects for a subject and an infinitival complement; the latter precedes the verb just like an object NP. The head of the infinitival complement is a transitive verb (*ló* 'do'), preceded by its object (*yrē* 'work').

(3.3) *è*   [*yrē ló*]_{VP} *ságlā*

   3SG.SBJ   work do   started

   'He began to work.'

In (3.4), the verb *pà* 'be capable of' selects for a subject and an oblique argument; the oblique argument is an infinitival clause introduced by the postposition *lé* 'at' (the verb selects for the postposition in the same way as the verb *rely* selects for the preposition *on*; see Chapter 1, section 3.1). As in (3.3), the head of the infinitival clause is a transitive verb (*wò* 'make'), preceded by its object (*ú* 'wine').

(3.4) *è*   *pa-á*   [*ú wò*]_{VP} *lé*

   3SG.SBJ   be.capable   wine make POST

   'He knows how to make wine.' (Lit. 'He is capable of making wine.')

Now consider what happens when embedded verbs select not for an object, but for an oblique argument. In (3.5), the embedded verb is *kúnà̀* 'climb', which selects for a postpositional argument. Crucially, the postpositional argument does not appear next to the embedded verb, but obligatorily follows the main verb (*ságlà* 'start').

(3.5) a.   *è*   [*kúnà̀*]_{VP}   *ságlā*   [*yrē é   gó*]_{PP}

       3SG.SBJ   climb   started   tree DEF   in

       'She began to climb onto the tree.'

   b.   * *è*   *kúnà̀* [*yrē é   gó*]_{PP} *ságlā*

       3SG.SBJ   climb   tree DEF   in   started

Similarly, in (3.6), where the verb *wiá* 'enter', selecting for an oblique argument, is itself embedded in a postpositional phrase, the verb is obligatorily separated from its oblique argument by the postposition.

(3.6) a. *lā* *pa-á* [*wiá* *lé*]PP [*kú* *é* *wā*]PP

2SG be.capable enter POST house DEF under

'You can enter the house.'

b. * *lā* *pa-á* *wiá* [*kú* *é* *wā*]PP *lé*

2SG be.capable enter house DEF under POST

The behavior of postpositional arguments of embedded verbs suggests that in Wan, postpositional phrases cannot appear VP-internally. At the same time, they cannot be treated as independent bits of structure that follow a sentence without being attached to it. Evidence that PPs have a fixed position within the sentence structure comes from their interaction with sentence-final particles, such as negation markers. In Wan, negation is expressed by a marker in the sentence-final position, sometimes in combination with a negation suffix on the verb (note that this pattern is different from the one described for Central Mande in Creissels 1997b). Crucially, no PP can follow the negation marker; in (3.7), all PPs must appear before it.

(3.7) a. *lā* *pà-ŋ* [*wiá* *lé*]PP [*kú* *é* *wā*]PP *ɔ́*

2SG be.capable-NEG enter POST house DEF under NEG

'You cannot enter the house.'

b. * *lā* *pà-ŋ* *ɔ́* [*wiá* *lé*]PP [*kú* *é* *wā*]PP

2SG be.capable-NEG NEG enter POST house DEF under

c. * *lā* *pà-ŋ* [*wiá* *lé*]PP *ɔ́* [*kú* *é* *wā*]PP

2SG be.capable-NEG enter POST NEG house DEF under

Such examples provide evidence that postpositional phrases have their own fixed position in the hierarchical structure of the Wan sentence: they are external to the VP but attach lower than the CP. The position of PPs is captured in the structure in (3.8), where PPs selected by any verb in the sentence are adjoined at the level of IP. (With respect to their syntax, postpositional adjuncts and adverbs behave in the same way as postpositional arguments; they appear after the main verb independently of the

position of the verb they are associated with; neither can be negated independently of the verb.)

(3.8)   The position of PPs in Wan[28]

```
                            IP
              ┌──────────────┴──────────────┐
             IP                          PP GF* OBL | GF* ADJ
       ┌──────┴──────┐
   NP_SUBJ           I'
                     │
                     VP
               ┌──────┴──────┐
       NP_OBJ | VP_XCOMP      V
```
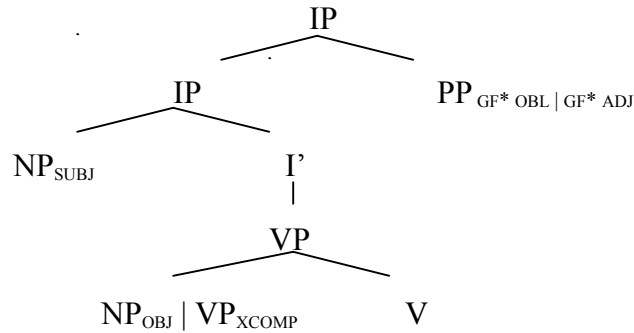
As shown in this structure, PPs appear in the same syntactic position independently of whether they are selected by the main or by an embedded verb. This flexibility in their interpretation is described by the functional annotation on the PP node (GF* OBL | GF* ADJ), which allows the PP to realize either an oblique or an adjunct function associated with a verb at any level of embedding (cf. the representation of functional uncertainty in the fully annotated structure in Appendix 2). In particular, the verb selecting for a PP may function as the infinitival complement of the main predicate (XCOMP), as in (3.5); in this case, the PP would realize an oblique function of an infinitival complement (XCOMP OBL, i.e. "infinitival complement's oblique"). The sentence structure corresponding to (3.5) is represented in (3.9), where the annotation on the PP indicates the grammatical relation it realizes (see Appendix 2 for a standard LFG-style representation).

---

[28] In (3.8), the finite verb appears VP-internally and follows its object. Evidence for an I' projection comes from sentences with specialized auxiliary-like tense/aspect markers. Such markers precede the lexical verb and its object, suggesting that the I' is left-headed and that finite verbs appear VP-internally.

(3.9)   The structure of example (3.5a)

```
                              IP
                       _____/ _____
                     IP               PP XCOMP OBL
                 ___/ \___               /\
              NP SUBJ      I'          'in the tree'
                |          |
             3SG.SBJ       VP
                      ____/ \____
                   VP XCOMP       V
                      |           |
                      V        'started'
                      |
                   'climb'
```
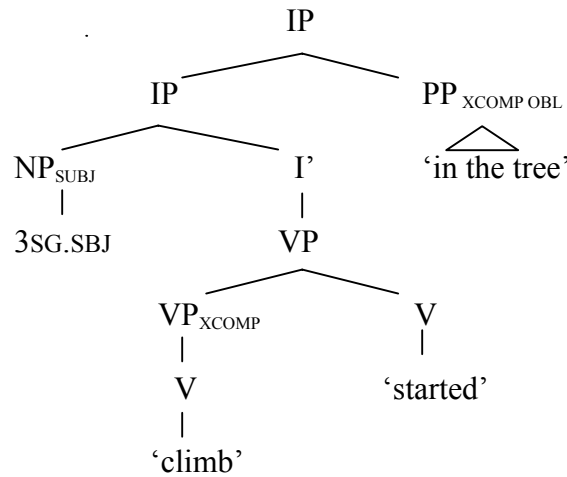
When the verb selecting for a PP is embedded in an oblique argument of the matrix verb, as in (3.6a), the PP realizes an oblique function of what is itself an oblique function of the main verb (OBL OBL, or "oblique function's oblique"). Similarly, the PP may realize an oblique function of a subject (when the verb selecting for the PP is embedded in the subject position), an adjunct function of an oblique argument, etc.

The structure in (3.8) imposes no constraints on the relative ordering of postpositional phrases, and the ordering is often flexible. There are, however, ordering regularities that sometimes seem to rule out particular ordering patterns. For example, there is a strong preference for the verb to precede its oblique argument; when a PP is selected by a verb that is itself embedded in a PP (as in 3.6a), the PP containing the verb is ordered before the PP that expresses the verb's argument. Similarly, a strong ordering preference is sometimes determined by relative length and complexity of the PPs.

Such additional constraints on the linear order of PPs are not captured in terms of syntactic structure in (3.8), which allows free reordering of all PPs. Instead, they seem to derive from general preferences on linear ordering that apparently have to do with processing considerations (cf. Hawkins 1999). Thus, a preference for introducing the verb before its PP arguments not only affects the relative ordering of PPs but also plays a role in determining which postpositional phrases can be topicalized: while postpositional adjuncts are commonly placed in the topic position in the beginning of

the sentence, PPs expressing a verb's arguments rarely, if ever, occur in this position (a similar restriction is discussed by Dumestre 1989a,b for Bamana, another Mande language).

The fact that all PPs must linearly precede the sentence-final particles follows from their syntactic position in (3.8). When the IP is embedded under a CP, the head of the CP must follow the postpositional phrases that are adjoined to the IP. The tree in (3.10) represents the structure of the negative sentence in (3.7a).

(3.10)   The structure of example (3.7a)

```
                                        CP
                                       /  \
                                     IP      C
                                    /  \      |
                                  IP    PP_OBL OBL   NEG
                                 /  \     'in the house'
                               IP    PP_OBL
                              /  \    'enter' POST
                          NP_SUBJ   I'
                             |       |
                            2SG     VP
                                     |
                                     V
                                     |
                              'be capable'-NEG
```
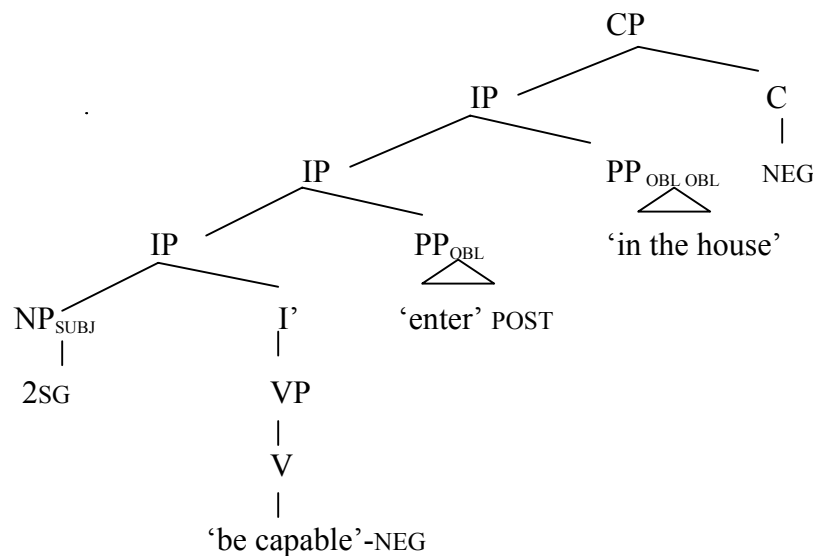
The fact that some arguments of a verb are realized outside of the VP is problematic for the common assumption that a verb's subcategorization pattern is configurationally represented at some level of syntactic structure (see, e.g., Chomsky 1981 and other work in this tradition). This assumption implies, in practice, that all arguments originate next to the verb that subcategorizes for them (where they are assigned their theta-roles) and undergo subsequent movement in order to be assigned Case. In Wan, however, oblique arguments are not only expressed outside of the VP where they are supposed to originate; they are also systematically separated from their verbs by all kinds of lexical material, including the main verb and other PPs. There is no obvious way in which an argument could move that far away from its verb in order to be adjoined to the IP, and there is no evidence that such movement indeed takes place.

The assumption that verbs and their postpositional arguments form a syntactic constituent is implicit in the analysis of Mahou (Central Mande) by Koopman (1984: 126-8), which is also adopted for Bamana (Koopman 1992) and is intended to account for the syntax of Mande languages in general (Koopman 1984: 127; also Travis 1989 on Kpelle). This analysis explains the SOVX word order of Mande in terms of an underlying SVO structure. In particular, verbs are assumed to assign their theta-role to the right but Case to the left, i.e. both object NPs and PP arguments are generated post-verbally, but object NPs move into the preverbal position in order to be assigned Case (cf. the representation in 3.11, based on Koopman 1984: 128).

(3.11) Movement-based analysis of SOVX word order

$$\text{VP} \quad [\text{V} \ [\text{NP}_i \ \text{V}]] \ [\text{NP}e]_i \ \text{PP}$$
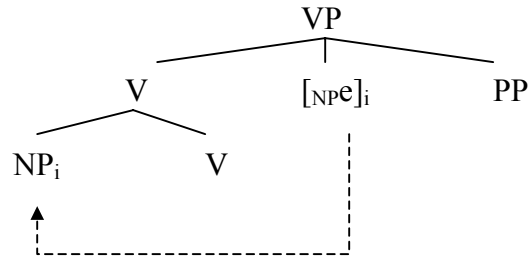
The evidence discussed in the previous section presents significant problems for the movement-based analysis of the SOVX word order. In Wan, postpositional phrases never appear next to a non-finite verb, suggesting that they cannot in principle be realized in a verb-phrase-internal position where they are supposed to originate. In addition, they are sometimes separated from their verb by a number of intervening elements, such as the main verb (cf. 3.5a) or other PPs (3.7a). The invariable position of all PPs in Wan is in general problematic for transformational theories of syntax, since it violates the assumption that arguments must be generated next to the verb that subcategorizes for them.[29]

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[29] Importantly, Mande languages do not seem to differ from languages like English with respect to lexical selection of oblique arguments. First of all, verbs do select for postpositional phrases, just like in English (cf., e.g., Diallo 1987: 79-80 for verbs that require a PP argument in Bamana). Secondly, the behavior of postpositional arguments differs from that of adjuncts with respect to processes like topicalization:

The pattern of obligatory non-local argument realization is also problematic for certain kinds of lexicalist non-transformational accounts. I will briefly illustrate this here by pointing out an important difference between the unusual property of the syntax of Wan and a relatively well-researched phenomenon in West Germanic that also seems to involve a non-local realization of arguments. Due to this fundamental difference, accounts that have been proposed for the latter do not extend to Mande.

The type of non-local argument realization that is superficially similar to the one found in Wan is illustrated in (3.12) from German. The example involves a sequence of verbs, and crucially, the noun phrase object (*das Examen* 'the exam') is separated from its verb (*bestehen* 'pass') by an auxiliary, as if it were the auxiliary that took an object. In this sense, the argument of the embedded verb is realized non-locally and appears higher up in the syntactic tree than expected.

(3.12) Ich   wußte, daß   er   **das Examen**   hat / würde   **bestehen**   können
       I   knew   that   he   the exam   has / would   pass   can
       'I knew that he could / would be able to pass the exam.'

Within the HPSG framework, this pattern is elegantly analyzed in terms of propagation of subcategorization information from infinitival complements of certain verbs to auxiliaries (Hinrichs and Nakazawa 1994, also 1989; Bouma 2003; cf. also an LFG account in Bresnan et al. 1982, Zaenen and Kaplan 1995). In essence, some matrix verbs, including the verb *können* 'can' in (3.12), are allowed to "raise" their complement's arguments. As a result of this raising, arguments selected for by embedded verbs (in 3.12, *bestehen* 'pass') appear on the argument list of the auxiliary, and, accordingly, are expressed next to it.

On the surface, the German example looks like an instance of the pattern found in Mande, where oblique arguments of embedded verbs appear as adjuncts to the IP, as if they were selected by the main verb, having been raised from the embedded verb.

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typically, only adjuncts, but not oblique arguments, can be topicalized (for Bamana, see Dumestre 1989a,b). These two properties suggest that postpositional phrases cannot be dismissed as non-arguments.

It would seem natural to try to extend this lexicalist account of "non-local argument realization" in German to the sentence structure of Mande. Yet, this account would run into two major problems.

One problem concerns the particular HPSG account proposed for the non-local arguments in Germanic. The account does not make explicit reference to abstract grammatical relations, such as object or oblique function. As a result, subcategorization information is propagated in total, and in particular, verbs would be required to raise all of their complements at once. In Wan, this is obviously not the case. The "raising" to the main verb only affects postpositional arguments, but not, for example, objects, which must still be expressed next to their embedded verbs. This difference in the behavior of objects and oblique arguments requires a special treatment that does not follow immediately from the HPSG analysis in question (but see below on one possible way of avoiding that problem).

The other problem with extending the argument propagation account to Mande is more substantial and is relevant to all accounts that seek to explain the non-local argument realization in terms of lexical properties of verbs or auxiliaries (e.g., the HPSG account relies on lexical specification of verbs that occur with the pattern of "passing up" of dependent NPs in 3.12). In Germanic, the "propagation" of arguments is allowed with a small set of verbs, which are assigned special lexical entries (which are similar to those of raising verbs). In Wan, however, the sentence-final expression of postpositional arguments is obligatory with all combinations of the main and embedded verb, as well as, as I will show in section 3.3, with nominalizations. In order for the lexicalist account to apply to such cases, not only all verbs should be allowed to raise PP arguments of their dependents, but they should also be able to raise arguments of nominalizations that are not directly selected by them (e.g., it should be possible for the verb to raise an argument of its object's possessor; the relevant examples can be found in 3.42 and 3.44a,b). This stipulation appears to undermine the elegance of the lexicalist account, since an exceptionless generalization about the position of PPs would have to be stated in terms of lexical specification rather than derived from more general constraints of phrase structure. In other words,

unlike in German, there is simply no evidence in Wan for the verb-phrase-internal position of postpositional phrases. This robust pattern is not captured by a lexicalist argument propagation analysis and seems to be best treated as a general property of sentence structure.

In order to predict the exceptionless character of non-local argument realization in Wan (all oblique arguments of all verbs appear as adjuncts to the IP), the position of oblique arguments must be determined by constraints on phrase structure, not by lexical properties of verbs. The view that postpositional arguments are base-generated in a position external to the VP is naturally accommodated by constraint-based theories of syntax as long as phrase structure constraints are dissociated from the lexical properties of heads. This is true, for example, of the theory of Lexical-Functional Grammar, which is the basis of the formalism used in this study and which permits a particularly flexible mapping between phrase structure and grammatical functions. In the LFG framework, the relation between a verb and its oblique argument function need not be encoded directly in a particular phrase structure configuration; instead, it can be established at the level of functional structure, where the verb's selectional properties are matched with the available grammatical functions. In other words, PPs attached at the level of IP would be subject to functional uncertainty (as they may realize oblique arguments at various levels of embedding; cf., e.g., the discussion in Kaplan and Zaenen 1995). The functional uncertainty would be resolved by matching the PPs with oblique functions that are selected by verbs or nominalizations appearing in the sentence.

Similarly, although the specific HPSG analysis of Germanic outlined above cannot be extended to cover the Mande data, the HPSG framework in general provides all the necessary tools for accounting for the non-local realization of oblique arguments in Mande. One way of doing this would be by prohibiting PPs from occuring anywhere in the sentence except at the level of IP (PPs attached at any other level would be ruled out by rules of immediate dominance, which determine which phrases can appear as daughters in any local subtree; see Sag et al. 2003: 536, Sells 1985: 84-6). This would prevent oblique arguments from being expressed locally. At

the same time, oblique arguments, instead of appearing on the list of the verb's complements (COMPS), should be stated as values of a non-local feature (cf., e.g., a comprehensive account of the treatment of long-distance dependencies in Pollard and Sag 1994: 157-207, Levine and Sag 2003, Sag et al. 2003: 427-46). In spite of their not being encoded locally, the oblique arguments would have to be realized elsewhere (i.e. as PPs adjoined to the IP) in order for the arguments of an embedded verb or nominalization to be "cancelled off" from the argument structure list. This would be done by establishing a matching relation between the values of the non-local feature and the PP "fillers", much in the same way as the functional uncertainty is resolved in the LFG model by matching PPs with f-structures corresponding to oblique argument functions.

To summarize, in Wan, verbs combine with object NPs or infinitival complements to form a VP. All oblique arguments are expressed outside of the VP and follow the main verb, as PPs adjoined to the IP. The peculiar position of PPs in the sentence structure is in itself problematic for movement-based theories of syntax that require arguments to originate next to their verb. I briefly return to this issue in the discussion of nominalization in section 3. I suggest a historical explanation to the emergence of the unusual pattern of non-local argument realization in Chapter 7, where I show that this pattern is itself not unrelated to the problem of category mixing.

3.2.2. The syntax of regular nouns

In Wan, as in most other Mande languages, nouns fall into two classes depending on their subcategorization pattern. Free nouns commonly occur in isolation. Relational nouns, on the other hand, cannot be used referentially without further specification. Typical representatives of relational nouns are body parts, kinship terms, as well as nouns referring to parts of inanimate objects ('top', 'bottom', etc.). Nouns of this class can be characterized as selecting the special grammatical argument function of

"relational possessor", POSS.[30] Like typical subcategorized elements, relational possessors are in general obligatory and always stand in a pre-defined semantic relationship to the head noun. (For example, a body part noun requires a possessor whose body the body part is an integral part of; an owner of a goat's head does not qualify as the head's relational possessor.) Relational possessors are expressed in the position preceding the head noun and do not require any additional marking, cf. the examples in (3.13).[31]

(3.13) a.   *T̄āt̄á tɔ́gɔ̄lē*   'Tata's elder brother'

         b.   *ŋ̀ tɔ́gɔ̄lē*   'my elder brother'

Since possessors of relational nouns are obligatory, semantically restricted, and always singular, they can be treated as complements of the head noun, as in (3.14). The construction is sometimes described in terms of "inalienable" or "inherent" possession.

(3.14)   NP
                   ┌─────────┴─────────┐
              NP_POSS   N
                 │   │
                 N   *tɔ́gɔ̄lē*
                 │
                 ŋ̀   'elder brother'

                1SG
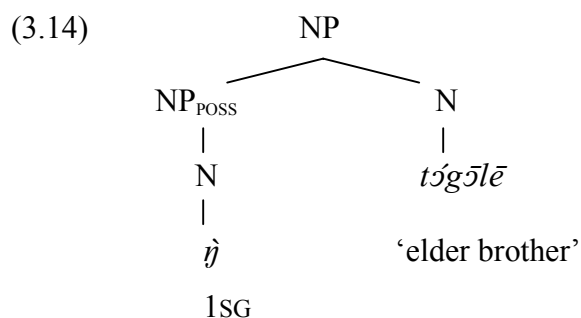
Free nouns do not select for relational possessors but may optionally be modified by what I will refer to as "free possessor". Unlike relational possessors, free possessors

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[30] The term "relational possessor" does not refer to any semantic notion; rather, I use it to describe a particular grammatical relation that obtains between a relational noun and its argument. The precise nature of the semantic relation varies from one relational noun to another and cannot be defined in purely semantic terms (Creissels 1983: 80-93; see also Chappell and McGregor 1996: 7-9). Rather, selection of relational possessors is best analyzed as a matter of valence, or the noun's subcategorization properties (Nichols 1988: 575-6; Tellier 1990).

[31] In Wan, adjectives, numerals, and determiners follow the head noun.

may be related to the same head noun by a variety of semantic relations, including ownership, time, and location. They precede the head noun without any additional marking and are therefore indistinguishable from relational possessors when expressed by lexical NPs (cf. 3.13a and 3.15a). With pronouns, however, the two kinds of possessor are expressed by two different sets of forms: while relational possessors appear as basic forms of the pronoun, free possessors are realized by a distinct, specialized pronominal set (cf. 3.13b and 3.15b).

(3.15) a. *T̄át̄á kú* 'Tata's house'

b. *n̄ȁȁ kú* 'my house'

In contrast to relational possessors, free possessors share a number of properties with adjuncts of verbs; most importantly, they are optional and do not stand in a pre-defined semantic relationship to the head noun, i.e. their relation to the head noun cannot be predicted from the semantics of the head noun alone. Given such properties, free possessors can be treated as an instantiation of the grammatical function of adjunct (ADJ). As is typical of adjunct functions, multiple instances of free possessors can modify a single head.[32]

Syntactically, free possessors will be assumed to adjoin to the NP, as in (3.16) below; further evidence for their syntactic position is discussed in the next section. Since the construction is often described in terms of "alienable", or "acquirable" possession, I gloss the specialized form of the possessive pronoun as "alienable" (ALN), to distinguish it from the basic (unmarked) forms used with relational possessors. (A complete set of possessive pronouns can be found in Chapter 7, example 7.13).

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[32] The fact that free possessors can be iterated suggests that they cannot be in a specifier position, like prenominal genitives in English. Similarly, unlike in English, where prenominal genitives are in complementary distribution with determiners (cf. *the John's book*), determiners follow the head noun in Wan and are insensitive to the presence or absence of a free possessor.

(3.16)

```
                    NP
                   /  \
            NP_ADJ      NP
              |          |
              N          N
              |          |
             nằ̀ằ        kú
           1SG.ALN     'house'
```
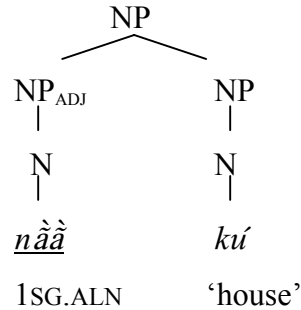
While in Wan the difference between the two possessive constructions is evident only with pronominal forms, the formal distinction between the two kinds of possessors seems to have been lost in some other Southeastern Mande languages (cf. Jones 1998: 75 for Boko/Busa). In Mande languages overall, however, free and relational possessors tend to be more sharply distinguished and are typically differentiated both with pronominal and with full lexical possessors. For example, in Vai (Central Mande) possessors of relational nouns are unmarked, while free possessors are introduced by a linker morpheme specialized for marking the "alienable" possessive relationship.

(3.17) Relational vs. free possessors in Vai (Welmers 1976: 43-4)

    a.   kàíɛ̌ fã   'the man's father'

    b.   kàíɛ̌ á kéŋɛ̌   'the man's house'

It seems likely that in Wan, the difference between the two sets of pronouns (basic forms in the case of relational possessors vs. specialized forms in the case of free possessors) derives from a difference of a similar sort, and that the lengthened vowel of the specialized possessive pronouns (cf. 3.15b) is due to a fusion of the basic form with an additional marker (the possessive linker).

       The syntax of nouns in Wan contrasts in an interesting way with the syntax of nouns in English. In Wan, nouns can be associated with two different grammatical functions, POSS and ADJ, which are encoded by noun phrases in two different syntactic positions. English makes no such distinction. On the other hand, as illustrated in (3.18), an English noun phrase can include various kinds of prepositional phrases, including *of*-phrases.

(3.18) a.   the picture of my neighbour

       b.   a trip to the mountains

       c.   a letter from the village

As suggested by such examples, English nouns can be associated not only with a generalized grammatical function of possessor (realized as a prenominal possessive NP, as in *my neighbour's picture*), but also with a variety of functions, introduced by prepositions (among them, a special oblique function introduced by the preposition *of*, OBL*of*). In Wan, however, nouns cannot select for any oblique grammatical functions, and as a result, PPs are not allowed to appear NP-internally.

       This peculiarity of nominal syntax is partly obscured by the fact that in Wan, as in many other Mande languages, postpositions often derive from relational nouns and are often homophonous with them. When such nouns are used as heads of a possessor NP, they may create the impression of PP modification (especially when such instances are viewed from the perspective of a language where PPs commonly occur NP-internally, as in European languages). In fact, however, such instances are ambiguous, and as I show in Nikitina (forthc.,b), unambiguous postpositions (i.e. postpositions that are not homophonous with a relational noun) never appear in NP-internal positions. For example, while the noun phrases in (3.19) include ambiguous forms that can function either as nouns or as postpositions, unambiguous postpositions, which have no corresponding nouns, cannot appear in the same position in (3.20).

(3.19) Relational noun (homophonous with a postposition)

       a.   [*té   tā*]$_{NP}$ *wì*

               fire   surface   meat

               'meat on the fire' (lit., 'meat of the surface of the fire')

       b.   [*ɔní   trāgá*]$_{NP}$ *ɔní*

                finger   middle   finger

               'the middle finger' ('finger between [other] fingers')

(3.20) Unambiguous postposition (has no corresponding noun)

    a.   [*Lèmè*   **mā́*] $_{PP}$ *bātέ́ī*

         L.   *to   gift

         'gift to Leme'

    b.   [*yrέ́*   **yā*] $_{PP}$ *tābālí́*

         wood   *of/with   table

         'table of wood'

The fact that unambiguous postpositions never appear NP-internally, as in (3.20), confirms that potentially ambiguous forms, like the ones in (3.19), must be nouns, and not postpositions. Crucially, unambiguous postpositions cannot appear in noun phrases either preceding or following the head noun (3.21), suggesting that regular nouns do not in general select for oblique grammatical functions.

(3.21) a.   * *bātέ́ī*   *Lèmè*   *mā́*

            gift   L.   to

    b.   * *tābālí́*   *yrέ́*   *yā*

            table   wood   of/with

Interestingly, in not licensing PP modification, the syntax of noun phrases is identical in Wan to the syntax of verb phrases. I return to this parallel in subsequent chapters, where I suggest that it has a historical explanation. In spite of the similarity, however, the absence of PPs in noun phrases and in verb phrases is due to two different reasons. A purely syntactic constraint rules out the expression of postpositional arguments VP-internally; yet the verbs can and do select for oblique argument functions (which are realized in a position external to the VP). A constraint of a different kind determines the absence of NP-internal postpositional phrases; in particular, oblique grammatical functions, which have to be introduced by postpositions, are simply not among the functions that can be selected by nouns. Since regular nouns are inherently incapable of taking oblique functions, such nouns are never associated with postpositional phrases. As I show in the next section, the situation is more complicated in the case of nouns derived from verbs, which, I argue, may inherit the verb's selection of oblique functions.

In sum, the syntax of noun phrases in Wan is characterized by two general properties. Firstly, Wan makes a distinction between the functions of free and relational possessors (ADJ vs. POSS), which are expressed by NPs in different syntactic positions (as adjuncts to the NP and as complements of nouns, respectively). Secondly, regular nouns never select for oblique grammatical functions, and postpositional phrases cannot appear NP-internally.[33] I discuss both properties in more detail in the next section, where I treat the syntax of nominalization.

3.3.   Nominalization

3.3.1. Types of nominalization

Wan has a number of different kinds of nominalization, which can be introduced by a nominalizing suffix or by a free-standing marker. Nominalizations of different types occur with considerable frequency in texts. One of the apparent reasons for the relative prominence of nominalization in Wan is the general lack of hypotaxis, or subordination in the narrow sense: while non-finite verbs can be embedded, subordination of finite verbs is in general avoided.[34] As a result, nominalization of

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[33] The discussion in Spears (1973: 54-5) suggests that the apparent combinations of a head noun with a PP modifier in Maninka are actually compounds consisting of a head noun and a possessor NP headed by a relational noun with a locative meaning. Their compound status is confirmed by their tonal behavior and by the fact that they cannot contain determiners or pronouns. That the underlying structure is that of a possessive construction is suggested by constraints on the interpretation of such combinations, which, according to Spears, cannot be used to specify the actual location of the object but presuppose some other, more conventionalized relation between the object and the location (e.g., the "in-the-office person" can only refer to an office worker but not to any person who is located in the office).

[34] A possible exception is presented by purpose clauses that can be embedded under the same CP (but still not under the same IP!) as a tensed verb. Their use is consistent with the analysis presented here.

verbs often appears to correspond functionally to the use of subordination in other languages, i.e. deverbal nouns often occur in contexts where subordinate clauses appear in a language like English, cf. the use of nominalizations in the following sentences (note that 3.22a involves topicalization).

(3.22) a.

lā	*zò-wà*	*é,*	*nàã̀*	*gò-tɔ́*	*ɔ́*
2SG	come-NMLZ	DEF	1SG+3SG	inside-know	NEG

'I did not know that you had arrived.'

(Lit., 'your arrival, I didn't know it')

b.

nàã̀	*bɛ̀nì-lé*	*ŋ̀*	*siá-wà*	*zà*	*gó*
1SG+COP	fear-PROG	1SG	fall-NMLZ	matter	in

'I am afraid that I may fall.' (Lit., 'I fear in the matter of my falling')

c.

ɓléì	*drò-ŋ*	*gbè*	*nɔ̃̄nī*	*lèŋ*
sauce	prepare-NMLZ	manner	got.lost	to

'She forgot how to prepare a sauce.'

(Lit., 'The way of preparing of sauce got lost to [her].')

In this study, I only discuss action nominalizations, i.e. nominalizations referring to kinds of situations rather than to a situation's participant; e.g., I do not treat the "agentive" nominalization in -*yɔ̃ŋ*, since in Wan, only action nominalizations seem to exhibit mixed syntactic behavior. Among the three major types of action nominalization, two are derived by suffixes, while one is marked by a free-standing marker and involves no morphological derivation.[35]

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[35] It should be noted that in an isolating language like Wan the distinction between suffixes and free-standing markers is sometimes difficult to draw. In the discussion of individual nominalizers I try to motivate, where possible, the treatment of a marker as a suffix or as a free-standing marker, primarily on the basis of its distributional properties.

Nominalizing suffixes

The nominalizing suffixes *-wa* and *-ŋ* attach directly to the verb stem. The suffix *-wa* is a general marker that not only derives nouns referring to actions from verbs, but is also used to form nouns referring to general properties from adjectives and other nouns. For example, the abstract nouns *cìnì-wà* 'beauty' and *ɓálè-wà* 'greatness' are derived from the adjectives *cìnì* 'pretty, beautiful' and *ɓálè* 'big, great', respectively. Deverbal nouns derived by this suffix are commonly lexicalized as abstract nouns and do not have to have an event interpretation, cf. *bɛ̀ǹì-wà* 'fear', *blà-wà* 'burial', *glò-wà* 'marriage', *kɔ́gɔ̀-wà* 'fight', etc.

Nominalizations in *-wa* occur in all syntactic environments where nouns are allowed, and in particular, in all argument positions. Their external syntax is unambiguously nominal; for example, they can (but need not) be marked by the definite marker *é* or take a free possessor; both possibilities are illustrated in (3.23).

(3.23) | *lāā* | *gɔ̀lí* | **bɛ́-wà** | *é* | *sɔ́-ŋ* | *ŋ̀* | *lɛ̀ŋ* | *ɔ̃́* |
|---|---|---|---|---|---|---|---|
| 2SG.ALN | money | ask-NMLZ | DEF | please-NEG | 1SG | to | NEG |

'I don't like it when you ask [me] for money.'

(Lit., 'Your asking money does not please me.')

In terms of its morphological status, the nominalizer *-wa* is clearly a suffix. It has no obvious free-standing correlate from which it could derive, and does not depend in its distribution on the syntactic environment (e.g., it may mark nouns in all nominal positions). In addition, nouns derived by *-wa* are often lexicalized to the extent of becoming barely analyzable as bi-morphemic, which I also take to point to the nominalizer's status as a suffix.[36] Naturally, as a regular suffix *-wa* also cannot be separated from the verb stem (application of this criterion to nominalizers is, however,

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[36] Although the tone of the marker depends on the last tone of the stem (it is realized as mid after mid tones but as low after low and high tones), this property cannot be used as a reliable criterion in determining the suffix vs. word status, since it also characterizes the plural marker, which can nevertheless be separated from the noun by adjectives and should therefore be treated as a separate word.

vacuous, since verbs always assume the final position within the VP, hence no element is expected to intervene between the verb and a nominalizer even if the latter is a separate lexical item).

The suffix -*ŋ* derives action nominalizations that differ from those in -*wa* in a number of ways. First of all, this suffix is used exclusively for derivation of nouns from verbs and does not attach to adjectival or nominal stems. Secondly, nominalizations in -*ŋ* have a rather restricted distribution and appear to be used only in two syntactic positions. In particular, such forms always function as dependents of a head noun, realizing the noun's free or relational possessor. As a result, nominalizations in -*ŋ* are rarely lexicalized as independent nouns but often form part of a compound. Examples of the NP-internal use of nominalization in -*ŋ* are presented below, where (3.24a) is a lexicalized compound that conventionally refers to food (and cannot refer, e.g., to a spoon), while (3.24b-c) are spontaneous, non-lexicalized uses.

(3.24) a. *lɔ́-ŋ*   *pɔ̄*   'food' (lit., 'thing for eating')
            eat-NMLZ   thing

        b. *pɔ̄*   *lɔ́-ŋ*   *gɔ̀lí*   'money for eating (something)'
            thing eat-NMLZ   money

        c. *wlɛ́* *kɔ́-ŋ*   *séŋgè*   'knife for cutting straw'
            straw cut-NMLZ   knife

One could argue, in view of the restricted distribution of the forms in -*ŋ*, that they are not real nouns: if they were nouns, why do they not appear in all argument positions, including subjects and objects of verbs? In addition, nominalizations in -*ŋ* never appear with a definite marker. Yet, the form also does not behave as a verb or any other lexical class. In particular, it does not appear in any environment characteristic of verbs, and, as illustrated in (3.25a-c), other verbs cannot appear in the position characteristic of the forms in -*ŋ* (cf. 3.24a-c).

(3.25) a. **lɔ́*   *pɔ̄*
            eat   thing

        b. **pɔ̄*   *lɔ́*   *gɔ̀lí*
            thing eat   money

c. *wlɛ́ kɔ́ séŋgè
    straw cut knife

Since only nouns can in principle precede the head noun within an NP, it appears that the forms in *-ŋ* have to be analyzed as nominalizations, and their restricted use has to be due to some independent constraint. It is possible that the suffix *-ŋ* derives from a marker that had once been used to introduce free possessors (cf. again the Vai example in 3.17b); having developed into a nominalizing suffix, the marker could have retained its distributional properties. I do not, however, have enough evidence to confirm this hypothesis. The restriction on combination with the definite marker, on the other hand, could be explained in semantic terms, by a general tendency to encode definiteness of possessors on the head of the nominal construction alone, rather than both on the head and on the dependent of the possessive construction. Although not an obligatory requirement, this tendency can be observed in Wan.

The final confirmation of the nominal status of forms in *-ŋ* comes from their ability to combine with possessor NPs. In (3.26), for example, the nominalized verb *wiá* 'enter' is intransitive and normally marks the goal with a spatial postposition. The nominalized form, however, is preceded by a bare NP *làklù* 'school', which can only be analyzed as a possessor NP.

(3.26) [[*làklù*   *wiá-ŋ*]ₙₚ   *yɛ̄*]ₙₚ *é*   *ɓō*
        school   enter-NMLZ   time   DEF   arrived
        'The time has come to enroll in school.'

Due to the restricted syntactic distribution of the nominalizer *-ŋ*, its morphological status is not as clear-cut as that of the suffix *-wa*. As I already mentioned, the fact that the nominalizer cannot be separated from the verb does not by itself constitute evidence for its being a suffix (since nothing is expected to intervene between them in any case). On the other hand, since the marker is restricted to nominalized verbs and does not appear in other environments, I assume that it functions as a category-changing affix. Lexicalization of compounds like (3.24a) also suggests that the nominalizer is a suffix, especially given the fact that Noun+Noun compounds are common in Wan, while Noun+marker+Noun are not attested.

The table in (3.27) summarizes the general properties of the two morphological nominalizations. Their syntax is discussed in more detail in section 3.2.

(3.27) Summary of the properties of morphological nominalizations

	-wa	*-ŋ*
function	derives nouns from verbs, adjectives, and other nouns	derives nouns from verbs only
distribution	occurs in all nominal positions	occurs NP-internally as a dependent of the head noun
lexicalization	commonly lexicalized	occasionally lexicalized as part of a Noun+Noun compound

Free-standing nominalizer

Along with the two nominalizing suffixes, Wan makes use of a nominalizing construction that does not have a lexically derived nominal head. This construction consists of a non-finite verb marked by the definite marker *é*; the construction as a whole behaves syntactically as a noun and can occur in all nominal syntactic positions. In (3.28), the verb nominalized in this way functions as the object of a postposition.

(3.28) *è   ŋ̀   yró-ŋ   yḕ-gó-gà   é   mì̀   ɔ́*

       3SG.SBJ   1SG   call-NEG bush-inside-go DEF   at   NEG

       'He does not invite me for a hunt.'

The definite marker is taken to be a free-standing morpheme, first of all, because its function is not restricted to verbal nominalization. It also appears with nouns and is separated from them by adjectives. Secondly, combinations of verbs with the definite marker are semantically regular, and the marker is not found in lexicalized forms, suggesting that it does not form part of a lexically derived deverbal noun.

This type of nominalization is reminiscent of the infinitival constructions in Italian, Catalan, and Spanish, where a nonfinite form of the verb combines with an article (Chapter 2). The similarity, however, seems to be superficial, and the

constructions certainly need not have identical syntactic structure (e.g., this type of nominalization cannot select for object or subject functions in Wan).

Unfortunately, few criteria can be used in the case of Wan to determine the lexical category of the infinitival form (noun vs. verb) when that form is introduced by the definite marker. In an isolating language, the strongest evidence for the category of the head is typically provided by distributional criteria; however, the obligatory presence of the definite marker makes most such criteria inapplicable in Wan. On the one hand, infinitival forms marked by the definite marker appear in the same positions as regular noun phrases and, as I show in the next section, the arguments of an infinitival form introduced by the definite marker are expressed in the same way as with nouns, i.e. by possessor NPs. This does not mean, however, that the infinitival form is necessarily a noun, since the nominal expression of the verb's arguments could equally be due to the presence of the nominalizing definite marker.

On the other hand, the construction does not admit the plural marker, suggesting that the infinitival form may be a verb. The incompatibility with the plural marker, however, cannot be taken as strong evidence for lexical category, since it could be due to semantic factors; this is especially so in a language like Wan, where plurality is not always marked even with regular nouns (e.g., the plural marker is not used in constructions with numerals, adjectives that encode plurality, as well as in generic contexts). Finally, the form of negation also does not provide any relevant evidence, since in Wan, the primary negation marker appears at the level of CP (cf. 3.10) and therefore can mark neither nouns nor verbs other than the main verb.

There are, however, a few properties that suggest, albeit indirectly, that the nonfinite form introduced by the definite marker is a verb rather than a noun. First of all, if infinitival forms could function as nouns, as in Romance, one would expect them to be occasionally lexicalized, resulting in pairs of homophonous verbs and action nouns. Such pairs are surprisingly rare in Wan, suggesting that nouns cannot be derived from verbs by zero-affixation. Secondly, the marker *é* is never obligatory with regular nouns or morphological nominalizations and only appears when the noun is either definite or specific. However, when the marker is used in the nominalizing

construction, it cannot be omitted even in contexts that involve neither definiteness nor specificity (as in 3.28). This property is explained on the view that the presence of the definite marker is not semantically motivated but rather serves the purpose of turning a verb into a noun.

In light of this evidence, I will treat infinitival forms as verbs, and the definite marker as a free standing nominalizer, which attaches to nonfinite verbs turning them into nouns. In (3.29), the marker is assumed to function as a kind of a non-projecting "small word" adjoined to the verbal head (for a general discussion of non-projecting head-adjoined particles, see Toivonen 2003). The fact that the definite marker has the additional nominalizing function has a diachronic explanation; synchronically, however, the marker used for the purposes of nominalization could also be treated as a nominalizing particle that is simply homophonous with the definite marker.

(3.29)
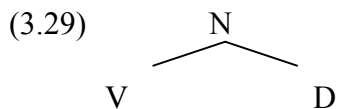
The structure in (3.29) explains the obligatory presence of the definite marker in all contexts where a verb is used in nominal environments. Since the nominalization does not involve any lexical derivation, it is also predicted not to be lexicalized as a regular noun.

As the nominalizer is zero-level adjoined to the verb, turning it into a noun, the verb is expected not to combine with an object (since the object must be realized in a VP). That this prediction is correct is shown in the next section. In addition, the combination of the verb and the definite marker is predicted to behave as if it were a noun rather than a noun phrase. This prediction is also borne out by examples like (3.30a), where the nominalization combines with a relational possessor, as if it were a simple relational noun. If the result of nominalization were an NP, it would only be able to be modified by a free possessor, which would have been realized by a specialized possessive pronominal form, as in the ungrammatical sentence (3.30b).

(3.30) a.

ầ	*gā*	*ŋ̀*	*klá*	*é*	*lé*
3PL	went	1SG	arrive	DEF	after

'They left after my arrival.'

b. * *ầ*   *gā*   *nầầ*   *klá*   *é*   *lé*

	3PL	went	1SG.ALN	arrive	DEF	after

The structure of the nominalization in (3.30a) is represented in (3.31), where the possessor NP is a complement of the noun derived from a verb by a free-standing marker with the nominalizing function. (Note again that an alternative analysis of the same construction would treat the nominalizer as a non-projecting particle that is only homophonous with the definite marker for a historical reason).

