

## On lexical and syntactic licensing of category mixing

### 1. Category mixing in the syntax and in the lexicon

Theories of grammar differ in the role they attribute to the level of abstract grammatical relations such as subject, object, oblique, and adjunct, which are also referred to as grammatical, or syntactic, functions. Within Lexical-Functional Grammar (Bresnan 2001; Kaplan and Bresnan 1982), grammatical relations are treated as primitives; the same view is shared, among others, by Relational Grammar (Perlmutter and Postal 1983; also other papers in Perlmutter (ed., 1983)).<sup>1</sup> They are defined, contra Chomsky (1965, 1981), at their own level of structure and are not derivable from either phrase structure configurations or semantic roles. As a consequence of this treatment of grammatical relations, there are two tiers of structure involved in the realization of arguments: on the one hand, an argument is mapped to a grammatical relation; on the other, the grammatical relation in question is realized in a particular structural configuration in accordance with the phrase structure rules of the language. Sets of abstract grammatical relations (such as subject, object, oblique) are selected by individual predicates and are encoded in the lexical entry as part of its subcategorization pattern. A set of constraints on syntactic structure defines the possible configurations in which the abstract grammatical relations can be expressed; it can be represented by phrase structure rules or by other means (see, e.g., Bod 2006 on exemplar-based models). The constraints on possible configurations are independent of the individual lexical properties of words other than their syntactic category.

Divorcing grammatical relations from structural positions makes it possible to account for phenomena where the two dimensions play a role independently of each other

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<sup>1</sup> The distinction between grammatical relations and surface realization is already present, in some form, in Pāṇini's grammar (Kiparsky and Staal 1969); on the importance of distinguishing between grammatical relations and surface realization or surface case see, among others, Johnson (1974), Shibatani (1977).

(see Grimshaw 1982b for arguments for incorporating grammatical relations into linguistic theory). In this paper I discuss an example of such a phenomenon, for which a theory distinguishing between the two tiers of structure – selection of grammatical functions, on the one hand, and their realization in syntax, on the other – provides an elegant account. The phenomenon in question is category mixing, defined as a combination of syntactic properties of more than one category within a construction that has a single lexical head. I discuss two instances of category mixing with nominalization of verbs, one from Italian and the other from Wan (Mande). I suggest that an adequate account of nominalization in these two languages should make reference to both levels of structure, i.e. both to sets of abstract grammatical relations and to constraints on their expression within phrase structure configurations.

Mixed category constructions are usually defined as constructions that combine the external distribution of one category with the internal structure of another. Classic examples of a mixed category construction are nominalizations, which often behave syntactically as if they were nouns but at the same time combine with some or all of their complements as if they were verbs (Comrie 1976; Comrie and Thompson 1985; Koptjevskaja-Tamm 1993, 2003). The inconsistent syntactic behavior is illustrated in (1) with an agentive nominalization from Gĩkũyũ (Bresnan & Mugane 2006; Mugane 2003). In (1a), the nominalization behaves as a regular noun; in particular, its object participant is expressed in the same way as a possessor of a regular noun.<sup>2</sup> In (1b), however, the same nominalization is the head of a mixed category construction: it has a nominal distribution but is marked with the applicative suffix and takes two objects, as if it were a verb in the applicative form.

- (1) Gĩkũyũ (Bresnan & Mugane 2006)
- |    |                        |       |         |         |
|----|------------------------|-------|---------|---------|
| a. | mũ-in-i                | ũyũ   | w-a     | nyĩmbo  |
|    | 1-sing-NMLZ            | 1.DEM | 1-ASSOC | 10.song |
|    | ‘this singer of songs’ |       |         |         |