(3.31)

```
                        NP
                   ┌─────┴──────┐
              NP_POSS           N
                │          ┌────┴────┐
                N          V         D
                │          │         │
                ŋ         klá        é
               1SG      'arrive'    DEF
```
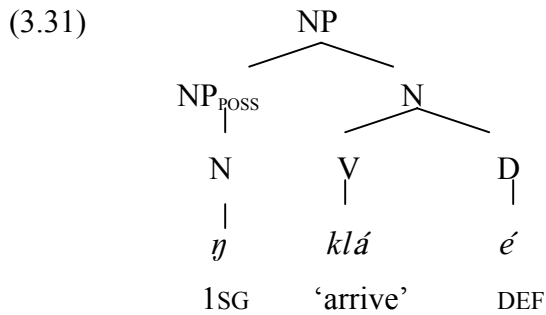
On this analysis, the syntax of nominalization derived by a free-standing marker is predicted to be identical to that of the two kinds of nominalization derived by suffixes. All three kinds of nominalization do indeed behave in the same way with respect to their argument realization, which is the topic of the next sections.

3.3.2. Absence of a mixed category construction

All three kinds of nominalization discussed above may retain the verb's arguments, expressing them as relational or free possessor NPs. Argument roles corresponding to the verb's object are expressed in the same way as possessors of relational nouns, i.e. as a noun's complement. In (3.32), the pronoun expressing an argument role of the deverbal noun appears in its basic form. (As with other relational nouns, the presence of an overt possessor is required, hence the generic use of the 3rd person pronoun.)

(3.32) à   tɛ́-ŋ   yrɛ̄   'drumming stick' (lit., 'stick of/for its beating')

     3SG   beat-NMLZ   stick

It is not clear from such examples alone whether the complement of the deverbal noun functions as the noun's possessor or as an object expressed in a mixed category construction (as was the case, for example, in the construction with Gikũyũ agentive nominalization, cf. example 1.8). The structures in (3.33) represent two alternative analyses of the example in (3.32): in (3.33a), the argument is expressed as a relational possessor; in (3.33b), the nominalization retains the grammatical function the argument was assigned with the verb (object), and realizes that function in a mixed configuration, as a complement embedded in a VP. The difficulty in determining the exact grammatical function of the NP is due to the formal non-differentiation of relational possessors and objects: both appear before their head, with no additional marking, and both are expressed by basic pronominal forms (a full list of pronominal forms is presented in 7.13).

(3.33) Alternative analyses of the nominalization in (30): nominal vs. mixed

a.   NP   b.   NP

NP_POSS   N   VP   N

   | | | |
   N   'beating'   NP_OBJ   'beating'

   | |
  3SG   N

                                                       |
                                                      3SG
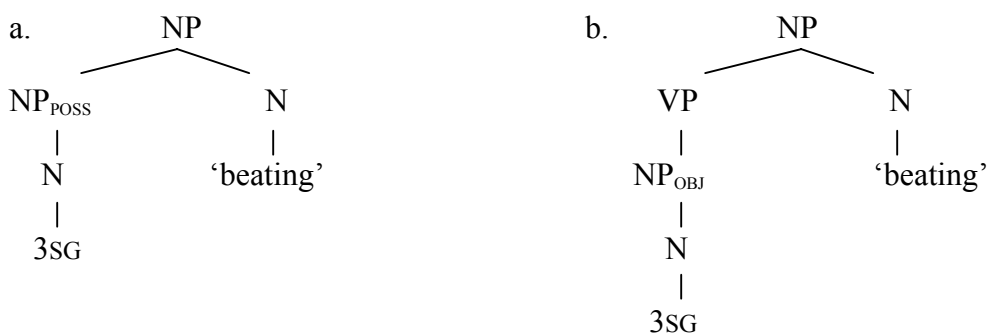
The two analyses make different predictions with respect to realization of the rest of the nominalization's arguments. If Wan has a mixed category construction (3.33b), where the deverbal noun takes an object, no other grammatical function should appear as the noun's complement. In this case, only argument roles corresponding to objects of verbs should be expressed by basic pronominal forms. Argument roles corresponding to subjects are then expected to be realized as free possessors adjoined to the NP. This would result in a pattern of category mixing where the deverbal noun would retain the verb's objects (expressed by basic pronouns), while argument roles

corresponding to subjects would invariably appear as free possessors (expressed by specialized possessive forms of pronouns). This pattern appears to be dominant in some other Mande languages, such as Mandinka, where subjects and objects of verbs are realized with deverbal nouns by what is usually described as "alienable" (free) and "inalienable" (relational) possessors, respectively (Creissels 1983: 88-91; also Rowlands 1959: 145-6 for Gambian Mandinka). Crucially, in most Mande languages, "inalienable possessors" are indistinguishable from objects (Innes 1967), suggesting that the "inalienable possessors", which correspond so strictly to objects of transitive verbs, are indeed objects realized in a mixed category construction such as (3.33b). I return to this issue briefly below.

The "purely nominal" analysis in (3.33a) makes a different prediction. If the position preceding the deverbal noun is actually that of a relational possessor, there is no reason to expect argument roles that appear in it to correspond precisely to the argument roles expressed as objects of corresponding verbs. As in the case of English deverbal nouns from Rappaport's (1983) study (discussed in Chapter 1, section 3.3), the linking of argument roles to the possessor function may proceed in accordance with the role's semantics and independently of the grammatical function it was assigned by the verb. As a result, argument roles expressed by basic pronominal forms with deverbal nouns should sometimes correspond to the verb's subject.

Argument realization in Wan clearly conforms to the latter pattern. With nominalizations of intransitive verbs, argument roles corresponding to the verb's subject appear in the complement position, as shown by the basic pronominal forms in (3.34a-c). It is clear that the basic pronominal forms, which are in principle ambiguous between possessive and object forms, cannot in this case be objects (the verbs are strictly intransitive); hence, they must realize the grammatical function of relational possessor.

(3.34) a. *à*   *dìnā̀-ŋ*   *gbɛ̀*   'his manner of standing'

            3SG   stand-NMLZ   manner

        b. *à*   *zò-ŋ*   *zɛ̄*   'the reason of his coming'

            3SG   come-NMLZ   reason

c.   *à*   *yítè*   *é*   *lé,*   *è*   *m ̰ə̀ŋ*   *lɔ̄*

      3SG   sleep   DEF   at/before   3SG.SBJ   rice   ate

      'Before going to sleep, he ate rice.'

It may be objected that both the subject and the object could appear in a mixed category construction that embeds an IP (or an S) under an NP; this could explain the availability of basic pronominal forms for both kinds of argument roles. This possibility is, however, ruled out by two kinds of evidence. Firstly, if the basic pronominal forms in (3.34a-c) corresponded to subjects of an embedded clause, one would expect the same forms to appear with nominalizations of transitive, as well as intransitive verbs. Yet, as I discuss below, the basic pronominal forms cannot express subject participants of transitive verbs. Secondly, third person subject pronouns have a distinct nominative form (*è*), which is at least optionally available in all sentential constructions but never appears with nominalizations, cf. (3.35a-c).

(3.35) a.   * *è*   *dìn ̰ə̀-ŋ*   *gbè*   'his manner of standing'

           3SG.SBJ   stand-NMLZ   manner

      b.   * *è*   *zò-ŋ*   *zɛ̄*   'the reason of his coming'

           3SG.SBJ   come-NMLZ   reason

      c.   * *è*   *yítè*   *é*   *lé,*   *è*   *m ̰ə̀ŋ*   *lɔ̄*

           3SG.SBJ   sleep   DEF   at/before   3SG.SBJ   rice   ate

           'Before going to sleep, he ate rice.'

Evidence of this kind suggests that the basic pronominal forms in (3.34a-c) do not express subjects but rather relational possessors of the nominalized verb. The set of argument roles expressed as relational possessors is therefore not restricted to argument roles that are linked to the object function by verbs.

      An argument role that is not expressed as a relational possessor is mapped onto the function of a free possessor and realized as an adjunct to the NP (expressed by specialized possessive forms of the pronoun). This is what usually happens to argument roles corresponding to subjects of transitive verbs (while argument roles corresponding to the verb's objects are linked to relational possessors).

(3.36) a. **àà** pɔ́ lɔ́-ŋ gbɛ̀ 'the manner of his eating'

3SG.ALN thing eat-NMLZ manner

b. **nàã̄** pɔ́ lɔ́ é bī-gó, 6é ŋ̀ gā bā lé

1SG.ALN thing eat DEF after then 1SG went field on

'After eating, I went to the field.'

c. **nàã̄** séŋgè glà é bī-gó ŋ̀ gé lèŋ ŋcè

1SG.ALN knife take DEF after 1SG said to thank.you

'After taking the knife, I said 'thank you' to him.'

In sum, since the expression of argument roles corresponding to subjects of verbs crucially depends on the presence or absence of other roles, it seems reasonable to conclude that all argument roles compete for the same argument function – that of relational possessor (POSS). The assignment of roles to that function proceeds according to some kind of a prominence hierarchy, resulting in a "pseudo-ergative" pattern of argument realization: objects of transitive verbs and subjects of intransitive verbs correspond to relational possessors, while subjects of transitive verbs correspond to free possessors. Among other Mande languages, a similar pattern of argument realization is described for nominalizations in Koranko (Kastenholz 1987: 235-6).

The realization of arguments of nominalizations provides further support for the structure of the NP suggested in section 2.2 above. Since nominalizations function as relational nouns, they take exactly one relational possessor as their complement. Once the complement position is filled, free possessors can be adjoined to the NP. This shows that the two kinds of possessors indeed assume different positions in the syntactic structure, with relational possessors realized in the innermost (complement) position, as in (3.37).

(3.37)

```
                    NP
           _____|_____
          |                 NP
        NP_ADJ        _____|_____
          |          |               |
        NP_POSS      N
```
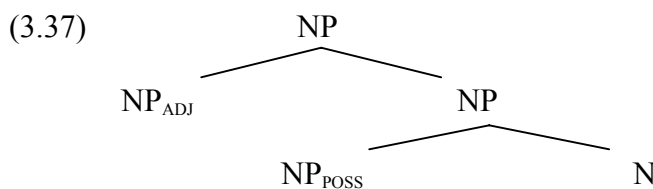
The pattern observed in Wan differs significantly from the one described by Creissels (1983: 88-91) for Mandinka, where subjects of intransitive verbs correspond to free

possessors of deverbal nouns. I suggested that this difference is due to the fact that Wan lacks the mixed category construction (3.33b), which is present in some other Mande languages, including Mandinka. The situation is less clear in a language like Jalonke (Lüpke 2005: 327-47, 2007), where certain kinds of argument roles corresponding to subjects of verbs may be expressed by basic pronominal forms with deverbal nouns. The realization of subject participants varies from one verb to another and is hardly predictable from the verb's meaning. The relevant factor is characterized by Lüpke in terms of unaccusativity, which may in principle correlate with the ability of a "subject" to be expressed VP-internally. In this case, one could attempt to analyze the syntax of Jalonke nominalizations in terms of the mixed category construction in (3.33b).

There is, however, an alternative explanation. In Jalonke, action nominalizations appear to be derived from verbs by adding a definite marker. In some of the nominalizations, the form to which the definite marker is added may have been lexicalized as a simple relational noun that has become dissociated from its corresponding verb and need not retain its selection of objects. As a result, it could be used either in the purely nominal or in the mixed category construction, linking the argument role corresponding to the verb's subject to a relational or a free possessor, respectively. This hypothesis, if confirmed, could explain the disagreement in the judgments of the speakers of Jalonke, mentioned by Lüpke (2005: 329, 336): what for some speakers is simply a relational noun that requires a complement may be treated by others as a form that necessarily retains the verb's selection of object and can only be used in the mixed construction (cf. 3.33b, where arguments not corresponding to objects must be expressed as free possessors).

Finally, a similar explanation may be valid for Bamana, where the realization of arguments with nominalizations largely depends on their realization with verbs, but at the same time is subject to some variation. Argument roles corresponding to the verb's object are realized with action nouns as relational possessors, while argument roles corresponding to the verb's subject are typically linked to a noun's free possessors (Sauvant and Molin 1956: 23; Vydrine 2007: 129-30; but cf. Kastenholz

1989: 75-6). As in Jalonke, however, nominalizations of some intransitive verbs can take relational possessors corresponding to the verb's subject (Hutchison 2003: 199), as in the following examples (the glosses are mine; free possessors are introduced by a free-standing possessive linker, glossed as POSS).[37]

(3.38) a. síné bòli-li

    gazelle run-NMLZ

    'the fleeing of the gazelle' (Kastenholz 1989: 76)

  b. a ka boli-li kɛ-ra su fɛ

    3SG POSS run-NMLZ happen-PRFV night with

    'He ran away at night.' (Lit. 'His running away took place at night.')

    (CLE 1983: 183)

(3.39) a. à tága-li

    3SG go-NMLZ

    'his going away' (Kastenholz 1989: 76)

  b. ne taa-li ka gɛlɛn sɛnɛ kosɔn

    1SG go-NMLZ PRT difficult farming for

    'It's hard for me to go because of the farming.' (CLE 1983: 184)

  c. ne ka taa-li ka gɛlɛn sira juguy kosɔn

    1SG POSS go- NMLZ PRT difficult road nastiness for

    'My trip is hard because of the bad roads.' (CLE 1983: 184)

This variation may again be explained by deviations of individual lexicalized instances of deverbal nouns from the general productive nominalization pattern: certain nominalizations can be lexicalized as relational nouns taking a complement. This hypothesis requires further testing.[38]

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[37] The examples from CLE (1983) are presented in their original transcription, without tone. I did, however, replace the symbols è and ò with ɛ and ɔ, respectively, in order to avoid confusion.

[38] Interestingly, Hutchison (2003) relates the variation in argument linking with nominalized motion verbs to compounding of unaccusative verbs with their theme

Crucially, the pattern of argument realization with nominalized verbs clearly differs in Wan (and possibly Koranko) and in Mandinka (and possibly Jalonke and Bamana) in a way that possibly corresponds to the distinction between two kinds of nominalization in (3.33): in Wan, nominalizations map their arguments onto grammatical functions of possessors, while in Mandinka, they seem to retain the selection of objects, which are realized in a mixed category construction. Interestingly, both types of nominalization are predicted not to admit negation if negation is expressed outside of the VP. The prediction is borne out in Wan, where negation is marked at the level of CP (cf. 3.10), as well as in Bamana (where negation is expressed by auxiliaries in the I position, i.e. also VP-externally). To negate a nominalization, a special noun is used as the head of the construction (*klé* 'absence, lack' in Wan, *báli-ya* 'lack, refusal' in Bamana, Bird 1966: 59-60).

.   To summarize, I have shown that Wan lacks a mixed category construction that would license the expression of object functions NP-internally (3.33b). Instead, nominalizations map their arguments onto grammatical functions typically available with nouns, i.e. relational and free possessors. In showing it, I relied on evidence from argument roles that are realized as subjects and objects with verbs. In the next section, I discuss the realization of arguments that correspond to the verb's oblique functions. While the data presented so far has been compatible with different theories of category mixing, the next section introduces evidence that can only be treated within certain kinds of non-transformational approach, namely, the ones that assume phrase structure constraints that are independent of the word's selection of grammatical functions.

3.3.3. Mixed nominalization: Retention of oblique grammatical functions

Having introduced the major properties of nominalized verbs, I now turn to the main subject of the present discussion – realization of a nominalization's oblique arguments. Constructions involving nominalization fall into two types. One type is

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arguments. This analysis, if confirmed, could explain the lack of the possessive linker in (3.38a) and (3.39a,b) by optional VP-internal realization of unaccusative subjects.

purely nominal: all arguments are expressed NP-internally, exactly in the same way as free or relational possessors of regular nouns are. As I showed in the previous sections, regular nouns cannot be associated with oblique grammatical functions in Wan; they can only select for a relational possessor or be modified by an adjunct-like free possessor. Accordingly, argument roles that are expressed as obliques with verbs are linked to possessor functions with deverbal nouns. As a result, they are realized not as PPs but as noun phrases preceding the head noun. This type of construction is illustrated in (3.40a,b), where participants that would be expressed in PPs with a verb (in both cases, with the postposition *yā* 'with') appear as relational possessor NPs with the nominalization.

(3.40) a.   [[***lōmlīŋ***]ₙₚ   ***gà-ŋ***]ₙₚ   *gbɛ̀*

        orange   go-NMLZ   manner

        'the way of going with oranges' (lit., 'manner of going of oranges')

    b.   [[***gbà̰nɛ̰̀***]ₙₚ   ***wì-tɛ́-ŋ***]ₙₚ   *gbɛ̀*

        dog   hunt-NMLZ   manner

        'the way of hunting with dogs' (lit., 'manner of hunting of dogs')

As I discussed in the previous sections, possessor functions selected by nominal heads can only be realized by NPs. Sometimes a relational noun is used to further specify the semantic relation between the head noun and its dependent; such nouns function as heads of the possessor NP and are often homophonous with postpositions. (Unlike postpositions, however, such nouns are always optional; they are also available for a relatively restricted set of semantic relations, i.e. not every postposition has a corresponding relational noun.) The use of this strategy is illustrated in (3.41). The nominalization *wiá-ŋ* 'entering' has two argument roles, which are expressed as a subject and a goal PP with the corresponding verb. In (3.41), both argument roles are expressed in a nominal construction headed by the deverbal noun. The goal argument, which corresponds to a PP with the verb, is linked to a relational possessor function (POSS) and headed by a relational noun *wā* 'underside, bottom'. The argument role corresponding to the verb's subject is linked to a free possessor (ADJ) function

(although it is not obvious with a full possessor NP, the NP can only be replaced with a specialized free possessor pronoun, not by a basic pronominal form).

(3.41) *ŋ̄* [[***mī̄*** [[***kú é wā***]_{NP} ***wiá-ŋ***]_{NP}]_{NP} *éŋ*]_{NP} *mɔ̄̄*

   1SG person house DEF underside enter-NMLZ voice heard

   'I heard someone enter the house.'

   (Lit. 'I heard the voice of entering of the house's underside of someone.')

This kind of construction is what one expects to find in a language where nominalizations do not occur in hybrid configurations but instead are associated with regular nominal syntax. The nominalization does not retain the verb's selection of grammatical functions and re-maps all argument roles onto functions typically available with nouns.

 Crucially, however, nominalizations in Wan have an alternative way of expressing argument roles corresponding to the verb's oblique functions. Instead of being realized as possessors or adjunct NPs, such argument roles can appear as postpositional phrases outside of the noun phrase. In accordance with the constraints on phrase structure, the postpositional phrase is adjoined to the IP and must follow the main verb of the sentence, independently of the position of the nominalization that selects for it. As a result, the PP is sometimes found at a considerable distance from the lexical head that selects for it, both in linear and in hierarchical terms. The example in (3.42) illustrates this point with an alternative argument realization of the same type of nominalization as in (3.41).

(3.42) *ŋ̄* [[*mī̄* ***wiá-ŋ***]_{NP} *éŋ*]_{NP} *mɔ̄̄* [***kú é wā***]_{PP}

   1SG person enter-NMLZ voice heard house DEF under

   'I heard someone enter the house.'

   (Lit. 'I heard the voice of entering of someone under the house.')

As in (3.41), the nominalization *wiá-ŋ* 'entering' is embedded in the object of the main verb and functions as the relational possessor of the head of the object NP ('the voice of entering'). The argument role corresponding to the subject of the verb is realized as the nominalization's possessor function ('entering of someone'; the lexical NP can be replaced with a basic pronoun but not with a specialized possessive

pronoun). The goal argument, however, is expressed outside of the NP, as a postpositional phrase adjoined to the IP ('in the house'). The structure of the sentence is represented in (3.43); the annotation on the PP indicates its grammatical function, i.e. the oblique function of the relational possessor's object (OBJ POSS OBL, see Appendix 2 for details).[39]

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[39] The argument role corresponding to the verb's subject is expressed with nominalizations as a free or a relational possessor, depending on the realization of the oblique argument within or outside of the NP. Both (i) and (ii) contain nominalizations of the same intransitive verb; yet, the agent role is expressed by an alienable pronoun in (i), where the goal argument is also expressed NP-internally, but by a basic pronoun in (ii), where the goal argument is not encoded within the same NP (but appears as a PP adjunct at the IP level).

(i)   *ŋ̀*   [[*àà*   [[*kú*   *é*   *wā*]_{NP}   *wiá-ŋ*]_{NP}]_{NP} *éŋ*]_{NP} *mɔ̄́*

        1SG   3SG.ALN house DEF underside enter-NMLZ   voice heard

(ii)   *ŋ̀*   [*à*   *wiá-ŋ*   *éŋ*]_{NP} *mɔ̄́*   [*kú* *é*   *wā*]_{PP}

        1SG   3SG enter-NMLZ   voice heard house DEF   under

    'I heard him enter the house.'

This correlation suggests that PPs are not generated in a complement position preceding the verb. If the PP originated in that position (cf. i), one would expect that after the PP "moves out" (ii), its trace should prevent the subject from being expressed in it. This is not, however, what happens. When the oblique argument is expressed outside of the NP as a postpositional phrase, the argument role corresponding to the verb's subject is linked to the relational possessor, expressed as the nominalization's complement (provided, of course, that the verb is intransitive and no other argument role is expressed as the relational possessor). I own this observation to Peter Sells.

(3.43)

IP
- IP
  - NP_SUBJ
    - N
      - 1SG
  - I'
    - VP
      - NP_OBJ
        - NP_POSS
          - NP_POSS
            - N
              - 'someone'
          - N
            - 'entering'
        - N
          - 'voice'
      - V
        - 'heard'
- PP_OBJ POSS OBL
  - 'in the house'
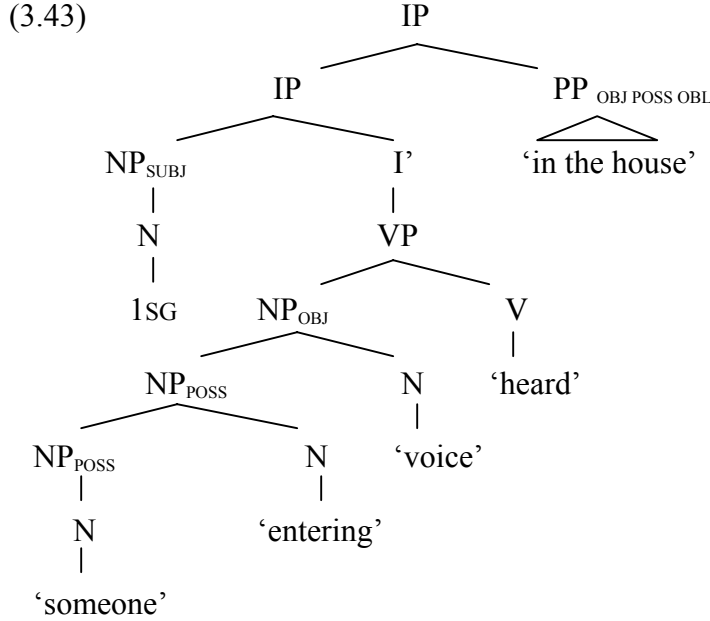
Other examples of the same kind are presented in (3.44a,b), this time with oblique arguments introduced by postpositions that have no nominal equivalents. The nominalizations *wì-té-ŋ* 'hunting' and *gà-ŋ* 'going' are embedded in the object of the main verb *lā* 'show' and function as relational possessors of the object's lexical head ('manner of hunting', 'manner of going'). The nominalizations are associated with a postpositional phrase (a comitative phrase 'with dogs' in one case, and a goal phrase 'to the marketplace' in the other). As in (3.43), the PPs are adjoined to the IP and appear after the main verb.

(3.44) a. *yāá*   **wì-té-ŋ**   *gbὲ*   *lā-lé*   [**gbằnὲ̀ mù yā**]_PP [*é*   *gbè   lὲŋ*]_PP
    3SG+COP hunt-NMLZ manner show-PROG dog   PL with REFL son to
    'He is showing to his son the way of hunting with dogs.'

  b. *yāá*   *lōmlǐŋ* **gà-ŋ**   *gbὲ*   *lā-lé*   [*é*   *nùŋ*   *lὲŋ*]_PP **[plɛ-lé**]_PP
    3SG+COP orange go-NMLZ manner show-PROG REFL daughter to   market-at
    'She is showing to her daughter how to go with oranges to the marketplace.'

Although the present discussion is based on evidence from Wan, the following examples suggest that deverbal nouns and participles in Bamana may also share with verbs the property of selecting for oblique functions (all glosses are mine).

(3.45) a.   ní í y' à yé kúma fìla dòn-na à **dí-li** lá **í mà**...

if 2SG PRFV 3SG see word two enter-PRFV 3SG give-NMLZ at 2SG to

'If you see that two speeches were spoken in order for it to be given to you…' (Dumestre 1989b: 40; 2003: 279)

b.   … sá-ni à **feere-li** cé **wàyew mà**

now-and 3SG sell-NMLZ between butchers to

'… before selling it to butchers' (lit., 'between now and selling it to butchers') (Dumestre 2003: 279)

In the above examples, the nominalized verb is embedded in a postpositional phrase and selects for a PP, which is separated from the verb by the postposition that introduces the nominalization. Similarly, in the following two examples from Bamana, postpositional phrases are selected by participles, from which they are separated by the main verb.[40]

(3.46) a.   a ma sa **don-tɔ** ye **wo kɔnɔ**

3SG PM snake enter-PRTC see hole inside

'He did not see the snake entering into the hole.'   (CLE 1983: 88)

b.   n' y' u **taa-tɔ** ye **kungo la**

1SG PRFV 3PL go-PRTC see bush at

'I saw them go to the bush.'   (Sauvant and Molin 1956: 74)

The fact that the nominalized verbs in (3.45a,b) and the participles in (3.46a,b) do not seem to form a syntactic constituent with their postpositional argument suggests that Bamana shares with Wan some central properties of its postpositional syntax.

       Given the unusual sentence structure of Wan (and apparently of Bamana), the fact that oblique arguments of nominalized verbs can be expressed as PPs is problematic for most theories of category mixing discussed in Chapter 1. On the one hand, the ability of nominalizations to take PPs is clearly due to their association with verbs, since regular non-derived nouns are never modified by PPs. In this way,

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[40] Tones are left unmarked as in the original source, but some orthographic conventions are modified in accordance with current practice.

nominalizations exhibit partly verbal behavior that needs to be accounted for. On the other hand, however, the partly verbal behavior of nominalizations does not correspond to any particular construction with mixed syntactic properties. This has to do with the fact that PPs in Wan always adjoin to the IP and do not form a constituent with the lexical head that selects for them. There is simply no construction of which the nominalization is a head that would license the presence of PPs in (3.44a,b).

The lack of a single constituent that would be headed by a nominalization and at the same time include PPs seems irreconcilable with the argument-projecting view of category mixing. On the argument-projecting view, differences in realization of arguments with nouns and verbs follow from a difference in the set of available structural positions, which is ultimately determined by differences in the syntax of nouns and verbs. In Wan, however, PPs are allowed neither in NPs nor in VPs, and hence the presence of a PP should not depend on the lexical category of its subcategorizer. Being adjoined to the IP, the position of PP is always structurally available for the expression of arguments of any noun embedded in the sentence. Yet, for some reason only deverbal nominalizations can use this option to express their arguments, while regular nouns are never associated with PPs. For example, even though the noun *bātɛ́ī́* 'gift' denotes an entity transferred from a giver to a recipient, the noun is not derived from a verb, and cannot be associated with a postpositional phrase. The recipient and the giver must be expressed NP-internally as possessor NPs (although with verbs or deverbal nouns, similar notions can be expressed by PPs).

(3.47) ***Lèmɛ̀* *bātɛ́ī́***

       L.   gift

       'gift to Leme', 'gift from Leme', 'gift of Leme'

To explain the difference between nominalizations and regular nouns, argument-projecting theories would probably have to resort to some kind of differentiation in the set of argument roles associated with nouns and with verbs. Associating nominalizations, which retain the verb's argument structure, with a set of roles different from those associated with regular nouns could perhaps account for the fact that only arguments of nominalizations can be expressed in PPs. This kind of account,

however, would still have to explain the fact that in Wan, nominalizations have two argument realization options (expressing arguments as possessor NPs vs. as PPs), and that the two options appear to be semantically equivalent (their distribution is apparently influenced by factors like length and complexity of the resulting NP, i.e. by factors that have nothing to do with the semantics of argument roles).

The data discussed in this section presents an even more serious problem to lexicalist accounts that rely on a single lexical feature as a licensor of mixed syntax. In particular, the dual category approach of Lapointe (1993, 1999) cannot be extended to Wan, since the view of dual category words projecting mixed syntax presupposes the existence of a particular *projection* with mixed syntactic properties. In Wan, where PPs do not form a constituent with nominalizations, no hybrid construction is projected by a deverbal noun.

A similar problem is faced by accounts assuming idiosyncratic constructions licensed by a particular form (Pullum 1991). There is no hybrid construction associated with nominalizations: PPs occur in their usual position. Still, only deverbal nouns are allowed to express their arguments in a PP, suggesting that the presence of PPs is determined by a lexical property that is not directly related to a particular phrase structure configuration. An explanation in terms of such a property is suggested by the account presented in Chapter 1. In the next section, I show how this account captures in a straightforward way the partly verbal behavior of nominalizations in Wan without referring to mixed syntactic configurations.

3.4. An explanation in terms of grammatical relations

The explanation relies on the same distinction between lexical and syntactic licensing of category mixing that was introduced in Chapter 1. Nominalizations are assumed to fall into two types: those that retain the original verb's selection of grammatical functions, and those that can only retain the verb's argument structure but have to link the argument roles to grammatical functions associated with nouns (such as possessors). The expression of grammatical functions with nouns and with verbs is licensed by independent constraints on phrase structure. Such constraints ultimately

determine whether a given grammatical function can be expressed with a nominal head. As I suggested in the previous chapter, sometimes phrase structure constraints do not allow the expression of functions that a nominalization has to retain (e.g., objects cannot be expressed with nouns in Romance). In other cases, phrase structure constraints are flexible enough to allow a noun to take an object, a subject, or another function it may have inherited from the verb.

In Wan, nominalizations can be assumed to retain optionally the verb's selection of oblique grammatical functions. In the phrase structure, oblique functions are realized by PPs in a fixed position, which is adjoined to the whole IP and does not require the presence of any particular syntactic head. Due to this property of the syntax of Wan, the expression of an oblique grammatical function is automatically allowed with nouns or with verbs: no special "mixed" construction is required to adjoin a PP to the IP. As a result, any noun can in principle be associated with a PP, due to the functional uncertainty in constraints on the relevant phrase structure (in 3.48, the same PP may correspond to a variety of oblique argument functions at different levels of embedding).

(3.48)

$$
\begin{array}{c}
\text{IP} \\
\diagup \quad \diagdown \\
\text{IP} \qquad \text{PP}_{\text{GF* OBL}} \\
\diagup \quad \diagdown \\
\text{NP}_{\text{SUBJ}} \qquad \text{I'} \\
\mid \\
\text{VP} \\
\diagup \quad \diagdown \\
\text{NP}_{\text{OBJ}} \mid \text{VP}_{\text{XCOMP}} \qquad \text{V}
\end{array}
$$
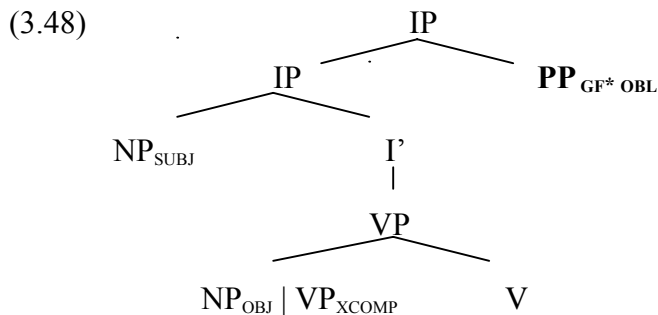
The difference between non-derived nouns and nominalizations follows straightforwardly from the fact that in Wan nouns and verbs take non-overlapping sets of grammatical functions (section 2.2). While nouns can be associated with two kinds of "possessor" (one corresponding to a possessor argument function and one corresponding to an NP adjunct), they cannot take any oblique functions (this restriction is consistent with the absence of NP-internal PPs). Given this restriction, function-retaining nominalizations are the only kind of noun that may select for oblique functions, which they inherit from the corresponding verb. This explains why

only deverbal nouns may be associated with PPs in (3.48), even though no special mixed construction is required for it. The difference between regular nouns and function-retaining nominalizations is summarized in (3.49).

(3.49)   Regular nouns vs. function-retaining nominalizations in Wan

Type of noun	selectional properties	realization of argument functions
regular	may select for POSS, but not for OBL	POSS realized as a prenominal NP; no PPs
action nominalization	select for POSS and optionally retain the verb's selection of OBL	POSS realized as a prenominal NP; OBL realized as a PP

The fact that oblique functions are only optionally retained by deverbal nouns explains the presence of the alternative argument realization option. When a deverbal noun does not retain the selection of an oblique function, it may still express the argument role by linking it to the possessor function.

To summarize, the nominalization pattern discussed in this section is peculiar as an instance of category mixing without any mixed syntax. There is no construction combining interleaved verbal and nominal projections, yet the behavior of nominalizations differs from that of non-derived nouns in a way that can only be explained by their affinity with verbs. Differentiating between the lexical and syntactic licensing of category mixing makes it possible to account for this pattern.

Chapter 4. Overview and further issues

4.1.   Implications of the two case studies for syntactic theory

4.1.1. Grammatical relations and phrase structure

In the first part of my dissertation, I focused on issues that are central to the development of a typologically adequate theory of category mixing. I started by reviewing several alternative approaches to constructing such a theory and the problems that these approaches face. I suggested that the cross-linguistic diversity of constructions combining verbal and nominal syntactic properties is best captured by an account that relies on the interaction between a set of word-specific lexical properties, which includes the selection of abstract grammatical functions such as subject and object, and an independent language-specific set of phrase structure constraints.

This interaction is illustrated in Chapter 2 with a case study of an unusual restriction on the realization of certain arguments found with one type of nominalization in Italian and some other Romance languages. I argued that this restriction should be accounted for in terms of a dissociation between the set of grammatical functions that must be expressed with a nominalization, on the one hand, and the set of syntactic positions that are available for their expression, on the other. While all types of deverbal noun may function as nominal heads and occur in all typical nominal syntactic environments, only some of them may realize all their arguments in the way typical of nouns, i.e. in genitive PPs. Quite surprisingly, nominalized infinitives do not allow arguments corresponding to the base verb's object to appear in a nominal configuration, suggesting that their selectional properties differ from those of other nominalizations. I suggested that, unlike regular deverbal nouns, nominalized infinitives retain the verb's selection of the object function as their lexical property, and hence are unable to express the argument corresponding to the verb's object in a nominal configuration. The difference between regular deverbal nouns and nominalized infinitives is summarized in (4.1).

(4.1)   Nominalized infinitives vs. other types of nominalization in Italian

nominalization type	realization of arguments corresponding to the verb's object	explanation
regular deverbal nouns	expressed in possessive PPs (*di*-phrases)	mapped onto the OBL$_{di}$ function
nominalized infinitives	cannot be expressed in *di*-phrases; must be realized in a mixed category construction	the verb's object function must be retained; the argument cannot be mapped onto the OBL$_{di}$ function

As I discussed in Chapter 2, this type of restriction on nominalization is not captured by theories that aim to define grammatical relations in terms of phrase structure configurations, which has been a major trend in the recent development of transformational syntax (for a general critique of theory-internal developments that aim at a one-to-one correspondence between phrase structure configurations, grammatical relations, and thematic roles, see, e.g., Newmeyer 2001). Although seemingly attractive, this approach oversimplifies the relationship between different levels of linguistic structure that are in some cases dissociated. As I tried to show, category mixing is one type of phenomenon where such dissociations are especially difficult to ignore.

A seemingly less extreme view on the role of grammatical relations in transformational syntax is presented in Baker (2001: 49):

"It should be conceded that grammatical relations cannot always be reduced to phrase structure relationships that can be established by independent syntactic tests. In that sense, grammatical relations are primitive. Nevertheless, it can still be claimed that phrase structure relationships are a particularly good representation of grammatical relations, because they express in an organic

way the deep interrelationship between relational prominence and embedding prominence."[41]

Even this move, however, does not seem to accommodate the data discussed in Chapter 2: if a nominalized transitive verb selects for an object, and that object is present at some level of phrase structure representation, why can it not be expressed at least in some way in the resulting construction? To account for this pattern, the theory needs to treat notions like transitivity in a way that is independent of the phrase structure configuration in which the object appears. As the restriction on nominalization of transitive verbs demonstrates, the fact that the object function is selected by a given word does not guarantee that it will be expressed in a given syntactic configuration, or that it will be expressible, in the first place.

On the other hand, the Italian nominalization pattern is not only accounted for, but also predicted to exist by theories of grammar that treat selection of grammatical functions as a lexical property of words independent of syntactic constraints on the expression of those functions: the independent representation of the two sets of properties presupposes that they should be, in some cases, dissociated. The LFG-style account of category mixing developed in this study can capture the dissociations in question. In addition, as an account that does not rely on syntactic configuration alone in defining grammatical relations, it can be easily extended to typologically diverse languages, including languages with partly non-configurational syntax and morphological case.

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[41] Baker takes it to be the crucial advantage of the Chomskian-style representation that the prominence of subjects over objects is represented in exactly the same way as the prominence of matrix subjects over embedded subjects. Assuming that the two types of prominence are universally equivalent, he concludes that "[t]he Chomskian phrase structure is a uniquely revealing and truthful representation" (2001: 36).

4.1.2. Surface-oriented vs. transformational syntax

In my second case study (Chapter 3), I looked at argument realization in constructions with deverbal nouns in Wan, a language that differs considerably from more familiar Indo-European languages with respect to the surface realization of its oblique arguments. I showed that in Wan, oblique arguments of verbs must be expressed non-locally: they appear in a position external to the VP, as adjuncts to the IP. The same pattern of obligatory non-local argument realization of oblique arguments is found with nominalizations, i.e. oblique arguments often appear at a considerable distance from deverbal nouns that select for them, and clearly do not form a syntactic constituent with the noun.

Due to the unusual syntax of Wan, this case study is important for developing an account of category mixing and of the theory of grammar in general. I argued that the pattern of non-local argument realization cannot be accounted for in terms of transformational theories of syntax, which rely on the assumption that lexical properties of words, including their argument structure, are projected directly into the syntactic structure, and therefore arguments must originate next to the verb or noun that selects for it. This type of account turns out to be inadequate for Wan, where oblique arguments are base-generated as adjuncts to the IP, and their position cannot be explained in terms of any familiar type of movement.

Besides challenging the general assumption that an argument is generated next to the word that subcategorizes for it, the pattern of nominalization found in Wan presents more specific problems for the argument-projecting view of category mixing, which again requires that an argument be present at all levels of phrase structure representation. Supposing that oblique arguments of a noun or an embedded verb are present at the early stages of sentence generation, it is unclear how and why they end up in a position external to the corresponding NP or VP, which not only is often separated from the NP and VP by the main verb, but is also in no obvious way involved in a case-checking relation with any syntactic head.

While being problematic for transformational theories of syntax, the nominalization pattern of Wan is accounted for by the proposed surface-oriented

analysis that treats lexical properties and syntactic configurations as two separate levels of structure. While verbs and deverbal nouns of Wan do not differ from verbs and deverbal nouns of more familiar and better-studied languages with respect to their lexical selectional properties (and select for oblique argument functions), the constraints on phrase structure require that all oblique functions be expressed in a fixed position, independently of where their subcategorizer appears. The fact that a surface-oriented theory of this sort can deal with instances of non-local argument realization suggests that it provides more adequate tools for describing patterns of category mixing in typologically diverse languages.

4.1.3. The lexical and the syntactic dimensions

In a way, the account developed in this study is designed to combine the advantages of configurational and lexicalist accounts. On the one hand, it relies in a crucial way on the lexical properties of a deverbal noun: whether or not the noun retains one or more argument functions of the base verb is determined by the properties of the lexical rule that derives the noun in the lexicon. Deriving morphological nominalizations in the lexical component, the theory predicts that they would not differ from other nouns in their syntactic behavior, i.e. that they would behave as regular words rather than as syntactic phrases.

The fact that mixed properties must be licensed in the lexicon also allows for a uniform treatment of argument realization properties and mixed morphological behavior. While this study does not address the issue of mixed morphology (see, e.g., Spencer 2005), it does not seem unusual for words heading hybrid configurations (such as deverbal nouns) to display some mixed morphological behavior as well (e.g., taking aspectual affixes and simultaneously being inflected for case). It seems desirable that the two types of mixed properties be treated in a compatible way, i.e. that both morphological features and argument realization properties be encoded in the lexicon.

On the other hand, while having a lexicalist basis, the proposed theory does not dispense with constraints on phrase structure configurations. In particular, it does not

assume that the syntactic behavior of a word is fully determined by its lexical properties (cf. Malouf 1998, 2000a,b). On the contrary, phrase structure constraints are assigned the important role of licensing the surface realization of grammatical functions selected by a deverbal noun. Their dissociation from word-specific lexical selectional properties is crucial in accounting for patterns where the two seem to be in discrepancy (as in the case of Italian infinitival nouns, which select for object functions but are not allowed to realize them). It is also essential in describing cases where an argument of a nominalization is expressed in a position that is not syntactically dependent on the nominalization (as in Wan, where oblique arguments appear as adjuncts to the IP, while their subcategorizer may appear deeply embedded in the sentence) and therefore does not seem to be licensed directly by its lexical properties.

The model of syntax that distinguishes in a principled way between the lexical and the syntactic components proves to be able to account for cases of category mixing that are problematic for theories that derive one from the other.

4.2.   A note on modification

So far the discussion has centered on argument realization properties, and the proposed account has not addressed the distribution of different kinds of modifiers, such as adjectives and adverbials. The reason modifiers have largely been ignored has to do primarily with the design of the proposed account: while selection of arguments and abstract grammatical functions is obviously encoded in a word's lexical entry, information about possible adjuncts is not (although see Bouma 2003 and references therein for an adjuncts-as-complements analysis within the HPSG framework). In this sense, the lexicalist account proposed for dealing with argument realization does not extend directly to adverbial modification or other phenomena that do not involve subcategorized elements. For example, it fails to predict which kinds of nominalizations can combine with adverbial modifiers, including certain kinds of prepositional phrases.

The fact that the theory fails to make this prediction could be viewed as a serious disadvantage. Yet the distribution of different types of adverbial modifier may actually turn out to be constrained not only by factors that do not necessarily have to do with the category of the syntactic head, but also by factors related to the semantic compatibility of the modifier with the head that it modifies. For example, certain kinds of adverbial modifiers may be assumed to modify an open event variable, which is present in the argument structure of verbs but is only retained by deverbal nouns of a particular type (this kind of solution is suggested in Grimshaw 1990; Rappaport Hovav and Levin 1992: 140-4). On this view, while the use of an adverbial modifier is predicted to vary depending on the type of nominalization (just as the nominalization's argument structure varies), it is also predicted to depend on the noun's semantic representation, rather than on the set of grammatical functions associated with it.

The semantic approach to adverbial modification seems appealing for several reasons. First of all, the distribution of adverbial modifiers appears to be sensitive to the semantic content, rather than just the morphological class, of the word that they modify. While English nouns in general combine freely with PP modifiers (4.2a), the combinations in (4.2b) are questionable, presumably since the latter type of modifier require the presence of an open event variable, which the deverbal noun in (4.2b) cannot provide. This contrast does not correspond to any other difference in the noun's syntactic behavior: both nouns function as heads of regular NPs and do not occur with any kinds of mixed syntax.

(4.2) a. our conversation in the hall / on Monday

       b. our examination ??for five minutes / ??with care[42]

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[42] Some such combinations suddenly become acceptable in the presence of arguments that correspond to arguments of the base verb, cf. (i) from Grimshaw (1990: 58):

  (i) Only observation of the patient *for several weeks* can determine the most
       likely …

This difference has to do with the process vs. result (or complex vs. simple event) ambiguity inherent in some deverbal nouns. It confirms once again that acceptability

The same conclusion is suggested by the fact that the constraint on the use of adverbial modifiers with deverbal nouns is far less categorical than the constraints on retention of a grammatical function. The examples in (4.3a,b) clearly differ in their degree of acceptability: while (4.3a) involves a violation of the noun's selectional properties (in modern English, deverbal nouns cannot take object functions, see more in Chapter 5), (4.3b) is, at least for some speakers, only a violation of the semantic principles governing the distribution of adverbs.

(4.3) a. *the enemy's destruction the city

       b. ??the enemy's destruction of the city *rapidly*[43]

The lack of categorical criteria for adverbial modification is also evident when looking at the historical data. The following examples from 17th and 18th century English do not conform to the modern pattern of adverbial usage, suggesting once again that the distribution of different kinds of modifier may be sensitive to the semantic properties of the modified word, rather than dependent on a selectional property comparable to the one that determines the use of object NPs.

(4.4) a. The *quickly* doing of it, is the grace (1610 Ben Johnson, Alchemist, Eerym., IV, ii; quoted from van der Wurff 1993: 366)

       b. he finds that bearing of them *patiently* is the best way (1664 Pepys's

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of certain kinds of adverbial modifier depends on the semantics of the head they modify, and not merely on its lexical category, morphological class, or syntactic behavior (see also Siloni 1997: 76-8 for a similar observation for Hebrew).

[43] Cf. Comrie (1976: 191-2): "Even in English, many native speakers do not find action nominal phrases like *the enemy's destruction of the city rapidly* particularly objectionable, although *the enemy's rapid destruction of the city* sounds more felicitous stylistically" (see also Comrie and Thompson 1985: 390). At the stage where the deverbal nouns in *-ing* are no longer used in combination with object NPs, whether a hybrid configuration (with a VP containing an adverb embedded under an NP) is ruled out by phrase structure constraints may be a matter of inter-speaker variation, and some speakers may be more tolerant to examples like (4.3b) than others.

Diary, ed. Braybrooke, July 15th ; quoted from van der Wurff 1993: 366)

c.   but on an examination *more strictly* by the justices of the peace, and at the Lord Mayor's request, it was found there were twenty more (1722 Defoe, Journal of Plague Year; quoted from van der Wurff 1997: 26)

In (4.4a,b), an adverb modifies a noun phrase headed by a nominalization in *-ing*: the fact that the nominalization combines with a possessive PP shows that it functions as a nominal, and not verbal, head. The use of adverbs in these two examples cannot be explained by the nominalization's verbal or mixed syntax; this is evident in (4.4b), where the adverb follows the possessive PP, apparently modifying a noun phrase.[44] The example in (4.4c) is even more striking, since the noun modified by the adverbial phrase belongs to a morphological class that is otherwise never associated with any verbal syntactic properties (in particular, nominalizations of the *examination* type do not appear with object NPs, and never did).

Such examples suggest that certain kinds of adverbs may be allowed to modify action nouns even though the noun does not otherwise exhibit any verbal syntactic behavior, i.e. even if it never occurs with accusative complements (see, e.g., the discussion of nominalization in Greek in Alexiadou 2001: 47-9; for nominalization in Polish, see Rozwadowska 1997; also Comrie 1976: 191-2). This possibility is predicted by the account under discussion: in the absence of function-retaining nominalizations, a language may still license constructions with mixed syntactic properties, and such constructions may contain adverbs embedded under a VP.

Nouns occurring in such constructions must be distinguished from those that are not only modified by adverbs but also take accusative objects as complements (nouns of the latter type must retain the verb's object function as their lexical

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[44] This would explain the ordering of the adverb and the possessive PP as an instance of a mixed category construction where a VP functions as a co-head of a noun phrase and not of a noun (NP → NP VP). Alternatively, this could be an instance of scrambling; I do not have enough data to make the final conclusion.

property). This can be done straightforwardly on the semantic account of modification. In a language where all nouns can be in principle associated with a verbal projection (since the well-formedness of a mixed category construction depends on language-specific phrase structure constraints, and hybrid constructions are allowed), only some are semantically compatible with certain kinds of adverbs and can be modified by them. The semantic compatibility is determined independently of the set of grammatical functions associated with the noun; in other words, a nominalization does not have to retain the verb's selection of argument functions in order to be modified by an adverb.

This explains the discrepancy between the ability of a noun to take accusative objects and its ability to combine with adverbs. As the example in (4.4c) illustrates, nouns that can be modified by an adverb may never license accusative objects (even though objects typically attach lower in a VP than adverbs, and hence should be licensed wherever an adverb is permitted). The nominalization type used in this example cannot retain the object grammatical function of its base verb, and hence never occurs with accusative NPs. This does not, however, prevent it from occurring in a hybrid configuration where it is associated with a verbal projection. This projection may license the use of an adverb given that it is accepted on semantic grounds.

In sum, while the use of adverbs to modify nominalizations suggests the presence of a mixed category construction, it need not be directly related to the nominalization's function-retaining properties. Since the distribution of adverbial modifiers seems to depend on criteria that are more subtle than the category of the head or the retention of verbal grammatical functions by a class of deverbal nouns, the theory may be making the correct prediction by not using the same tools to constrain the realization of a nominalization's arguments and its compatibility with different kinds of adjunct. While the former is encoded as part of the nominalization's lexical entry, the latter depends on semantic compatibility, on the one hand, and on language-specific phrase structure constraints, on the other.

Modification by adverbs is of course just one syntactic property that involves non-subcategorized elements, and one that, as I argued, requires reference to semantics. It is possible that, when extended to a wider range of data from various languages, the theory of category mixing will face other types of phenomena that cannot be treated on semantic grounds. It may then turn out that the account outlined in this study, i.e. the account based on selectional properties of individual classes of lexical items, is not sufficient for explaining such mixed patterns. (To give a hypothetical example, it is theoretically possible that extraposition from noun phrases may depend in some languages on whether the head of the noun phrase is a regular noun or a particular type of nominalization.)

Although I am not aware of such examples, the possibility of discovering such elaborate patterns of mixing cannot be excluded. The proposed account, however, can be easily adjusted to accommodate such instances, if additional devices are used to single out particular classes of nominalization based on features other than those pertaining to subcategorization. For example, some phenomena may prove to be sensitive to certain morphological features associated with a given type of nominalization; or, it may even turn out necessary to posit, for some languages, dual lexical categories similar to the ones used in some other approaches to category mixing (see Chapter 1). In other words, the proposed account may need further elaboration in case more complicated patterns of category mixing are discovered. However, as I tried to show in the previous chapters, it is nevertheless more effective than any other account proposed so far in accounting for the patterns already attested.

4.3. Diachronic perspective on category mixing

Generating the right set of data for a given language, as well as accounting for a wide range of cross-linguistic phenomena, is but one criterion an adequate theory must satisfy. While this criterion is often taken to be the ultimate measure of a theory's success, what is often overlooked is that any synchronic analysis makes predictions about language change, as does the choice of formal representation (Kiparsky 1968).

Evaluating such predictions and testing them against the available diachronic data is as important as testing the theory's typological adequacy.

In the rest of this study I turn to the historical aspect of category mixing, aiming to complement the proposed synchronic analysis with a diachronic account. I am particularly concerned with the implications of the two-dimensional account of category mixing for the study of language change. I argue that the distinction between the lexical and the syntactic components of category mixing – where the lexical component involves the selection of abstract grammatical functions, and the syntactic component consists of general constraints on phrase structure – is supported by patterns of development of different kinds of mixed categories.

So far the discussion has focused on mixed nominalizations, which combine the syntactic properties of nouns and verbs in a very specific way: while having the distribution of a noun, a mixed nominalization realizes some of its arguments in the same way as verbs do. In the next chapters I show that mixed nominalizations are but one possible type of a mixed category with a combination of verbal and nominal syntax. In particular, I argue that a distinction should be made between two types of such mixed categories, the mixed nominalizations and the mixed nonfinite verb forms. Not only do the two types differ in their syntactic structure – their paths of development are also strikingly different, suggesting that their synchronic properties are a result of two different kinds of historical development. I suggest that the distinction between the lexical and the syntactic component is the key to understanding this difference.

The most important diachronic prediction that the two-dimensional theory makes is that changes to the set of grammatical functions selected by words of a particular class should be dissociated from changes to the syntactic analysis of individual constructions. As I attempt to show in the next two chapters, the difference between two kinds of mixed category construction can be explained by the different role the two types of change play in their development.

Part II: Diachronic perspective on category mixing

Chapter 5. Mixed nominalizations as a result of change in the derivational rule

5.1.   Emergence of function-retaining nominalizations

5.1.1. Introduction

The discussion of category mixing in Chapters 1-4 was centered on function-retaining nominalizations – the best-studied and apparently most common type of mixed category construction. Such nominalizations not only share with the corresponding verb their argument structure, but also may, and in some cases must, realize those arguments in a "verbal" way, as if they were syntactically a verb. As I argued in Chapter 4, the best way to account for this kind of category mixing is in terms of the nominalization's lexical properties; more specifically, the deverbal noun may (and in some cases must) retain, in addition to the verb's argument structure, the verbal selection of abstract grammatical functions, such as object (as in Italian) or oblique function (as in Wan). In this chapter, I look at the historical development of function-retaining nominalizations. I suggest that the historical process that is responsible for the emergence of this kind of category mixing involves a change in the lexical relationship between the base verb and the derived noun, or a change in the properties of the lexical nominalization rule.[45] More specifically, I suggest that the change from

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[45] As before, my use of the term "nominalization rule" is phenomenological and pre-theoretical. It does not imply a specific view of derivational morphology as a set of operations or transformations of the stem. All generalizations relevant for my analysis can be captured within constraint-based models that do not presuppose any directionality in the relation between the verb and the deverbal noun. I also do not assume that all nominalizations are derived in a regular way; on the contrary, in section 5.2 I rely on the distinction between regular productive nominalizations, which

purely nominal to mixed syntactic behavior can be viewed as a change from a regular to a function-retaining type of nominalization.

Category mixing is a phenomenon that is rather difficult to examine from a diachronic point of view, since a relatively large corpus of diachronic data is typically required for uncovering changes in argument realization properties of a particular morphological form. Not only should the given form, such as a specific kind of nominalization, be attested in context – it should also realize overtly at least some of its arguments. Unfortunately, historical documents often lack the relevant data even for the most frequent nominalization types. Moreover, when a particular kind of nominalization is attested in a regular nominal, non-mixed construction, where it realizes some of its arguments in an unambiguously "nominal" way (e.g., in a possessive construction), it is often impossible to conclude, based on this evidence alone, that the "verbal" argument realization was not available as an alternative option. Because of these challenges, the diachronic study of category mixing has to rely either on extensive corpora of historical data (which are available for only a few languages with a rich written history) or on well-documented comparative evidence (which is also rarely found, due to the disciplinary divide between the use of the comparative method and the study of subtle syntactic properties, such as the properties of category mixing). As this study is only a first attempt at approaching the phenomenon of category mixing from a diachronic perspective, most of my data comes from better-studied Indo-European languages. I hope that in the future the study of this phenomenon will be extended to other language families.

5.1.2.　　　　Gerundive nouns in Middle and Early Modern English

5.1.2.1.　　　　The *-ing* form as a function-retaining nominalization

The first case study I discuss concerns the development of the mixed construction with the verbal gerund in English. As I already mentioned in the previous chapters, the

are derived synchronically from the verb, and unproductive ones, which are stored as lexical entries independent of the corresponding verb.

present-day English gerund does not fall under the rubric of function-retaining nominalization, since it does not change its lexical category and remains a verb even when preceded by a determiner or by a genitive NP. Evidence for the invariably verbal behavior of the gerund comes, first of all, from the form of negation: whenever a gerund retains an object function, it must also be negated with the particle *not*, just as a regular verb (*their not signing the petition*). This selection of a verbal negation marker would be unexplained if the *-ing* form were indeed a deverbal noun, as hypothesized in (5.1).

(5.1)

```
                      DP
               ┌──────┴──────┐
          DP_POSS            ??
            △          ┌─────┴─────┐
          their      not          NP
                             ┌─────┴─────┐
                             N          VP
                             |           |
                          signing      NP_OBJ
                                         △
                                    the petition
```
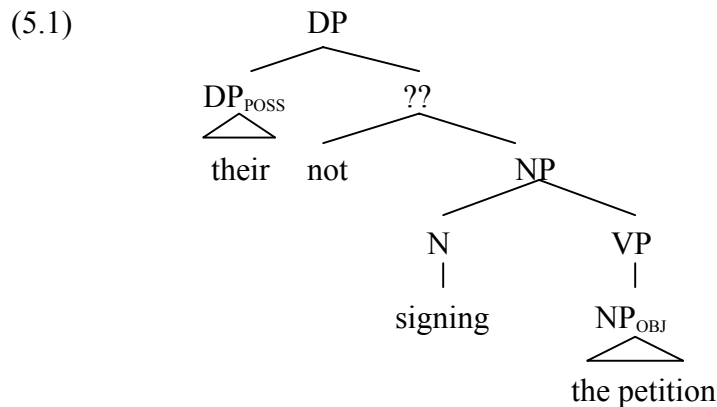
Secondly, the gerund + object combination can be modified by a preceding adverb (*their quickly signing the petition*). Unlike adverbs that follow the gerund, adverbs in this position are not explained by a coherent hybrid syntactic configuration: if the gerund functioned as a nominal head, preposed adverbs could not be embedded under the same VP as the object NP, and would require a discontinuous structure with interleaved verbal and nominal projections, as illustrated in (5.2).

(5.2)

```
                      DP
               ┌──────┴──────┐
          DP_POSS            VP
            △          ┌─────┴─────┐
          their    quickly        NP
                             ┌─────┴─────┐
                             N          VP
                             |           |
                          signing      NP_OBJ
                                         △
                                    the petition
```
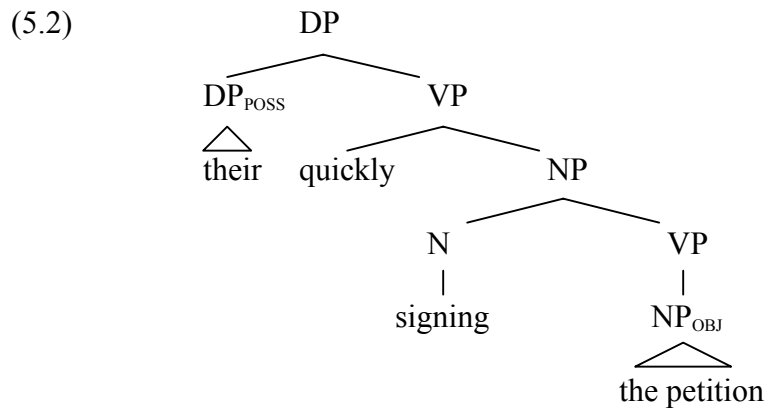
Even if such interleaving were allowed, the alleged nominal status of the gerund would predict that it should also allow modification by adjectives. In present-day English, however, adjectives are avoided in the presence of an object NP (*their *quick signing the petition*). In addition, the structure in (5.2) would leave unexplained the questionable grammaticality of examples like ??*their quickly signing of the petition*, which only differ from (5.2) in their lacking the internal part of the structure (the embedded VP).

Finally, unlike typical nouns, the *-ing* forms heading a construction that includes an object NP cannot be marked for plural (**frequent signings petitions*), even though the plural marking is acceptable with the *-ing* form used in a purely nominal construction (*frequent signings of petitions*). This contrast again suggests that the form only functions as a noun in the latter case, while in the former case it is a verb.

In sum, the present-day mixed constructions with the verbal gerund are an instance of nominalization that does not involve morphological derivation (i.e., no noun is derived from a verb, cf. Chomsky 1970). Rather, such constructions should be analyzed as instances of purely syntactic nominalization, where a verb is used in a particular nominal configuration without being turned into a noun (the same intuition is captured in accounts by Abney 1987, Pullum 1991, Bresnan 2001: 289-96, and some others, where English is assumed to license a special, idiosyncratic nominalizing construction, with verbs projecting a DP). In this sense, the form in *-ing*, as it is used in present-day English, cannot be regarded as a function-retaining nominalization. Rather, it represents a special subtype of the class of "mixed nonfinite forms", which are discussed in the next chapter.

Crucially, the gerund of present-day English has only recently acquired the syntactic properties discussed above. The behavior of the *-ing* form in the earlier period suggests that not so long ago it may have functioned as a function-retaining nominalization. Some relevant examples are presented below (unless noted otherwise, examples are drawn from Visser 1966, Tajima 1985, and van der Wurff 1993). Like regular nouns, this form could combine with an object NP while being modified by adjectives (5.3a-b, d-e), and it could also be marked by the definite article (5.3a-c).

Note that the construction was still in use in the 18th and 19th century, and possibly later.[46]

(5.3) a.   grete remorse I haue in my soule of *the untrewe* forgyng and contryvyng certayne testamentys and last wyll by naked wordes (Paston Letters and Papers of the Fifteenth Century 901.31-33, ca. 1454)

        b.   *the due* placing them adapts the rhyme to it (Dryden, Essay Dram. Poesy, Wks., ed. Scott/S 363, 1684)

        c.   *The* managing an argument handsomely being so nice a Point *(*Budgell, Spect. no.197, 1711*)*

        d.   my *wicked* leaving my father's house (Defoe, Robinson Crusoe, 1719)

        e.   Between rheumatism and *constant* handling the rod and gun (quoted in Jespersen 1940: 96 as from Kingsley, Hypatia 42, 1853)

Besides the definite article and possessive pronouns, the gerund with verbal internal syntax could be introduced by the demonstrative *this* (5.4a-b) or by the negative particle *no* (5.4c). The combinations with *no*, which sound awkward to most speakers of present-day English, support the view that the form in *-ing* originally differed in its syntactic status from its modern equivalent, and in particular, that it could function as a head of an NP and occurred in all typical nominal syntactic environments (for some additional examples, see Tajima 1985: 81-2, 83).

(5.4) a.   of *this* forbering the touche cometh noon yuel (Pecock, Repressor 556, ca. 1449)

---

[46] Cf. Poutsma (1923: 114): "Constructions in which the gerund is preceded by the definite article and followed by a non-prepositional object were, apparently, quite common in Early Modern English, but are now unusual, especially in the case of the object being a noun. In literary English, even of quite recent times, instances are not, however, so infrequent as is often believed."

b.   *This* supposing us to have been so long married was not difficult at all
       in a country where we had been seen together about that time; … this
       being seen together was also openly owned. (Defoe, Roxana, 1724)

c.   a wrytyng … that he ne none yn hys name make *no* distreynyng ne
       manassyng or jnquietyng none tenaunt ne person that occupyeth the
       londes ne pastures (Paston Letters and Papers of the Fifteenth Century
       912.31-34, ca. 1454)

Additional support for the nominal status of the gerund comes from the rare examples
where the form in *-ing* appears in the plural form but at the same time combines with
an object NP (Tajima 1985: 82, 87):

(5.5) a.   thou hast … noȝt kept the haly-day, noȝt kept thy penaunce, takyng non
              hede of thi wycked suspectys, & of thi fals demynges, ne of thi
              styrynges othere to synne (Jacob's Well 108/25-28, ca. 1440)

       b.   the 2a intencioun is complete in *cessingz or lissyngez* dolour … &
              rectifying yuel qualitee (quoted in Visser 1966: §1123; Chauliac (1)
              23b/a, ca. 1425)

The contrast between the behavior of the form in *-ing* in Middle English and its
present-day usage is explained by a change in the status of the form from a function-
retaining lexical nominalization to a specialized form of the verb that participates in
syntactic nominalization. As a function-retaining nominalization, the form in *-ing*
preserved the verb's selection of an object function and was used in a mixed category
construction, where it could express the object function within an embedded VP. The
upper projection, however, was purely nominal, as in (5.6), and the form itself
qualified as a deverbal noun rather than a verb (since it could be pluralized, negated
with the nominal negation marker, and modified by preceding adjectives).

(5.6)

```
                        DP
                   ╱          ╲
            DP_POSS              N'
              △              ╱      ╲
             my           A            N'
                          |         ╱      ╲
                       wicked    N            VP
                                 |            |
                              leaving       NP_OBJ
                                            △
                                    my father's house
```
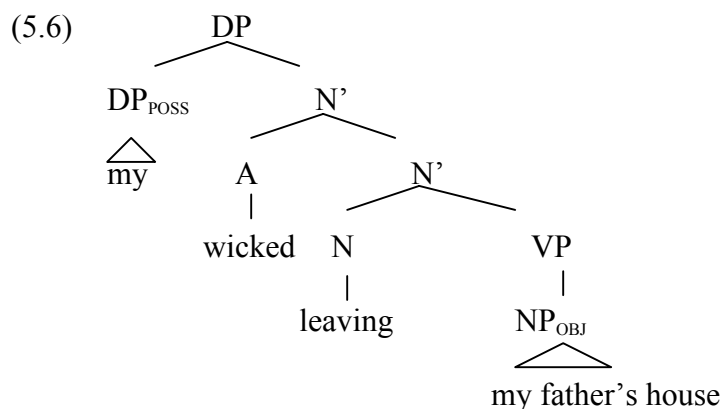
Mixed category constructions of this kind are no longer licensed in present-day English, and the form in *-ing* no longer behaves as a function-retaining nominalization (it certainly still exists as a function-remapping nominalization, which expresses all of its arguments within a purely nominal construction, as in *his beautiful singing of the song*). Instead, it has been reinterpreted as a special nonfinite form of the verb (which selects for a possessor function instead of a subject), and thus can be used in the hybrid construction in (5.7), in a "noun phrase with a verb-phrase head" (Pullum 1991). I will not discuss the properties of this construction further; for an analysis within Lexical-Functional Grammar, see Bresnan (2001: 289-96).

(5.7)

```
                   DP
               ╱         ╲
        DP_POSS              VP
          △            ╱        ╲
         my         V              NP_OBJ
                    |              △
                 leaving      my father's house
```
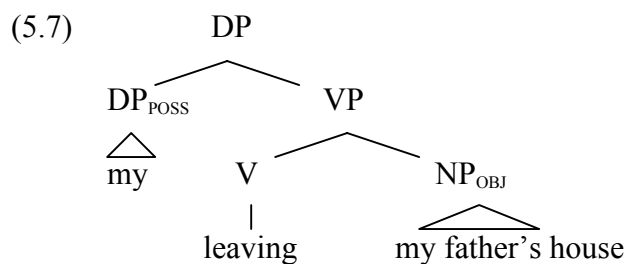
5.1.2.2.   Emergence of the function-retaining properties

As I argued in the previous section, although the form in *-ing* does not qualify as a function-retaining nominalization in present-day English, it apparently functioned as such at an earlier stage. The problem that is directly relevant for the present discussion is the historical source of the function-retaining nominalization that existed in Middle and Early Modern English.

The function-retaining nominalization in *-ing* is traced back to a deverbal noun in *-ing/-ung*, which is attested starting from the Old English period. Crucially, the form that developed into the gerund of modern English originally disallowed the retention of the object function. Deverbal nouns of this type were used in purely nominal constructions and behaved as regular nouns in all relevant respects.[47] Interestingly, nouns in *-ing/-ung* were originally derived not from verbs but from other nouns; the noun-to-noun derivation produced words analogous to modern English *shirting*, *schooling*, or *stabling* (Poutsma 1923: 159; Jespersen 1962[1905]: 182-3). Even when derived from verbs, such nouns functioned as regular nouns syntactically and only appeared in typical nominal constructions. The argument corresponding to the object of the verb was expressed in a possessive construction, first as a genitive NP, and later, as a possessor introduced by the preposition *of* (Tajima 1985: 31). Since deverbal nouns in *-ing/-ung* only occurred in unambiguously nominal syntactic configurations, they could not yet serve as a function-retaining nominalization.[48]

In Middle English, derivation of nouns in *-ing/-ung* gradually became a major means of forming nouns from verbs. According to Poutsma (1923: 159), by the early 16th century nouns in *-ing* ("which had become the usual termination") or *-yng* "could be formed from practically any verb," including verbs of French origin (see also Dal 1952: 26-7). As the derivation of deverbal nouns was becoming productive and the frequency of their use was increasing, what was originally a regular noun started acquiring verbal syntactic properties. The first indication of a change in this direction is provided by instances of co-occurrence of the deverbal noun with certain kinds of

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[47] Research on the development of verbal properties of the English gerund, or nominalization in *-ing*, has produced an abundant literature, and I cannot discuss in sufficient detail all the views and hypotheses represented in different studies. In addition to the work cited in this chapter, discussions of the development of verbal syntactic properties and further references can be found in Mossé (1938), Visser (1966), Irwin (1967), Wik (1973), among many others.

[48] It is quite likely that this type of deverbal noun could not even retain the argument structure of the base verb, not to mention the selection of grammatical functions.

adverbial particles, as in (5.8a,b). The earliest attested examples of this kind go back at least to the middle of the 15th century (and possibly, to the 13th century, see Poutsma 1923: 163; Tajima 1985: 39).

(5.8)　a.　We pray you hertily, that ye wil yeve (=give) attendaunce at such day and place as ye … shal mow (=may, be able) attende to the making *up* of the seide evidencez. (Paston Letters and Papers of the Fifteenth Century, No. 43, ca. 1444)

　　　　b.　the same Prentys toke of Wylliam Dallynge at Norwyche V mark for smytynge *of* of hese feteris when he was there in preson. (Paston Letters and Papers of the Fifteenth Century, No. 144, ca. 1464)

Especially prominent among such early instances are combinations of nouns with adverbial particles that are inherited by the noun from the corresponding verb, as in (5.8a,b). This change is apparently due to the increasingly tight lexical relation between the derived noun and the base verb; in particular, deverbal nouns start retaining some of the verb's lexical properties, such as the verb's selection of a specific particle or, possibly, the verb's argument structure. In other words, as this derivation becomes a productive way of deriving nouns from verbs, the deverbal noun starts inheriting some of the verb's lexical properties in a more systematic way.

　　　　At the next attested stage of the development of the deverbal noun in *-ing*, it starts co-occurring with object NPs, cf. (5.9a,b) from Poutsma (1923: 164). Constructions of this kind occur with a reliable frequency in Middle English, even though they may seem to be marginal compared to the predominant use of *-ing* nouns in constructions with purely nominal syntax (Donner 1986).

(5.9)　a.　Here upon y durste leie a waiour (=lay a wager) of *lesing* (=losing) *myn arme*. (Pecock, Repressor, I, 13, ca. 1455)

　　　　b.　I suppose that he hath slayn her in *fulfyllynge his fowle lust of lecherye*. (Malory, Morte Darthur, 166/19, ed. Sommer, ca. 1470)

This development points to an important change in the status of the nominalization, which may now retain not only the verb's argument structure, but also the selection of object functions of the corresponding verb. As a result of this change, there appears a

function-retaining nominalization, along with a new kind of a hybrid syntactic configuration. In the later period (apparently, only in late Middle English), the English gerund also acquires aspect and voice distinctions (Poutsma 1923: 165-6; Tajima 1985: 111-7).

The gradual acquisition of verbal properties by the deverbal noun in *-ing* was in all likelihood accelerated by the loss of the formal distinction between the nominalization in *-ing* and the present participle in *-ende* (the two forms became indistinguishable as the participial ending changed into *-ing*). The latter was by that time used both adjectivally (as a mixed category) and verbally (e.g., in the progressive construction), and could function as a typical verb with respect to its syntax (in the progressive construction, the participle combined with an object, adverbial modifiers, etc.). It is unlikely, however, that the identity of form alone could account for the acquisition of verbal internal syntax by the nominalization, especially given that deverbal nouns and participles had virtually no overlap in their syntactic distribution (the former functioned as nouns, the latter, as adjectives), and the loss of the formal distinction between the two categories was not accompanied by any major shift in their external distribution (Houston 1989: 180).

Moreover, the earliest examples of the use of the deverbal noun with verbal internal syntax, such as in combination with adverbial particles, appear to go back to the time when the deverbal noun was clearly distinct from the participle in particular dialects (Curme 1912; Callaway 1929; Jack 1988: 24-7). It seems plausible that rather than causing the acquisition of the internal syntax, the loss of the formal distinction between deverbal noun and participle was itself facilitated by a change in the morphological status of the deverbal noun, as a result of which it became a regular form and, along with the participle, part of the system of forms derived from a verb. This change is reflected, among other things, in the replacement of the infinitive by the form in *-ing* in a number of contexts, such as following prepositions (Mustanoja 1960: 576).[49]

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[49] The spread of the construction in which a deverbal noun in *-ing* instantiates verbal syntax may have been facilitated somewhat by influence of comparable constructions

In Middle and Early Modern English, the noun in *-ing* could function either as a head of a regular noun phrase or as a head of a mixed category construction that combined verbal internal syntax with nominal external distribution (5.10a,b).

(5.10) a. Regular NP   b. Internally verbal NP

         NP   NP
       /   \   /   \
   N-*ing*   PP$_{POSS}$ N   VP
                                                      | /   \
                                                   N-*ing* (V)   NP$_{OBJ}$
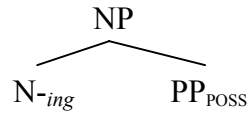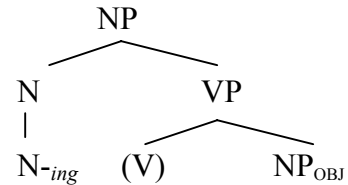
It is not entirely clear whether the two constructions were associated with different meanings (for the difference between the nominal and the verbal construction in present-day English, see, among others, Wasow and Roeper 1972). They are often found side by side in texts, as in the following passages (for more examples, see Visser 1966: 1210-7):

(5.11) a.   Concerning the means of *procuring unity*, men must beware that, in *the procuring* or *muniting*[50] *of religious unity*, they do not dissolve and deface the laws of charity and of human society. (quoted from Poutsma 1923: 164; Bacon, Es., Of Unity in Religion, 8, 1597)

        b.   Afterward, in *getinge of your richesses* and in *usinge hem*, ye shul alwey have three thinges in your herte (quoted from Jespersen 1962[1905]: 184; Chaucer, Tale of Melibee, 2813-5)

        c.   The great art of poets is either *the adorning and beautifying of truth*, or *the inventing pleasing and probable fictions* (quoted from Visser 1966; Dryden, Notes on the Empress of Morocco, Wks., Vol. XV, ed.

---

in Latin (Callaway 1929, but cf. Nickel 1966) or French (Einenkel 1913); it seems unlikely, however, that the construction could originally develop exclusively due to foreign influence. Besides, a form parallel to the verbal gerund of English exists in Basque (see next section), where it developed from a deverbal noun without any obvious external factors or influence of homophonous forms.

[50] to munite = to fortify, to strengthen (Poutsma 1923: 164)

Scott/S. 408, 1674)

To summarize, the development of the mixed nominalization from a regular deverbal noun in Middle English can be characterized as a result of change in the lexical relationship between the verb and the deverbal noun, or change in the properties of the lexical nominalization rule: from a regular deverbal noun the noun in *-ing* developed into a function-retaining nominalization. This change was accompanied by an increase in productivity of the nominalization: from an irregular derivational pattern, it developed into a regular form derived from the verb.[51] The crucial role of the productivity increase in the development of the verbal internal syntax of nominalization in *-ing* is mentioned explicitly in Dal (1952: 33); Jack (1988: 45) describes productivity as a "necessary preliminary condition" for the development of the mixed category construction. I return to the question of productivity and its relation to mixed syntax in subsequent sections.

5.1.3. Deverbal nominalization in Basque

Nominalizations with verbal internal structure are also found in Basque, where the history of the nominalization's mixed properties seems to be similar to that of the English gerund. As in English, what was originally a deverbal noun with purely

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[51] Whether such a development could be treated in terms of a change from a derivational to an inflectional form is uncertain. The traditional definition of inflection excludes category-changing operations; that a category-changing operation can be inflectional is argued in Haspelmath (1995), see also Corbett (1987) for evidence from mixed category constructions suggesting that the distinction between inflection and derivation is gradient. I do not treat this question in this study; rather, I am concerned with the distinction between regular (productive) and irregular (unproductive) categories, see more in section 5.2.

nominal syntax[52] underwent development into a form that has the external distribution of an NP but verbal internal structure. The nominalization (which is also sometimes referred to as the "gerund") takes nominal case marking and can be modified by demonstratives, as in (5.12b). Like a nominal argument, and unlike certain types of clausal arguments, it also triggers agreement on the auxiliary (for a discussion of agreement in infinitival complementation, see San Martin and Uriagereka 2002). At the same time, as shown in the examples below, the mixed nominalization combines with an object NP in the absolute case, a locative phrase, and an adverb, as if it were a verb.[53]

(5.12) a. Begi   onez   ikusten   dut   [haurrek
         eye   good.INSTR   see.IMPF   AUX.3ABS/1ERG   children.ERG

         etxean   liburuak   sarri   *irakurtze-a*]
         home.LOC   books   often   read.NMLZ-DET

         'I regard children's often reading books at home as positive.'
         (Hualde and Ortiz de Urbina 2003: 658)

       b. [Ainhoaren *patxarana* etengabe   *edate*   horrek]   harritu
         Ainhoa.GEN patxaran   constantly drink.NMLZ that.ERG   surprise

         egiten   nau
         do.IMPF   AUX.1ABS/3ERG

         'That constantly drinking patxaran of Ainhoa's surprises me.'
         (Artiagoitia 1995: 76)[54]

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[52] According to de Rijk (2008), the nominalizer was originally related to the "period" suffix -*te*, which had the meaning 'a prolonged period characterized by X or Y-ness' (126) and was attached directly to the perfect participle (140).

[53] In (5.12a, c), the noun combines with an ergative-marked subject, and the NP can be assumed to have the internal structure of a clause rather than that of a VP.

[54] The fact that in this example the argument corresponding to the verb's subject is expressed in the genitive, and not in the ergative, could be related to the ergative marking on the larger NP, of which the nominalization is the head.

c.　　　Jende asko [Ainhoak　　*bibolina*　　jotzeaz]

people many　Ainhoa.ERG　violin　　play.NMLZ.INSTR

harritzen　　da

amaze.IMPF　AUX.3ABS

'Many people are amazed at Ainhoa's playing the violin.' (Artiagoitia
1995: 66)

Unlike in the case of English, the written history of Basque does not provide direct evidence for the development of the mixed nominalization. It appears, however, that this development involved a similar kind of change from a regular deverbal noun to a function-retaining nominalization. This is suggested, first of all, by dialectal evidence. According to Trask (1995: 224-5), the development of the mixed nominalization that takes objects in the absolutive is "not quite complete even today in the northern dialects of Basque": "in certain circumstances in northern dialects, the direct object of the gerund of a transitive verb stands not in the absolutive, as is normal for direct objects, but in the genitive" (cf. also Heath 1972).[55]

Moreover, although the use of the objective genitive is no longer widespread in other dialects of Basque, it is attested in early texts in the southern dialects. This evidence confirms that the construction in which the nominalization combined with a genitive-marked NP was the original one, and that the mixed nominalization taking an absolutive object is a later development. While in some dialects, the form has acquired the status of a function-retaining nominalization (and hence retains the verb's selection of an object function, expressed in the absolutive), in others it is still at the stage of assigning to all arguments grammatical functions typically associated with nouns (hence the genitive marking). While the behavior of the Basque gerund appears to

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[55] The subject, however, cannot be genitivized; i.e. apparently, the subject grammatical function must be retained with nominalization (Trask 2002: 281-2). This could also be related to a restriction on two genitives, i.e. a restriction on the mapping of two arguments of the nominalization onto a possessor function. I do not have enough data to attempt a full account of this phenomenon.

conform to the development suggested for English, more detailed analysis is needed to conclude with certainty whether the two cases are in fact parallel.

5.1.4. Deverbal nominalization in Old Church Slavonic

In the two cases discussed above, a particular type of deverbal nominalization acquired the ability to retain certain properties of the base verb, including the verb's selection of object functions. I suggested that this development, which is crucial for the emergence of mixed category constructions, is best accounted for in terms of a change in the lexical properties of the nominalization, or a change in the nominalization rule: the deverbal noun starts retaining some of the verb's grammatical functions. This account, however, brings up the following issue: if a nominalization may start retaining the verb's selectional properties as a result of lexical change, it is also predicted that a change in a nominalization's properties should be able to produce the reverse effect. In other words, instances should be found where a deverbal noun that had functioned as a function-retaining nominalization developed into a regular noun that no longer shares with the verb its selection of grammatical functions.

Instances of this kind of change are not easy to find. This is partly due to the general lack of detailed information on the history of the syntactic properties of particular morphological classes of lexical items. An additional reason has to do with conflicting patterns of change that play a role in the development of mixed nominalizations: it appears that mixed nominalizations are often reanalyzed as special nonfinite forms of the verb that can be used in a hybrid syntactic configuration without turning a verb into a noun at the lexical level. (This development has apparently affected the original lexical nominalization in English, see section 5.1.2, and possibly the nominalized infinitives in Romance languages.) This additional path of development often eliminates what used to be a function-retaining nominalization from the language; hence, we are less likely to see other kinds of change that can in principle affect it. These other kinds of change, however, do seem to exist. In this section, I will try to make a case for a pattern of development that is best described as a loss of a nominalization's function-retaining properties.

The form in question is the deverbal noun in *-nie/-tie* in Old Church Slavonic (OCS) and Old Russian. Such nouns name actions and typically appear in purely nominal syntactic configurations, expressing their arguments in a possessive construction, in prepositional phrases or in oblique cases. Thus, arguments corresponding to the verb's subject and object are typically realized with deverbal nouns by means of possessive adjectives (a common way of expressing possession in OCS) or by noun phrases in the genitive case (Nilsson 1972). The latter pattern of argument realization (the objective genitive) has been inherited by modern Russian, where deverbal nouns in *-nie/-tie* are also used in purely nominal configurations and do not retain any verbal syntactic properties.

There is, however, some evidence that the nouns in *-nie/-tie* may have functioned as function-retaining nominalization at an earlier stage of language development. In rare instances, deverbal nouns in *-nie/-tie* are actually found in combination with noun phrases in the accusative case, which correspond to the object of their base verbs (Meillet 1897: 161; Vaillant 1948: 331; Lunt 1955: 126; Duridanov 1991: 457; Večerka 1963: 188). The examples below illustrate this pattern of category mixing, where what is unambiguously a noun (e.g., it occurs in a typical nominal environment and is inflected for case) takes an object as if it were a verb.[56]

(5.13) a.   о   съвrании   съвоrъ
               about   assemble.NMLZ.LOC   council.ACC
               'on the fact of assembling the council'   (Supr 384.11)

        b.   по сътвоrении   же комисоу   овыченыд   позоrы
               after make.NMLZ.LOC PRT counselor.DAT usual.ACC.PL   spectacles.ACC
               'after the counselor's having arranged the usual spectacles'
               (Supr 226.7)

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[56] My spelling of all OCS and Old Russian examples follows the spelling of the primary or secondary sources used.

c.   **пр(ѣ)ждє бо   тѧ,   рєчє,   Филипова   възъваниѧ**

before   because   you.ACC   said   Philip's.GEN.SG   call.NMLZ.GEN

'because, he said, before Philip's calling you'

(i.e., 'he said that before Philip called you…) (Supr 350.7)

d.   **по приѧтии   ми   отъ чловѣколюбивааго   б͠а**

on receive.NMLZ.LOC   me.DAT   from   benevolent.GEN   god.GEN

вєликыи   даръ

great.ACC.SG   gift.ACC

'after my receiving the great gift from benevolent God'

(Supr 525.15-16)

e.   **възлиывъшиы бо   мұро   сиѥ   на   тѣло**

pour.PRTC   because   myrrh.ACC   this.ACC.NEU   on   body.ACC

моѥ   на   погрєбєниѥ   мѧ   сътвори

my.ACC.NEU   on   burial.ACC   me.ACC   made

'for [she] who poured this myrrh on my body did this for my burial'

(Matt 26: 12; quoted from Vostokov 1843: 153)

f.   **w   оуслышаньи   г͠ю   гласъ   молитвы   нашеѧ**

in   hear.NMLZ.LOC   god.DAT   voice.ACC   prayer.GEN   our.GEN.SG

'for God to hear the voice of our prayer [let us pray]' (Evx 60a20-21;
quoted from Duridanov 1991: 457)

g.   **бѫди въ добро   брашъно ѣдєниѣ   мѣсто   соухоѣдєць**

be   in good.ACC.SG   food.ACC   eat.NMLZ.GEN   place.ACC   dry-eater.NOM

'instead of eating good food, be an eater of dry [food]' (Evx 70a24-25;
quoted from Frček 1939: 407)

h.   prêžde   danijemь   uroky

before   give.NMLZ.INSTR   payments.ACC

'before distributing payments' (quoted from Miklosich 1868/1874:

880)[57]

Such examples are typically explained by reference to the influence of the accusative case in the Greek original (most surviving OCS texts are translations from Greek). Thus, examples (5.13a-d) are dismissed by Vaillant as "bad translations from Greek" (331).[58] In most instances, the deverbal nouns correspond to an infinitive or, less commonly, to other forms of the verb in the Greek. For example, (5.13a) translates a Greek title involving a construction with a finite form of the verb (an aorist); the original of (5.13b) involves a nominalized (articular) infinitive; similarly, (5.13c-e) translate constructions with a nominalized infinitive (see 5.14a-e, corresponding to 5.13a-e).

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[57] This example is taken from an unpublished manuscript of 16th century (Men.-Mih.) and is classified by Miklosich with OCS examples; it is unclear whether it is a translation from Greek.

[58] The same explanation arguably applies to the Old Russian examples found in the oldest part of *Povest' Vremennykh Let* (Kaporulina 1962: 135):

(i)　　Na uderžanie　　i　na izveščenie　　ot(ъ) mnogix(ъ)　lĕt(ъ) …
　　　　for keep.NMLZ.ACC and for manifest.NMLZ.ACC from many.GEN.PL　years.GEN
　　　　byvšjuju　　　ljubovь
　　　　present　　　friendship.ACC
　　　　'For the preservation and declaration of friendship that has been present for many years' (preamble to Oleg's treaty with the Greeks, believed to be a translation from Greek; Radziwill manuscript; quoted from Nilsson 1972: 43)

(ii)　　сохранениє　…　извєщаємоую　любовь
　　　　preserve.NMLZ.ACC　confirmed.F.ACC.SG　friendship.ACC
　　　　'the preservation of [our] declared friendship' (same treaty, PVrL 33/27-29; quoted from Eckhoff 2001: 57)

(5.14) a.　eis　　tò ·　　　　　　　　sunḗgagon　　　　sunédrion,

on　ART.NEU.ACC.SG　assemble.AOR.3PL　council.ACC

'on their assembling a council' (lit., 'on [the words]: "they assembled a council"')

b.　metà dè tò　　telésai　　tòn　　kómēta

after PRT ART.NEU.ACC.SG finish.INF.AOR.ACT ART.M.ACC counselor.ACC

tḕn　　　　　tõn　　　　　theátrōn　　sunḗtheian

ART.F.ACC.SG　　ART.NEU.GEN.PL　spectacles.GEN　custom.ACC

'after the accomplishing by the counselor the custom of the spectacles'

c.　prò　toũ　　　gár se,　fēsí, Fílippon　fōnḗsai

before ART.NEU.GEN.SG for you.ACC says Ph.ACC　call.INF.AOR.ACT

'because, he says, before the calling you by Philip'

d.　metà　tò　　　　　pollḕn　　parà　　toũ

after　ART.NEU.ACC.SG　great.F.ACC.SG from　ART.M.GEN.SG

filanthrṓpou　　theoũ　　déksasthaí　　me

benevolent.M.GEN.SG　god.GEN　receive.INF.AOR.MID　me.ACC

tḕn　　　xárin

ART.F.ACC.SG　gift.ACC

'after the receiving the great gift by me from the benevolent god'

e.　pròs tò　　　entafiásai　　me　　epoíēsen

for　ART.NEU.ACC.SG　bury.INF.AOR.ACT　me.ACC　do.AOR.3SG

'for the burying me she did [this]'.

It is not, however, entirely clear whether all instances of deverbal nouns taking an accusative object can in fact be due to incompetent translation from Greek (as some of the sources have not been found). This is especially unlikely given that it is so common cross-linguistically for nominalizations to take accusative complements, and that the construction only appears with this particular type of deverbal noun. It is similarly unclear why the case of the complement (accusative) should be rendered more faithfully by the translator than, e.g., the morphological form of the

corresponding syntactic head (finite verb or an infinitive in the original vs. noun in the translation). The faithful rendering of the case of the object NP is especially surprising given that the subject participant, represented in Greek by the accusative in the *accusativus cum infinitivo* construction (5.14b-c), is rendered in the translation by the dative case in (5.13b,d), and by a possessive adjective in (5.13c). Finally, while incompetent translation is often viewed as the cause of abnormal case marking in excerpts that correspond in Greek to long sentences with convoluted syntax, the "noun+accusative" instances do not present any obvious difficulties. In fact, it is clear that the translator had no difficulty recognizing the relation between the infinitive and the accusative NP in the Greek.[59]

Besides taking accusative objects, the deverbal nouns in *-nie/-tie* display certain other syntactic properties that are characteristic of verbs but not other types of noun. For example, they are often modified by adverbs, rather than adjectives, as in (5.15), suggesting that they can be associated with a verbal projection and function as nominal heads of a hybrid syntactic configuration (see also Nilsson 1972: 57-8 for examples from Old Russian).