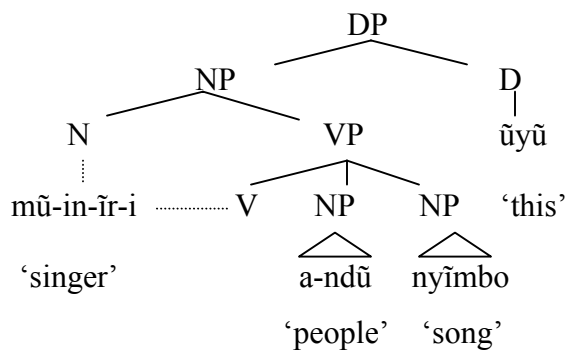
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<sup>2</sup> Throughout the paper I use the term “object participant” to refer to the argument of a nominalization that corresponds to the object of the base verb. Not all nominalizations, of course, retain the verb’s arguments (see Grimshaw 1990; Rappaport Hovav and Levin 1992; Laczko 2000); this paper only deals with nominalizations that do retain the arguments in question.

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

The construction in (1b) differs from the one in (1a) in combining syntactic properties of a noun phrase with those of a verb phrase. Intuitively, the construction in (1b) is verbal internally to the NP but nominal with respect to its external distribution (it occurs in the same syntactic environments as a regular DP). A significant portion of research on category mixing has been concerned with developing formal accounts of the mixing of syntactic properties of this kind (Lefebvre and Muysken 1988; Pullum 1991; Lapointe 1993; Malouf 2000; Hudson 2003, among many others). Within the framework of Lexical-Functional Grammar, Bresnan (1997) proposed treating mixed category constructions as constructions with extended heads, where the same lexical item instantiates two different syntactic units in the phrase structure (the lexical head can be “shared” by two different phrases). A slightly simplified version of Bresnan and Mugane’s (2006) analysis of the Gĩkũyũ nominalization is represented in (2): the entire construction is a DP with a nominal head, but the noun takes complements (here, two objects) in the same way as a verb does, as if it instantiated both a nominal and an embedded verbal structure. This syntactic duality is represented somewhat informally by associating the nominalization both with the head of an external NP and the head of an embedded VP; further argumentation and a detailed discussion of the analysis can be found in (Bresnan and Mugane 2006).

(2) Nominal external and verbal internal syntax in Gĩkũyũ:



In order for the construction in (2) to be acceptable, the language must license a special syntactic configuration where a noun instantiates a verbal structure, which allows it to combine with its complements in the same way as verbs do. The construction must therefore be licensed by the constraints on syntactic configurations, or by the phrase structure rules of the language. On the other hand, the construction must also be licensed at the lexical level, or at the level of abstract grammatical relations. To combine with a complement as if it were a verb, the nominalization in (2) must select for an object grammatical function that can be realized in the given configuration. In most languages, the ability to select for an object is a property of a particular kind of deverbal nouns, which distinguishes them both from regular simple nouns and from other types of nominalization. The distinguishing property of the agentive nominalization in Gĩkũyũ can be stated at the lexical level as the ability to retain the selectional properties of the verb, hence other nominalization types need not behave in the same way.

The licensing of the object grammatical function by the lexical properties of the agentive nominalization in (2) supplements the syntactic licensing of the mixed category construction by the phrase structure rules. In what follows I suggest that distinguishing between the two licensing mechanisms, and accordingly, between grammatical functions and their syntactic realization, is important in accounting for the typology of nominalization and category mixing in general. I will discuss two instances of category mixing where, unlike in Gĩkũyũ, no special syntactic “hybrid” configuration corresponds to the mixed selectional properties of a nominalization.

The consequences of the lack of a special construction that can express the abstract grammatical functions selected by the nominalization may vary depending on the overall syntactic structure of the language. In some cases, the absence of a construction with mixed syntax may block the expression of a particular argument. In Section 2, I discuss an example of such blocking as manifested in the behavior of Italian infinitival nouns. In other cases, the lack of a specialized mixed category construction may have strikingly different consequences. This is illustrated in Section 3 with a study of nominalization in Wan, a Mande language where postpositional arguments of verbs are normally expressed externally to the VP, and hence do not need to be licensed by a verbal head in the syntax. Due to the VP-external position of PPs, the lack of a special

construction with mixed syntax has no effect on the expression of the verb's oblique arguments with nominalizations.