(5.15) по работании   ми   непорочьнѣ бꙋ   лѣтъ   ·н·

      on work.NMLZ.LOC me.DAT irreproachably god.DAT   years.GEN 50

      'after my working irreproachably for God for 50 years' (Supr 525.14-15)

In addition, they seem to co-occur with accusative NPs describing duration, as in the following example (quoted from Krys'ko 1997: 71). Note also that in the previous example (5.15), duration is expressed with a deverbal noun by a genitive NP, not by an accusative one, suggesting that duration phrases should be analyzed as real noun phrases rather than adverbs (otherwise, no change in case-marking would be expected).

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[59] The fact that deverbal nouns taking accusative object are found in translations but not, for example, in native Old Russian documents, most likely has to do with the relatively high frequency of action nominals in certain types of text (on their genre-specific use, see Bulatova 1957; Romanova 1994: 15-6).

(5.16) **попцѣтеся** ...   о   <не>   **дрѣманьи**   **нощь и дн҃ь**

be.concerned.IMPER.PL about not   be.asleep.NMLZ.LOC   night and day

'take pains <not> to sleep night and day' (FSt XIV, 139b)

Duration phrases are commonly found with verbs but not with nouns, suggesting that this type of nominalization is indeed special among nouns in allowing verbal modifiers. It is doubtful whether this example could be explained by the influence of the Greek original. In the original, the duration is described not by an accusative noun phrase but by a combination of a (non-case-marked) adverb ('at night') and a PP ('during the day'): anustaksías [**núktōr**]$_{ADV}$ te kaì [**meth' hēméran**]$_{PP}$.

The combinations of deverbal nouns in -*nie*/-*tie* with accusative NPs and adverbs suggest that in OCS, constructions with such nouns could at least marginally have verbal internal syntax. (Otherwise, they have to be explained by the influence of the Greek original; unfortunately, we do not have enough evidence to rule out completely that alternative explanation.)

The hypothesis that such nouns originally had the ability to preserve some syntactic properties of the verb is supported, albeit indirectly, by the partly verbal behavior of the corresponding nouns in some other Slavic languages. For example, in Polish, deverbal nouns in -*nie*/-*cie* differ from all other nouns, including other types of nominalization, in their range of verbal syntactic properties. Although they usually do not take objects in the same way as verbs do, they can be modified by adverbials and, when derived from reflexive verbs, take reflexive clitics (Rozwadowska 1997: 64-8; Comrie 1976: 191);[60] the same is true of corresponding deverbal nouns in Slovak (de Bray 1980a: 213). Finally, combinations of deverbal nouns with accusative-marked objects are attested in pre-Modern Czech (see Gebauer 1929: 633 for examples).

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[60] Comrie (1976: 191) notes, quoting Doroszewski (1970: 814), that in speech, the accusative is "quite often" used with deverbal nouns in Polish instead of the objective genitive. It is unclear whether this feature of colloquial Polish is a relic of the older Slavic function-retaining nominalization type, or whether it reflects a new language-internal development.

It seems possible that these verbal properties are inherited by Polish (and possibly Slovak) deverbal nouns from the time when nominalizations of this particular type could retain certain verbal lexical properties, including the selection of accusative objects, which is also represented in OCS. The view that the verbal syntactic properties of deverbal nouns in Slavic are archaic is supported by Miklosich (1868/1874: 879), who also mentions that the ability to take accusative objects is preserved in Slovenian (880).

If the instances of deverbal nouns in *-nie/-tie* taking accusative objects in OCS indeed reflect the contemporary usage of such nouns (rather than being simply a result of bad translation), they support the hypothesis that a change in nominalization type can go in a direction opposite to the one observed in the history of the English gerund. Nominalizations that were originally capable of retaining a number of verbal characteristics, possibly including the selection of object functions, lost that ability and became reanalyzed as regular deverbal nouns that no longer shared with verbs any lexical properties relevant to syntax.[61] I review the proposed mechanism of change in more detail in the next section.

5.2.   Productivity of function-retaining nominalizations

It is remarkable that the acquisition of verbal internal syntax by the English deverbal noun was accompanied by an increase in the noun's productivity. On the one hand, the morphological class of noun in *-ung/-ing* developed from an irregular category that

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[61] Cf. Miklosich (1868/1874: 877): "Es haben das subst. verbale und der inf. die verbale rection gemein, indem sie mit dem acc., nicht, wie andere nomina, mit dem gen. verbunden werden, wobei jedoch zu bemerken ist, dass diese rection bei dem subst. verbale immer mehr schwindet und der nominalen weicht." ["The verbal noun and the infinitive have a common verbal government, in that they combine with the accusative, and not with the genitive, like other nouns; it should be remarked, however, that with the verbal noun this government gradually disappears and yields to the nominal one."]

only occasionally derived nouns from both nouns and verbs into a productive deverbal nominalization, which was used on a regular basis whenever events (typically encoded by verbs) were to be referred to in nominal syntactic environments. On the other hand, the same form became capable of instantiating verbal internal syntax, and most importantly, of sharing with verbs certain argument realization properties.

The correlation between productivity and the mixing of syntactic properties is discussed in Haspelmath (1995) as part of a general cross-linguistic tendency: words derived by inflectional word-class-changing morphology tend to preserve the internal syntax of the original lexical category, while words derived by derivational word-class-changing morphology tend to assimilate their syntax entirely to the syntax of regular members of the derived word class (58-62).[62] Haspelmath suggests that the correlation has a functional explanation: "[t]he more frequent the word-forming process is, the more economical it is if the syntax does not deviate from the usual, i.e. if it is identical to the syntax of the base word" (62). The explanation in terms of economy, however, has little to say about the precise mechanism of the change. How should the development of the verbal internal syntax be described, and how is it related to the increase in productivity? Why should it be more "economical" to refer to the syntax of the base word every time that a new word is formed, rather than use the new word in a way typical of its new lexical class?

The distinction between function-retaining nominalizations and regular deverbal nouns provides an alternative perspective on the same problem. In particular, the differences in function-retaining properties of the deverbal noun seem to correlate with the way the noun is built or stored in the lexicon: while productively derived nouns are capable of retaining the verb's selectional properties, irregular and unproductive formations are stored as lexical items independent of the corresponding verb and cannot refer to whatever selectional properties that verb may have.

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[62] Haspelmath uses the term "inflectional" in the sense of "regular, general and productive" (47) and in this sense does not seem to distinguish between productive and unproductive derivation.

Before addressing this issue in more detail, it is necessary to clarify the meaning of the term "productivity" which is relevant for the present study. As discussed in Bauer (2001: 205-13), the term "productivity" is ambiguous between two senses: it may refer either to *availability* or to *profitability* of a derivational process. The former is defined in terms of whether or not a morphological process is available for producing new words, and productivity in this sense is a yes/no question. Profitability, on the other hand, depends on how much the process is actually used, and can only be measured in terms of a scale (see also Booij 2002: 10-12). In this study, I use the term "productivity" in the former sense, cf. the following definition from Bauer (2001: 211):

> "The availability of a morphological process is its potential for repetitive rule-governed morphological coining, either in general or in a particular well-defined environment or domain. Availability is determined by the language system, and any process is either available or unavailable, with no middle ground. It creates psychologically real distinctions between available ('living') and unavailable ('dead') processes, which can be tested in a number of ways."

The psychological reality of the distinction between productive and unproductive derivation is confirmed by psycholinguistic evidence. In a study of priming effects with irregular vs. productively derived vs. inflectional forms in German, Clahsen et al. (2003) found that both productively derived and inflectional forms, but not irregular forms, prime their base form as effectively as the base form itself (among the productively derived forms used in the study was the German nominalization in *-ung*, which is in many ways parallel to the English deverbal noun in *-ing*). This result suggests that productively derived and inflectional forms, but not irregular derivations, have a decomposed lexical representation: while irregular forms are simply stored in the lexicon as independent lexical items, productively derived forms are built in a regular way from other lexical entries.

Within realizational models of morphology, this difference can be captured in terms of a contrast between two different types of realization rule:[63] constant realization rules, which derive irregular forms, and rules that contain variables, rather than constants, in their output (rules of the latter type derive productive formations).[64] Unlike the distinction between stored and composed lexical items, this approach, while distinguishing formally between productive and unproductive forms, makes no assumption that the highly frequent productive forms cannot be stored in the mental lexicon; rather, they *need not* be stored, in contrast to unproductive forms, and can be both stored and analyzed at the same time (Stemberger and MacWhinney 1986; also Baayen et al. 1997; Booij 2002: 10). The representation in (5.17) illustrates this difference for English irregular deverbal nouns of the *refusal* type and productive deverbal nouns in *-ing* (Clahsen et al. 2003: 133).

(5.17) a.   <[N, sg], refusal>

   b.   <[V, LEX], X> → <[N, LEX+ING], X+ing>

In light of this difference, productivity of a nominalization can be assumed to be a necessary (although not a sufficient) condition on retention of information about the verb's selection of grammatical functions. As formalized in (5.17a,b), while the outcome of productive nominalization rules involves a variable that refers back to the information present in the lexical entry associated with the base verb, unproductive nominalizations are stored as lexical constants. Assuming that regular nouns cannot select for object functions, it is clear that within this model only a productive

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[63] That lexical entries can be represented as a special type of rule is suggested in Kiparsky (1982: 137); this move allows treating irregular forms on a par with regular ones (see also Anderson 1992: 182).

[64] The difference between inflection and derivation is captured in terms of a difference between derivation of *forms* and derivation of *stems*, or new lexical entries. The difference between productive and irregular inflection is captured in the same way as the contrast between productive and irregular derivation; for psycholinguistic evidence for their distinct representation in the mental lexicon, see, e.g., Clahsen (1999).

nominalization may preserve the object function of the corresponding verb, retaining it as part of the information encoded in terms of variables. An unproductive nominalization would pattern with other nouns and share with them constraints on selection of grammatical functions.

As I suggested earlier, the change in the syntax of the deverbal noun is best characterized as a change in the type of category-changing operation: a nominalization starts retaining the verb's selection of certain grammatical functions. On this view, the correlation between the properties of nominalization and its productivity is apparently due to the difference in the amount of lexical information about the verb preserved by the derived noun. Irregular nominalizations can be assumed to be stored in the lexicon independently of their corresponding verbs. Although they may (but need not) share with the verb their set of argument roles, they cannot inherit the set of grammatical functions associated with it. The assignment of grammatical functions to the arguments of such a noun is predicted to be sensitive to the argument's thematic role but not to the grammatical function that the argument was assigned with the verb. This prediction is borne out by the data discussed in Rappaport's (1983) study of English, where non-productive deverbal nominalizations are shown to link their arguments to prenominal genitives or possessive PPs depending on the argument's semantic role rather than on the way it is expressed with the corresponding verb.

By contrast, nominalizations derived by a productive rule may preserve on a regular basis the assignment of grammatical functions of the corresponding verb. Reference to the verb's selection of grammatical functions is only possible when the noun is derived from the verb in a rule-based manner, rather than stored in the lexicon as a separate lexical item. Beside productivity of the derivation, the regular derivation of nouns is also predicted to result in the higher semantic regularity of the relationship between the nominalization and the base verb, since such nominalizations are not stored along with their lexicalized meaning.

In the case of the Middle English nominalization in -*ing*, the increase in productivity allowed the noun to be derived based on a rule, rather than being stored in the lexicon: the nominalization became a regular formation that was predictable both

with respect to its form and with respect to its meaning.[65] As a result, the information about the verb's selection of grammatical functions became available in the derivation of nouns, allowing the noun to retain optionally some of the verb's grammatical functions. While the change affected the now-productive nominalization in -*ing* (and this was reflected in the fact that it acquired the ability to retain the verb's object function), it did not affect other kinds of nominalization, such as nouns of the *destruction* type,[66] or nouns of the *arrival* type, which were derived by different rules. Such nouns could not retain the verb's selection of an object function and could not occur in constructions with verbal syntax.

This account predicts that productivity of a form may correlate not only with the assignment of grammatical functions to arguments, but also with retention of certain categories of verbs that are normally not associated with nouns. Just as in the case of grammatical functions, it should be possible to retain systematically certain characteristically verbal properties when the form is built based on a rule, but not when it is stored in the lexicon. In particular, English deverbal nouns in -*ing* can retain such grammatical categories of the verb as voice and aspect (cf. *telling* vs. *being told* vs. *having been told*). The distinction encoded by voice and aspect in English is not normally encoded with regular nouns but can be preserved when a noun is derived by a productive category-changing rule. As I discussed earlier, deverbal nouns in -*ing*

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[65] Even in cases where the form in -*ing* has been lexicalized as a deverbal noun with an idiosyncratic meaning, the same form can also receive the regular interpretation, cf. the noun *building*, which can, due to lexicalization, refer to an object but also preserves the (regular) event interpretation (Zucchi 1993: 9-10; also Chomsky 1970).

[66] Kastovsky (1986) distinguishes between two types of formation in -*ion*: loans from French or Latin that have no direct derivative relationship to verbs in English (such are nouns like *deception*, *conversion*, *revolution*, etc.), and nouns formed from verbs in -*ate*, -*ize*, -*ify* by a productive derivational rule, such as *permutation*, *qualification*, *specification*, *disintegration*, etc. Both types of derivation are restricted in their scope compared to nominalization in -*ing*.

started encoding such distinctions in Middle English, apparently after having developed into a productive, function-retaining nominalization.

We can only hypothesize whether the development of the verbal internal syntax by the nominalization in *-te*/*-tze* in Basque also corresponded to an increase in its productivity. It is remarkable, however, that the gerunds of modern Basque are, according to Trask, "among the most frequently used forms in the language and are continuing to extend their frequency and their functions" (1995: 232). Even more striking is the difference in usage between the southern and the northern dialects, which seems to correspond to the nominalization's verbal vs. nominal internal syntax. In southern dialects, where the form must take an object in the absolutive case and can no longer encode the object in the genitive, the gerund "has almost entirely displaced the whole subjunctive paradigm" (Trask 1995: 219). This observation suggests a connection between the expansion of gerunds as a productive nominalization (which corresponded to their increased use for the expression of notions that had been previously expressed with verb forms) and their obligatory retention of the verb's object functions, realized in the absolutive.

Finally, exactly the opposite development is attested for nominalizations in OCS and Old Russian. As I suggested in the previous section, there is some evidence that the OCS deverbal nouns in *-nie*/*-tie* could optionally retain a number of verbal properties, in particular, that they occasionally took accusative objects and were modified by accusative duration phrases. Such properties were completely lost in the course of the later development of such nouns in Old and Modern Russian (and their relative marginality in OCS suggests that the decline of verbal properties may have started in the period preceding the time of the earliest documents). Interestingly, the productivity of the nominalization in question had also significantly declined in the relevant period of time. Vaillant (1948: 237-8) describes the nouns in *-nie* as forms that originally derive from the verbal passive participle. In OCS, such nouns are fully productive and are "part of the verbal declension" (in particular, they are derived from

intransitive verbs that do not normally form passive participles).[67] Like their base verbs, they also regularly distinguish between the perfective and the imperfective aspect. Already in Old Russian, deverbal nouns in -*nie*/-*tie* start losing their productivity. They are no longer derived without restriction from all morphological classes of verbs, and they only occasionally encode aspectual distinctions; their meaning also becomes less predictable, often deviating from the original "name for action" (Sverdlov 1961; Vinokur 1969; Romanova 1958, 1994).

This gradual change from the originally productive nominalization, which started out as a regularly derived form of the verb, to a highly lexicalized derivational pattern is the opposite of the development of the English gerund. As predicted, the decrease in productivity of the nominalization corresponds to the loss of its function-retaining properties. I suggested that this correlation is explained by the difference between productive formations, which are derived from the verb "on the fly", and nouns that are stored in the lexicon independently of their base verb. Being derived directly from the verb, the former can share with the verb a number of properties that are not typically associated with nouns, such as the verb's selection of grammatical functions; the latter, however, are unlikely to make reference to the verb's properties, since they live their independent lives in the lexicon as regular nouns.

The correlation suggests a historical connection between increases in productivity and changes in lexical properties of the deverbal noun, as well as its internal syntax. When a particular nominalization becomes productive, as in the case of English and possibly Basque, it may eventually start retaining the verb's selection of grammatical functions. When, on the other hand, a nominalization stops being productive, as in the case of OCS and Old Russian, it should lose its function-retaining ability. As I already discussed, this difference can be formalized in terms of a difference between constant and variable-containing realization rules.

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[67] "C'est un dérivé en -ник du participe passif, qui se tire librement de tous les verbes, et qui pour cette raison fait partie de la conjugaison du verbe" (Vaillant 1948: 237). ["It is a derivation in -ник from the passive participle, which is formed freely from all verbs, and which for this reason is part of the verb's conjugation."]

A final note is due on the nature of forces that drive changes in productivity of a deverbal noun. The hypothesis that changes in the nominalization's properties are related to changes in its productivity rests on the assumption that productivity of a particular morphological form (including particular types of nominalization) can increase and decrease in the history of a language. Changes in productivity may sometimes trigger changes in the category's internal syntax. The language-specific fluctuations in productivity and frequency of certain morphological categories are well attested and can be due to a variety of factors, which I cannot discuss here in detail (see, e.g., Bauer 2001: 7-10, 213). The frequency of use of particular forms of the verb varies widely from one language to another, and in the same language, a particular nominalization or an infinitive can develop into a highly productive category or be eliminated completely over a relatively short period of time.

Such language-internal fluctuation in productivity can be illustrated with the development of nonfinite forms of the verb from Ancient to Modern Greek. In Ancient Greek, the category of infinitive was highly productive and occurred in a variety of functions; in addition to being used as complements of a number of matrix verbs, infinitives occurred in infinitival relative clauses, as complements to adjectives and nouns, etc. The morphological form of the infinitive was also used with a definite article ("the articular infinitive") in the function of a verbal noun, i.e. the same morphological form could instantiate nominal external syntax and function as a head of a mixed category construction, much like the gerund in modern English. Similarly prominent was the category of the verbal participle.

In later periods, nonfinite forms of the verb lost their prominence. In the period separating Ancient and Modern Greek, the infinitive came to be replaced by finite forms, sometimes with additional marking (Burguière 1960; Joseph 1983, 1990). The nominal uses of the infinitive ("article + infinitive") were gradually replaced by nominalizations, which show a purely nominal distribution (the frequency of nominalizations increased as the use of the infinitive became more restricted; Mirambel 1966: 175). The system of participles was also significantly reduced and largely replaced by subordinate clauses (Mirambel 1961, 1966). In Modern Greek, the

category of the old infinitive has become unproductive and virtually obsolete.[68] The original functions of the infinitive are now distributed between finite verbs and deverbal nouns.

Similarly, gradual loss of the infinitive happened in the Balkan languages, where the infinitive was replaced by finite forms of the verb (Joseph 1983; Gabinskii 1970; Demiraj 1970). In Old Akkadian, the use of nonfinite complementation declined dramatically, infinitives being replaced in most contexts by finite complements (Deutscher 2000). On the other hand, the frequency and productivity of nonfinite forms can change in the other direction. For example, the decline of the infinitive in Old Akkadian was followed by its rapid expansion in Old Babylonian. Such fluctuations reflect changes in productivity of a particular form. As I suggested in this chapter, such changes can contribute to the rise or extinction of mixed category constructions.

To summarize, the goal of this chapter was to show how the synchronic account of category mixing proposed in Chapters 1-4 extends to the diachronic development of mixed nominalizations. In the examples I discussed, the development of mixed properties has to do with a change in the set of grammatical functions associated with the deverbal noun: a particular nominalization type may acquire or lose its function-retaining properties. It is important that this account correctly predicts that such changes should be specific to a particular type of nominalization: the fact that some deverbal nouns start occurring in constructions with verbal internal syntax in no way implies that other types of deverbal nouns will occur in the same construction, no matter how close they are semantically to the mixed nominalization.

In the next chapter, I turn to another, more subtle prediction of the proposed account. If selection of abstract grammatical functions is a lexical property that is

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[68] The infinitive survives in some dialects of Modern Greek. Besides, a productive form that continues the old infinitive is regularly used in standard Modern Greek in the perfect tense formations. It is doubtful, however, that a form with such a restricted distribution can be treated as an infinitive proper (see Joseph 1990: 39-40 for a discussion).

independent of language-specific constraints on phrase structure – the assumption on which the account is based – changes in nominalization's function-retaining properties are predicted to occur independently of phrase structure changes. In the next chapter I try to show that this is indeed so, and that changes in the interpretation of a particular phrase structure configuration give rise to a class of mixed category constructions that combine syntactic properties of noun and verb but differ in important ways from mixed nominalizations.

Chapter 6. Mixed infinitives as a result of categorial reanalysis

6.1.   Syntactic reanalysis as a source of a new construction

In the previous chapter, I discussed one kind of language change that commonly leads to the emergence of a construction with mixed syntactic properties. The development in question has to do with a change in the type of nominalization, namely, with the emergence of a function-retaining nominalization. I suggested that it is best described in terms of a lexical change in the noun's selectional properties, or its assignment of abstract grammatical functions to argument roles. This development may, but need not, be accompanied by a change in the set of phrase structure constraints; in cases where it is, a new mixed category construction appears in the language (e.g., a nominalization starts taking object complements); in cases where it is not, the expression of certain kinds of arguments may become impossible, as in the case of Romance nominalized infinitives discussed in Chapter 2.

The change in the nominalization's selectional properties, however, is not the only type of language change that can bring about a new mixed category construction. In this chapter, I discuss another kind of mixed category, which also combines nominal and verbal properties but differs from mixed nominalizations in its syntax. This unusual mixed category – the mixed nonfinite verb – develops as a result of a change that is best characterized in purely syntactic terms, as an instance of structural reanalysis. I show how the contrast between the two types of mixed category – the mixed nominalization and the mixed infinitive – and the differences in their historical development are accounted for in terms of the proposed synchronic analysis and argue that they provide further support to the dissociation of the lexical and the syntactic component of category mixing. In particular, changes in the lexical properties of a nominalization (discussed in the previous chapter) can proceed independently of changes in the phrase structure analysis of a particular kind of construction; while the former result in the development of a mixed nominalization, the latter explain the development of a mixed nonfinite form of the verb.

Unlike changes in lexical selectional properties of a particular morphological class, structural reanalysis affects the underlying representation of an existing construction. Characteristically, syntactic reanalysis need not involve any change in the construction's surface manifestation, yet it may result in a complete rearrangement of structural relations between the construction's elements (Langacker 1977; Lightfoot 1979; Heine and Reh 1994; Harris and Campbell 1995: 61-96). Due to this property, it is sometimes described in terms of "mis-assignment of constituent structure" (Parker 1976).

The specific subtype of reanalysis that I am concerned with in this chapter can be described as a consequence of reassignment of category labels to a construction's constituents, possibly accompanied by rebracketing, or rearrangement of constituent structure. The reassignment of category labels may result in subsequent changes to the category of a lexical item; examples of this kind of change include the development of adpositions and case markers from nouns (see next section) or from verbs (Lord 1973, 1993; Li and Thompson 1974, 1976; König and Kortmann 1991; Kortmann and König 1992), complementizers from verbs (Lord 1976, 1993) and adverbial conjunctions (Deutscher 2000), auxiliaries from postpositions (Bird and Kendall 1986), copulas from prepositions (Frajzyngier 1986), subordinators from postpositions (Genetti 1986), and many others (Whitman 2000). In all such cases, elements of the construction in question are at some point reinterpreted as instances of a category different from the one to which they originally belonged. The reassignment of category labels may be accompanied by a rearrangement of constituent structure and grammatical relations between the elements. As shown in the following sections, it may even alter the lexical representation of a particular word or of a morphological class of forms, not only with respect to their lexical category but also with respect to such information as selection and case assignment properties.

I start the discussion of instances of category mixing that are due to syntactic reanalysis with a simple example involving several individual words (section 6.2). The example illustrates how a reinterpretation of structural relations between elements of an existing construction may cause changes in the lexical properties of the head,

creating what seems to be a word-specific pattern of category mixing. I then turn to cases where the same kind of process affects entire morphological classes of forms, rather than individual words, and results in peculiar combinations of verbal and nominal syntactic properties. Section 6.3 introduces the relevant kind of reanalysis; section 6.4 discusses examples of the resulting mixed categories, and section 6.5 concludes the chapter.

6.2.   Word-specific change of lexical category: Hausa prepositions

Word-specific change of category is often the source of lexical exceptions to major syntactic patterns. Exceptions of this kind tend to be disregarded in the study of mixed categories, since they are highly irregular and usually can be dealt with by including information about the idiosyncratic encoding of arguments in the word's lexical entry. I believe, however, that the mixture of syntactic properties with specific lexical items parallels in important ways instances of more systematic syntactic mixing, such as those that generalize across a morphological class. A small-scale model of token-based development of mixed properties can provide an insight into the nature of mixed syntactic behavior of morphological classes.

Word-specific mixed syntactic behavior is commonly found with adpositions. This is not at all surprising given that the two major sources of adpositions are nouns and verbs (while some adpositions derive from adverbs and adjectives – see Maling 1983 – this development is relatively infrequent compared to that of adposition-from-noun and adposition-from-verb). Cross-linguistically, adpositions that were relatively recently derived from nouns or verbs may preserve their nominal or verbal internal syntax and contrast in this respect with the remaining adpositions (Heine, Claudi, and Hünnemeyer 1991: 140-7; Kortmann and König 1992: 683). The example I would like to discuss in more detail is the behavior of a subclass of denominal prepositions in Hausa (Chadic, Afro-Asiatic).

In Hausa, a number of prepositions deriving from nouns preserve nominal case-assigning properties. Unlike the basic prepositions, which typically take pronominal arguments of the independent set (cf. *dàgà **ita*** 'from **her**'), the denominal

prepositions often combine with bound possessive forms of pronominal arguments, just like nouns (cf. *cikin-tà* 'in **it (fem)**') (Newman 2000: 466-72). The form of denominal prepositions (which are commonly referred to as "genitive" prepositions, because of the case they assign to their arguments) also reflects their nominal origin: such prepositions typically end in *-n/-r,* which go back to nominal possessive linkers that marked the nominal head of a possessive construction.

Prepositional phrases headed by genitive prepositions in Hausa are an instance of a mixed category construction that occurs with only a small set of lexical items. The external syntax of such prepositions is entirely the same as that of other prepositions. For example, denominal prepositions do not take nominal modifiers or definite markers, and they also cannot appear in the plural form. Their internal syntax, on the other hand, is identical to that of a noun: their pronominal complements appear in the possessive form as bound pronouns, while with basic prepositions, pronominal complements are expressed by the set of independent pronouns. This difference is illustrated in (6.1) with two syntactic structures, which correspond to the two types of prepositional phrase. The construction in (6.1a) is a typical PP, where the preposition takes an object, hence the independent form of the pronoun. The construction in (6.1b), however, involves a mixture of prepositional (external) and nominal (internal) syntactic properties. The head of the construction is a preposition, and its external distribution is prepositional. Yet the preposition does not take an object but instead instantiates a portion of nominal internal syntax, combining with a possessive form of the pronoun.

(6.1)   Two types of prepositional phrase in Hausa
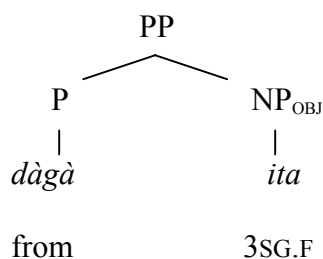
a. Basic prepositions   b. Genitive (denominal) prepositions

```
         PP                                              PP
        /  \                                            /  \
       P    NP_OBJ                                     P     NP
       |      |                                        |    /  \
     dàgà    ita                                     cikin (N)  NP_POSS
                                                                  |
     from    3SG.F                                   inside      -ta

                                                                3SG.F:POSS
```
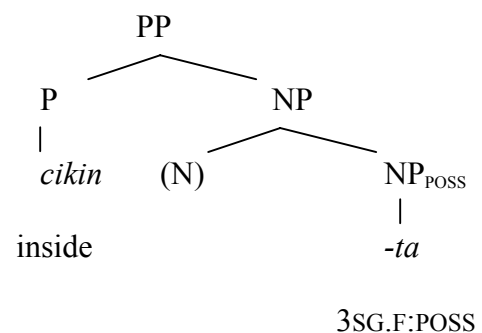
Although the mixed structure in (6.1b) is reminiscent of a function-retaining nominalization, the head of the construction cannot be regarded as a denominal derivation at a synchronic level. On the other hand, the fact that the preposition selects for a possessor function is due to the preposition's nominal origin, and in this sense the selection of a possessor can be viewed as a retained lexical property only in historical terms (e.g., unlike the selection of objects by function-retaining nominalizations, it cannot be attributed to retention of a variable in a derivational rule, cf. Chapter 5, section 5.2).

In addition to describing the different case assigning properties of the two types of preposition, the difference in the structure of (6.1a) and (6.1b) captures a significant difference in their behavior with respect to stranding. Basic prepositions, with the exception of colloquial uses of *dà* 'with', cannot be stranded (Newman 2000: 471-2). Genitive prepositions can be stranded and appear sentence-finally, not followed by an overt object. Interestingly, when stranded, genitive prepositions appear in their nominal form, i.e. without the possessive linker. This pattern of stranding is illustrated in (6.2a,b) from Jaggar (2001: 502): while (6.2a) involves a resumptive possessive pronoun (and the usual form of the preposition), the preposition is stranded in (6.2b) (and appears in a "reduced" form, without the final *-n/-r*).

(6.2) a. àdakằ (cē) mukàn sâ kuɗĩ-n-mù ciki-**n**-tà

box COP.F 1PL.HAB put money-POSS.M-1PL inside-N-3SG.F

'It's a *box* we usually put our money in (it).'

b. àdakằ (cē) mukàn sâ kuɗĩ-n-mù ciki

box COP.F 1PL.HAB put money-POSS.M-1PL inside

'It's a *box* we usually put our money in.'

The fact that genitive prepositions lose their final *-n/-r* when no object NP follows confirms that the final consonant indeed functions as a possessive linker and that the internal structure of the PP is nominal. In other words, the preposition does not simply derive from a combination of a noun and a possessive linker; rather, the linker has the same function with genitive prepositions as with head nouns – it is only used when

followed by an argument. Since the use of the linker depends on the presence of an overt argument with the genitive, but not with the basic prepositions, it seems natural to conclude that with genitive prepositions it is licensed by the internal nominal structure. Together with the difference in the form of the pronoun (independent pronoun vs. possessive clitic), this contrast provides evidence for the mixed structure in (6.1b), where the argument of a genitive preposition is indeed embedded in a noun phrase.

On the mixed category analysis, the difference in the behavior of genitive and basic prepositions is determined by the genitive prepositions' lexical properties. As in the case of mixed nominalizations, the relevant property is the set of selected grammatical functions: while regular prepositions select for an object, the "mixed" genitive prepositions select for a possessor function, which is realized in the mixed phrase structure configuration in (6.1b). The proposal that this difference has to do with a lexical property receives additional support from the pattern of variable argument realization found with some of the genitive prepositions. Some of the denominal prepositions can be followed by either a bound possessive or an independent pronoun, as in the following pairs of examples (Newman 2000: 471).

(6.3)   a.   kàmar   nī   =   kàmā-tā   'like me, similar to me'

              like   1SG   like-1SG:POSS

       b.   dòmin   ita   =   dòmin-tà   'on account of her'

              on.account.of 3SG.F   on.account.of-3SG.F:POSS

The variability of case marking suggests that some of the originally denominal prepositions are in the process of losing their partly nominal selectional properties and are acquiring properties typical of the basic prepositions. Instead of obligatorily selecting for a possessor function, such prepositions may now take an object.

The mixed syntax of genitive prepositions in Hausa is a remnant of their earlier nominal syntax. The mixed category construction in (6.1b) developed as a result of reanalysis of what originally was a noun phrase as a prepositional phrase, with the corresponding reinterpretation of the lexical category of the construction's head as P

rather than N. Due to the reanalysis, what was originally a noun started functioning as a preposition selecting for a possessor function.

Since most other prepositions select for an object, this idiosyncratic selectional property of the genitive prepositions tends to be leveled out as the word develops further into a basic preposition and loses all imprints of its individual history. It is possible that over the course of time the genitive prepositions of Hausa will merge with the basic ones; selecting an object function will become a common property of all prepositions, and the mixed construction with a combination of nominal and prepositional properties (6.1b) will disappear. It is also likely, however, that the class of genitive prepositions may be supported by new nouns becoming reinterpreted as prepositions; in this case, new prepositions with mixed syntactic properties may develop as old ones become reclassified as basic prepositions, and the mixed category construction in (6.1b) need not become extinct.

Why are only selected lexical items affected by category change? First of all, this is not always so; as I show in the following sections, a similar change may affect an entire morphological class of forms. Yet in the case where the change operates on a word-by-word basis, such as in the case of Hausa prepositions, which words shift their category and which do not appears to depend on how frequently the word is used in a given semantic or syntactic function.[69] Frequency is known to be an important factor in language change, and a necessary, although not a sufficient, condition on grammaticalization (Heine, Claudi, and Hünnemeyer 1991: 38-9). Frequent use of a noun in contexts where it locates an object or an event (the Figure) with respect to a reference object (the Ground) may contribute to the development of a noun into a spatial adposition.[70]

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[69] That frequency needs to be relativized to the actual syntactic function in which the word is used, or to the concept that it expresses, is suggested, e.g., in Hoffmann (2005: 140-65) based on a study of complex prepositions in English.

[70] In Nikitina (2008a) I discuss a difference between two classes of locative terms in Wan, one class deriving from locative nouns with general meaning, the other, from body part terms, which have a much more limited distribution and occur mostly with

The example of denominal prepositions in Hausa illustrates how the process of syntactic reanalysis, or a reinterpretation of the word's category label, can be responsible for the emergence of a construction with mixed syntactic properties. In our case, a small group of words changed its lexical category from N to P but preserved some of their original (nominal) syntactic properties, and in particular, the way their arguments are realized. This process is strikingly different from the one described in the previous chapter, where a certain class of deverbal nouns started retaining systematically some lexical properties of their corresponding verbs, including selection of abstract grammatical functions. There, the nouns involved are derived from verbs by a regular process, and the retention of the verb's grammatical functions is part of a nominalization process that operates in the grammar at the synchronic level (hence, the possibility of treating function-retaining nominalizations as instances of a variable-containing realization rule, see Chapter 5, section 5.2). In the case of prepositions with relic nominal properties, the retention of the possessor function is merely a historical fact, since the prepositions are stored in the lexicon rather than derived from nouns each time they are used (the derivation of prepositions is not productive, in the first place). This process apparently has to do with conventionalization of a word from one lexical class (e.g., noun) in a syntactic function characteristic of another class (e.g., adposition). I review this and other differences between this process and the derivation of mixed nominalizations in the following sections.

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animate reference objects. Nouns from the former class show a higher degree of grammaticalization than nouns of the latter class; locative postpositions are also more likely to be derived from nouns with general locative meaning than from nouns referring to body parts. This difference in the probability of the noun-to-postposition category change can be related to a difference in the noun's token frequency. Nouns with more general meaning are more likely to be used to locate an object or an event in space than nouns referring to body parts, since not every object can be described as having body parts.

6.3.   Changes to morphological classes: From a deverbal noun to a verb form

In the case of denominal prepositions in Hausa, a word-specific category change resulted in idiosyncratic patterns of mixed syntactic behavior. Such idiosyncratic patterns may later become leveled out as the word loses its inherited syntactic properties and becomes a well-behaved member of its new lexical category. Mixed categories of this sort may develop on a word-by-word basis, and the set of lexical items subject to this development need not be characterizable in terms of any common formal properties apart from the word's original lexical class. In this section, I discuss a slightly different case of the same type of syntactic reanalysis, where the construction's head becomes reinterpreted as an instance of a different lexical category. Unlike in the previous example, however, I show that this change may affect an entire class of morphological forms, resulting in a systematic, rather than word-specific, pattern of category mixing.

The process in question is the reanalysis of deverbal nouns that do not share any properties with the verb as verb forms. In what follows I discuss examples of this reanalysis and argue that the specific mixture of verbal and nominal properties resulting from this change differs in crucial ways from that of mixed nominalizations. This difference points to the need to differentiate changes to lexical rules that cause the development of function-retaining nominalization from structural changes affecting the syntactic analysis of a construction.

It has been recognized since at least the early 19th century that in Indo-European languages morphological infinitives and participles are closely related to deverbal nouns in a particular case form (Bopp 1816[71]; Jolly 1873; Delbrück 1897:

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[71] "Der Infinitiv und die Partizipien werden zwar mit Recht von den indischen Grammatikern nicht als Modi von Zeitwörtern, sondern als *Nomina* betrachtet; nämlich ersterer als abstraktes Substantiv, letztere als Adjective, an denen besondere Zeitverhältnisse durch innere Umbiegung angedeutet werden können" (Bopp 1816: 37-8). ["The infinitive and the participles are rightly considered by the Indian grammarians not as verb forms but as nominals; namely, the former as abstract noun,

440-75). Most commonly new infinitives develop from deverbal nouns in the dative and accusative case (Meillet 1931; Kuryłowicz 1964: 160-1); this development accounts for a variety of infinitival forms in different branches of Indo-European (for reconstructions, see Benveniste 1935, esp. 129-46; Jeffers 1972; Szemerényi 1996: 324-6; García Ramón 1997 and references therein). Infinitives of non-Indo-European languages often have a similar origin (cf. Aalto 1953: 21, Dubrovina 1972 for Finnish; Poppe 1955 for Mongolian; Heine and Reh 1984; as well as examples discussed in Haspelmath 1989). Typically, forms that at present function as forms of the verb (and therefore have a distribution different from that of nouns) go back to deverbal nouns with purely nominal characteristics, i.e. with the distribution of a noun, nominal morphology, and nominal internal syntax.

The change from a deverbal noun in a particular case form to an infinitive is typically due to reanalysis of an originally nominal construction (an NP) as a nonfinite VP in a specific context, most commonly in a purpose construction, which originally involved a deverbal noun in allative case. The reanalysis of the oblique case form of a noun as a new infinitive is represented below for the simple case of a one-word NP in a case-marking language. In the original structure (6.4a), the noun phrase consists of a case form of a deverbal noun and introduces purpose (or, as in the example below, functions as a nominal complement of a lexical verb). After the reanalysis, the same phrase is reinterpreted as a VP headed by a new nonfinite form of the verb (6.4b).

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the latter as adjectives, on which particular tense relations are marked by internal modification."]. Note the reference to "Indian grammarians", most likely, Pānini.

(6.4)   Reanalysis of constructions with deverbal nouns as VPs[72]

      a.   NP   >   b.   VP

              | |

             N   V

             | |

      sleep.NMLZ:CASE   sleep.INF

      '[I go] to sleep'   '[I go] to sleep'
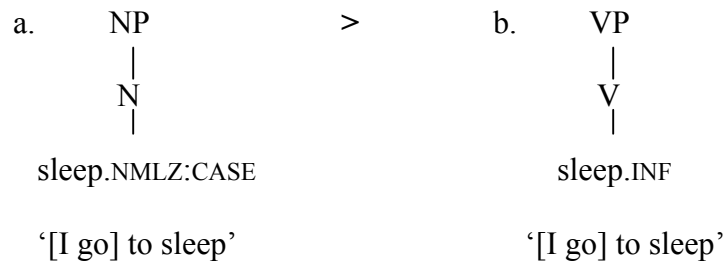
The reinterpretation of deverbal nouns as nonfinite verbs is due to conventionalization of an originally nominal construction (e.g., a directional NP) for the expression of a meaning associated with verbs, such as purpose or intention. Haspelmath (1989) describes this development in terms of grammaticalization of the infinitival marker; as I suggest in the following chapter, it could also be viewed as a simplification in the derivational rule (speakers tend to reinterpret a category-changing form used in potentially ambiguous structures as a non-category-changing one). As a result of the reinterpretation, a new form of the infinitive may emerge in the language; it often complements the already existing infinitives but may also entirely replace them. The original nominal case suffix may later be lost or become uninterpretable as part of the nominal paradigm. The infinitive is no longer inflected for case and appears in different syntactic functions without any modification of form.

      Development of new forms of morphological infinitives is perhaps the most noticeable consequence that reinterpretation of a deverbal noun as a form of the verb may have. This change results in significant alternation of the external, as well as the internal, syntax of the word, due to the change in the form's lexical category from noun to verb. I discuss the syntactic development that accompanies such changes in the next section.

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[72] Here and in subsequent examples, I use different types of arrow to represent the difference between a diachronic and a synchronic relation between forms or constructions. Historical changes are indicated by ">"; the fact that one form is regularly derived from another is represented by "→". The latter symbol is also used to indicate the syntactic relation between a mother node and its daughters.

Although the reanalysis proper consists simply in a construction-specific reinterpretation of a directional NP as a purpose VP, it can be followed by the spread of the new morphological form to new syntactic environments. The new infinitive, even though it originates, for example, in a construction with verbs of motion, can be extended to other contexts and becomes the unmarked form of a nonfinite verb. Both the English *to*-infinitive and the German *zu*-infinitive, although periphrastic, and not morphologically derived forms, became the major form of the nonfinite verb due to a similar development: both originated as purpose clauses (PPs) and were later reanalyzed as infinitives (VPs), entering into competition with the bare infinitive (Los 1999, 2005; also Roberts and Roussou 2003: 97-110; Abraham 2004; Heine and Kuteva 2002: 247-8). New periphrastic infinitives of this sort often result from a reanalysis of case forms of old nominalized infinitives. For example, the Ancient Greek infinitive coexisted for some time with a combination of the infinitive with the genitive form of the definite article *tũ* (*τοῦ*); the latter form apparently originated as the genitive of purpose of the nominalized infinitive (article *τό* + infinitive; see Aalto 1953, Burguière 1960: 127-45, Kesselring 1906).[73] In cases like this, the syntactic reanalysis of a specific construction can be followed by the propagation of a new morphological or periphrastic form of the verb, its spread to new contexts.

The exact outcome of the reanalysis, however, may vary, and not all instances of reanalysis are followed by the spread of a new form. Instead of spreading to new contexts, the new form of the verb that results from a reanalysis in a specific construction can become leveled out and replaced by an existing infinitive. For example, the genitive form of the nominalized infinitive (*τοῦ* + infinitive) never came to replace the bare infinitive in Greek.

Beside constructions used for the expression of purpose, another context that commonly triggers syntactic reanalysis is provided by temporal and aspectual constructions. Originally, such constructions involve deverbal nouns, which later become reinterpreted as nonfinite forms of the verb. Constructions with verbs of

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[73] As discussed in Aalto (1953: 193), a number of other languages make use of an infinitive marked by the genitive marker (cf. the French *de*).

motion ("go toward the doing of x", "come from the doing of x", etc.), verbs of position ("be at the doing of x"), verbs of desire, completion etc., are especially common sources of aspectual and temporal expressions cross-linguistically (Binnick 1976; Heine and Reh 1984; Marchese 1986, inter alia; also some of the data discussed in Blansitt 1975; Bybee and Dahl 1989; Heine et al. 1993; Heine and Kuteva 2002). In the course of this development, what used to be the main verb often becomes reinterpreted as an auxiliary, and what used to be a deverbal noun embedded in a complement of the main verb becomes reinterpreted as a nonfinite form of the verb.

As a nominal periphrastic construction becomes a conventional way of expressing a temporal or aspectual meaning, the nominal complement of the periphrastic construction tends to be reinterpreted as a verbal complement of an auxiliary. At that stage, the deverbal noun (often with additional marking, which derives from case marking or from an adposition introducing the complement) is reinterpreted as a nonfinite form of the verb. As in the case of infinitives, the resulting form may remain morphologically distinct from the forms of the verb that had previously existed in the language and continue to function as a specialized temporal/aspectual form derived by a temporal/aspectual suffix or ending (see, among many others, Binnick 1976). Alternatively, they may lose their special marking (which derives from oblique case or adpositional marking on nouns) and merge with the existing forms of the verb.

An example of the latter type, which does not involve a development of a new nonfinite form of the verb, is discussed by Marchese (1986) for Kru, where the source of a temporal/aspectual construction is relatively transparent. The construction in (6.5a) is a purpose construction with a motion verb, where the purpose of motion is introduced by a deverbal noun. As illustrated in (6.5b), the purpose construction has become grammaticalized for the expression of future tense. In the future tense construction, what was originally the main verb has been reanalyzed as a future tense auxiliary, and what was originally a nominalized complement of the motion verb has been reinterpreted as a simple verb phrase, or a nonfinite complement of the auxiliary.

(6.5)   Reanalysis of a purpose NP as a VP (Kru; Marchese 1986: 126)

      a.   Purpose NP

             ɔ   yi   **lI**   **kā̄**

             he   come   **eat**   NMLZ

             'He's coming to eat.'

      b.   Future tense construction

             ɔ   yi   **lI**

             he   AUX   **eat**

             'He will eat.'

Crucially, as a result of this change, the nominalizer of the purpose construction was lost in the future tense construction, and what was originally a nominalization was replaced by a nonfinite verb.

(6.6)   The change from a purpose construction to future tense:

purpose NP: subject   lexical verb   NP

                        ↓   ↓   ↓

future tense: subject   auxiliary   VP

Reanalysis of deverbal nouns as verb forms is particularly important for the study of category mixing, since it may result in constructions that combine verbal and nominal syntactic properties. Obviously, not all constructions with deverbal nouns that undergo reanalysis are simple one-word NPs of the sort represented in (6.4). Many instances of the construction with nominalization include dependents of the deverbal noun, such as the nominalization's arguments, which are originally expressed in the ways typical of dependents of nouns, such as in possessive constructions. When the construction is reanalyzed as a VP, headed by a nonfinite or temporal/aspectual form of the verb, the presence of a possessive NP may be reinterpreted as evidence for a mixed category construction, in which a particular form of the verb combines with a genitive possessor NP. This process may therefore result in a mixed category construction represented in (6.7b), where a verbal head has partly nominal internal syntax.

(6.7) Possible outcome of reinterpreting deverbal nouns as verbs in complex constructions:

a. Original nominalization   b.   Resulting mixed category

$$NP_{POSS} \overbrace{\qquad\qquad}^{NP} N_{\textit{nmlz}} \qquad > \qquad NP \overbrace{\qquad\qquad}^{VP} V_{\textit{nonfin}}$$

$$NP_{POSS} \qquad (N)$$
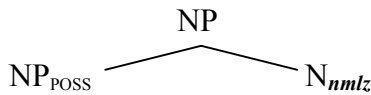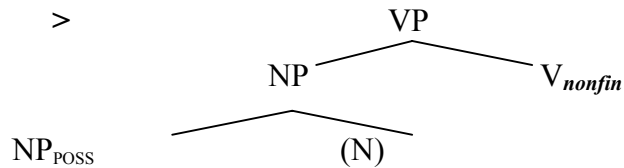
Given the nominal internal structure of such constructions, their reanalysis may result in certain nominal lexical properties of the new verb form. In particular, the new infinitive may be assumed to select not for an object, as verbs usually do, but for a possessor function. As a result, the new nonfinite form of the verb would map some of the verb's arguments to a possessor function, i.e. express them, in languages with case marking, as genitive-marked NPs. This lexical development is triggered by reinterpretation of phrase structure relations and can be represented in the following way. What used to be a deverbal noun (typically in a particular case form) is reanalyzed as a form of the verb, resulting in two lexical entries, one nominal and one verbal. The new form of the verb, however, may select for a possessor function, realizing it in a partly nominal structure.[74]

(6.8) Lexical change triggered by reanalysis of deverbal nouns as verbs

$$\textit{form}, N \qquad > \qquad \textit{form}_1, N$$

$$\textit{form}_2, V <(POSS)>$$

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[74] The fact that a verb form may select for a possessor function is not by itself surprising, cf. the analysis of the English gerund in Bresnan (2001: 289-96). Although syntactically a verb, the gerund licenses a possessor (which is identified with the subject function). Unlike the English gerund, however, which shows nominal external syntax and verbal internal syntax, the mixed infinitive combines the *external* syntax of a verb with a portion of *embedded* nominal syntax. This difference has to do with a peculiar path of development of the English mixed gerund, which remained restricted to hybrid configurations headed by a DP.

In a language with a typical Indo-European sentence structure, the mixed properties of the construction in (6.7b) are most likely to be manifested in the expression of arguments that correspond to objects of transitive verbs. Arguments corresponding to the verb's subject are usually not expressed overtly in constructions that undergo the reanalysis (i.e. with purpose nominalizations or with nominalizations used in temporal/aspectual constructions). Such arguments are typically understood to coincide with the subject of the main verb (after the reanalysis, the subject of the VP tends to be controlled by the subject of the main verb or auxiliary). For this reason, those arguments of a nominalization that correspond to the verb's subject are unlikely to be expressed in a possessive construction either before or after the reanalysis.

Arguments of nominalization that correspond to the verb's oblique functions tend to be expressed in Indo-European languages by oblique case forms or by PP modifiers of nouns, rather than in possessive constructions (cf. *a walk to the store* vs. ??*a store's walk* or ??*a walk of the store*). Correspondingly, adpositional phrases can be part of either a NP or a VP. Hence, when the construction is reanalyzed as a VP, PP modifiers of the nominal head can be reinterpreted as PP dependents of the verb, without suggesting a mixed category analysis. As a result, the expression of oblique arguments is also rather unlikely to require a mixed category construction.

Arguments that correspond to the verb's object, on the other hand, are the best candidates for triggering the mixed category analysis: they are more likely than subjects to be realized overtly with deverbal nouns (since they are not co-referential with arguments of the main verb), and they are less likely than oblique arguments to be ambiguous between PP modifiers of nouns and PP complements of verbs. Given the special status of such arguments in purpose and temporal/aspectual constructions with deverbal nouns, one would expect the mixed properties of (6.7b) to be manifested, in a typical Indo-European language, in the assignment of genitive case to object arguments of verb forms deriving from nominalizations. In the next section I discuss instances of nonfinite verb forms that bear out this prediction.

6.4. From a noun phrase to a mixed infinitive

6.4.1. The Vedic infinitive

As discussed in the previous section, the reanalysis of constructions with deverbal nouns as verb phrases is an extremely widespread process that can result in the development of a new morphological category (most commonly, a new infinitive or a new tense/aspectual form). Alternatively, the resulting form may lose its special marking and merge with an existing form of the verb; no new morphological category arises in that case. What are the syntactic consequences of the construction-specific reanalysis? Although the distinction between noun and verb is categorical, and reanalysis of a deverbal noun as a nonfinite verb hardly involves any intermediate stages, the change in the syntactic behavior of the lexical item in question appears to be a gradual process that gives rise to a number of intermediate types that diverge in their syntax from both regular NPs and regular VPs (Jeffers 1975; Gippert 1978). In particular, on their way from a noun phrase to a verb phrase, constructions with such reanalyzed forms may combine verbal distribution with nominal argument realization properties.

That intermediate stages in the noun-to-infinitive progression can involve a combination of verbal and nominal properties is apparent in Vedic. Jeffers (1972, 1975) describes the system of Vedic infinitives as consisting of a number of forms that represent different stages of the syntactic development from deverbal nouns to verbs. Infinitives that developed relatively recently (the radical infinitives, the -*tu* suffixed infinitives, and the infinitives in -*taye*) are fully productive and differ in several respects from the infinitives representing an older stratum.[75] Unlike the other infinitives, the new infinitives preserve traces of nominal inflection and can be used in three case forms. Most importantly, however, the object of the infinitive can be expressed either in the accusative or in the genitive case, i.e. formations of this kind

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[75] Jeffers describes these three kinds of infinitive as lexically conditioned alternants of the late and productive infinitive system of Vedic; the three forms are in complementary distribution.

can function either as nouns or as verbs, as in the following examples from the
Rigveda (Jeffers 1975: 138).

(6.9) a. vasūnām …   **dātum**   (V.36.1)

           wealth.GEN.PL   give.NMLZ

           'to give wealth'

       b. etavad …   bhuyo vā   **dātum**   (V.79.10)

           so.much.ACC more.ACC   give.INF

           'to give so much or more'

Renou (1937: 19) discusses the use of *dātum* 'to give' in (6.9a) as an instance that can
hardly be univocally described as either a noun or an infinitive but lies at the
borderline between the two functions ("[o]n se trouve en vérité à la limite exacte des
deux fonctions"; see also his discussion on pp. 20, 24-25).

  Crucially, instances where an infinitive combines with a genitive object are not
fully explained by simply assuming that the infinitives have corresponding nouns and
that the case assigned to the object is determined by the class of the lexical head, as in
Jeffers' examples, where the same form is glossed as deverbal noun or as infinitive
depending on argument realization.[76] In some instances, the syntactic position in
which the form occurs is characteristic of verbs, but the argument corresponding to the
verb's object is expressed in the genitive case. The Vedic infinitive also occasionally
appears as the predicate of a main clause, where it can only function as a verb.[77] Even

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[76] The analysis of the examples in (6.9) presents an additional difficulty, since even
finite forms of the verb *dā-* 'give' sometimes combine with an object in the partitive
genitive.

[77] A predicate infinitive can be substituted for a finite verb (Disterheft 1980: 41,
1981b), and a sentence with a predicate infinitive can be conjoined with a finite
sentence (1980: 200). See, however, Gippert (1984) on the heterogeneous character of
the "predicate" uses of the infinitive, as well as for a suggestion that in some of the
uses where the infinitive appears to assign genitive case, the genitive could instead be
analyzed as part of a possessive construction with a null copula; cf. the parallel Latin

in this function, however, the infinitive can assign genitive case to its argument, as in the following example (Disterheft 1980: 44):

(6.10) ayáṁ   mitrásya   váruṇasya   **dhā́yase**   (I.94.12a)

       this.NOM Mitra.GEN Varuna.GEN   nourish.INF

       'This one nourishes Mitra and Varuna.'[78]

The infinitive can also combine with a genitive argument in some other typically verbal environments, such as in relative clauses (Disterheft 1981b: 116) or when used as the infinitive of command. An example of the latter is presented in (6.11). The corresponding finite verb, according to Disterheft (1980: 52, 1981a: 5-6), does not take a genitive object, hence the unusual case marking cannot be analyzed as an instance of the partitive genitive.

(6.11) sá …   bráhmaṇaspátir   druhó   hantā́   mahá

       this.NOM   Brahmaṇaspati.NOM   Lie.GEN   slayer.NOM   great.GEN

       ṛtásya   **dhartári**   (II.23.17)

       Truth.GEN   uphold.INF

       'May this Brahmaṇaspati, the slayer of the Lie, uphold the great Truth.'[79]

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construction with the dative: *mihi est aliquid + laudi* = '<u>I (dat.)</u> have something + for praise', understood as 'something entitles me to praise' (the dative of possessor is understood as the object of praising).

[78] Cf. also the translations by Griffith (1920) ('He hath the power to soothe Mitra und Varuṇa') and by Geldner (2003) ('Er <dient> Mitra und Varuṇa zur Befriedigung').

[79] Cf., however, the translations by Griffith (1920) ('Guilt-scourger, guilt-avenger is Brihaspati, who slays the spoiler and upholds the mighty Law') and by Geldner (2003) ('Brahmaṇaspati ist der Vergelter, der Schuldeinzieher, der Vernichter der Falschheit, der Erhalter der hohen Wahrheit'; oder: 'zur Erhaltung der Wahrheit' // 'Brahmaṇaspati is the repayer, the guilt-withdrawer, the abolisher of falseness, the upholder of high Truth'; or: 'to the upholding of the Truth'). Thus, what is translated

Renou discusses some other examples of the anomalous use of the genitive to mark an object of an infinitive in Vedic; he proposes to treat some of them as historical remnants of the previously nominal character of the infinitive, or instances of "un accidentel archaïsme" (1937: 32). Examples of this kind, where a nonfinite verb combines with a genitive, rather than an accusative, NP are explained by the gradual development of verbal syntax with forms that had been relatively recently reanalyzed as verbs and had not completely lost their ability to express their object in the genitive case, in a way typical of deverbal nouns. The mixed syntax of constructions that are in transition from noun phrases to verb phrases follows from the gradual view of syntactic change represented above in (6.7), and repeated below in (6.12). As a result of reanalysis of a noun phrase that is headed by a deverbal noun but also includes a genitive possessor NP, the genitive dependent may be reinterpreted as a possessor function that is selected by the verb and realized in a mixed category construction.

(6.12) Possible outcome of reinterpreting deverbal nouns as verbs:

a. Original nominalization   b.   Resulting mixed category

$$
\begin{array}{ccc}
& \text{NP} & \\
\text{NP}_{\text{POSS}} \diagdown & & \diagup \text{N}_{nmlz}
\end{array}
\quad > \quad
\begin{array}{ccc}
& & \text{VP} \\
& \text{NP} \diagup & \diagdown \text{V}_{nonfin} \\
\text{NP}_{\text{POSS}} \diagdown & \diagup (\text{N}) &
\end{array}
$$
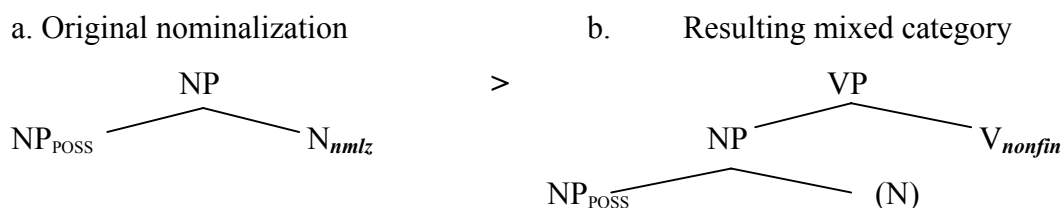
Just like a mixed nominalization, the mixed category construction in (6.12b) consists of two layers of structure. The nominal layer, however, is embedded under the verbal projection; hence, while the verb can take a possessor function, the construction's distribution is verbal, and the head is morphologically a verb.

There are several ways in which the new hybrid construction may develop further. First of all, the mixed category construction resulting from the reanalysis may be replaced by ordinary VPs headed by other types of infinitive, which select for object functions. In this case, the reanalyzed form may become extinct as a result of competition with other nonfinite forms of the verb. Alternatively, the atypical lexical

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by Disterheft as an infinitive of command can be alternatively interpreted as an infinitive used within a relative clause.

property of the reanalyzed form – its selection of a possessor function – may be leveled out and replaced by selectional properties associated with other forms of the verb. In this case, even though the morphological form of the verb remains intact, the form may no longer select for a possessor function but would instead take an object, expressing it in the way typical of other forms of the verb.

The latter scenario seems to reflect what happened to the mixed infinitive in Vedic. In particular, no instances of infinitives with genitive objects are reported for the Avesta or for Classical Sanskrit; cf. Disterheft (1980: 23-24):

"Since nominal verbal abstracts easily took genitive object[s], this also continued as the infinitival object case for some time. The restriction of coreferential subject and genitive object is preserved by one type of verbal complement in Old Irish [on verbal nouns in Celtic see next section – *T.N.*]. <…> The Indo-Iranian infinitive shows a more verbal development than the Old Irish verbal noun. The Rigveda infinitive has already started to split from the nominal paradigms, both morphologically and syntactically: three forms (-*dhyai*, -*sani*, -*tavái*) can never be confused with verbal abstracts that are members of full paradigms. Object case selection has developed from only genitive to include dative and accusative. <…> Avestan, [attested later] than the Rigveda, has infinitives which have developed further: <…> infinitive object is only accusative."

In sum, the syntactic behavior of the Vedic infinitive suggests that the development from a deverbal noun to a verb may involve several stages and create an intermediate construction that is best described in terms of a mixed phrase structure configuration. While the distribution of the construction is that of a nonfinite verb phrase, and different from that of an NP, some of the verb's arguments may be realized in a nominal way, as possessor NPs. In other words, instead of selecting a set of grammatical functions that typical verbs select for (such as subject and object), the verb form in question may select for a grammatical function of possessor, which reflects the nominal historical source of the form. The possessor function, selected by what behaves as a verb in other respects, is realized within a special mixed category

159

construction that allows a verb to combine with a possessor in an embedded nominal structure.

Although suggestive, the case of the Vedic infinitive is, unfortunately, not uncontroversial, since the evidence about its syntactic behavior is rather limited. In the next sections, I discuss the development of other, better-documented constructions that seem to belong to the same type of mixed category.

6.4.2. The Celtic verbal noun

A gradual development from deverbal noun to a verb accounts for the mixed verbal and nominal properties of the so-called "verbal nouns", or "verb nouns", in a number of Celtic languages. The Celtic verbal nouns fulfill the function typically associated with infinitives in other languages (see, e.g., Gagnepain (1963) for a collection of Old Irish examples). At the same time, their distribution and syntactic properties are problematic for the VP analysis, since their object is encoded in the same way as a possessor within a nominal construction.

Like infinitives in other Indo-European languages, the Celtic forms in question originate as nouns but subsequently acquire some verbal characteristics. In some of the languages, this development resulted in the co-existence of two alternative constructions, one nominal and one verbal, which are headed by homophonous forms (a nominalization in one case, and a nonfinite verb in the other). In Welsh, what seems to be the same form, known as the "verbal noun", can correspond either to a deverbal noun or to a nonfinite verb (Borsley 1993; Rouveret 1994: 244-51). When used as a noun, the form appears in all syntactic positions that are available to ordinary nouns, including the dependent of a possessive constructions (6.13a); it can be modified by adjectives and be preceded by the definite article (6.13b).

(6.13) a.   ymarfer   dawnsio

                 exercise   dance.NMLZ

                 'exercise of dancing' (Rouveret 1994: 249)

b. Clywais i 'r canu hyfryd

    heard.1SG I the sing.NMLZ pleasant

    'I heard the pleasant singing' (Borsley 1993: 46)

When used as a head of a nonfinite VP, the form never combines with the definite article but can combine with adverbials, as in (6.14a)-(6.15a), where the adverbial construction consists of a particle followed by an adjective.

(6.14) a. Mae John yn canu yn dda

        is J. PRT sing.INF PRT good

    b. * Mae John yn canu da

        is J. PRT sing.INF good

    'John is singing well.' (Kathman 1991: 10)

(6.15) a. Mae John yn fachgen da

        is J. PRT boy good

    b. * Mae John yn fachgen yn dda

        is J. PRT boy PRT good

    'John is a good boy.' (Kathman 1991: 10)

Constructions with verbal heads can also appear in a number of positions in which noun phrases never appear, including the position of a complement of a modal verb (Borsley 1993: 42; Rouveret 1994: 248-9). In such positions, no deverbal noun can be substituted for the nonfinite form.

(6.16) Dylai Gwyn ddisgrifio 'r llun

    ought G. describe.INF the picture

    'Gwyn ought to describe the picture.'(Borsley 1993: 42)

Furthermore, unlike noun phrases, such forms can undergo extraposition and appear after a predicate adjective phrase, which again suggests that they can behave as verb forms rather than as nouns. The following examples from Kathman (1991: 17) illustrate this point (examples 6.17a and 6.18a contain a VP, examples 6.17b and 6.18b, a noun phrase).

(6.17) a.   Mae   sgrifennu   llyfrau   yn   anodd

             is   write.INF   books   PRT   hard

             'Writing books is hard.'

      b.   Mae'r   cwestiwn   yn   anodd

             is   the question   PRT   hard

             'The question is hard.'

(6.18) a.   Mae   hi'n   anodd sgrifennu   llyfrau

             is   it-PRT   hard   write.INF   books

             'It's hard to write books.'

      b.   *Mae hi'n   anodd y   cwestiwn

              is   it-PRT   hard   the   question

             'The question is hard.'

All this evidence suggests that in certain contexts, the form should be analyzed as a nonfinite form of the verb heading a VP, rather than a nominalization heading an NP. At the same time, even when used in such contexts, the nonfinite form of the verb shares with nouns certain syntactic properties; in particular, it appears to realize the argument corresponding to the finite verb's object in a possessive construction (Williams 1980: 116-7; Rouveret 1994: 251-2). One important respect in which the nonfinite form differs from finite verbs and instead patterns with regular nouns is the use of genitive possessive clitics (Awbery 1976: 15-6; Sproat 1985; Willis 1988; Kathman 1991: 7-8).[80] The examples below (from Kathman 1991: 7-8) illustrate this similarity between nonfinite verbs and regular nouns and their difference from finite verbs (for a more detailed discussion of this and some other characteristics that are common for the nominal possessive construction and the nonfinite clause in Welsh, see Kathman 1991 and references therein).

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[80] Borsley (1983, 1993) analyzes them as agreement markers that cross-reference both objects of nonfinite verbs and possessors of nouns.

(6.19) a. Ydych chi   wedi gweld ein   ty   (ni)?
           are   you   after see.INF our   house us
           'Have you seen our house?'

       b. Mae   Tom   yn   ein   gweld (ni)
           is   T.   PRT   our   see.INF us
           'Tom sees us.'

       c. Fe   welodd   Tom   ni
           PRT   saw   T.   us
           'Tom saw us.'

If the analysis of these forms is indeed correct and they correspond exactly to the possessive modifiers of nouns, the nonfinite VP in Welsh can be described as a mixed category construction of the type represented in (6.12b). Instead of selecting for an object function, as finite verbs do, nonfinite verbs map the relevant argument role onto the grammatical function of possessor. At the same time, in this type of mixed category, a verb is allowed to co-head an NP, which may contain a possessor NP. In this sense, the construction is parallel to the construction with genitive objects in Vedic and, as I show below, to mixed infinitival constructions in some other languages.

Sproat (1985: 186) describes the assignment of genitive case by nonfinite verbs as "a pan-Celtic phenomenon which simply has to be marked for these languages". In Celtic languages other than Welsh, the development of nominalizations into infinitives has also created mixed category constructions, where the object of the nonfinite verb is expressed in the genitive in spite of the construction's verbal distribution. A peculiar combination of a unique infinitival distribution with the internal structure of a noun phrase is attested in Irish, where, as in Welsh, what appears to be the same form can function either as a deverbal noun or as a nonfinite verb; McCloskey (1980) solves the problem of the dual status of such forms by deriving nonfinite verbs from deverbal nouns by a class of productive morphological rules.

Historically, the originally nominal forms acquired their ability to function as verbs when nominal complements with deverbal nouns became reanalyzed, in some

constructions, as infinitival clauses, i.e. as VPs (Disterheft 1984, 1985). After the reanalysis, complements headed by such forms occurred with matrix verbs that did not normally take nominal objects, such as modals, which formerly took only finite complements (Disterheft 1984: 92-3). This change in distribution attests to a change in the category of the form from noun to nonfinite verb. Besides, nonfinite verbs can be modified by adverbs rather than adjectives and are coordinated with a fully marked finite verb in descriptions of series of actions (Russell 1995: 270-1). As in Welsh, however, the object argument is still encoded in a way different from objects of finite verbs and similar to nominal possessors: it appears in the genitive case. This combination of verbal and nominal features of nonfinite VPs, described by McCloskey (1983: 39) as "syntactic schizophrenia", represents a transitional stage in the development of the "verbal noun" from nominalization of category N to infinitive of category V. The genitive case assignment is apparently a conservative feature of nonfinite verbs: in Modern Irish the genitive marking is optional in colloquial speech (McCloskey 1983: 13; Chung and McCloskey 1987: 231; Ó Siadhail 1989: 277; Russell 1995: 264).

Similar behavior seems to characterize the verbal nouns of Scottish Gaelic, which also function both as regular nouns and as infinitives. When used as infinitives (e.g., in the progressive construction), they assign genitive case to the argument corresponding to the finite verb's object, while behaving as heads of VPs in other respects, such as with regard to clefting (Ramchand 1993: 37-8).[81] This confusing behavior can again be explained by verbal external syntax of verbal nouns (they are heads of VP complements and hence differ from nouns with respect to clefting) in combination with nominal internal composition (their objects are expressed in the genitive case). A discussion of a similar mixture of verbal and nominal syntactic characteristics of verbal nouns in Breton can be found in Timm (1990).

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[81] According to Ramchand (1997: 99), the characterization of the case on objects of verbal nouns as morphological genitive is precise as of "a few generations ago". In the modern language, the morphological genitive "sounds stilted and archaic"; it is analyzed by Ramchand as a new weak structural case, partitive.

In sum, the analysis of Celtic nonfinite VPs as constructions preserving nominal internal syntax (in that they mark the argument corresponding to the finite verb's object with the genitive) makes it possible to account for the "schizophrenic syntax" of the verbal noun. It addresses directly the needs formulated in Awbery (1976: 20) – the need "to analyse the uninflected verb as a verb and the need to analyse the unit formed by the uninflected verb and the direct object as a noun phrase." The mixed category analysis, based on a theory of historical development of category mixing, appears to be an adequate means of accounting for the conflicting verbal and nominal properties, and reveals similarities between this unusual construction and mixed infinitival constructions in other languages.

6.4.3. The Slavic supine

Another apparent instance of a similar mixed category is the Slavic supine. The supine is a special nonfinite form of the verb that differs morphologically from the infinitive and is used primarily in complements of verbs of motion. Unlike a nominalization, the supine does not occur in typical nominal syntactic environments and does not inflect for case. Because of its restricted distribution, it is best analyzed as a special nonfinite form of the verb, distinct from the infinitive but sometimes interchangeable with it.

In Old Church Slavonic, the supine regularly realizes its object argument in the genitive, as if it were a noun and not a verb (Vaillant 1948: 332; Lunt 1955: 128). This case assignment pattern is most likely a relic of the supine's nominal origin (Meyer 1944: 289), as the form goes back to the accusative of a deverbal noun (Meillet 1897: 162-3, 1934: 242). Thus, the syntax of the OCS supine is characterized by certain typically nominal properties, such as the assignment of genitive case to arguments that are expressed in the accusative with other forms of the verb.

(6.20) a.   **ізиде ...   сѣатъ   сѣмене   своего**

           left   sow.SUP   seed.GEN   own.GEN

           'he left to sow his seed' (Luke 8:5; quoted from Vaillant 1948: 174)

b. **прида** **обрѣзатъ** **отрочате**

    came   circumcise.SUP   child.GEN

    'they came to circumcise the child' (Luke 1:59; quoted from Vaillant 1948: 332)

c.   pride …   vidětъ   groba

    came   see.SUP   tomb.GEN

    'she came to see the tomb' (Mt 28:1; quoted from Lunt 1955: 128)

The nominal case assignment is accounted for in terms of the familiar mixed category construction, where a nonfinite form of the verb selects for a possessor function, realizing it in a mixed configuration with nominal internal structure (an embedded NP).

(6.21)

$$\text{VP}$$

(tree diagram: VP branches to NP and V$_{supine}$; NP branches to NP$_{POSS}$ and (N))
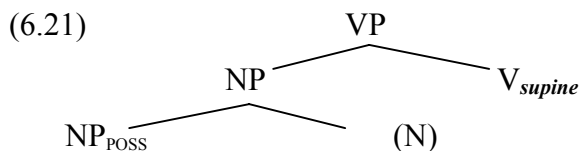
As in the examples of infinitives discussed in the previous two sections, the lexical rule deriving the supine adds an optional possessor function to the list of grammatical functions selected for by the verb, at the expense of the object function that other forms of the same verb may select (since the subject function is left unexpressed, there is no evidence for whether it is actually retained with the supine). This lexical rule can be informally described as follows (I do not treat here the question of the exact form serving synchronically as the base for deriving the supine; this could be any form of the verb, as well as the stem).

(6.22) V <SUBJ, (OBJ), (OBL)>   >   V$_{supine}$ < SUBJ, (POSS), (OBL)>

While the subject function remains intact (at least, we do not have any evidence for a change in the realization of the subject, since the subject of a supine is normally controlled by the subject of the motion verb, and is not expressed overtly), and the oblique functions are realized in the same way with supines and with infinitives, the object function cannot be selected for by the supine. Instead, the supine maps the

relevant argument onto the possessor function. This results in the apparent "genitive case assignment to an object".[82]

The account predicts that other markers associated with verbs should not be affected by derivation of the supine, since the supine can in principle be used in all verbal configurations. In particular, the reflexive marker is predicted to combine freely with the supine. Even though reflexivity is marked in OCS by what formally is a reflexive pronoun in the accusative case (сѧ, as opposed to the genitive form сєбє), the marker need not correspond to a specific argument in the argument structure of the verb (such as with inherent reflexive verbs), or an object function in the verb's lexical entry. In this sense, reflexive verbs behave as intransitives, and the reflexive marker is different from accusative-marked objects (cf. the Romance data discussed in Chapter 2, section 2.2, and see Sells et al. 1987 for a formal account of such cases). For example, with deverbal nouns, arguments corresponding to the verb's object are realized in a possessive construction by genitive NPs or even by denominal possessive adjectives; the reflexive marker, however, is usually omitted, even though deverbal

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[82] As I noted earlier, the selection of a possessor function by a verb form is in no way unusual or "exotic". A similar property characterizes, for example, the English gerund. The English mixed gerund, however, constitutes a special subtype of a mixed nonfinite form, which differs from OCS supines and other forms discussed in this chapter in one important respect: the gerund retains all argument functions while adding to them a possessor, which is identified with the subject function (cf. constructions like *their all signing the petition*, where the same argument role is realized both as a possessor and as a subject by the quantifier *all*). As a result, the gerund is used in constructions that are *externally* nominal, i.e. is embedded under a DP, which allows the possessor function to be expressed. The difference between the English gerund and the OCS supines is perhaps due to a difference in the syntactic environment in which the form became reinterpreted as a verb (a nominalization in an argument position vs. a nominalization in a purpose or aspectual construction, with an unexpressed external argument). I leave the detailed investigation of the historical roots of that difference for future research.

nouns may retain the verb's arguments (a special class of nominalizations in other Slavic languages, discussed in Chapter 5, are exceptional in retaining the reflexive marker).

This difference suggests that the reflexive marker does not represent an argument function selected by the verb (if it realized an object function with a verb, the relevant argument role would be expected to be mapped onto a possessor function with the corresponding noun). The hypothesis that the derivation of a supine eliminates the object from the set of functions selected by verbs predicts that the expression of reflexivity should not be affected by it, and that reflexive pronouns should still appear in the same accusative form (сѧ), rather than in the genitive case, like object NPs corresponding to real argument functions (себе). This prediction is borne out by the data: the reflexive marker is mentioned by Vaillant (1948: 174) as an exception to the genitive case assignment with the supine, cf. (6.15a-b).

(6.23) a.   иде   ...   помолитъ   сѧ

          went   pray.SUP   REFL

          'he went to pray' (Mark 6:46; quoted from Vaillant 1948: 332)

    b.   придѧ   ...   ісцѣлитъ   сѧ

          came   heal.SUP   REFL

          'they came to be healed' (Luke 6:17; quoted from Vaillant 1948: 174)

The history of the OCS supine resembles strikingly the history of the possessor-taking forms of the verb discussed in the previous sections for Vedic and Celtic. Like other instances of genitive-assigning nonfinite forms, the supine was quickly replaced by a regular VP with an accusative-marked object. Already in OCS, the supine competes with the infinitive of purpose; the two constructions ("infinitive + accusative NP" and "supine + genitive NP") are sometimes found as variants in manuscripts (Vaillant 1948: 332; Lunt 1955: 140). As a result of this competition, the supine became replaced by the infinitive and is not found as a separate morphological form in any of the modern East Slavic languages. Along with the morphological form, the partially nominal syntax of the supine was lost.

The supine was also lost in the majority of other Slavic languages, with the exception of Slovenian, where the object argument of the supine is optionally realized in the genitive (de Bray 1980b: 380, but cf. Priestly 1993: 436), and Lower Sorbian (Meillet 1934: 243; Vaillant 1967; Stone 1993: 665).[83] Among the immediate relatives of Slavic, traces of the supine are preserved in Lithuanian, with the morphological distinction between the infinitive and the supine intact in some of the dialects (Franks and Lavine 2006: 253).

6.4.4. Internally nominal VPs in Wan

6.4.4.1. Preliminaries

The examples of mixed nonfinite forms discussed above come from Indo-European languages and share a number of features. First, in all of them the major evidence for the construction's nominal internal structure was provided by morphological case marking on certain arguments of the verb (genitive was used instead of the expected accusative). Secondly, the set of arguments realized by the genitive in the mixed category construction coincided exactly with the set of arguments realized as objects with other forms of the verb, including its finite forms. I explained this correlation by a general syntactic property of the languages and constructions in question: on the one hand, arguments corresponding to subjects of the nonfinite forms tend to be omitted in

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[83] Interestingly, the assignment of genitive case to objects is found with the infinitive in some dialects of Polish and Ukrainian (Klenin 1987: 417; Timchenko 1913: 41-8); sporadic use of the genitive is also attested in Belorussian (Karskii 1956: 400, 403). This suggests that the competition between the supine and the infinitive was not resolved unambiguously in favor of the infinitive in all dialects: while the morphological form of the supine may have become lost, its partially nominal syntax may have become generalized to the form that came to replace it, i.e. to the infinitive. This change is most likely to have happened in dialects of Polish (which developed independently of OCS and Old Ukrainian) and later spread to Belarusan and Ukrainian dialects through contact.

the relevant context; on the other hand, oblique arguments tend to be realized identically (i.e. by a PP or in an oblique case) with verbs and with nouns. As a result of these properties, the mixed syntax of the construction can only be manifested as the genitive case assignment to arguments corresponding to the verb's object. There is simply no evidence for a nominal vs. verbal structure when the oblique argument is realized as a PP.

In this section, I turn to evidence from a non-Indo-European language and argue that the same kind of a mixed category construction is found in Wan (Mande). While the construction in question needs to be analyzed in terms of the same combination of nominal and verbal projections, the mixture of nominal and verbal properties is manifested in Wan in a very different way, because of the differences between the syntax of Mande and that of Indo-European languages. First of all, Wan is an isolating language without morphological case. Hence, no evidence for the internally nominal syntax of the infinitival construction comes directly from case marking. Neither do possessive NPs differ from object NPs by virtue of any kind of overt marking: both are expressed by bare NPs immediately preceding the nominal or the verbal head.

Secondly, as I show in the following sections, the set of arguments that are expressed as possessors within the mixed category construction in Wan is not determined by the verb's transitivity. This property is entirely predictable from the peculiar postpositional syntax of Wan, which was discussed in Chapter 3. Unlike PPs in Indo-European languages, postpositional phrases in Wan cannot modify nouns, and oblique arguments of deverbal nouns are often realized in possessive constructions, rather than as postpositional phrases. In other words, a nominal construction may only include possessor or adjunct NPs in Wan, hence oblique arguments are mapped onto possessor, rather than oblique, functions. Among the consequences of this syntactic property is the possibility of expressing oblique arguments of a verb as possessor NPs in mixed nonfinite clauses. I discuss this issue further later in the chapter.

An additional difference has to do with the nature of the data on mixed nonfinite forms found in Indo-European and in Wan and is explained by the lack of

historical data and the scarcity of comparative evidence on Mande, a problem that complicates any diachronic study of Mande syntax. While in the cases of Vedic, Celtic, and Slavic, the mixed category analysis of a particular form of the verb is corroborated by evidence for the form's nominal origin, no such evidence is available for Wan. On the other hand, since the construction to be discussed is attested in the language as it is currently spoken, the mixed category analysis can be tested against several kinds of empirical data. In what follows, I introduce the construction in question (6.4.4.2), provide evidence for its nominal internal structure (6.4.4.3) and verbal external syntax (6.4.4.4), and show how the mixed category analysis applies to it (6.4.4.5).

6.4.4.2.   Embedded clauses with non-canonical argument realization

The basics of Wan sentence structure were introduced in Chapter 3. In particular, I argued that, while subjects and objects are realized in positions preceding the verb, oblique arguments do not form a syntactic constituent with their verb. Instead of being realized as part of a verb phrase, they are adjoined directly to the IP and follow the main verb of the sentence independently of whether they are selected for by the main or by an embedded verb. I repeat this sentence structure below in (6.24), just to illustrate again the canonical realization of a verb's arguments.

(6.24)
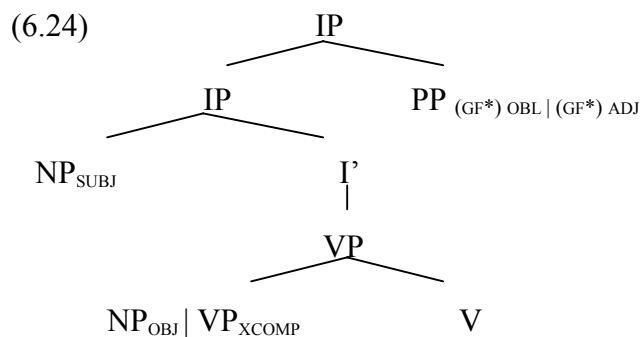
The realization of arguments of nonfinite verbs embedded in the sentence largely conforms to the same pattern. While subjects of embedded verbs tend to be omitted (and are controlled by an argument of the main verb), objects are always expressed immediately preceding the nonfinite verb, as part of the same VP. Oblique arguments

and adjuncts, on the other hand, never appear next to the nonfinite verb but instead are realized as PPs or adverbs following the main verb. They can be separated from the nonfinite verb with which they are semantically associated by a large amount of lexical material, including other PPs and, when the nonfinite verb is embedded in the position preceding the main verb (such as the XCOMP position), the main verb itself (see Chapter 3 and Nikitina forthc.,b for further details).

This argument realization pattern is illustrated in (6.25a) with a transitive verb and in (6.25b) with an intransitive verb taking an oblique argument. In both cases, the nonfinite verb is embedded as a complement of the matrix verb *ságlà* 'start' and appears in the position preceding it. The object NP appears before the nonfinite verb but the postpositional argument follows the main verb. The subject of the nonfinite verb is referentially dependent on the subject of the matrix verb, or controlled by it.

(6.25) a. *è*   *yrē*   *lò*   *ságlā*

3SG.SBJ   work   do   started

'He began to work.'   [lit. 'He began doing work.']

b. *è*   [[*kúnā̀*]ᵥₚ   *ságlā*]ᵢ'   *yrē*   *é*   *gó*

3SG.SBJ   climb   started   tree   DEF   in

'He began to climb the tree.'

While the argument realization pattern illustrated in (6.25) is found with nonfinite complements of most matrix verbs, this is not the only pattern that exists in the language. Verbal complements of some matrix verbs appear in configurations that are never found in finite clauses or in nonfinite clauses with referentially dependent subjects. In such "non-canonical" clauses, an intransitive verb is *preceded* by its oblique argument. For example, the verb *dìnā̀* 'teach' takes a nominal object (denoting the student) and a verbal postpositional argument (denoting the activity of dancing) marked by the postposition *yā*.[84]

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[84] The examples in (6.26-28) are in the progressive aspect, which is formed periphrastically using the locative marker *lé* (lit. 'be *at* teaching'); the progressive set of subject pronouns derives from fusion of regular pronouns with the copula.

(6.26) yāá   yrȁmū é   dìnȁ̀ lé   [**ɓítȁ̀**   yā] PP
        3SG+COP   children DEF teach PROG   dance   POST
        'She is teaching the children to dance.'

The verb *ɓítȁ̀* 'dance' is intransitive and may take postpositional arguments, as in (6.27):

(6.27) yāá   ɓítȁ̀   lé   **plíŋ ɓálè lé**
        3SG+COP   dance PROG   drum big on
        'She is dancing to [the sound of] a big drum.'

In (6.28), the verb *dìnȁ̀* 'teach' selects for a complement consisting of a verb that takes a postpositional argument. Surprisingly, the postpositional argument of the embedded verb appears not at the end of the sentence (as the sentence structure in 6.24 would predict), but in the preverbal position, which is normally restricted to objects of transitive verbs.

(6.28) yāá   yrȁmū é   dìnȁ̀ lé   **plíŋ ɓálè lé ɓítȁ̀**   yā
        3SG+COP   children DEF teach PROG   drum big on dance   POST
        'She is teaching the children to dance to (the sound of) a big drum.'

Embedded clauses with this structure are only found with a small set of matrix verbs, such as *dìnȁ̀* 'teach' and *lā* 'show (how to)', as well as in sentences with certain non-verbal predicates, such as (6.29)-(6.30).

(6.29) **trē   gó   gònȁ̀**   á   é kpālē̄   yā
        night in   get.up   COP   PRT difficult   with
        'To get up at night is difficult.'

(6.30) **kú   kē̄ é wā   yí**   á   é kpālē̄   yā
        house this DEF under live COP   PRT difficult   with
        'To live in this house is difficult.'

In (6.29) and (6.30), the nonfinite clause with non-canonical argument realization corresponds to the subject; in (6.28), 'teach' takes it as a postpositional argument. In (6.32), the verb 'show' takes a verbal complement with non-canonical argument expression that appears before the verb, in the XCOMP position, which corresponds to

the position of object NPs (cf. the postpositional oblique argument in the finite
sentence in 6.31).

(6.31)　*è*　　　*kúnā̰*　　*sógò*　　*tā*
　　　　3SG.SBJ　climbed　horse　　on
　　　　'He mounted a horse.'

(6.32)　*yāá*　　**sógò　tā　kúnā̰**　　*lá*　　*lé*　*é*　*gbè*　*lèŋ*
　　　　3SG+COP　horse　on　climb　　show　PROG　REFL　son　to
　　　　'He is showing to his son how to mount a horse.' (= 'how one climbs on a
　　　　horse')

In this type of clause an oblique argument appears in the preverbal position with
intransitive verbs.[85] With transitive verbs, the preverbal position is occupied by the
object NP, and all oblique arguments of the embedded verb are expressed as
postpositional phrases following the main verb. The preverbal expression of transitive
objects is common for verbal arguments with both "canonical" and "noncanonical"
structure. This is illustrated in (6.33) for a transitive embedded clause ('throw stones at

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[85] In most cases, the preverbal expression of an oblique argument is obligatory or
strongly preferred with intransitive verbs. Examples with optional preverbal obliques
that I have in my data collection can be explained by variation in the transitivity of the
verb. For example, (6.20) is acceptable for some speakers without a preverbal
argument, as in (i).

(i)　*yāá*　　　*yrā̰mū　é*　　*dìnā̰　lé*　　**ɓítā̰**　*yā*　　**plíŋ　ɓálè　lé**
　　　3SG+COP　children　DEF　teach　PROG　dance　POST　drum　big　on
　　　'She is teaching the children to dance to [the sound of] a big drum.'

This difference in judgment may of course reflect intra-speaker variation, as discussed
below. But it is also consistent with the fact that the verb *ɓítā̰* 'dance' is composed of
the stem of a transitive *tā̰* 'weave' and the noun *ɓí* 'dance'. Presumably, in (i), the
verb is functioning as a combination of a transitive verb with its object, so that the
preverbal position is occupied by the argument corresponding to the finite verb's
object and unavailable for the expression of any other argument role.

birds') used as a complement of the verb 'teach' (compare to 6.25a for a transitive embedded verb with a controlled subject).

(6.33) *yāá*   *é gbè dìnằ lé*   **klɛ̄nɛ̄̀ tálà** *yā bɔ̀lè mù klā*
        3SG+COP   REFL son teach PROG   stone throw POST bird PL behind
    'He is teaching his son how to throw stones at birds.' (= 'how one throws stones…')

To summarize, the embedded clauses in Wan fall into two types with different syntactic structure. The contrast is manifested (with intransitive verbs only) by different position of the oblique argument (before the head of the embedded clause vs. after the finite verb). In addition, as I argue in the next section, the argument is realized by two different syntactic categories: by PPs in clauses with the canonical, and by NPs in clauses with the non-standard argument realization (this difference has not been demonstrated so far, but will be addressed in the next section).

Matrix verbs that take embedded clauses with the canonical argument expression (the oblique argument appears after the finite verb) can be characterized as control verbs, or verbs of what can be called "designated" control: the unexpressed subject of the embedded verb is referentially dependent on a nominal argument of the matrix verb and cannot receive a generic interpretation. Verbs that take embedded clauses with the non-canonical expression of arguments (the oblique argument of an intransitive verb appears preverbally) do not impose such a relation of referential dependence, and the subject of their verbal complement receives a generic interpretation ('PRO$_{arb}$'). This is illustrated by paraphrases of translations of the embedded clauses in (6.32) and (6.33): 'He is showing to his son how *one* climbs on a horse', 'He is teaching his son how *one* throws stones at birds'; note also the generic subject interpretation in (6.29)-(6.30). The properties of the two types of embedded clause are summarized in (6.34).

(6.34) Embedded clauses with canonical vs. non-canonical argument realization

type of argument realization	oblique arguments	distribution
canonical	realized as PPs adjoined to the IP	clauses with controlled subject
non-canonical	realized as NPs preceding the verb if the verb is intransitive, as PPs otherwise	clauses with a generic subject

In the following sections I examine in more detail the syntactic properties of embedded clauses with the non-canonical argument realization and propose an analysis that accounts for them. In particular, I propose treating such embedded clauses as a mixed category construction that combines syntactic properties of noun phrases and verb phrases in the same way as the mixed constructions with nonfinite verbs do in Indo-European languages.