While the study of mixed category constructions concentrated mostly on their syntax, the distinction between the two licensing mechanisms has received very little attention. An adequate treatment of category mixing should, however, account not only for the variety of attested syntactic constructions but also for constraints on expressing certain arguments within a given configuration or for multiple options for their expression, including instances where no mixed category construction is present. As I show in this study, syntactic theories that treat grammatical relations independently of the syntactic configurations in which the relations are realized provide the necessary tools for developing such an account: they can capture mixed selectional properties without assuming a corresponding mixed syntactic configuration.

## **2. Infinitival nouns in Italian: retention of object function**

### **2.1. Constraints on expressing object participants**

In a number of Romance languages, including Italian, Catalan, and Spanish, infinitives can be used in nominal environments in combination with an article. In Italian, for example, infinitival nouns 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). Infinitival nouns have a nominal distribution and appear in nominal positions like regular noun phrases.

With respect to their internal structure, constructions with infinitival nouns fall into two classes. One is a mixed category construction that allows the infinitival noun to combine with an object and be modified by an adverb, as illustrated in (3).

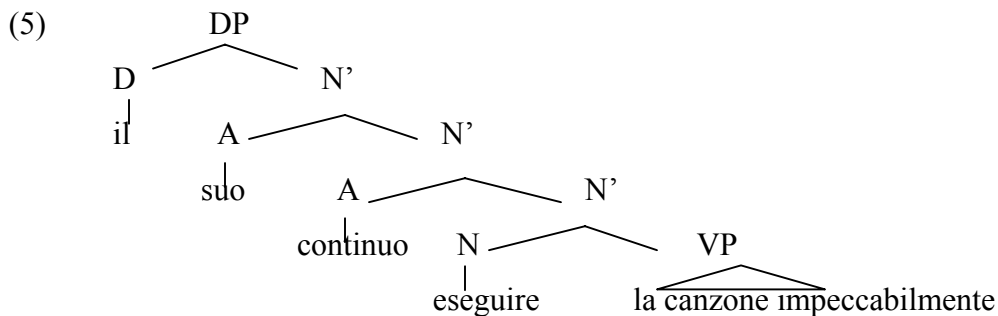
- (3) *il suo scrivere quella lettera improvvisamente*  
the his/her write.INF that letter suddenly  
'his/her suddenly writing that letter' (Zucchi 1993: 54)

In this mixed category construction all elements following the infinitival noun behave as if the head were a verb, while all elements preceding the infinitival noun are consistent with the head being a noun. In particular, the infinitival noun can take an object and be

modified by an adverb while at the same time it is preceded by a possessive pronoun, as in (3) or by an adjective, as in (4).

- (4) 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 (5), where the infinitival noun introduces a VP structure but all higher nodes are nominal, hence the preceding adjectives.



Besides the mixed category construction, the infinitival noun appears in regular noun phrases, where it can co-occur with genitive *di*-phrases and be followed, as well as preceded, by adjectives (6a,b).

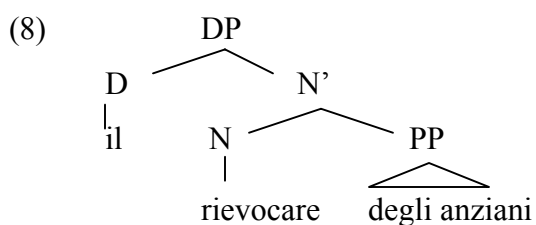
- (6) a. il suo partire improvviso  
 the his/her depart.INF sudden  
 ‘his sudden departure’ (Skytte, Salvi, and Manzini 1991: 563)
- b. il mormorare sommesso del mare  
 the whisper. INF soft of the sea  
 ‘the soft whispering of the sea’ (Zucchi 1993: 222)

When an infinitival noun is used in a regular NP it cannot admit adverbs (7a) or take objects in the same way as verbs do (7b).