6.4.4.3. Nominal internal structure

In the previous section I showed that embedded clause of Wan fall into two types. One has the canonical argument realization (objects precede the embedded verb, while oblique arguments follow the main verb). The other allows an oblique argument to be expressed in the preverbal position with intransitive verbs. The two clause types can be distinguished only when headed by an intransitive verb. With transitive embedded verbs, the object precedes the verb in both types of clause, and all types of oblique arguments are realized as PPs at the end of the sentence. In other words, in clauses with canonical word order, the preverbal position is restricted to the object of a transitive verb, and in clauses of the other type the verb can be preceded by an argument that corresponds to an oblique PP with finite verbs. In what follows I propose an analysis that treats the absence of a restriction on the grammatical function of the preverbal element (object vs. oblique) as a *nominal* syntactic property of such clauses. In general, nominal heads and their possessive modifiers show a wider range of semantic relations than verbal heads and their objects. The latter typically stand in a

fixed thematic relationship, while nominal modifiers often show no such restriction (the range of notions expressed by nominal modifiers in Wan includes possession, location and time, material and source, etc.).

It is only possible to treat the relationship between the head and the preverbal argument in an embedded clause as nominal if the preverbal oblique argument indeed functions as a nominal modifier, not as a postpositional complement of the verb that for some reason appears preverbally rather than in its canonical postverbal position. In Wan, only noun phrases, but not postpositional phrases, can appear NP-internally. The claim that the syntactic relationship between the verb and the preverbal element in the embedded clause is structurally the same as the relationship between a noun and its nominal modifier implies that this preverbal element must be syntactically a noun phrase, not a postpositional phrase. This claim predicts a difference between the category of the oblique argument expressed preverbally (nominal) and the category of the same argument when it is expressed postverbally in canonical clauses (postpositional phrase).

It is not always a trivial matter, however, to distinguish a locative postpositional phrase from a noun phrase in Wan. Wan has two types of postposition that derive from different sources; I will refer to the two postpositional classes as *locative* vs. *functional*. Locative postpositions derive from relational nouns with locative meaning, so that the same form can function either as a noun or as a locative postposition (Nikitina 2008a). An example of a postposition that is homophonous with a noun is presented below; the two forms are distinguishes by their syntactic environment (only NPs appear NP-internally, and only PPs appear after the main verb, see Chapter 3).

(6.35) Homophonous forms functioning as a noun and a postposition

NP   *tā* 'top/upper surface'   [[*yí tā*]ₙₚ *gòŋ*]   'car of *water's surface*' (='boat')

PP   *tā* 'on top of/above'   [*è*ₙₚ *ziā*ᵥₚ [*yí tā*]ₚₚ]   'he descended **onto** *the water*'

All oblique arguments in the examples discussed so far (6.28-30, 6.32) were headed by such ambiguous forms, which could be analyzed either as locative postpositions or as relational nouns. Thus, none of the previous examples provides evidence for the

syntactic category of the oblique argument, neither supporting nor challenging the treatment of the oblique argument preceding the embedded verb as a nominal modifier analogous to a possessor NP.

The historical source of *functional* postpositions, which constitute the other class of postpositions in Wan, is not entirely clear. What distinguishes them as a class from the locative postpositions is the lack of categorial ambiguity. Phrases marked by functional postpositions can only appear after the finite predicate, where they mark an oblique argument of a verb (main or embedded). Most importantly, functional postpositional phrases cannot appear in nominal syntactic positions. This could provide the crucial evidence for the syntactic category of the preverbal argument in the embedded clause: if the position is indeed restricted to nouns, as in the case of a nominal possessive construction, we would expect that an oblique argument could not appear in it when marked by a functional postposition. This prediction is summarized in (6.36): while locative postpositions have a corresponding noun that may appear as the head of a possessor NP in a nominal construction, functional postpositions have no nominal equivalent and cannot correspond to anything when the argument is realized in the preverbal position.

(6.36) Syntactic positions available to arguments marked by the two types of postposition

Arguments marked by:	Postpositional syntactic functions	Nominal syntactic functions
locative postposition / noun	yes	(yes)
functional postposition	yes	no

In (6.37) an oblique argument ('the bird') of the finite verb *gā* 'went' is marked by the functional postposition *yā* 'with'.

(6.37) è   gā   **bɔ̀lè é yā**   kɔ̄ŋ   gó
        3SG.SBJ   went   bird DEF with   village   in
        'She brought the bird into the village.' [lit. 'She *went with the bird* to the village.']

Like all functional postpositions, the postposition *yā* 'with' marks oblique arguments in the postverbal position and has no equivalent that could appear in nominal syntactic positions, such as the head of a noun phrase or a nominal modifier. Arguments that are normally marked with this class of postposition can be used as a test case for the syntactic category (nominal vs. postpositional) of the preverbal element in the embedded clause.

The crucial evidence is provided by examples like (6.38). The embedded clause ('go with oranges') consists of a verb with an oblique argument realized in the preverbal position. The argument ('oranges') bears the same thematic relationship to the verb as in (6.37) above ('go *with* x'), where the same argument role is expressed in the canonical postverbal position, marked by a functional postposition. In the embedded clause in (6.38), however, it appears as a bare noun phrase without any postpositional marking. (In (6.38), 'the daughter' is the object of the verb *dìnã̀* 'teach', and the verbal complement of 'teach' ("oranges go") is introduced by the postposition *yā*, cf. 6.26, 6.28).

(6.38) S   O   V   [   ]PP

yāá   *é*   *nùŋ*   *dìnã̀*   *lé*   **lōmlī̄ŋ mù (*yā) gà** *yā*   *plē̄-le*

3SG+COP REFL daughter teach PROG   orange PL (*with) go POST market-at

'She is teaching her daughter to carry oranges to the marketplace.' (lit. 'go of oranges')

The contrast between (6.37) and (6.38), where the same argument role is expressed as a PP postverbally but as an NP in the embedded clause, shows that the structural relationship between the verb and a preposed oblique argument is different from the relationship between the verb and the same argument when it is realized in the canonical postverbal position. In my analysis, the details of which are spelled out in section 6.4.4.5, I propose to treat the relationship between the verbal head of this type of embedded clause and the preverbal NP as essentially nominal, i.e. as structurally identical to the relation between a noun and a possessor NP. The fact that the preverbal element of the embedded clause indeed behaves like a noun phrase and not like a postpositional phrase supports this analysis.

6.4.4.4. Verbal external syntax

Along with the nominal properties (in particular, the realization of oblique argument roles as an NP in what seems to be a possessive construction), embedded clauses that allow for the preverbal expression of oblique arguments show some verbal characteristics. First of all, they are headed by lexical verbs in a non-derived form without a nominalizing suffix. The distribution of such embedded clauses is not different from the distribution of nonfinite clauses with the canonical expression of arguments in that both are selected as arguments by certain sets of matrix verbs. Furthermore, such clauses cannot modify nouns without being nominalized. This property is illustrated in (6.39), where the construction needs to be nominalized in order to be used as a nominal modifier, i.e. NP-internally; the noun phrase in question is headed by the noun *gbὲ* 'way' and functions as the object of the verb *lā* 'show'.

(6.39) *yāá*   [***lōmlīŋ gà-ŋ / *gà***] *gbὲ lá lé é nùŋ lὲŋ plē-lé*

        3SG+COP orange go-NMLZ/*go way show PROG REFL daughter to market-at

        'She is showing to her daughter how to carry oranges to the marketplace.' (lit. 'the way of going of oranges')

Finally, a typical noun, or a nominalized verb, can combine with more than one nominal modifier. In the embedded clause in (6.38), repeated here as (6.40), however, only one of the two oblique arguments of the verb appears in the preverbal position.

(6.40) *yāá*   *é nùŋ dìnἂ̃ lé* ***lōmlīŋ mù gà*** *yā* ***plē-lé***

        3SG+COP   REFL daughter teach PROG orange PL go POST market-at

        'She is teaching her daughter to carry oranges to the marketplace.' (lit. 'go of oranges')

All postpositional arguments that are not expressed in the preverbal position (in 6.40, the goal phrase) are excluded from the embedded clause and appear at the end of the sentence, as adjuncts to the IP, just like postpositional arguments of verbs embedded in clauses with the canonical argument realization. The fact that at least some

arguments of the embedded verb must be expressed in the same position as arguments of finite verbs points to the partially verbal character of the clause.

6.4.4.5.   A mixed category analysis

In the previous sections I argued that the construction allowing for the preverbal expression of oblique arguments combines nominal and verbal syntactic properties. Nominal properties characterize the internal composition of the construction, i.e. the head combines with its dependents in the same way as nouns do. Among such nominal properties, I mentioned the broad range of possible semantic relations between the head and its dependent, as well as the non-occurrence of functional postpositions that mark oblique arguments of verbs in all other types of clause.

At the same time, the construction's distribution is similar to that of verb phrases, its head is clearly a verb, and as such must be marked by a nominalizer in order for the clause to be used in typical nominal environments. This suggests that a clause allowing for the preverbal expression of oblique arguments should be analyzed as a mixed category—a construction that combines syntactic properties of two distinct categories, but has a single head.

The structure of regular noun phrases and regular verb phrases in Wan is represented in (6.41)-(6.42); their syntax was discussed in Chapter 3. Verb phrases consist of a verb and a preceding complement, which can realize an object or an infinitival complement, depending on the selectional properties of the head verb. All other arguments of the verb are expressed outside of the verb phrase; in particular, oblique arguments appear as PPs adjoined to the IP. Thus, embedded clauses with canonical argument realization can be characterized as regular VPs, since the position preceding the verb is restricted to the same set of grammatical functions as in (6.41).

(6.41)   VP

    NP$_{\text{OBJ}}$ | VP$_{\text{XCOMP}}$ V
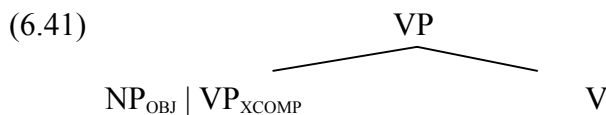
Nominal heads can also take a complement, which realizes the function of possessor (POSS). Possessors are selected for by relational nouns, which in general require the

presence of an inalienable possessor NP. In addition to the possessor, a noun phrase may include optional adjunct NPs corresponding to what is traditionally referred to as alienable, or free possessors (ADJ).

(6.42)

```
                              NP
               _____
          NP_ADJ                    NP
                               _____
                          NP_POSS              N
```
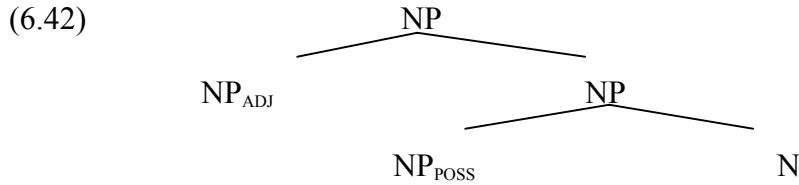
Embedded clauses with non-canonical argument realization have a partially nominal syntactic structure. Instead of restricting their complement position to object NP or infinitival complements, such clauses allow either an argument corresponding to the verb's object or an argument corresponding to an oblique to be realized before the verb, as if those arguments were mapped onto the possessor function.

(6.43) Internally verbal infinitival clauses in Wan

```
                    VP
             _____
           NP              V
       _____
    NP_POSS    (N)
```
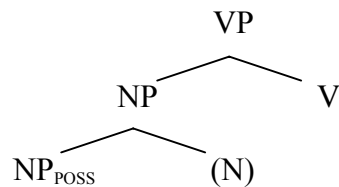
This structure bears a striking resemblance to the structure of mixed VPs found in Indo-European languages. Unlike the mixed categories in Indo-European, however, the nonfinite form of the verb used in this construction does not differ morphologically from nonfinite forms used in other types of embedded clauses, where argument realization is regular.[86] At the same time, the lack of distinct morphological marking

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[86] Historically, the mixed infinitives in Wan may have developed from nominalizations, as in Indo-European languages. There also may have existed a separate morphological form of a mixed infinitive that was replaced by the regular nonfinite form while transferring to it its syntactic properties; this development would be similar to the one suggested for the infinitives in dialects of Polish, where the infinitive replaced the old supine but at the same time acquired the property of assigning genitive case (see footnote 83).

does not imply that the same form cannot be used either in the function of a regular nonfinite verb or in the function of a mixed infinitive and correspond to two different lexical entries with different properties, just like the English form in *-ing*, which can correspond to a deverbal noun, a participle, or to a verbal gerund selecting for a possessor function (see Chapter 5).

In Wan, the nonfinite form of the verb apparently corresponds to (at least) two lexical entries. One does not differ from other verb forms with respect to the set of grammatical functions that it selects for, subcategorizing for subjects, objects, and oblique argument functions. The other does not select for an object, instead requiring a possessor, just like the mixed nonfinite forms of Indo-European languages.

(6.44) Selectional properties of the two verb forms used in different types of embedded clause

| *Form*$_1$ | simple infinitive | < SUBJ, (OBJ), (OBL)> |
| *Form*$_2$ | mixed infinitive | < SUBJ, (POSS), (OBL)> |

While most matrix verbs select for an infinitival complement headed by Form 1, some select for complements with heads of Form 2 (see below for a possible semantic determinant). Arguments of Form 1 are realized in exactly the same way as with finite verbs. Form 2 takes a possessor function, which realizes the argument corresponding to the finite verb's object, if the verb is transitive, or to an oblique argument, if that verb is intransitive.

Besides capturing the fact that the preverbal position is not restricted with Form 2 to objects of transitive verbs, the account explains the uniqueness of the preverbal NP. When a verb has more than one oblique argument, only one of them may be mapped onto the possessor function in (6.44), and only one possessor may be expressed in the syntactic structure in (6.43), since nouns in Wan take no more than one complement. The remaining arguments will be mapped onto oblique functions and appear at the end of the sentence, as PP adjuncts to the IP, i.e. in the same position as with other forms of the verb (cf. 6.40).

The major difference between mixed nonfinite forms found in Wan and those discussed for Indo-European languages also follows directly from the proposed

account. While in Vedic, Celtic and Slavic, only argument roles corresponding to the finite verb's object appear as adnominal genitives in mixed VPs, in Wan the possessor NP can also realize oblique arguments of the verb. This difference is due to a difference in the argument linking rules. In an average Indo-European language, oblique functions can be selected either by verbs or by nouns; for example, a deverbal noun may combine with a PP or with an NP in an oblique case within a purely nominal structure (e.g., *the train's arrival at the station*, *our gift to Mary*). In Wan, postpositional phrases cannot modify nouns; PPs are excluded from the mixed structure in (6.43). Instead, oblique arguments are mapped directly onto the possessor function; as I showed in Chapter 3, this is a common strategy of realizing all argument roles with deverbal nouns. In other words, the possessor function in Wan is available for the mapping of all kinds of argument roles, not only those corresponding to subjects or objects of verbs, as is often the case with the Indo-European subjective and objective genitives. As a result of this contrast, an identical pattern of use of a mixed VP may seem quite different on the surface.

The structure in (6.46) illustrates the mixed category analysis for the embedded clause (in bold) from (6.40), repeated here as (6.45).

(6.45) *yāá*   *é nùŋ*   *dìnằ lé*   **lōmlĪŋ mù gà**   *yā*   *plē̄-lé*

     3SG+COP   REFL daughter teach PROG   orange   PL go   POST   market-at

     'She is teaching her daughter to carry oranges to the marketplace.' (lit. 'go of oranges')
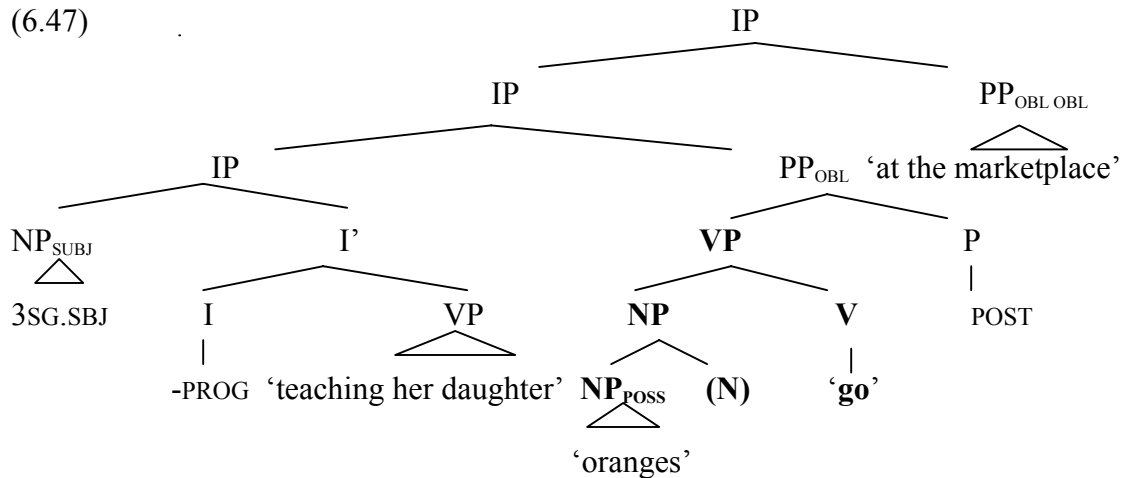
(6.46) Mixed category analysis
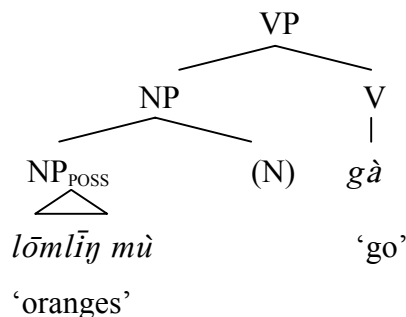
The structure in (6.47) represents the syntactic structure of the entire sentence; the internally nominal embedded clause is in bold. The progressive verb within the I'

('teach') selects for an oblique verbal complement, which is marked by the postposition *yā*. The postposition introduces an embedded clause with mixed syntactic properties.

(6.47)

```
                                           IP
                    ┌───────────────────────┴───────────────────┐
                   IP                                       PP_OBL OBL
        ┌───────────┴───────────┐                              △
       IP                   PP_OBL  'at the marketplace'
  ┌─────┴─────┐          ┌────────┴────────┐
NP_SUBJ      I'         VP                 P
  △      ┌───┴───┐   ┌───┴───┐             │
3SG.SBJ  I      VP  NP       V            POST
         │      △    │       │
      -PROG  'teaching  ┌────┴────┐    'go'
             her       NP_POSS  (N)
             daughter'   △
                      'oranges'
```

The sentence is in the progressive aspect, which is formed periphrastically by marking the verb phrase by the postposition *lé* 'at' (I omit the details of the internal structure of the verb phrase). The postpositionally marked verb phrase is introduced by an auxiliary (lit. 'be at teaching her daughter'). A special progressive set of subject pronouns derives from fusion of the subject pronoun form with the auxiliary. I ignore this complication in my syntactic representation and treat the auxiliary as if it were overtly present.

The functional annotation on PP constituents indicates the grammatical function that the PP realizes. The first of the two PPs, which includes the mixed category construction, realizes the oblique function of the main verb ('teach'). The other PP realizes the oblique function selected for by the verb that itself functions as an oblique argument of the main verb ('go').

A final remark is due on a possible semantic determinant in the choice between the two nonfinite forms of the verb. As I already mentioned, although the regular and the mixed nonfinite forms are not distinguished at the morphological level, their use with different kinds of matrix verbs corresponds to a difference in the semantic interpretation. While the regular infinitive appears in contexts where its subject is co-referential with an argument of the matrix verb, or controlled by it, the subject of the

mixed infinitive is not referentially dependent on any other argument of the sentence and is instead interpreted generically. This suggests that the distribution of regular and mixed infinitives in Wan may be determined by one of the two factors. First, the type of the infinitive may be specified directly by the matrix verb, in the same way as matrix verbs in other languages may specify the morphological type of the head of their infinitival complement. Alternatively, the use of one or the other form in Wan may be determined directly by the semantic type of the nonfinite clause, assuming that the mixed nonfinite form specifies the referential value of its subject as generic ('PRO$_{arb}$'). This treatment seems more appealing to me and is the one I preliminarily adopt in this study. Further investigation of the properties of the two classes of nonfinite clauses is needed to arrive at a definitive explanation.

6.5.   Conclusion

In this chapter, I surveyed a special type of mixed category, which combines nominal and verbal syntactic properties but differs from function-retaining nominalizations both in its structural properties and in its path of historical development. While function-retaining nominalizations appear in noun phrases with partly verbal internal structure, the mixed category in question – the mixed VP – combines the external distribution of a verb phrase with a fragment of nominal internal structure.

Unlike function-retaining nominalizations, which typically evolve from regular deverbal nouns through lexical change, mixed nonfinite forms are the result of syntactic reanalysis. I illustrated this type of change using the example of Hausa denominal prepositions, where the reanalysis of certain nouns as prepositions gave rise to a historically motivated mixed category, which inherited its argument realization properties from its diachronic source. I suggested that the same kind of process is responsible for the development of verb forms that preserve certain syntactic characteristics of nouns. Most commonly, verb forms deriving from deverbal nouns retain the ability to be modified by an adnominal possessor. I proposed that the development of deverbal nouns into forms of the verb (N > V) accounts not only for a number of instances of constructions with mixed infinitives in Indo-European

languages, but also for an unusual and superficially very different type of nonfinite clause in Wan.

In spite of the differences, both types of mixed category (mixed nominalizations discussed in the previous chapter, and mixed nonfinite forms) can be accounted for in terms of a similar hybrid syntactic configuration, as well as a lexical rule that derives forms with special, or "mixed", subcategorization patterns. Unlike regular nouns, mixed nominalizations retain some of the grammatical functions selected for by the corresponding verb, such as the verb's object. This retention can be described in terms of a variable-containing derivational rule that allows a nominalization to keep some of the verb's argument functions. Unlike other forms of the verb, mixed nonfinite forms select for a possessor function, onto which they can map an appropriate argument role. Their unusual lexical properties, however, are not entirely parallel to those of mixed nominalizations. While mixed nominalizations are synchronically derived from the corresponding verb, mixed nonfinite forms are only related to nouns historically; at the synchronic level, they are related to other forms of the verb rather than to a noun. Hence, the possessor function is not retained by the nonfinite form from the corresponding deverbal noun; rather, it is introduced directly by the derivational rule. This kind of a historically motivated "retention" of functions typically cannot be described in terms of a variable-containing derivational rule.[87] The difference between the two types of mixed category is summarized below; see also Appendix 1 for a brief summary.

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[87] The Celtic verbal noun may seem to be an exception to this generalization, if nonfinite verbs are assumed to derive synchronically from the corresponding nouns (cf. McCloskey 1980). This decision, however, is no more motivated on synchronic grounds than the decision to derive deverbal nouns from nonfinite forms of the verb; the latter pattern of conversion is widely attested cross-linguistically, cf. nominalized infinitives in Romance and German, among many others.

(6.48) Differences between the two types of mixed category

Type of form	Synchronic derivational status	Mixed properties
mixed nominalization	derived from a verb by a function-retaining nominalization rule	retains some of the verb's argument functions
mixed nonfinite form	derived from other forms of the verb	selects for a possessor function, like nouns

Interestingly, unlike mixed nominalizations, mixed nonfinite forms appear to be diachronically unstable: in the examples discussed, their properties tend to be leveled out relatively quickly. Thus, infinitives no longer take genitive NPs in Sanskrit; nominal properties of nonfinite forms became corrupted in Celtic, and the category of supine virtually disappeared in Slavic. Even in Wan, where the mixed infinitives are unquestionably part of the grammar of older speakers, some of the younger speakers seem to avoid them.[88] Overall, mixed nominalizations appear to be cross-linguistically more common than mixed non-finite forms. The apparent difference in the life expectancy of the two types of mixed category could be due to the fact that mixed infinitives are under pressure from other forms of the same verb, and their exceptional lexical properties tend to become leveled out by analogy. Mixed nominalizations, on the other hand, do not always experience a similar kind of pressure from other kinds of related nouns (unless a language has multiple types of nomina actionis); hence, they may retain their peculiar lexical properties (which are shared with the verb) for a longer period of time.

Focusing on the major conclusions that can be drawn from the diachronic study of category mixing, I would like to emphasize once again the importance of

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[88] This observation requires further empirical support. I do not have evidence from a large enough number of speakers to make claims about the viability of the internally nominal VP. The fact that some of my younger consultants were reluctant to use it could also be due to their relatively low overall level of competence in Wan compared to older speakers.

testing any formal analysis of a synchronic pattern against evidence from the pattern's development. In the case of mixed category constructions, I tried to show how the analysis proposed in the first (synchronic) part of this study applies to historical data. The proposed analysis not only accounts for a common path of development of mixed nominalizations (which develop from regular nouns to function-retaining nominalizations), but it can also be extended to another, commonly ignored instance of a construction that combines nominal and verbal properties – the mixed nonfinite form.

The account developed in this study is based on the distinction between abstract grammatical functions selected by lexical items and phrase structure configurations in which these functions are realized; evidence for their dissociation was provided in chapters 2-3 of the study. The fact that the two different types of mixed category develop in such different ways provides further support for this distinction. The emergence of mixed nominalizations is driven by lexical change, i.e. by changes in the selection of abstract grammatical functions: instead of realizing their arguments in a way expected of nouns, such nominalizations start retaining some of the grammatical functions of their corresponding verb. This retention of the verb's argument functions may lead to the development of a mixed category construction where such functions can be expressed, without affecting the nominalization's lexical category.

Mixed nonfinite forms, on the other hand, have a different source. Their development is triggered by a change in the syntactic analysis of originally nominal constructions. The reanalysis of heads of such constructions as forms of the verb may lead to inconsistencies in the interpretation of the dependent NPs, which express the head's arguments. The mixed category analysis of constructions involving such dependents is one way of reconciling the nominal argument realization with the verbal category of the head. As a result, structural reanalysis leads to lexical change, namely, to the emergence of a verb form with the unusual selection of a possessor function. The different role of structural vs. lexical change in the development of different types of mixed categories is consistent with the proposed analysis, which relies on the

dissociation of the head's lexical selectional properties from constraints on possible phrase structure configurations.

Part III: Language-specific and typological consequences of categorial reanalysis

Chapter 7. Categorial reanalyis as a source of rara in Mande syntax

7.1.   Introduction

In the preceding discussion I focused on general properties of mixed category constructions, aiming at developing a typologically adequate theory of category mixing. Chapters 2-3 contained two case studies that present different kinds of problem associated with a number of widely accepted accounts of mixed categories. I suggested that the data discussed in those case studies supports a particular kind of lexicalist approach, which is both flexible with respect to the set of lexical features that derived words are allowed to share with their base (which include the selection of abstract grammatical functions) and constrained with respect to the interaction between the lexical properties and their syntactic realization, resulting in certain kinds of mismatches between the lexical information that must be expressed and the syntactic options provided for its expression by language-specific phrase structure constraints. In Chapters 5-6 I extended this analysis to diachronic data, showing that the same treatment captures the difference between two common paths of development of mixed category constructions, some of which – the mixed nominalizations – arise as a result of lexical change (Chapter 5), while others – the mixed nonfinite forms – are due primarily to categorial reanalysis (Chapter 6).

The rest of my dissertation discusses another aspect of the interaction between different syntactic categories. Instead of focusing on the phenomenon of category mixing as manifested in synchronic grammar, I try to present a broader picture of the diachronic relationship between the categories of noun and verb, and in particular, to investigate the potential consequences of categorial reanalysis for the grammar of an individual language and for cross-linguistic diversity in general. The process I am concerned with is the type of syntactic reanalysis described in Chapter 6, which

involves a reinterpretation of what originally was a deverbal noun as a nonfinite or a temporal/aspectual form of the verb. As I showed in Chapter 6, this process often results in a particular pattern of category mixing, where a verb form combines with a possessor NP as if it were a noun. This mixed category tends to disappear within a relatively short period of time and is usually replaced by a regular verbal structure; this change is often accompanied by a replacement of the particular morphological form of the verb (alternatively, the verb form in question loses its formerly nominal properties and starts being used in a prototypically verbal way, i.e. in regular, non-mixed verb phrases).

The phenomena found in Mande languages that I discuss in this chapter – reduced structural complexity of the verb phrase, lack of a distinction between genitive and accusative pronouns, and absence of a double object construction – are a result of the same kind of reanalysis, but unlike the development of a mixed nonfinite form, they extend far beyond the emergence of a single hybrid construction or a morphological form with mixed properties. Instead, they can be regarded as central to the grammar of the language and in many ways determinant of its typological profile. In this sense, the consequences of categorial reanalysis discussed in this chapter are far more important for the study of language change than the development of a particular mixed construction.

7.2. Categorial reanalysis in Mande and split predicate syntax

The analysis of the syntax of embedded clauses and nominalizations in Wan (Chapter 3) revealed a typologically unusual argument realization property. Instead of being realized next to the verb that selects for them (or at least as part of the same VP), all oblique arguments of all verbs as well as of certain nominalizations appear as postpositional phrases following the finite verb, sometimes at a considerable distance from their subcategorizer. The obligatory non-local argument realization attested in Mande seems to be shared neither by languages that are commonly assumed to be the

closest relatives of Mande[89] nor by other languages spoken in the same area, with the possible exception of Senufo (Carlson 1994, 2003) and a few other SOVX languages that are in contact with Mande and are influenced by them. This property is also extremely rare in the languages of the world,[90] and as any syntactic rarum, it requires an explanation. In the rest of this chapter I suggest a historical account of the non-local argument realization in Mande and argue that although the pattern may look exceptional from the point of view of synchronic analysis, it may still be a natural consequence of universal patterns of language change.

The essential observation about the syntax of Wan can be summarized as follows: in Wan, the absence of verb-phrase-internal postpositional phrases correlates with the absence of postpositional modification of nouns. This correlation suggests a possible historical connection, especially given that neither of the properties is typologically common.[91] As I argue below, the mechanism of change that appears to be responsible for this combination of verbal and nominal properties is the transfer of nominal syntax to verb phrases due to categorial reanalysis of constructions with nominalizations.

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[89] Mande languages are generally believed to be part of the Niger-Congo family (Greenberg 1963, Williamson 1989, Gordon 2005) and the earliest off-shoot from the common Niger-Congo stock (Welmers 1971: 119). This view, which is also accepted here, is, however, not uncontroversial, and some scholars prefer to treat Mande as an isolated family.

[90] One potential parallel is suggested by the discussion of Toba Batak in Schachter (1984, esp. 145-6). It is quite possible that the non-local realization of arguments is found in a number of other languages but is simply not commonly recognized as such, since the identification of this pattern normally requires an analysis of sentences with embedding, which are not always discussed in enough detail in basic descriptive grammars.

[91] The constraint on PP modification of nouns is, however, found in a relatively large number of languages, cf. Koopman (2000: 103).

Cross-linguistically, deverbal nouns are used in periphrastic expressions of tense, aspect, and mood. The examples in (7.1) come from various West African languages where a construction with nominalization is used in a more or less conventional way to express a temporal or aspectual meaning.

(7.1)   a.   Cedepo   (Kru; Marchese 1986: 102)

          ɔ̄   *mī̄*   *tulubɔ̄*   *mū*   *ma*

          he   go.IMPF   Monrovia   go   NMLZ

          'He will go to Monrovia.'

      b.   Kpelle   (Mande; Welmers 1973: 354)

          a   *pâi*   *'kɛ̂i*

          3SG   came   it.do.NMLZ

          'He's going to do it.'

      c.   Ewe   (Kwa; Claudi 1994: 220)

          me-le   *é*   *-kpɔ́*   *dzí*

          1SG-be.at   3SG.POSS   -see   surface/on

          'I am seeing him/her/it.' (Lit. 'I am on his/her/its seeing.')

      d.   Tura   (Mande; Bearth 1995: 96)

          Tia   *yɛ̆*   *nu-sɨ-gɨ*

          Tia   3SG-AUX   come-NMLZ-interior

          'Tia is coming.' (Lit., 'Tia is in coming.')

In (7.1a), the future tense is expressed by a combination of the verb 'go' with a deverbal noun (literally, 'He goes to Monrovia's going'); the fact that the same verb 'go' is used twice suggests that the construction is fully grammaticalized and that the first instance of the verb carries a temporal, rather than lexical, meaning. In (7.1b), the prospective meaning is expressed in a very similar way but using the verb 'come' instead of 'go': 'He is going to do it' can be read literally as 'He came to the doing of it'. Finally, the progressive aspect in (7.1c) and (7.1d) is expressed by means of an originally nominal construction which is a complement to a postposition. In all these constructions, the lexical verb appears in the form of a deverbal noun. In the languages mentioned above, such constructions are at a relatively early stage of

grammaticalization, and can still be traced back to their original source, i.e. to a construction involving a nominalization. Once they have developed further, tracing them back to a nominal construction may become difficult or even impossible.

Constructions of this kind are especially abundant in Mande (Claudi 1994), cf. (7.1b,c) and the following example from Wan, where the prospective suffix on the verb apparently derives from the locative postposition *nɛ̀̃* 'place', and the prospective auxiliary seems to derive from the verb 'come' (no trace of nominalizing morphology is preserved on the lexical verb).

(7.2) *ŋ̀* *zòŋ* *pɔ́* *lɔ́-ŋ*

    I PROSP thing eat-PROSP

    'I am going to eat.'

As constructions with deverbal nouns become a conventional way of expressing categories of tense, aspect, and mood, they tend to be eventually reanalyzed as verb phrases. As I already mentioned in Chapter 6, this process is widely attested in the languages of the world; in particular, deverbal nouns, often in a particular case form, are apparently the most common source of infinitives both in Indo-European languages and outside of the Indo-European family. The example below is repeated from Chapter 6 and illustrates the development of a purpose construction, which originally involved a nominalization, into a future tense construction.

(7.3) Reanalysis of a purpose NP as a VP (Kru; Marchese 1986: 126)

    a. Purpose NP

        ɔ yi **lI** **kā̄**

        he come **eat** NMLZ

        'He's coming to eat.'

    b. Future tense construction

        ɔ yi **lI**

        he AUX **eat**

        'He will eat.'

Comparing the two sentences, one can see that the future auxiliary (*yi*) goes back to a lexical verb ('come'), which originally combined with a deverbal noun. As the

construction became conventionalized for the expression of future tense, what was originally a NP containing a nominalized verb was reinterpreted as a simple verb phrase, or the complement of an auxiliary (and the nominalizer was lost).

Crucially, the process of reanalysis illustrated by this example suggests a possible locus of interaction between the syntax of verbs and the syntax of nouns. I present the reanalysis in the form of relevant structures in (7.4); see Chapter 6 for a more detailed discussion and for possible intermediate "mixed" stages in the reanalysis.

(7.4)   Reanalysis of constructions with nominalization as VPs

a. nominal periphrastic construction   b. result of grammaticalization

$$\text{NP} \qquad\qquad > \qquad\qquad \text{VP}$$

NP$_{\text{POSS}}$ N$_{nmlz}$ NP$_{\text{OBJ}}$ V$_{nonfin}$
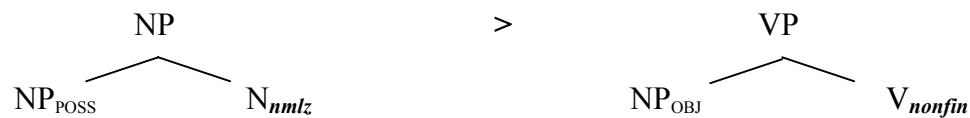
As a result of categorial reanalysis, what was originally a noun phrase with a deverbal noun as its head becomes reinterpreted as a verb phrase headed by a non-finite verb. In what follows I suggest that in instances where the original structure had clearly nominal syntax (for example, where the noun combined with a possessor, as in 7.4a), this reanalysis may introduce VPs of a previously unattested type and ultimately result in changes to the structure of the verb phrase. In particular, due to a massive grammaticalization of originally nominal constructions, the structure of verb phrases may be influenced by the structure of the noun phrase.

The account presented below is based on the hypothesis that grammaticalization of constructions with deverbal nouns provides a context for an interaction between nominal and verbal syntax and is responsible for a number of "nominal" properties of the Mande verb phrase, including the absence of verb-phrase-internal PPs. It is crucial for this account that constructions with nominalizations are particularly prominent in Mande languages and play an important role in the expression of temporal and aspectual notions, suggesting that their abundance may serve as a trigger for categorial reanalysis (Heine and Reh 1984; Claudi 1988, 1994).

In addition to being especially prominent, this process is also recurrent. As older constructions with deverbal nouns start functioning as a conventional way of expressing some temporal or aspectual meaning, new constructions are introduced into the system, which may then also become conventionalized. In Mande languages, old tense/aspect/mood constructions appear to be replaced by new ones rather rapidly. Even closely related languages may diverge significantly in their use of specific aspectual constructions, to the extent that it does not appear to be possible to reconstruct any temporal or aspectual marker for Proto-Mande (Bearth 1995; also Creissels 1980: 155, and the survey in Tröbs 2004), suggesting that constructions with deverbal nouns have continued to be a powerful source of new tense/aspect/mood constructions in individual languages.

The prominence of constructions with deverbal nouns and their reanalyzed versions in Mande languages correlates with a relatively poor inventory of finite verbs. Quite strikingly, some of the languages lack the category of finite verb altogether. In languages of this type, all sentences require the presence of a special auxiliary-like element; such elements often (but not always) descend from lexical verbs, as in the example of future tense construction from Kru discussed above (7.3). In present-day Mande, this type is represented by a small number of Western Mande languages, including some dialects of Bamana. In these languages, lexical verbs cannot be used finitely, and every type of sentence has an overt auxiliary-like element that appears after the subject and introduces a non-finite form of the lexical verb (Kastenholz 2003, 2006). In the Mandeist tradition, such elements are referred to as "predicative markers"; this characterization captures the fact that these elements do not always derive from verbs but have heterogeneous origins (Bird and Kendall 1986; Bearth 1995; Kastenholz 2003).

As described in Creissels (2005: 40), in Bamana "tense, aspect, and mood are marked by predicative markers following the subject and expressing also the *positive* vs. *negative* distinction. The only exceptions are the imperative singular positive, which has no marker at all, and the intransitive past/perfective positive, marked by a verbal suffix." The temporal-aspectual forms of Bamana are listed in (7.5). The only

form that does not require the use of an overt auxiliary-like element is the intransitive past/perfect (the construction in bold), which is expressed by a suffix on the verb. With transitive verbs, however, the predicative marker must be present.[92]

(7.5)   TAM forms in Bamana

Subject	Aux	V-intr	
mùsó	*bɛ́*	*táá*	'The woman is going.'
mùsó	*tɛ́*	*táá*	'The woman is not going.'
mùsó		***táá-rá***	'The woman went / has gone.'
mùsó	*má*	*táá*	'The woman did not go / has not gone.'
mùsó	*bɛ́nà ~ ná*	*táá*	'The woman will go.'
mùsó	*tɛ́nà*	*táá*	'The woman will not go.'
mùsó	*ká*	*táá*	'The woman should go.'
mùsó	*kàná*	*táá*	'The woman should not go.'

Subject	Aux	O	V-tr	
mùsó	*bɛ́*	*jɛ́gɛ́*	*sàn*	'The woman is buying fish.'
mùsó	*tɛ́*	*jɛ́gɛ́*	*sàn*	'The woman is not buying fish.'
mùsó	*yé*	*jɛ́gɛ́*	*sàn*	'The woman bought / has bought fish.'
mùsó	*má*	*jɛ́gɛ́*	*sàn*	'The woman did not buy fish.'
mùsó	*bɛ́nà ~ ná*	*jɛ́gɛ́*	*sàn*	'The woman will buy fish.'
mùsó	*tɛ́nà*	*jɛ́gɛ́*	*sàn*	'The woman will not buy fish.'
mùsó	*ká*	*jɛ́gɛ́*	*sàn*	'The woman should buy fish.'
mùsó	*kàná*	*jɛ́gɛ́*	*sàn*	'The woman should not buy fish.'

Some Mande languages go even further than Bamana in relying on Aux-like elements, and use overt predicative markers in the intransitive past/perfect positive as well as in other tense/aspect/mood forms. As a consequence, they appear to have no finite forms at all. Such is, according to Creissels (2005: 41), the Koyaga language, where there is

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[92] A diachronic account of the transitivity split is suggested in Creissels (1997a); a structural account is provided by Koopman (1992).

simply no context where a plain verb would be used finitely, without a separate predicative marker.

Languages that require the use of auxiliary elements were described by Bearth (1995) as languages with "split predicate" syntax (they correspond to Type 1 in Sasse's 1991 typology of predication). In languages of this type, the lexical meaning of the verb and tense/aspect/mood are encoded separately, by different lexical classes and in two different positions in the syntactic structure. Tense/aspect/mood categories are expressed by a class of auxiliary-like elements, which are responsible for finiteness and can be characterized as instantiations of a functional category of INFL. The lexical meaning is expressed by verbs, which are embedded in the complement of the auxiliary. Within Mande, languages and dialects vary from being purely of this type (in dialects where verbs cannot be used finitely) to being only predominantly split predicate (in dialects where only a few finite forms exist). The finite forms in the latter type of language are often marked with a suffix and derived from only a subclass of verbs, such as from intransitive verbs (Kastenholz 2006).[93]

The split predicate syntax explains why categorial reanalysis could become so prominent in Mande and why it has had such significant consequences for the grammar of this group of languages. The process seems to be intensified by the relatively small number of constructions with finite verbs, which correlates with the high prominence of periphrastic constructions in which nominalizations are used to express temporal and aspectual notions. The periphrastic constructions of this kind are for the most part structurally ambiguous and tend to be reanalyzed as constructions involving verb forms. Not only is the new, verbal analysis possible, it may also be

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[93] Reconstruction of pure or predominantly split predicate syntax for Proto-Mande accords well with the reconstruction of Proto-Niger-Congo as an OV language with finite verbs in the sentence-second position (SVO); arguments for this reconstruction can be found in Gensler (1994), Nikitina (2008b). On this view, the split predicate syntax of Mande is a result of the elimination or extreme reduction of the class of finite verbs: finiteness is expressed by a specialized class of auxiliary-like markers, and nonfinite verbs strictly follow their complements.

preferred from the point of view of the overall organization of grammar, as the reanalysis of a temporal or aspectual construction as involving a verb form rather than a nominalization may be viewed as a simplification in the rule that derives the form in question. While derivation of a deverbal noun used in a nominal periphrastic construction involves a change in the lexical category, the verb form created by the reanalysis can be derived directly from another form of the verb. In the absence of sufficient evidence for category change, learners may simplify the rule that derives the form used in a particular temporal or aspectual construction by treating what used to be a nominalization as a verb form. In this sense, the development of split predicate syntax can be regarded as the enabling cause of the change (as it leads to the expansion of potentially ambiguous constructions), and categorial reanalysis, viewed as a tendency for rule simplification, as the structural cause behind it.[94]

The changes triggered by the reanalysis can be described intuitively as an analogical process: verb phrases change their structure due to the influence of newly reanalyzed constructions that preserve some originally nominal structural features. In the next section I discuss syntactic reanalysis as a model of language change that subsumes this kind of analogical change, or transfer of structural properties from nouns to verbs. In section 7.4 I turn to the discussion of empirical data.

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[94] As discussed in Kiparsky (1996: 141), "internal causation of particular events of linguistic change (as opposed to borrowing) normally involves an interaction of efficient and enabling causes", where efficient causes are universal preferences for particular types of structures, while enabling causes are language-specific and normally have to do with increased degree of opacity of evidence for the old structure or the degree of the old structure's learnability. It appears that the same mechanism of internal causation could explain the changes in the structure of the Mande verb phrase which occurred as a result of early changes in the syntactic domain of INFL, or in the realization of finiteness.

7.3. Categorial reanalysis as a model of analogical change

That the use of nominal periphrastic constructions is somehow related to the development of some rather peculiar syntactic properties of the Mande verb was first suggested by Heine and Reh (1984), who argue that "[t]he sentence structure of the Mande languages has been determined by nominal periphrasis <…> and by exploiting nominal (locative) constructions for a wide range of syntactic functions, more than in many other African languages" (202-3). The set of characteristics that Heine and Reh explain in this way is, however, quite different from the set of unusual properties that I discussed earlier. Only some of their properties (in particular, the non-distinctness of possessive and object pronouns) seem to have emerged in Proto-Mande; others either could have been present in Proto-Niger-Congo (such as the OV word order pattern; see Gensler 1994, Nikitina 2008b) or do not appear to be particularly unusual (such as the fact that with some matrix verbs, nonfinite verbs can be introduced by postpositions, cf. English *I want **to** go*).

The idea that some noun-like syntactic characteristics of the Mande verb can be explained by structural reanalysis of nominal constructions was further developed by Claudi (1988, 1994). Although the details of Claudi's account have been subject to criticism (this applies in particular to the assumption that predicative markers derive from finite verbs; as demonstrated by Bird and Kendall (1986); Bearth (1995); Kastenholz (2003), such markers can in fact go back to postpositions), the general hypothesis that some structural changes in Proto-Mande were related to reanalysis of originally nominal constructions seems quite plausible (Creissels 1997a).

The observation that the use of constructions with deverbal nouns could cause changes in the morphosyntax of verbs is extremely significant, both for reconstructing the history of the Mande languages and for the study of the role of categorial reanalysis in language change. It is important, however, that the mechanism for such change be made explicit. How exactly are nominal properties transferred to verbs? What theoretical notions and technical machinery can capture the effects of this analogical transfer?

A simple way of describing this kind of change would refer to the notion of total category change: the use of nominal periphrastic constructions could lead to elimination of verbs as a lexical class with its own, exclusively verbal syntactic properties. Even though this model explains effectively the resulting noun-like properties of verbs, the notion of category change is, however, too general. In addition to accounting for the structural similarity between noun phrases and verb phrases, it requires that nouns and verbs become non-distinct as word classes. Interestingly, the lexical indeterminacy view, or the assumption that Mande languages do not distinguish between the lexical classes of noun and verb, is quite popular in studies of Mande syntax. This approach can be illustrated with the following summary from Heine and Reh (1984: 198-9):

> Most word classes show a noun-like behaviour. This applies in particular to "verbs", which in many ways are indistinguishable from nouns. This point has been frequently alluded to in the writings on Mande languages. Delafosse (1929) for example repeatedly mentions how difficult it is to distinguish between verbs and nouns in Eastern Manding. Rowlands (1959: 145/46) talks of "verb-noun stems" in Mandinka and treats main "verbs" as nouns since they are followed by postpositions and may take the nominal specific marker -o. Manessy (1962: 67) calls his "verbs" *radicaux bivalents* since they can be used both in a nominal and a verbal function, whereas *radicaux monovalents* are always used as nouns. Kastenholz (1979: 87) proposes to refer to "verbs" as "verbal nouns" in view of their nominal behaviour.

To my knowledge, the lexical indeterminacy assumption does not hold, at least in its radical form, for any of the Mande languages when more subtle distributional properties are taken into account; see, e.g., Brauner (1973) for Bamana; Welmers (1969: 73) for Kpelle; Blecke (1996) for Bozo; Tröbs (1998) for Jeli, among many others. In no Mande language can verbs and nouns be used interchangeably in all syntactic environments; e.g., nouns can never be used as predicates of a sentence. There is also no reason to believe that nouns and verbs did not exist as separate lexical

categories in Proto-Mande (see Bearth 1995 on nouns and verbs as distinct word classes at a very early stage in the development of Mande).

For this reason, the analysis presented here does not rely on the notion of category change or elimination of the lexical class of verb. I suggest instead that the noun-like properties of the Mande verb developed due to the loss or extreme reduction of the category of finite verb, which caused an expansion of constructions with deverbal nouns and their consequent reanalysis as verb phrases.

On this view, the loss of finiteness could serve as a trigger of further syntactic and lexical change. By no means, however, does the loss of finite verbs entail that the distinction between lexical nouns and verbs is lost altogether. There are languages with split predicate syntax that nevertheless differentiate between nouns and verbs both at the morphological and at the syntactic level. Among the languages spoken in West Africa, this pattern is characteristic of Hausa (Chadic, Afro-Asiatic), which maintains the distinction between the lexical classes of noun and verb, although it lacks what could be described as finite verbs in the strict sense. In Hausa, every sentence contains a preverbal "pronoun-aspect complex", which is a combination of a weak subject pronoun and a tense/aspect/mood marker (Newman 2000: 564; Jaggar 2001: 148-50). The example of Hausa demonstrates that the lack of finite verbs need not correspond to the absence of a noun/verb distinction. Thus, the differentiation between the lexical classes of noun and verb could have existed throughout the history of the Mande languages, independently of the category of finite verb, which could be absent or present in an extremely reduced form in Proto-Mande but restored later in some of the descendant languages. It is also important that the loss of the category of finite verb by no means entails that verbs are the only historical source of the Mande auxiliary-like elements. Their origin is irrelevant once they can be reanalyzed as heads of I', joining the lexical class of auxiliary-like elements.

In my discussion of the process of categorial reanalysis I will distinguish between two types of change: reanalysis proper, and *actualization* of reanalysis (Timberlake 1977). Reanalysis proper affects the interpretation of an existing construction but involves no modification of its surface structure. It consists in a

construction-specific structural change, such as the reassignment of category labels to parts of the construction, with resulting changes in bracketing and rearrangement of syntactic constituency. This change is bound to specific contexts where the surface manifestation allows for more than one structural interpretation. It does not yet have an effect on the grammar of the language and can therefore amount to reinterpretation of a particular structure or to reassignment of a word to a different lexical category. Hence, reanalysis proper cannot be detected as such: there may be no way to know, at this stage, that the learner's interpretation of a construction has changed. In this sense, it is an instance of what Andersen (1973, 1974) refers to as *abductive* change: the learner observes a potentially ambiguous string of words and analyzes its structure invoking a "wrong" rule, i.e. a rule that accounts for the observed structure but is nevertheless different from the original rule that produced it.

Reanalysis proper should be kept distinct from subsequent changes that are triggered by it, or its actualization. Although reanalysis per se may create a new rule or a new pattern specific to a particular construction, it sometimes has even more significant consequences for the grammar. For example, the innovated syntactic pattern can start spreading from the construction in which it arose to other contexts, entering into competition with the old structures and eventually replacing them, either in part or completely. Changes of this kind follow construction-specific reanalysis and are triggered by it; they affect constructions other than the one in which the reanalysis initially occurred and can be described as the expansion of a new rule. This stage corresponds roughly to Andersen's *deductive* innovation: following the covert abductive change, the new analysis is applied in production, resulting in overt change, i.e. in constructions that deviate from the rules of grammar that had existed earlier. Actualization of the same kind of reanalysis may vary significantly depending on various factors: the same covert change may have virtually no effect on the structure of one language but alter the grammar quite significantly in another.

Total replacement of an older construction by a new one is one possible consequence of structural reanalysis that is followed by actualization. It commonly occurs where the two constructions compete for the expression of the same meaning.

This type of change can be alternatively described as expansion of the competing construction, which becomes generalized to new contexts. A typical example of such competition is the co-existence of regular VPs with mixed configurations that combine the external distribution of a VP with partly nominal internal structure. A number of such examples were discussed in the previous chapter; in many of those instances the mixed VP was eventually replaced by a regular one.[95]

The mechanism of replacement can account for different cases of analogical leveling, including elimination of lexical exceptions, as well as for other instances of change that involve competition between two alternative expressions. My account of the development of verbal syntax in Mande relies on this mechanism, along with the mechanism of structural reanalysis. In the following sections, I describe how the reanalysis of constructions with deverbal nouns accounts for the development of the noun-like properties of the Mande verb.

7.4. Non-local realization of arguments as a result of categorial reanalysis

7.4.1. A constraint on PP modification of nouns

The process of transfer of the nominal pattern of argument realization to verbs explains the reduced structural complexity of the verbal constituent, i.e. the fact that only an object forms a syntactic constituent with the verb, while all postpositional arguments are realized non-locally. In contrast to the more familiar Indo-European languages, postpositional phrases in Mande tend to have a more restricted distribution than noun phrases. In particular, nouns tend to combine with possessor NPs but not with postpositional modifiers. Thus, in a language like Wan, only noun phrases can

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[95] The replacement of one infinitival construction goes hand in hand in such cases with the extension of the other, where extension is understood as removing a condition from a rule, which specifies the environments in which the rule applies (Harris and Campbell 1995: 97-119). Once the original condition has been removed, the generalized construction starts competing, in certain environments, with the more specific one and may eventually replace it.

modify nominal heads within a noun phrase. Postpositional phrases are not allowed within nominal constituents, not even for the expression of semantic relations that are encoded by adpositions with verbs or in other languages (i.e. in languages that have no restriction on NP-internal postpositional modifiers, such as English). This restriction, which was introduced in Chapter 3, section 2.2, is illustrated again in (7.6-9). In (7.6a-b), the head noun is modified by a possessor NP; the head of the possessor NP is a relational noun: *tā* 'surface' in (7.6a), and *klā* 'back' in (7.6b).

(7.6)　Possessive constructions in Wan

    a.　***té***　　***tā***　　　　***wì***

       fire　　surface$_N$　　meat

       'meat [that is] on the fire'; lit. 'meat of the fire's surface'

    b.　***nàà̰***　***klā***　*nɛ̄̃*

       mother back$_N$　child

       'illegitimate child', lit. 'child of the mother's back'

The example in (7.7) shows the restriction on the placement of PPs within a noun phrase. The head of the construction is an underived noun *bātɛ́ī* 'gift'. It cannot directly combine with a postpositional phrase even though the same semantic relation can be expressed using an adposition in other languages. This restriction is due to the fact that the form *má̰* 'to' can only function as a postposition, and not as a relational noun, which could head the possessor NP in a construction comparable to (7.6a,b). The oblique argument is expressed as a bare possessor NP modifying the deverbal noun. The resulting possessive construction is ambiguous between 'gift to Leme', 'gift of Leme', 'gift from Leme', etc.

(7.7)　***Lèmè***　(****má̰***)　*bātɛ́ī*

    L.　　(*to$_P$)　gift

    'gift to Leme'

Similarly, in (7.8a) the same postposition *má̰* 'to' cannot be used within a noun phrase, even though it would be appropriate semantically and would accurately describe the thematic relation (the head of the construction is a deverbal noun, and this postposition normally introduces the recipient with the corresponding verb *kɛ́* 'give').

206

The deverbal noun in (7.8a) combines with a bare possessor NP, which again results in an ambiguity – the brother can be understood as a recipient ('giving to one's elder brother'), as an agent of giving ('giving by one's elder brother'), or even as an object transferred ('giving of one's elder brother'). Alternatively, the thematic relation can be specified by a postposition, as in (7.8b), but the entire postpositional phrase is then placed at the end of the sentence and appears outside of the noun phrase. As described in Chapter 3, section 3.3, this option is only available for arguments of deverbal nouns, since postpositional phrases in Wan introduce oblique arguments and adjuncts of verbs but never adjuncts of regular nouns. While regular nouns do not select for oblique grammatical functions, deverbal nouns may retain oblique functions of their base verbs and hence license the use of a PP.

(7.8)   a.   [***tɔ́gɔ̄lē***   (****mɑ̄́***)   *kɛ́-wā*]_{NP}

                  elder.brother   (*to_P)   give-NMLZ

                 'giving of one's elder brother'

                 (multiple interpretations: elder brother ~ agent, recipient, or theme)

       b.   [*kɛ́-wā*]_{NP}   …   [***tɔ́gɔ̄lē***   ***mɑ̄́***]_{PP}

                give-NMLZ   elder.brother   to_P

                 'giving to (one's) elder brother'

The examples in (7.9a-b) illustrate the same restriction for the postposition *yā* 'with', which also does not have a homophonous relational noun. This postposition is also not allowed to modify the deverbal noun 'hunting' NP-internally (7.9a), even though it is used to introduce the corresponding oblique argument role with the verb *yɛ̄ɛ́-gó-bɔ̀* 'hunt'. On the other hand, the postposition can be preserved if the PP appears outside of the noun phrase, at the end of the sentence, just like postpositional arguments of finite and embedded verbs (7.9b); this is again an instance of a function-retaining nominalization (see Chapter 3 for details).

(7.9)   a.   [***gbɑ̄̃nɛ̄̃***   (****yā***)   *yɛ̄ɛ́-gó-bɔ̀ –wā*]_{NP}

                 dog   (*with_P)   hunt-NMLZ

                 'hunting of dogs' (multiple interpretations)

b.　　[*yɛ̄ɛ́-gó-bɔ̄-wā*]_{NP}　…　　[**gbã̄nɛ̄̃**　　*yā*]_{PP}

　　　　hunt-NMLZ　　　　　　　　dog　　　with_P

　　　　'hunting with dogs'

When the oblique argument is expressed as a possessor, as in (7.9a), its thematic role is again irretrievable, and the noun phrase can be interpreted in a number of ways, including the agent interpretation, on which dogs are understood as the agent of hunting. There is no ambiguity in (7.9b), where the semantic relation is encoded by the postposition.

　　　The examples in (7.6-9) demonstrate that in Wan, postpositional phrases cannot occur within NPs. As discussed in Chapter 3, their use is restricted to the sentence-final position. As I argue in the rest of this chapter, this important structural property of noun phrases is directly related to the fact that the verbal constituent cannot accommodate a postpositional argument of the verb.

7.4.2. A note on postposition-like possessive linkers

Since a large number of Mande postpositions derive from relational nouns, traditional descriptions of Mande languages often do not draw a rigid distinction between the lexical classes of noun and postposition. Partly due to this common methodological presupposition, it remains uncertain to what extent the restriction on the noun-phrase-internal use of postpositional phrases is widespread within Mande and how exactly it is distributed across the different subgroups. This issue requires a separate comparative study.

　　　In some Mande languages, alienable possessors are introduced by special markers, or possessive linkers, as in the following example from Jeli, where (7.10a) is a combination of a relational noun with an inalienable possessor (no overt possessive marker is present), and (7.10b) is a combination of a free noun with an alienable possessor (marked by a possessive linker).

(7.10)   Jeli (Tröbs 1998: 167-8)

a.   *gɔ̃kini   dio*

elder.brother   child:DET

'the child of the elder brother'

b.   Soma   ra   monbilo

S.   POSS   car:DET

'Soma's car'

Some of the possessive linkers appear to be derived either directly from a postposition or from the same lexical source as the postposition (cf. Tröbs 1998: 167-8 for Jeli). This pattern of possessive marking may seem to violate the constraint on NP-internal postpositional phrases. However, the decision to classify the markers of such possessive constructions as postpositions is at least controversial. Mande postpositions typically derive from relational nouns (see, e.g., Nikitina 2008a for Wan). It is therefore unclear whether the possessive linker actually goes back to a postposition or to a relational noun from which the postposition had been derived. It is plausible, given that relational nouns often grammaticalize into postpositions, on the one hand, and as markers of nominal possession, on the other (Claudi and Heine 1986, 1989; Heine et al. 1993), that the possessor in (7.10b) was originally a noun phrase and not a postpositional phrase.

The postposition-like possessive linkers also differ from their corresponding postpositions in having very broad semantics. While as postpositions they typically introduce a rather restricted set of thematic roles, they no longer refer to any specific thematic relations when used within the possessive construction. Typically, they are obligatory in alienable possessive constructions and mark possessors of all free nouns, independently of the specific type of semantic relationship between the head noun and the possessor.

In sum, even if such linkers are analyzed as heads of postpositional phrases that introduce possessors of free head nouns, their behavior differs in significant ways from the typical behavior of postpositions. Typical postpositions do not occur NP-internally and are omitted in this position (unless they have a corresponding relational

noun that can function as the head of a possessor NP). Moreover, the possessive linker, even if assumed to derive from a postposition, does not preserve the original postpositional meaning. Instead of introducing participants that bear a certain thematic role (e.g., that of an addressee, or that of a location), the possessive linkers combine with all kinds of nominal possessors and apparently perform a function that is rather different from that of a postposition. In particular, they are unable to distinguish between oblique arguments with different thematic roles, which are marked by different postpositions when expressed in the post-verbal position. In light of these differences between possessive linkers and regular postpositions, the structure of the NP in Mande can be assumed not to license PP modifiers.

7.4.3. Transfer of the constraint on PP modification to verb phrases

It seems reasonable to assume that before the development of the Mande-specific pattern of non-local argument realization, oblique arguments were realized verb-phrase-internally, most likely, in a head-final VP. This is the predominant argument realization pattern of Kru and some other Benue-Congo languages; it is also consistent with the view that Proto-Niger-Congo most likely combined a head-final VP with a second-position inflectional element (see footnote 93). It is usual for such languages to have the additional option of extraposing PP arguments from the VP to the end of the sentence, due to considerations of weight, information structure, etc.

In a language of this syntactic type, the general constraint on PP modification of nouns has consequences for the realization of oblique arguments in constructions with nominalizations. Since nouns cannot be modified by postpositional phrases, it can be hypothesized that constructions with deverbal nouns also could not accommodate a PP. The oblique argument roles had to be realized in the sentence-final position, cf. (7.8b), (7.9b). After such a construction with a deverbal noun is reanalyzed as a regular verb phrase, the postpositional arguments will still be expressed outside of it. If a significant number of verbal constructions have their oblique arguments realized in this external position (due to the construction's nominal origin), the new pattern of realization of oblique argument roles (in PPs external to the verbal constituent) may

start competing with the old pattern (PPs combine directly with the verb). In this competition, the new, more frequent pattern may eventually replace the older type of verbal constituent, once it is generalized from those VPs that derive from nominal constructions to all instances of VP.

At this point, instead of preserving the option of expressing postpositional argument roles verb-phrase-internally, learners would simply acquire a generalized rule of non-local realization of oblique argument roles (according to which all PP arguments are placed after the finite verb). In other words, due to grammaticalization of constructions with non-local PPs as verb phrases, the sentence-final position could become canonical for postpositional arguments, and the new verb phrase no longer included a special position for a postpositional phrase. The massive categorial reanalysis of constructions with deverbal nouns could then result in reduced structural complexity of the verbal constituent and in obligatory non-local realization of postpositional arguments. This corresponds exactly to the syntactic pattern we find in some of the present-day Mande languages, such as Wan.

7.5. Additional support: Other unusual properties explained

7.5.1. The lack of the possessor vs. object distinction

As suggested in Heine and Reh (1984: 212-4) and Claudi (1994: 219-20), the process of categorial reanalysis may explain another property characteristic of the Mande languages – the lack of distinction between object and possessive pronouns. One distinctive property of the syntax of verbs in Mande is the structural isomorphism of the verb phrase and certain kinds of noun phrase. In general, the structure of the verb phrase is formally indistinguishable from the structure of the inalienable possessor construction. Within a noun phrase, the inalienable possessor appears before the relational noun without any additional marking, just as the object appears before the verb within a verb phrase, cf. the pair of examples in (7.11).

(7.11) Possessive construction and VP in Wan

  Tātá *tɔ́gɔ̄lē* '**Tata**'s older brother'   (NP → NP$_{POSS}$ N)

  Tātá *lálò* 'to ask **Tata**'   (VP → NP$_{OBJ}$ V)

The lack of a distinction between possessors and objects is not surprising for lexical nouns, since this pattern frequently occurs in languages without case. However, in many languages from other groups of Niger-Congo pronominal objects are expressed by a set of forms that are distinct from possessive pronouns. In Mande, however, object pronouns are indistinguishable in all forms from the pronouns used as inalienable possessors (Innes 1967). This pattern, which is rather unusual for Niger-Congo and not very common cross-linguistically, is illustrated in (7.12).

(7.12) Pronominal possessors and objects in Wan

  ǹ̄ / **à** *tɔ́gɔ̄lē* '**my**/**his** older brother' (head = relational noun)

  ǹ̄ / **à** *lálò*   'to ask **me/him**'   (head = transitive verb)

The table in (7.13) represents the pronominal series of Wan, each comprising 8 distinct forms.[96] The actual form of the pronoun varies depending on its syntactic function. The first pronominal set includes forms that are used as objects of transitive verbs, arguments of postpositions, as well as possessors of relational nouns. This set is different from the pronominal set used in the adjunct (alienable possessor) function with free nouns or from the set of non-progressive subject pronouns (the subject pronouns used in the progressive aspect are a result of fusion of non-progressive pronouns with the copula; they are not represented by a separate series in 7.13). The distinction between pronominal objects and non-progressive subjects is only relevant for one form, the third person singular.

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[96] 1st person dual refers to the speaker and to the listener ("you and me"); 1st person plural inclusive and exclusive refer to the speaker and a group of people including the listener ("we including you") and to the speaker and a group of people excluding the listener ("we not including you"), respectively.

(7.13) Pronominal sets in Wan

	Object & Oblique & **Inalienable possessor** (POSS)	Alienable possessor (ADJ)	Subject (non-progressive)
1SG	*ŋ̀, nà̰̄*	*nà̰̄à̰*	*ŋ̀*
2SG	*lā*	*lāā*	*lā*
3SG	*à*	*àà*	*è*
1DUAL	*kó*	*kóó*	*kó*
1PL.INCL	*kà*	*kàà*	*kà*
1PL.EXCL	*kà̰̄*	*kà̰̄à̰*	*kà̰̄*
2PL	*ā̰̄*	*ā̰̄à̰*	*ā̰̄*
3PL	*à̰̀*	*à̰̀à̰*	*à̰̀*

The pronominal series in (7.13) demonstrate that the object pronouns are indistinguishable from the pronouns used as possessors in constructions with relational nouns. As a result, with relational nouns the structure of the noun phrase is similar to that of the verb phrase: a basic pronoun is placed next to the head of the construction.

The same pattern is characteristic of the majority of Mande languages, with the exception of the few languages that have lost the distinction between alienable and inalienable possession and generalized the inalienable possessive construction, in which a specialized pronominal series is used, to relational nouns. For example, in the northern dialects of Jula of Côte d'Ivoire this process led to the total exclusion of the basic pronominal forms (the ones that are used as objects and arguments of postpositions) from the possessive construction (Bird 1982: 47). Within Mande, however, the use of the same set of possessive pronouns in all possessive constructions is an exceptional pattern and is due to an innovation resulting in dissociation of object pronouns from possessive pronouns.

The lack of distinction between object and possessive pronouns, which is characteristic of Mande languages, appears to result from a change that affected the grammar of Proto-Mande, leading to the full merger of object pronouns with possessive pronouns and causing the development of structural parallelism between

noun phrases and verb phrases. This change is explained by the same mechanism of categorial reanalysis of constructions with deverbal nouns as the lack of verb-phrase-internal PPs.
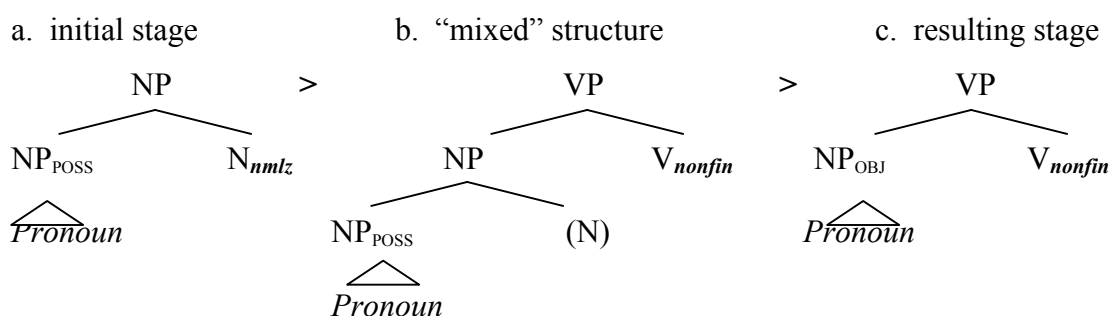
The originally nominal constructions with deverbal nouns contained a possessive form of the pronoun, more precisely, the inalienable possessor pronoun, since deverbal nouns typically function in Mande as relational nouns, and argument roles corresponding to objects of verbs are realized as complements of nominalizations. Once constructions with deverbal nouns were reanalyzed as verb phrases, the inalienable possessor forms could be reinterpreted as the predominant way of realizing pronominal objects. As a result, the possessive forms could take over, in the technical sense merging with the object forms.

The elimination of the distinction between possessive and object pronouns in Mande is not an isolated instance of merging of pronominal sets triggered by the use of constructions with deverbal nouns. A similar change has been argued to have affected the grammar of Egyptian-Coptic (Claudi and Mendel 1991; Claudi 1994), where, unlike in the case of Mande, the development is reflected in written sources. Just like the Mande languages, Egyptian-Coptic experienced a period of massive and recurrent innovation of tense/aspect constructions, which were derived from constructions with deverbal nouns. In the course of development from Middle Egyptian to Coptic, the use of nominal periphrastic constructions caused elimination of distinct object pronouns: possessive pronouns were generalized to the object syntactic function and replaced the original object pronouns (in addition, the same development led to changes in word order).

In terms of the actual mechanism of change this process can be described as follows. The categorial reanalysis of constructions with deverbal nouns as verb phrases leads to categorial inconsistencies in cases where what used to be a deverbal noun combined with a possessor NP, which expressed the argument role corresponding to the verb's object. As described in the previous chapter, this inconsistency can be resolved in terms of a mixed category analysis, where a nonfinite form of the verb is assumed to take a possessor function. As the new type of verb

phrase competes with the older structures (which presumably included the old specialized form of the object pronoun), they may become reinterpreted as regular VPs with an object form of the pronoun. As a result, the old object forms are replaced by what originally was the inalienable possessor pronominal set. This development is represented in (7.14); "*Pronoun*" represents the form that originally functioned as a possessive pronoun (7.14a-b) but was at a later stage extended to objects (7.14c).

(7.14) Categorial reanalysis and elimination of specialized object pronouns

a. initial stage   b. "mixed" structure   c. resulting stage

```
            NP              >                 VP            >              VP
          /    \                            /    \                       /    \
   NP_POSS     N_nmlz                    NP       V_nonfin        NP_OBJ       V_nonfin
     /\                                 /    \                     /\
  Pronoun                        NP_POSS     (N)               Pronoun
                                   /\
                                Pronoun
```

This development differs in one crucial way from the one described in Chapter 6 for the mixed infinitives in Vedic and Celtic and the supines in Slavic. In those cases, the competition between the mixed construction in (7.14b), where a verb took a possessor NP in the genitive, and the old VP, which contained an accusative-marked object, tended to lead to the loss of the mixed category construction. Arguably, in a few exceptional cases, such as in dialects of Ukrainian and Polish, the mixed properties were instead generalized from the supine to other nonfinite forms of the verb, such as infinitives. In either case, the development did not affect the distinction between genitive and accusative case, since accusative-marked NPs were still used with finite verbs: even in the dialects where infinitives combine with the genitive, distinct accusative forms are well represented in finite clauses, where they are unlikely to be replaced by the genitive ones.

The situation in Mande is, however, strikingly different. As described above, Mande languages have a tendency toward the use of constructions with auxiliary-like elements, or predicative markers, and often lack a large inventory of finite verbs. The constructions with "split predicate syntax", where tense/aspect/mood is encoded in a specialized marker, i.e. independently of the lexical meaning of the verb, typically

derive from constructions with deverbal nouns, and contain the lexical verb in a nonfinite form. The high proportion of such reanalyzed constructions as compared to constructions with finite verbs could explain the fact that their use could lead to such noticeable changes as the merging of "genitive" and "accusative" pronouns in Mande (as well as in Egyptian, Claudi and Mendel 1991). An additional factor that may have contributed to this change is the absence in Mande of nominal case, i.e. of overt marking of the distinction between object and possessor NPs with lexical nouns.

In sum, the merger of the possessive and object pronouns accompanies the transfer of the nominal pattern of argument realization (the possessive pronoun plus deverbal noun) to verbs (what used to be a possessive pronoun plus verb). Technically, this change can be described as a replacement of a specialized set of object pronouns with pronouns that had been earlier restricted to the expression of nominal possessors: possessive pronouns start occurring with what has been reanalyzed as nonfinite verbs, compete in this function with the old object pronouns, and eventually replace them.

7.5.2. The absence of a double object construction

Further evidence for the parallel structure of nominal and verbal constituents in Mande comes from the general absence of a double object construction. Typically, verbs are allowed in Mande to combine at most with one object (Creissels 2005); verbs selecting for more than two arguments realize the additional arguments in postpositional phrases. Wan conforms to this pattern and has no ditransitive verbs. The apparent exceptions, which may create an impression of a double object construction, on closer examination turn out to be monotransitive clauses. An illustration of a potentially misleading construction is presented in (7.15), where the verb *bὲ* 'ask' may be at first taken for a ditransitive verb.

(7.15) *ŋ̀*   *Lὲmὲ̀*   *sā̰ŋgblέ*   *έ*   *bɛ̄*
       1SG   L.   gun   DEF   asked
       'I asked Leme for his gun.'

In fact, the sentence in (7.15) is monotransitive, and the object is a complex NP composed of a head noun (*sā̰ŋgblέ* 'gun') and an adjunct NP ('Leme'), literally, 'I

216

asked for the gun of Leme'. This structure becomes evident when a pronoun is substituted for what seems to be the first object: instead of an object (basic) form, the possessive form of the pronoun is used, as in (7.16), where the pronoun is in the specialized alienable possessive form (since the noun for 'gun' is a free noun). The form of the alienable possessive pronoun is clearly distinct from the form used for objects (the object form would be *lā* in 7.16, cf. the table in 7.13), hence the construction is monotransitive.

(7.16) *ŋ̀*   [***lāā***   *sȁŋgblɛ́*]ₙₚ   *é*   *bɛ̄*

      1SG   2SG.ALN   gun   DEF   asked

      'I asked (you) for your gun.'

Alternatively, the same argument can be realized in a postpositional phrase, as in (7.17). Still, the verb remains monotransitive, and in no way can the third argument be promoted to object.

(7.17) *ŋ̀*   *sȁŋgblɛ́*   *bɛ̄*   [*lā*   *ɔ̀ŋlé*]ₚₚ

      1SG   gun   asked   2SG   in.possession.of

      'I asked you for [your] gun.'

Examples like this show that as a rule, Mande verbs take at most one object. The lack of the double object construction sets Mande languages apart from the languages most closely related to them, as well as from non-Niger-Congo languages spoken in the same area (Creissels 2005). The rare alleged exceptions seem to be later developments, and even if true ditransitive verbs are indeed found in some Mande languages, they do not constitute a common pattern. Mande languages also tend to lack applicative construction and have no other way of promoting oblique arguments to objects that could result in the presence of more than one object.

      The absence of a double object construction follows naturally on the view that the structure of the Mande verb phrase is to a large extent determined by the syntax of noun phrases, due to diachronic reasons. In Mande, relational nouns, including nominalizations, take exactly one complement, realizing it as an inalienable possessor; there is no way for a noun phrase to accommodate more than one possessor of this kind (for general discussion, see Chapter 3). If nominal constructions indeed

determined the structure of the verb phrase, one would expect that verbs also would not be able to combine with more than one syntactic complement. In other words, the newly reanalyzed verb phrases would contain at most one object, due to their nominal origin. As verb phrases with the new structure (i.e. verb phrases that contain no more than one NP complement, no postpositional phrases, and no specialized forms of object pronouns) replace the older ones, the double object construction would be eliminated. What we find in present-day Mande languages seems to be a consequence of this development.

7.5.3. A note on the lexical inventory of Mande verbs

In the previous sections I showed how the categorial reanalysis of constructions with deverbal nouns could lead to significant changes in argument realization with verbs. This process explains, in particular, the development of a constraint on VP-internal postpositional phrases, the neutralization of the distinction between possessive and object pronouns, and the absence of double object constructions. I described the corresponding changes in the grammar as involving two separate mechanisms, structural reanalysis of constructions with deverbal nouns as verb phrases, and replacement of old structures with new ones. The motivation behind the structural reanalysis consists in conventionalization of nominal constructions for the expression of verbal categories, such as tense, aspect, and mood. As constructions with deverbal nouns become conventionalized in this function, the deverbal nouns are reinterpreted as forms of the verb, most commonly, as nonfinite forms. In a language where this process of reanalysis is particularly pervasive (and there are reasons to believe that this was the case in Proto-Mande, due to its split predicate syntax), it may trigger replacement of older, genuinely verbal patterns with new patterns, which have been derived from nominal structures.

In this section I turn to some unusual lexical properties of individual Mande languages. Unlike the syntactic properties discussed above, they are only indirectly related to the process of categorial reanalysis; however, they also seem to be a

consequence of the extensive use of constructions with deverbal nouns, this time in individual ancestor languages rather than in Proto-Mande.

Compared to other Niger-Congo languages or to English, the inventory of lexical verbs in Mande languages appears to be rather restricted. A number of notions that are typically encoded by verbs in other languages, including dynamic volitional actions, such as running, dancing, and walking, are expressed in a number of Mande languages by lexical nouns. Such nouns are often neither morphologically complex nor have corresponding verbs from which they could have been derived. Typically, they can be used predicatively only in combination with "light" verbs, i.e. with verbs that have a very general meaning, in constructions like 'cut a run', 'weave a dance', 'do a walk', etc. This lexical pattern is illustrated in (7.18) for Wan; the English verbs correspond to combinations of transitive light verbs with action nouns or, in the case of fully lexicalized compounds, with what apparently used to be an action noun.

(7.18) Some of the "noun + light verb" combinations found in Wan

'run'	*blè-kɔ́*	*blè* 'run (n)' + *kɔ́* 'cut'
'dance'	*ɓí-tɑ̀̃*	*ɓí* 'dance (n)' + *tɑ̀̃* 'weave'
'walk'	*tá-ò*	??**tá* 'departure' + *wò* 'do'
'shout'	*gbè-kɔ́*	*gbè* 'shout (n)' + *kɔ́* 'cut'
'sleep'	*yí-tɛ́*	*yí* 'sleep (n)' + *tɛ́* 'hit'
'swim'	*cḭ́ŋ-lɔ̀*	?? + *lɔ̀* 'eat'

The use of such combinations is not by itself surprising: homophonous pairs of noun and verb are commonly found in different languages, including English (cf. *look* vs. *take a look*, *walk* vs. *take a walk*, etc.). Typically, however, pairs of this kind result from conversion that derives nouns from corresponding verbs (such conversion may or may not involve overt morphological marking). In contrast to that, in Mande languages such nouns often have no corresponding verb from which they could possibly be derived. Even if the action nouns were indeed derived from verbs at some earlier stage, this derivation pattern is no longer productive, and we are still left with the question: where have the corresponding verbs gone?

My account of the poor language-specific inventories of lexical verbs is based on the observation that languages with extensive use of nominalizations for the expression of tense and aspect have a low degree of differentiation between nominal and verbal syntactic environments: verbs are rarely used finitely and instead appear either as deverbal nouns or in constructions that were originally nominal. The wide use of deverbal nouns reduces dramatically the range of syntactic functions in which only verbs can appear, syntactic positions available to verbs becoming only a subset of positions available to nouns. This can potentially lead to instances of reassignment of verbs to the lexical class of nouns. In other words, in the absence of distinct verbal and nominal morphology, the low degree of differentiation between nominal and verbal syntactic environments (where verb bases are used mostly in constructions that are syntactically nominal) creates a favorable condition for reanalyzing some of the verbs as nouns.[97]

This process is explained by the high proportion of use of some verbs in constructions that are structurally ambiguous between a noun phrase and a verb phrase. This ambiguity is due to the fact that, as I argued in the previous sections, the verbal construction is derived from a construction with a deverbal noun and may be still in many ways isomorphic to it. This can be illustrated with the example of the progressive construction in Wan, which goes back to a nominal structure and consists of a nonfinite verb marked by a postposition, introduced by a copula (7.19a). The construction is potentially ambiguous, since the same type of sentence is used to specify the location of a Figure with respect to a Ground (introduced by a noun) (7.19b).

---

[97] It is interesting in this respect that action nouns tend to describe processes rather than punctual events; this may be a consequence of the fact that process verbs are most likely to be used in periphrastic expressions of tense and aspect, such as in the progressive construction. More detailed investigation is required to test this hypothesis.

(7.19) a.   *Lèmὲ á táò*$_V$ *lé*

           L.   COP   walk   PROG

           'Leme is walking' (lit., 'Leme is at walking')

    b.   *Lèmὲ á bā̄*$_N$ *lé*

           L.   COP   field   at

           'Leme is in the field.'

This ambiguity may result in the misassignment of a verb in the progressive to the class of nouns, as represented in (7.20).

(7.20) Potential ambiguity of the progressive construction in Wan

       Lèmὲ á táò lé

       L.   COP   walk$_V$ PROG

       ↓   ↓   ↓   ↓

       L.   COP   walk$_N$ at

       'Leme is walking'
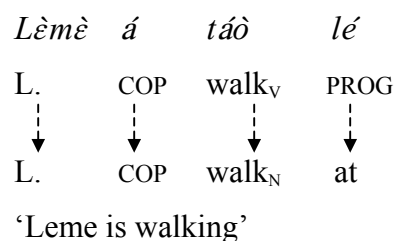
Importantly, the fact that lexical verbs are used mostly, or even exclusively, in periphrastic constructions with nominal syntax does not entail the absence of lexical distinction between nouns and verbs, as it does not imply that verbs can also occur in *all* syntactically nominal constructions. There is no a priori reason to conclude from the absence of verbal syntax, or from the absence of specific constructions that could be headed by verbs only, that *no* construction is sensitive to the noun/verb distinction, or that any construction can be headed by a verb.

The hypothesis outlined above makes certain predictions that could be tested empirically in a comparative study of the lexicon of the Mande languages. In particular, if some action nouns are indeed reanalyzed verbs, they should have cognate verbs in related languages, where the corresponding verb has not been reanalyzed. Welmers (1976) describes exactly this situation for Vai, where a few nouns "have cognates which are verbs in other Mande languages, but have no verbal counterparts in Vai" (81). This description suggests that the action nouns were verbs at an earlier stage and that they were reanalyzed as nouns in some languages but not in others.

Unfortunately, the particular examples of this phenomenon are difficult to establish, primarily due to the inadequate understanding of regular phonological correspondences between the various Mande languages (for a discussion of problems encountered in establishing regular sound correspondences between Mande languages, see Kastenholz 1994, 1996). Because of the general lack of reliable correspondences, evidence from sets of "similar" or even identical words, which are classified as nouns in some languages but as verbs in others, is inconclusive: without establishing regular sound correspondences between the languages, cognates deriving from a common source cannot be distinguished from pairs of words that are similar for other reasons (most importantly, due to borrowing or by chance). Even though inconclusive, however, such evidence is suggestive, especially when the pairs of identical words come from languages that are closely related. I will make an attempt to provide this kind of suggestive evidence.

Wan has two action nouns that are phonologically identical to verbs in Busa, a language cluster from the Eastern branch of Eastern Mande. According to Jones (1998: 203-4), Busa has the verb *tá* 'depart', from which an action noun *táá* is derived; this action noun is used in combination with the verb *'o* 'speak/express'. In Wan, a phonological equivalent of the Busa verb is found exclusively in the compound *tá-ò* 'make a walk', which is apparently derived from a combination of the transitive verb *wò* 'make' with the action noun *tá*. This correspondence suggests that in Wan, the corresponding verb *tá* 'walk' has been lost.

Similarly, the action of sleeping can be referred to in Busa either by a compound (*'i 'o*) or by a verb (*'i*). In Wan, the verb for 'sleep' no longer exists, and a compound *yí-tέ*, literally, 'hit a sleep', is used instead. This comparative data is summarized in (7.21).

(7.21) Sample correspondences between Busa (Jones 1998: 203-4) and Wan

	Busa	Wan
'walk'	*táá 'o*, from *tá* 'depart (v)'	*tá-ò*, no corresponding simple verb
'sleep'	*'i 'o*, from *'i* 'sleep (v)'	*yí-tέ*, no corresponding simple verb

A different kind of evidence comes from the lexical comparison of different varieties within the Boko/Busa language cluster. In the Boko variety, the word for 'swim' is a noun, which combines with the transitive verb *'o* 'express/speak'. For the Busa and the Bokobaru varieties, Jones (1998) attests the expression *'í kpá* 'swim', which consists of a transitive verb *kpá* (apparently, a cognate of the *kpáá* of Boko) and the noun *'i* 'water' in the object function.

(7.22) Expressions for 'swim' (Jones 1998: 203-4)

| Boko | **kpáá** 'o | kpáá = noun |
| Busa/Bokobaru | 'í **kpá** | kpá = verb ('i = 'water') |

It appears that the action noun of Boko derives from a verb, which has been preserved in Busa and Bokobaru. Such variation between closely related languages provides additional support for the hypothesis that in individual Mande languages, the low differentiation between nominal and verbal syntactic environments creates favorable conditions for reassignment of some verbs to the lexical category of noun.

7.6.   Conclusion

The goal of this chapter was to show that the process of categorial reanalysis of constructions with deverbal nouns as verb phrases can cause significant changes to the grammar of the language. In particular, it can lead to modifications of the syntax of verbs that can be described in terms of analogical change, or a transfer of nominal properties to the syntax of the verb phrase. I argued that this process was involved in the development of the syntax of verbs in present-day Mande languages and that it explains a number of Mande-specific unusual syntactic properties.

Among such properties is, first of all, the absence of a verb-phrase-internal position for postpositional arguments, which results in a rather peculiar pattern of obligatory non-local realization of oblique arguments. In the nominal syntax this property is paralleled by a constraint on PP modification of nouns. Another property explained by the same mechanism of change is the lack of a distinction between object pronouns and possessive pronouns of the inalienable set. This property follows

directly from the structural parallelism of noun phrases and verb phrases: both nouns and verbs can take a single complement NP that immediately precedes the head; in cases when they are pronominal, the two types of complement are expressed by identical forms. The third property that can be explained as a consequence of categorial reanalysis is the absence of double object constructions, which corresponds to the absence of multiple inalienable possessors with nouns.

Besides suggesting the path of development that would account for the combination of typologically unusual features, I also tried to address the possible causes of this development. Although the mechanism of categorial reanalysis is common across languages, Mande languages developed particularly favorable conditions in which it could have an effect on the structure of verb phrases. In Mande, the expansion of constructions with deverbal nouns and their reanalyzed versions apparently had to do with a poor inventory of finite forms of the verb and the tendency to encode tense, aspect and mood outside of the verb phrase, by a separate functional head, or an auxiliary-like element. I suggested that the increase in the number of periphrastic constructions, together with the impoverished system of finite verbs, could have resulted in the increased opacity of the evidence for the old structure of the verb phrase. This could intensify both the process of categorial reanalysis (which, I suggested, is triggered by the preference for simplification of derivational rules) and the replacement of the old structure with the new one, the latter being modeled on the structure of the noun phrase.

The early change in the use of finite verbs not only explains why categorial reanalysis could have such significant consequences for the syntax of the Mande verb; it also suggests an explanation for the poor lexical inventory of non-derived verbs in some of the languages. I argued that some instances of non-derived action nouns found in Mande languages are due to the reassignment of what used to be a verb to the lexical category of noun. This reassignment is likely to happen in a language where nouns and verbs are used in largely overlapping syntactic environments, such as in a language with poor morphology, a poorly represented category of finite verb, and a large number of constructions with deverbal nouns that are used instead.

Interestingly, without the historical explanation, the various properties of the Mande verb seem surprising, since they are not commonly found in other languages spoken in the same area or in the languages that are considered the closest relatives of Mande. On the level of synchronic analysis, they may create an impression of a random combination of curious properties that have nothing to do with each other and just contribute to the status of Mande as a family of typologically unusual, or even weird languages. As I tried to show, a diachronic perspective suggests a different view on this set of rare properties, which may turn out to be natural consequences of universal paths of language change.

Conclusion

The major goal of this dissertation was to develop an account of category mixing that would accommodate instances of mixed nominalizations that are problematic for previously proposed treatments. The account is based on the distinction between the nominalization's lexical properties (most importantly, the set of abstract grammatical functions it subcategorizes for, such as subject, object, or oblique) and language-specific phrase structure constraints that determine whether and how these lexical properties can be instantiated (for example, whether an object function selected by a deverbal noun can be expressed within a noun phrase).

The flexibility of this account is illustrated by two case studies, each dealing with its own kind of "unusual" mixed category. The behavior of nominalized infinitives in Italian and some other Romance languages points to a discrepancy between the selection of an object function (nominalizations of transitive verbs must retain the verb's object) and the range of available syntactic configurations (object functions cannot be expressed in a construction with a nominal head). This discrepancy results in a somewhat surprising pattern of ineffability of arguments corresponding to the verb's objects: verbs that cannot occur without an object cannot be nominalized. Theories that do not treat lexical properties and syntactic configuration as two dissociated levels of structure have no way of accounting for this unavailability of a syntactic expression for an obligatory argument.

Another previously ignored kind of mixed category is illustrated with data from Wan (Mande). Its unique features are due to an unusual property of the syntax of PPs in Wan: instead of being realized NP- and VP-internally, next to the nominal or the verbal head that selects for them, PPs must appear at the level of IP and do not form a syntactic constituent with their subcategorizer, from which they are often separated by all kinds of lexical material (including other PPs and the finite verb). While regular nouns never select for oblique functions and cannot be associated with PPs, deverbal nouns can retain the oblique function of their base verb. In this sense, deverbal nouns share some syntactic properties with verbs. At the same time, due to

the non-local realization of oblique arguments, the mixed syntax of deverbal nouns is not captured by accounts that project argument structure directly into syntax, without the mediating level of grammatical function assignment. Similarly, this pattern of mixing cannot be explained by accounts that rely on mixed syntactic projections as the source of category mixing.