- (7) a. lo scrivere interminabile / \*interminabilmente di Sibilla  
 the write. INF unending unendingly of Sibilla  
 ‘the unending writing of Sibilla’ (Zucchi 1993: 222)

- b.    il        rievocare     (\*la guerra)    degli anziani  
       the     re-evoke. INF   the war         of.the elders  
       ‘the revocation of the war by the elders’     (Zucchi 1993: 223)

The purely nominal structure of examples of this kind is illustrated in (8). Unlike the mixed category construction in (5), the construction in (8) does not include any verbal structure. Hence, no adverbial modification is allowed in (7a), and the object participant cannot be expressed as a bare DP in (7b).



How are object participants expressed within the nominal construction with infinitival nouns? It would be natural to expect that an object participant would be realized as a *di*-phrase, 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 object participants with infinitival nouns.

- (9) a.    \* il     recitare        della poesia  
           the    recite. INF    of.the poem    (Zucchi 1993: 237)
- b.    \*l' esporre   del   libro   al   pubblico  
       the expose. INF of.the book   to.the public (Skytte, Salvi, and Manzini  
       1991: 560)

The ungrammaticality of the examples in (9) is particularly puzzling, since the object participants can be realized in a *di*-phrase with a different kind of nominalization, which does not involve an infinitive. This is illustrated in (10) with deverbal nouns derived by a suffix (cf. the English nominalization in *-tion*).

- (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, Salvi, and Manzini  
 1991: 560)

The restriction on the encoding of object participants with infinitival nouns cannot be explained in any obvious way by a purely syntactic constraint on the use of *di*-phrases. In the following examples, a *di*-phrase combines with an infinitival noun when it refers to the subject participant.

- (11) a. il recitare di Gianni  
 the recite.INF of Gianni  
 'Gianni's recitation' (Zucchi 1993: 237)
- b. il solenne tuonare della sua voce  
 the solemn thunder.INF of.the his/her voice  
 'the solemn thundering of his voice' (Skytte, Salvi, and Manzini 1991:  
 561)

The restriction also cannot be due to a semantic constraint on the mapping of object participants to *di*-phrases, since participants with the same semantic role can be expressed, with other kinds of nominalization, in a *di*-phrase, cf. (10), where the subject participant was left unexpressed, or (12), where the subject participant is expressed in another *di*-phrase or introduced by *da parte di* 'on the part of'.

- (12) a. La descrizione di Maria di Gianni / da parte di Gianni è troppo lusinghiera  
 the description of Maria of Gianni on part of Gianni 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)

Still, for some reason object participants cannot be expressed in the fully nominal construction with infinitival nouns.<sup>3</sup>

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<sup>3</sup> Cf. Zucchi (1993: 237): "But I don't have any principled account of why only intransitive verbs are allowed to undergo infinitival nominalization" (apparently, here "infinitival nominalization" refers to the derivation of nouns that are used in regular NPs).

A similar restriction on realization of arguments of infinitival nouns is attested in Catalan (Alsina 1996) and in Spanish (Plann 1981; Ramírez 2003). In Catalan, there is no way of expressing the object participant in the nominal construction in (13), where the infinitival noun is followed by an adjective.