The account proposed in this dissertation has broader consequences for the theory of syntax. It illustrates how the choice of a syntactic framework determines the range of linguistic phenomena related to category mixing that the theory can accommodate. Decisions that may seem to simplify the model of syntax when dealing with a small set of basic structures, such as the decision to conflate lexical properties and phrase structure in one level of representation, may turn out to be detrimental to the treatment of more complex syntactic patterns, such as cross-linguistic instantiations of category mixing.

As I had to limit the present study to a relatively narrow range of phenomena, I did not discuss instances of mixed syntax that involve categories other than noun and verb. The proposed account, however, applies equally well to mixed participles, which may combine properties of verbs and adjectives; mixed adpositions, which may retain certain properties of nominal or verbal syntax (cf. the discussion of Hausa in Chapter 6); mixed denominal adjectives, such as possessive adjectives in some Slavic languages (Corbett 1987); or other instances of mixed syntax. In addition, while the discussion was limited to syntactic phenomena, and primarily those related to subcategorization, the same account is compatible with the distribution of non-subcategorized elements (see the discussion of modifiers in Chapter 4) and could be extended to patterns of mixed morphology once morphologically-relevant features are taken into account. In this sense, the dissertation covers only a small portion of data to which the proposed account can be applied and against which it should be further tested.

Another goal of this study is to extend the study of category mixing beyond synchronic analysis proper. Treating patterns of language change as an indispensable source of data bearing on the synchronic analysis, I argue that the properties of mixed

categories depend in a predictable way on their historical source. The proposed account of category mixing is supported by the contrast in the development of two types of mixed category constructions combining verbal and nominal properties. Besides constructions with mixed nominalizations, a special type of mixed category is represented by constructions with mixed nonfinite forms, in which some of the verb's arguments may be realized in a nominal way, such as in a possessive construction. While the mixed nominalizations are shown to derive from a lexical change, or a change in the lexical derivational rule that relates the noun to its corresponding verb, the mixed VPs develop due to the process of categorial reanalysis and do not require that the infinitive be synchronically related to a noun. More broadly, analyzing the diachronic development of the two types of mixed category construction, I attempt to illustrate how historical evidence can be used to justify a synchronic account and suggest why the study of formal syntax should be integrated with the study of language change.

Finally, at the core of this dissertation is the analysis of data collected during my fieldwork on Wan, an understudied West African language. Some of the patterns found in Wan look rather unusual (cf. the discussion of the syntax of PPs in Chapter 3), while others have direct parallels in the syntax of Indo-European languages (cf. the discussion of a mixed VP in Chapter 6). It appears, however, that the seemingly unusual syntactic properties are a consequence of the same historical processes as the ones that are well attested in the more familiar Indo-European languages (cf., e.g., the discussion of the development of the "deviant" postpositional syntax in Chapter 7).

Even more important is the discovery in Wan of essentially the same kinds of category mixing as in Indo-European languages (nominalizations retaining the verb's selection of argument functions, on the one hand, and mixed nonfinite forms licensing a possessive construction, on the other), despite significant differences in language structure. I take the fact that the proposed account could bring out such underlying similarities to be an indication of its potential in accommodating a wide range of typological data under a uniform theory of category mixing.

Appendix 1:

Argument functions of mixed nominalizations and mixed nonfinite forms

1. Function-retaining nominalizations

1.1. Italian

V → N <(POSS), (OBL$_{di}$), (OBJ), (OBL)>

Cf. regular deverbal nouns: N <(POSS), (OBL$_{di}$), (OBL)>

Crucial differences from other nouns:

– nominalized infinitives retain the verb's object function; even though object functions must be retained, they cannot be realized due to constraints on phrase structure

– regular deverbal nouns (e.g., *recitazione*) map the argument role corresponding to the verb's object onto grammatical functions typically available with nouns; none of the verb's argument functions is retained

Note

I assume that POSS is a separate argument function in Italian, which is only available to pronominal arguments.

1.2. Wan

V → N <(POSS), (OBL)>

Cf. regular nouns: N <(POSS)>

Crucial differences from other nouns:

– nominalizations optionally retain the verb's oblique functions

– regular nouns never select for oblique functions

<u>Note</u>

For Wan, I assume, in the absence of evidence to the contrary, that nouns can only select for one type of argument function, POSS. In addition, they can be modified by adjunct-like NPs which can (but need not) introduce other situation participants.

2.   **Mixed nonfinite forms of the verb (Slavic supine, Wan mixed infinitive)**

V → V <SUBJ, (POSS), (OBL)>

Crucial difference from other verbs:

−   mixed nonfinite forms, but not other forms of the verb, can select for a
        possessor function.

<u>Note</u>

Unlike mixed nominalizations, which are derived from verbs by a category-changing rule, mixed nonfinite forms do not retain any argument functions of their base form. The selection of a possessor by such forms is only historically, but not synchronically, motivated.

Appendix 2:
Selected fully annotated structures

Throughout the dissertation, I use a slightly modified version of the notation adopted in Lexical Functional Grammar (see, e.g., Bresnan 2001). For reasons of simplicity, I indicate grammatical functions by subscripts instead of marking them on syntactic nodes, and I omit vertical arrows used in the standard LFG notation to mark the sharing of information between mother nodes and their daughters. In particular, I leave co-heads unmarked, whereas in the LFG notation they are annotated with (↑=↓). The modified annotation is in no way incompatible with the standard LFG assumptions and is intended to simplify the structures for readers unfamiliar with that framework. In this appendix I present some of the same structures in a fully annotated form, to make sure that no information is lost due to the notational simplification.

An important part of the LFG representation is the functional (f-) structure, which encodes no information about the syntactic configuration, or c-structure, onto which it is mapped. Throughout the study, I chose to present the annotated syntactic structure without the corresponding f-structure, since the latter is fully determined by the former (complemented with the full lexical specification of the terminal nodes). In what follows, I represent the c- and the f-structures in parallel, to make sure that the two are consistent with each other. The example numbers correspond to the numbers under which the examples are first introduced in the body of the dissertation.

(1.8)   *mũ-thĩĩnj-i*   *mbũri*   *ũyũ*   (Gĩkũyũ)
      1-slaughter-NMLZ   10.goat   1.DEM
      'this goat slaughterer'; lit.: 'this slaughterer goats'

(1.9)

```
                                    DP
                    ┌────────────────┴────────┐
                  ↑=↓                        ↑=↓
                   NP                          D
           ┌───────┴───────┐                   │
         ↑=↓             ↑=↓                   ũyũ
          N               VP                  'this'
          │                │
       mũthĩĩnji         (↑OBJ)=↓
      'slaughterer'        NP
                           │
                          ↑=↓
                           N
                           │
                         mbũri
                         'goats'
```

$$
\begin{bmatrix}
\text{PRED} & \text{'slaughterer'} <(f\,\text{OBJ})> \\
\text{SPC} & \text{'this'} \\
\text{OBJ} & [\ \text{PRED}\ \text{'goats'}\ ]
\end{bmatrix}
$$

(2.2) il   suo   continuo eseguire   la canzone impeccabilmente   (Italian)
       the his/her continual perform.INF   the song   impeccably

       'his/her continually performing the song impeccably'

(2.3)

```
                 DP
         ┌────────┴────────┐
        ↑=↓              ↑=↓
         D                N'
         │        ┌───────┴───────┐
        il     (↑POSS)=↓        ↑=↓
                   A              N'
                   │       ┌──────┴──────┐
                  suo    ↓∈(↑ADJ)      ↑=↓
                            A           N'
                            │           │
                         continuo      ↑=↓
                                        VP
                                       ╱  ╲
                         eseguire la canzone impeccabilmente
```

$$
\begin{bmatrix}
\text{PRED} & \text{`perform'} <(f\,\text{SUBJ})(f\,\text{OBJ})> \\
\text{INF} & + \\
\text{SPC} & \text{`the'} \\
\text{SUBJ} & \\
\text{POSS} & \begin{bmatrix} \text{PRED} & \text{`PRO'} \\ \text{PRS} & 3 \\ \text{NUM} & \text{SG} \end{bmatrix} \\
\text{ADJ} & \left\{ \begin{array}{l} [\;\text{PRED} \quad \text{`continuous'}\;] \\ [\;\text{PRED} \quad \text{`impeccably'}] \end{array} \right\} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{`song'} \\ \text{SPC} & \text{`the'} \end{bmatrix}
\end{bmatrix}
$$
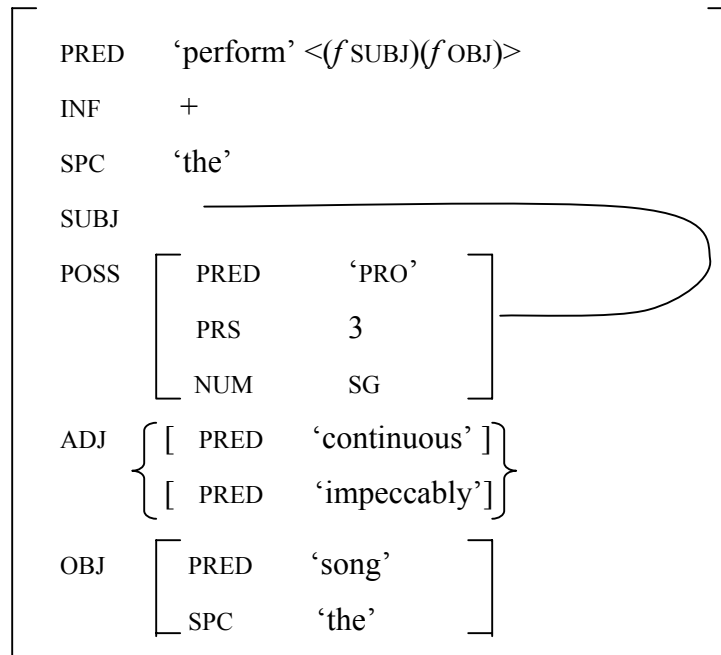
Notes

1. This analysis follows the analysis of the English gerund presented in Bresnan (2001: 289-96); the possessor function is identified with the subject function by a lexical rule and licensed by the extended coherence condition.

2. The selection of a subject function by the infinitive is confirmed, e.g., by the fact that it can bind an independent reflexive pronoun:

    (i)   il   suo   interminabile radere   se stesso
            the   his   unending   shave.INF   himself
            'his unending shaving himself'

3. Adjunct function is referred to as ADJ; both an adjective and an adverb correspond to this function in the example above

(2.4a) l'   avere   egli   scritto   quella lettera   (Italian)
       the   have.INF   he   written   that   letter
       'him having written that letter'   (Zucchi 1993: 227)

(2.5)

```
              DP
        ┌──────┴──────┐
      ↑=↓            ↑=↓
       D              IP
       │        ┌──────┴──────┐
       l'       avere egli scritto quella lettera
```

```
┌                                                  ┐
│  PRED    'write' <(f SUBJ)(f OBJ)>               │
│                                                  │
│  ASP      PERF                                   │
│                                                  │
│  INF       +                                     │
│                                                  │
│  SPC     'the'                                   │
│                                                  │
│  POSS    ──────────────────────────────┐        │
│                                         │        │
│  SUBJ    ┌                      ┐       │        │
│          │  PRED    'PRO'       │       │        │
│          │  PRS      3          ├───────┘        │
│          │  NUM      SG         │                │
│          └                      ┘                │
│  OBJ     ┌                      ┐                │
│          │  PRED    'letter'    │                │
│          │  SPC     'that'      │                │
│          └                      ┘                │
└                                                  ┘
```
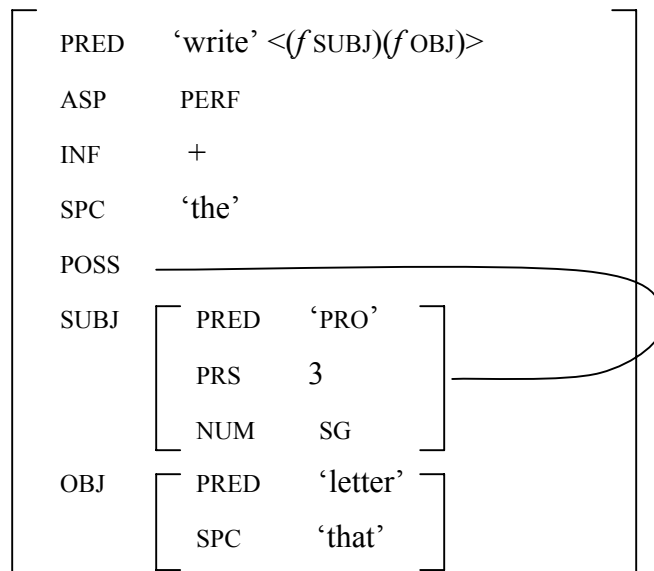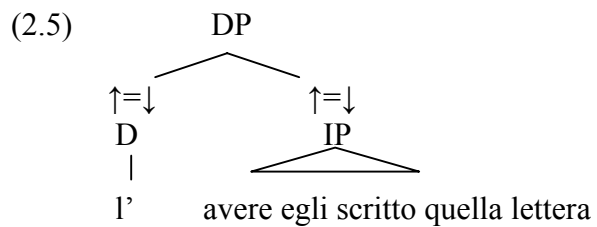
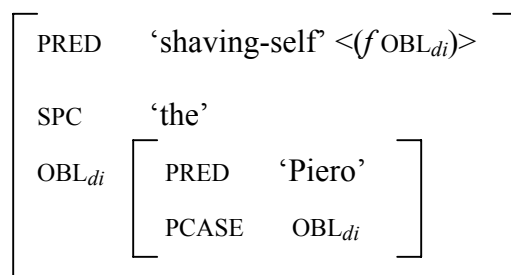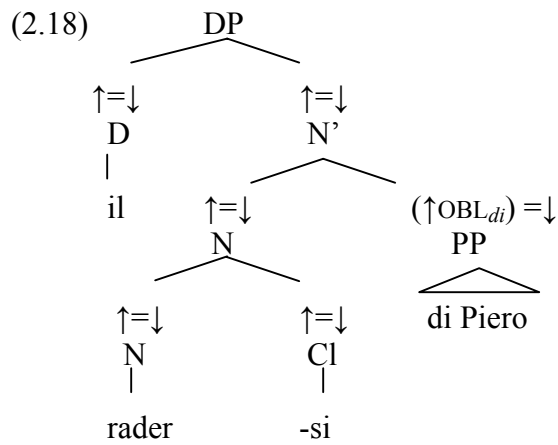(2.7b) il   rievocare   (*la guerra)   degli   anziani   (Italian)

  the   recall.NMLZ   the war   of.the elders
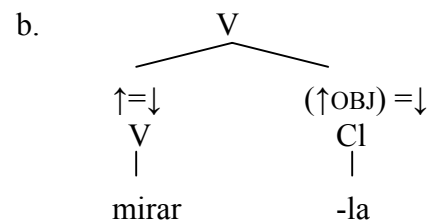
'the recollection (*of the war) by the elders'

(2.8)

```
              DP
        ┌──────┴──────┐
      ↑=↓            ↑=↓
       D              N'
       │        ┌──────┴──────┐
       │      ↑=↓         (↑OBL_di) =↓
       il      N              PP
               │        ┌──────┴──────┐
            rievocare    degli anziani
```

$$\begin{bmatrix} \text{PRED} & \text{'recollection'} <(f\,\text{OBL}_{di})> \\ \text{SPC} & \text{'the'} \\ \text{OBL}_{di} & \begin{bmatrix} \text{PRED} & \text{'elders'} \\ \text{SPC} & \text{'the'} \\ \text{PCASE} & \text{OBL}_{di} \end{bmatrix} \end{bmatrix}$$
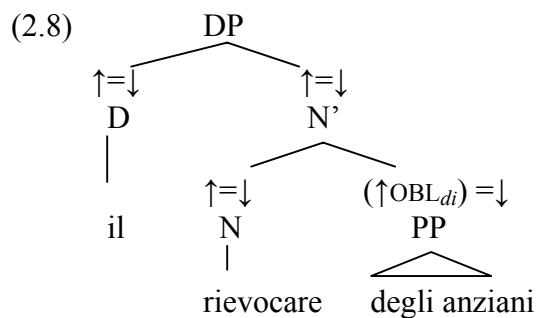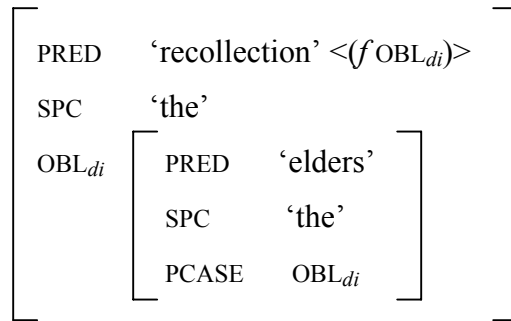
(2.17a) il rader-si di Piero (Italian)

  the shave.NMLZ-REFL of Piero

(2.18)

```
                    DP
          ↑=↓              ↑=↓
           D                N'
           |         ↑=↓          (↑OBL_di) =↓
           il        N                 PP
                ↑=↓       ↑=↓       di Piero
                 N         Cl
                 |         |
               rader      -si
```

$$\begin{bmatrix} \text{PRED} & \text{'shaving-self'} <(f\,\text{OBL}_{di})> \\ \text{SPC} & \text{'the'} \\ \text{OBL}_{di} & \begin{bmatrix} \text{PRED} & \text{'Piero'} \\ \text{PCASE} & \text{OBL}_{di} \end{bmatrix} \end{bmatrix}$$

(2.20) Catalan

  a.   * N   b.   V

```
      ↑=↓      (↑OBJ) =↓              ↑=↓      (↑OBJ) =↓
       N          Cl                  V          Cl
       |          |                   |          |
     mirar       -la                mirar       -la
```

$$
\begin{bmatrix}
\text{PRED} & \text{'looking'} <(f\,\text{OBJ})> \\[4pt]
\text{OBJ} &
\begin{bmatrix}
\text{PRED} & \text{'PRO'} \\
\text{PRS} & 3 \\
\text{NUM} & \text{SG}
\end{bmatrix}
\end{bmatrix}
\qquad
\begin{bmatrix}
\text{PRED} & \text{'look'} <(f\,\text{SUBJ})(f\,\text{OBJ})> \\[4pt]
\text{INF} & + \\[4pt]
\text{OBJ} &
\begin{bmatrix}
\text{PRED} & \text{'PRO'} \\
\text{PRS} & 3 \\
\text{NUM} & \text{SG}
\end{bmatrix} \\[4pt]
\text{SUBJ} & <\ldots>
\end{bmatrix}
$$

(2.19) ?* La llebre va intuir el mirar-la   fix   del   caçador (Catalan)

the hare   PAST sense the look.NMLZ-it.ACC fixed of.the hunter

'the hare felt the fixed looking at him of the hunter'

(2.21)
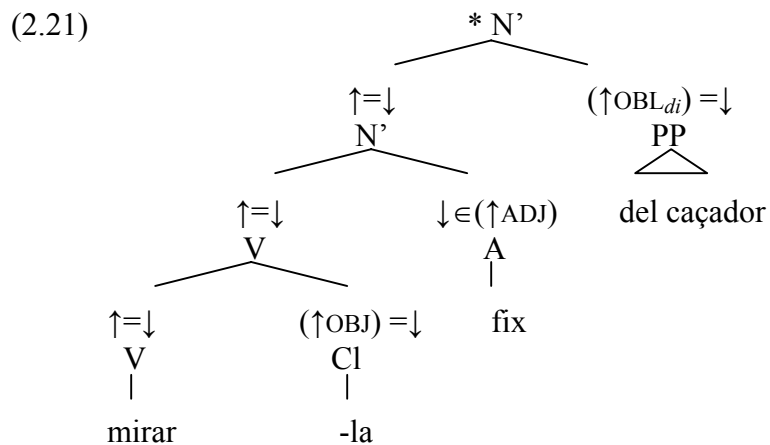
Note

The structure in (2.21) is ill-formed for two reasons. Firstly, the c-structure is inconsistent, since the verb is modified by a postposed adjective. Secondly, no legitimate f-structure could correspond to that c-structure, since an infinitive would have to select for an object and for a *di*-oblique (but not for a subject).

(3.8)   The position of PPs in Wan

$$
\begin{array}{c}
\text{IP} \\
\end{array}
$$

IP

↑=↓
IP

(↑GF* OBL) | ↓∈(↑GF* ADJ)
PP

(↑SUBJ) =↓
NP

↑=↓
I'
|

↑=↓
VP

(↑OBJ) =↓ | (↑XCOMP) =↓
NP   VP

↑=↓
V
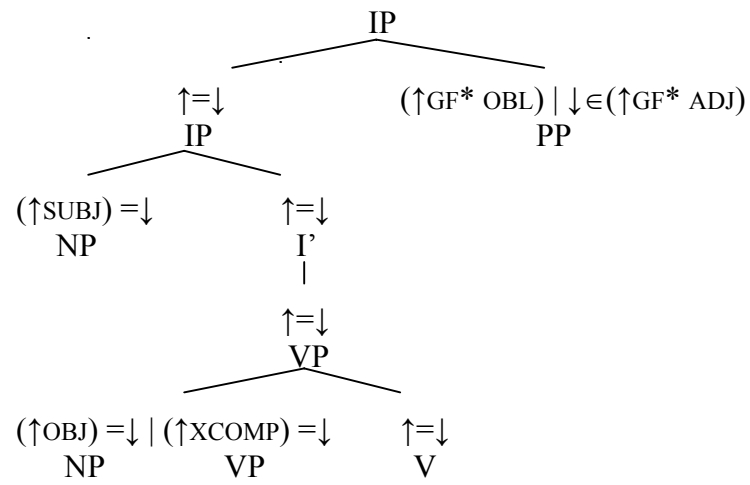
(3.5a) è   [*kúnà̰*]$_{VP}$ *ságlā*   [*yrɛ̄ é*   *gó*]$_{PP}$ (Wan)

     3SG.SBJ   climb   started   tree   DEF   in

     'She began to climb onto the tree.'
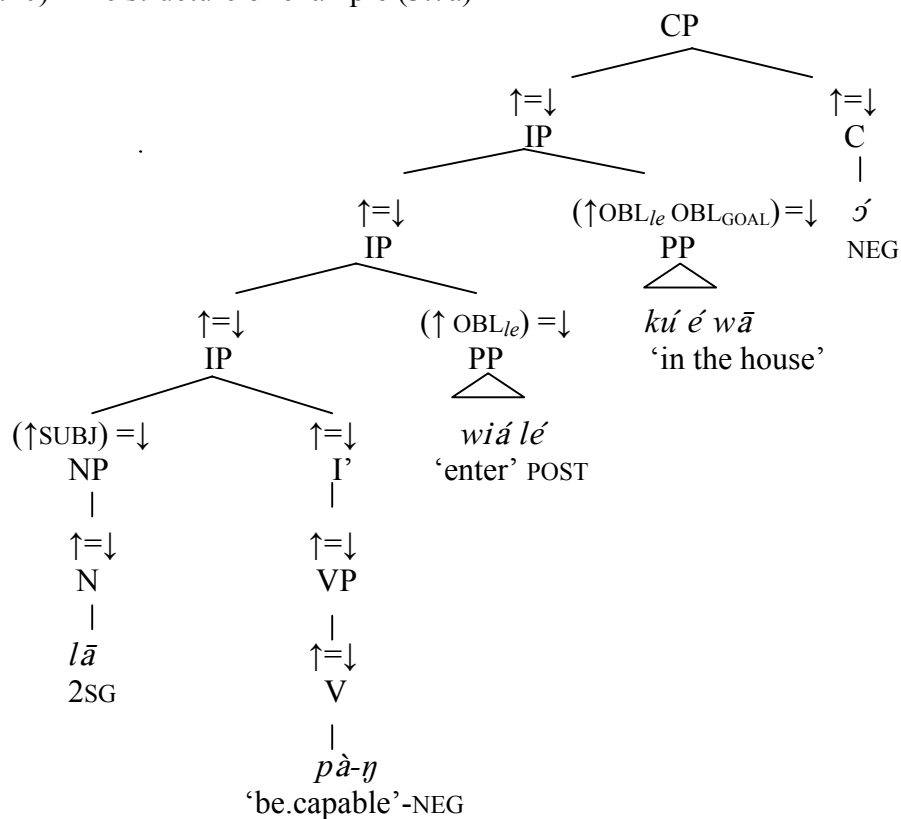
(3.9)   The structure of example (3.5a)
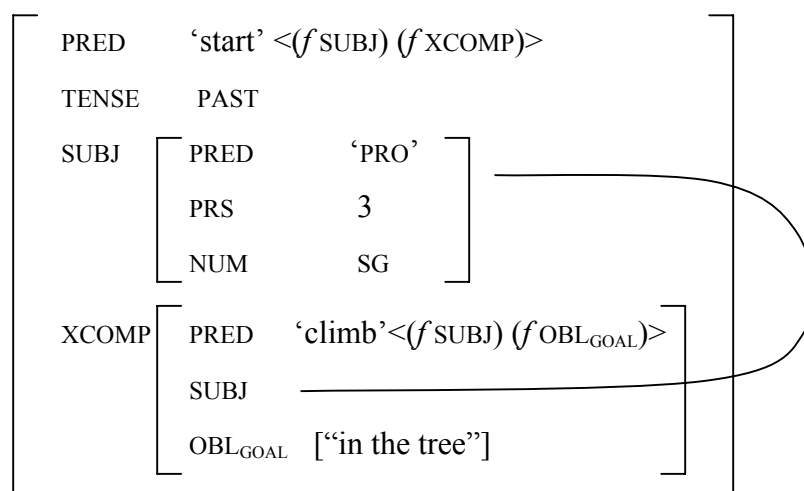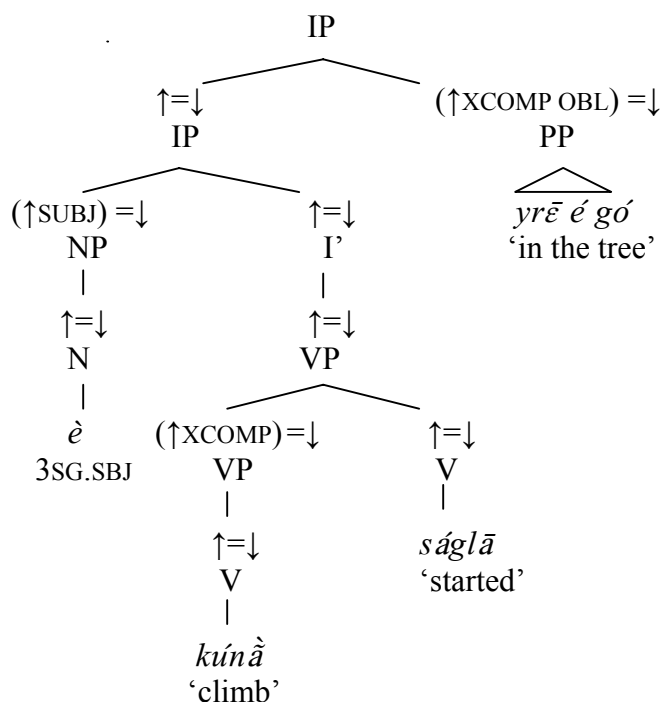
Note

Double quotes are used to indicate that a particular f-structure is represented in an abbreviated form, without being further decomposed into embedded f-structures.
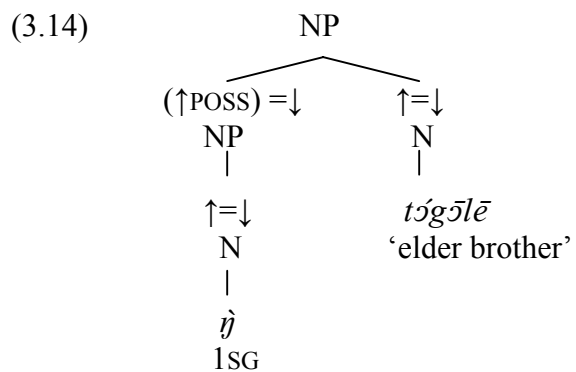
(3.7a) *lā*   *pà-ŋ*   [*wiá lé*]_{PP} [*kú* *é* *wā*]_{PP} *ɔ́*   (Wan)

      2SG be.capable-NEG enter POST   house   DEF under NEG

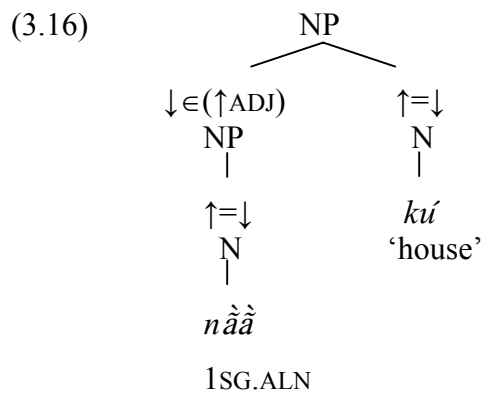   'You cannot enter the house.'

(3.10) The structure of example (3.7a)

$$\begin{aligned}
&\text{PRED} && \text{'be.capable'} <(f\,\text{SUBJ})\,(f\,\text{OBL}_{le})> \\
&\text{NEG} && + \\
&\text{SUBJ} && \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PRS} & 2 \\ \text{NUM} & \text{SG} \end{bmatrix} \\
&\text{OBL}_{le} && \begin{bmatrix} \text{PRED} & \text{'enter'}<(f\,\text{SUBJ})\,(f\,\text{OBL}_{\text{GOAL}})> \\ \text{PCASE} & \text{OBL}_{le} \\ \text{OBL}_{\text{GOAL}} & [\text{"in the house"}] \\ \text{SUBJ} & \end{bmatrix}
\end{aligned}$$

(3.13b)　　　*ŋ̀ tɔ́gɔ̄lē*　　　'my elder brother'　　(Wan)

(3.14)　　　　　　　　　NP

(↑POSS) =↓　　　　↑=↓
　　NP　　　　　　　N
　　 |　　　　　　　 |

　 ↑=↓　　　　　　*tɔ́gɔ̄lē*
　　N　　　　　　'elder brother'
　　 |

　　ŋ̀
　　1SG

$$\begin{bmatrix} \text{PRED} & \text{'elder.brother'} <(f\text{POSS})> \\ \text{POSS} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PRS} & 1 \\ \text{NUM} & \text{SG} \end{bmatrix} \end{bmatrix}$$

(3.15b)　　　*nà̰ā̰ kú*　　　'my house'　　(Wan)

(3.16)　　　　　　　　　NP

↓∈(↑ADJ)　　　　↑=↓
　　NP　　　　　　N
　　 |　　　　　　 |

　 ↑=↓　　　　　　*kú*
　　N　　　　　　'house'
　　 |

　nà̰ā̰

　1SG.ALN

$$\begin{bmatrix} \text{PRED} & \text{'house'} \\ \text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PRS} & 1 \\ \text{NUM} & \text{SG} \end{bmatrix} \right\} \end{bmatrix}$$

(3.42) ŋ̀   [[mī̄ **wiá-ŋ**]ₙₚ   éŋ]ₙₚ mɔ̄̃   [**kú é   wā**]ₚₚ (Wan)
       1SG   person enter-NMLZ   voice heard   house DEF   under

'I heard someone enter the house.'

(3.43)

IP
⟶ ↑=↓ IP ... (↑OBJ POSS OBL_GOAL) =↓ PP
(↑SUBJ) =↓ NP ... ↑=↓ I' ... kú é wā 'in the house'
↑=↓ N
ŋ̀ 1SG
↑=↓ VP
(↑OBJ) =↓ NP ... ↑=↓ V
(↑POSS) =↓ NP ... ↑=↓ N mɔ̄̃ 'heard'
(↑POSS) =↓ NP ... ↑=↓ N éŋ 'voice'
↑=↓ N ... wiá-ŋ 'enter-NMLZ'
mī̄ 'person'

$$
\begin{bmatrix}
\text{PRED} & \text{'hear'} <(f\,\text{SUBJ})(f\,\text{OBJ})> \\
\text{TENSE} & \text{PAST} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PRS} & 1 \\ \text{NUM} & \text{SG} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'voice'}<(f\,\text{POSS})> \\ \text{POSS} & \begin{bmatrix} \text{PRED} & \text{'entering'} <(f\,\text{POSS})\,(f\,\text{OBL}_{\text{GOAL}})> \\ \text{POSS} & [\text{PRED 'person'}] \\ \text{OBL}_{\text{GOAL}} & [\text{"in the house"}] \end{bmatrix} \end{bmatrix}
\end{bmatrix}
$$

(5.6)

DP

(↑POSS) =↓   ↑=↓
DP   N'

my   ↓∈(↑ADJ)   ↑=↓
     A   N'

     wicked   ↑=↓   ↑=↓
               N   VP

               | |
            leaving   (↑OBJ) =↓
                          NP

                   my father's house

$$\begin{bmatrix} \text{PRED} & \text{'leaving'} <(f\,\text{POSS})(f\,\text{OBJ})> \\ \text{ADJ} & \left\{ [\ \text{PRED}\ \text{'wicked'}\ ] \right\} \\ \text{POSS} & [\ \text{PRED}\ \text{'my'}\ ] \\ \text{OBJ} & [\ \text{"my father's house"}\ ] \end{bmatrix}$$

(5.7)

DP

(↑POSS) =↓   ↑=↓
DP   VP

my   ↑=↓   (↑OBJ) =↓
     V   NP

     |
  leaving   my father's house
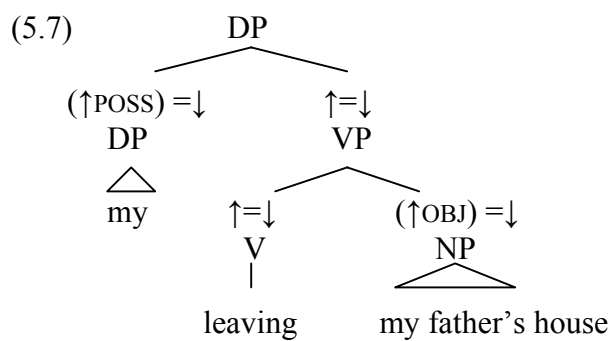
$$\begin{bmatrix} \text{PRED} & \text{'leave'} <(f\,\text{SUBJ})(f\,\text{OBJ})> \\ \text{POSS} & [\ \text{PRED}\ \text{'my'}\ ] \\ \text{SUBJ} & \\ \text{OBJ} & [\ \text{"my father's house"}\ ] \end{bmatrix}$$
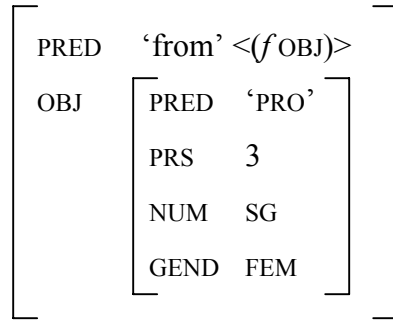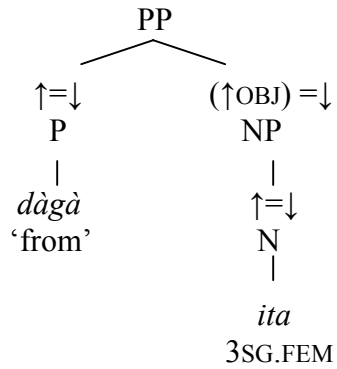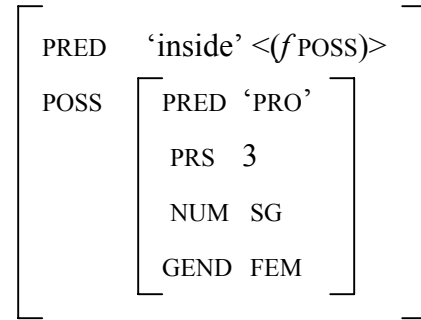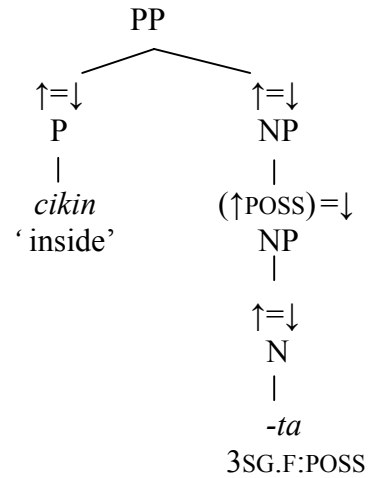
(6.1)   Two types of prepositional phrase in Hausa

a. Basic prepositions   b. Genitive prepositions

```
                PP                                              PP
         ┌──────┴──────┐                               ┌────────┴────────┐
       ↑=↓         (↑OBJ)=↓                           ↑=↓              ↑=↓
        P             NP                                P                NP
        |             |                                 |                |
      dàgà          ↑=↓                               cikin         (↑POSS)=↓
      'from'         N                               'inside'           NP
                     |                                                   |
                    ita                                                 ↑=↓
                  3SG.FEM                                                N
                                                                        |
                                                                       -ta
                                                                    3SG.F:POSS
```
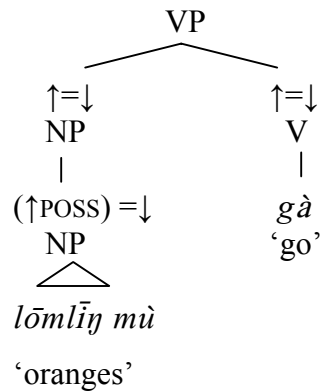
```
⎡ PRED   'from' <(ƒ OBJ)>  ⎤          ⎡ PRED   'inside' <(ƒ POSS)> ⎤
⎢                          ⎥          ⎢                            ⎥
⎢ OBJ  ⎡ PRED   'PRO'  ⎤   ⎥          ⎢ POSS ⎡ PRED  'PRO'  ⎤      ⎥
⎢      ⎢ PRS    3      ⎥   ⎥          ⎢      ⎢ PRS   3      ⎥      ⎥
⎢      ⎢ NUM    SG     ⎥   ⎥          ⎢      ⎢ NUM   SG     ⎥      ⎥
⎢      ⎣ GEND   FEM    ⎦   ⎥          ⎢      ⎣ GEND  FEM    ⎦      ⎥
⎣                          ⎦          ⎣                            ⎦
```

(6.45) Wan

yāá   é nùŋ   dìnầ lé   **lōmlĩŋ mù gà**   yā   plḗ-lé

3SG+COP   REFL daughter teach PROG   orange PL go   POST   market-at

'She is teaching her daughter to carry oranges to the marketplace.' [lit. 'oranges-go']
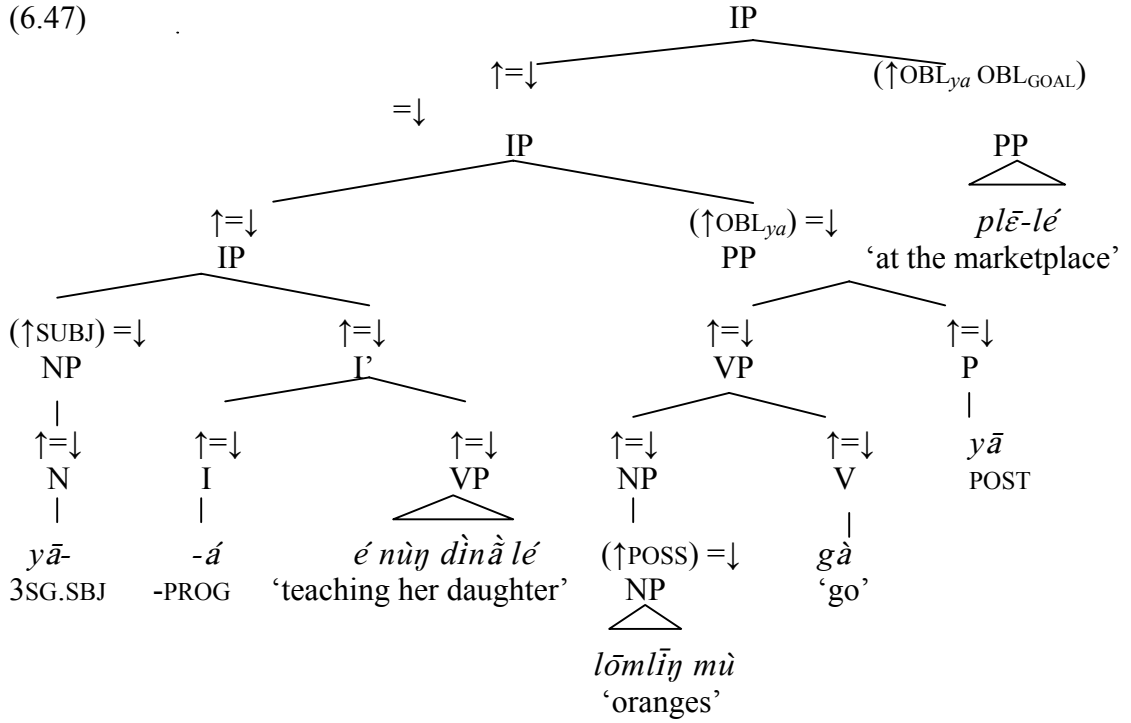
(6.46) Mixed category analysis

```
              VP
        ┌─────┴─────┐
      ↑=↓          ↑=↓
      NP            V
       |            |
   (↑POSS)=↓        gà
      NP           'go'
     ╱──╲
  lōmlĩŋ mù
  'oranges'
```

243

$$
\begin{bmatrix}
\text{PRED} & \text{'go-of'} <(f\,\text{POSS})(f\,\text{SUBJ})> \\
\text{POSS} & \begin{bmatrix} \text{PRED} & \text{'orange'} \\ \text{NUM} & \text{PL} \end{bmatrix} \\
\text{SUBJ} & [\ \text{PRED} \quad \text{'PRO}_{arb}\text{'}\ ]
\end{bmatrix}
$$

Note

On this analysis, the mixed nonfinite form selects for a possessor function and provides the value of SUBJ PRED, specifying that the subject is understood to have a generic interpretation.

(6.47)

```
                                              IP
                          ↑=↓                              (↑OBL_ya OBL_GOAL)
                           =↓
                           IP                                    PP
                ↑=↓                      (↑OBL_ya) =↓           ╱─────╲
                IP                           PP               plɛ̄-lé
        (↑SUBJ) =↓        ↑=↓          ↑=↓         ↑=↓    'at the marketplace'
           NP            I'            VP           P
            |         ╱──────╲      ╱──────╲        |
          ↑=↓      ↑=↓      ↑=↓    ↑=↓    ↑=↓      yā
           N        I       VP     NP      V      POST
           |        |      ╱──╲     |       |
          yā-      -á   é nùŋ dìnà̃ lé  (↑POSS) =↓  gà
        3SG.SBJ  -PROG 'teaching her daughter'  NP   'go'
                                              ╱──╲
                                          lōmlī̄ŋ mù
                                           'oranges'
```

$$
\begin{bmatrix}
\text{PRED} & \text{'teach'} <(f\,\text{SUBJ})\,(f\,\text{OBJ})\,(f\,\text{OBL}_{ya})> \\
\text{ASP} & \text{PROG} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'PRO'} \\ \text{PRS} & 3 \\ \text{NUM} & \text{SG} \end{bmatrix} \\
\text{OBJ} & [\quad \text{"her daughter"} \quad] \\
\text{OBL}_{ya} & \begin{bmatrix} \text{PRED} & \text{'go-of'} <(f\,\text{POSS})(f\,\text{SUBJ})(f\,\text{OBL}_{GOAL})> \\ \text{PCASE} & \text{OBL}_{ya} \\ \text{POSS} & \begin{bmatrix} \text{PRED} & \text{'orange'} \\ \text{NUM} & \text{PL} \end{bmatrix} \\ \text{SUBJ} & [\text{PRED} \quad \text{'PRO}_{arb}\text{'}\quad] \\ \text{OBL}_{GOAL} & [\text{"at the marketplace"}] \end{bmatrix}
\end{bmatrix}
$$

Abbreviations

ABS	absolutive	LOC	locative
ACC	accusative	M	masculine
ACT	active	MID	middle
ALN	alienable possessive	NEG	negation
	pronoun	NEU	neutral
AOR	aorist	NMLZ	nominalization
APPL	applicative marker	NOM	nominative
ART	article	PAST	past
ASSOC	associative marker	PL	plural
AUX	auxiliary	PM	predicative marker
COP	copula	POSS	possessive marker/pronoun
DAT	dative	POST	postposition introducing
DEF	definite marker		clausal argument
DEM	demonstrative	PRFV	perfective
DET	determiner	PROG	progressive
ERG	ergative	PROSP	prospective
F	feminine	PRT	particle
GEN	genitive	PRTC	participle
HAB	habitual	REFL	reflexive
IMPER	imperative	SG	singular
IMPF	imperfect	SBJ	subject form of the
INF	infinitive		pronoun
INSTR	instrumental	SUP	supine

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