- (13) \*el despullar            de les nimfes sorollós            (per part del centaure)  
 the undress.INF            of the nymphs noisy            (on the part of the centaur)  
 ‘the noisy undressing of the nymphs (by the centaur)’ (Alsina 1996: 90)

As in Italian, arguments with the same semantic role can be realized as possessors with other deverbal nouns, as in (14a). Moreover, more than one possessor can modify a single deverbal noun, as in (14b), suggesting that the restriction on the expression of objects cannot be due to a lack of an appropriate syntactic configuration, i.e. to a syntactic constraint on having more than one genitive PP modifying the same nominal head.<sup>4</sup>

- (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)

In Spanish, there is a similar unexpected lack of object participants in nominal constructions with infinitival nouns but not with other kinds of nominalization (Ramírez 2003: 129).<sup>5</sup>

- (15) a.        \* el        declamar        de la poesía  
               the    recite.INF        of the poem  
               ‘the reciting of the poem’  
 b.        la        declamación    de la poesía  
               the    recitation        of the poem

In sum, in Italian, Catalan, and Spanish argument realization with infinitival nouns is subject to additional restrictions compared to other kinds of nominalization. With infinitival nouns object participants can be realized only in a mixed category construction

<sup>4</sup> Picallo (1991: 289-290) argues for Catalan that deverbal nouns of the *transcripció* type with overtly expressed object participants can have either the event/process or the result reading. The difference between infinitival nouns and other deverbal nouns is therefore not explained by a difference in interpretation, or a difference in the set of inherited arguments (event participants).

<sup>5</sup> Cf. Ramírez (2003: 129): “There 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.”

and, unlike with other deverbal nouns, cannot be expressed in *di*-phrases. The restriction is unexpected on the assumption that realization of arguments is determined by the range of available syntactic options: infinitival nouns can be used in constructions with regular nominal syntax and should not differ from other kinds of nominalization with respect to the range of syntactic options available. As I show in the next section, this restriction receives a straightforward explanation once abstract grammatical functions selected by individual lexical items are distinguished from phrase structure rules that define a set of configurations in which the grammatical functions can appear.

## **2.2. Retention of grammatical functions requires a special construction**

To explain the difference in the expression of object participants with infinitival nouns and other kinds of nominalization, reference should be made not to the set of available syntactic options (which does not differ in the two cases in any relevant respect), but rather to the noun's selectional properties, or the set of abstract grammatical relations associated with it. The set of grammatical relations is constrained by nominalization rules, which may retain the selectional properties of the verb with some types of nominalization but not with others (in the latter case, arguments are mapped onto grammatical functions commonly associated with nouns, such as possessor). This explains the contrasting behavior of infinitival nouns and other nominalizations in Italian.

Regular deverbal nouns are associated with the grammatical functions that are commonly associated with nouns: if the noun inherits the object participant role from the verb (i.e. an argument role corresponding to the verb's object), it must be mapped onto the possessor function and is realized as a *di*-phrase, subject to the language-specific constraints on argument-to-function mapping. This scenario is described by Rappaport (1983) for deverbal nouns in English: in cases where argument roles of the verb are preserved with a deverbal noun, they are mapped onto a set of nominal grammatical functions (such as a possessor, expressed by a pre-nominal genitive, and an *of*-oblique function, expressed in an *of*-PP). Crucially, Rappaport argues that this mapping proceeds independently of the grammatical function that the argument role was assigned by the verb (e.g., whether it was expressed as the verb's object or subject) but is sensitive to the argument's semantic role (in other words, the way the argument role is expressed with a

regular deverbal noun need not be fully predictable from the way it is expressed with the verb). Similarly, a set of argument-to-function mapping rules would assign grammatical functions (such as a *di*-possessor) to argument roles of regular deverbal nouns in Italian, including arguments that may be expressed as objects with verbs.

The situation is different with infinitival nouns, which do not only preserve the argument roles of the base verb but also partly retain their grammatical function assignment. Unlike other kinds of nominalization, infinitival nouns are derived by a nominalization rule that requires them to retain the verb's object grammatical function, if there is one. This explains why an infinitival noun derived from a transitive verb selects for an object function, and the object participant can only be realized within a mixed category construction, where a nominal head is licensed to take an object as if it were a verb. Outside of the mixed category construction, the phrase structure rules of the language do not license object functions as complements of a noun (again, with regular deverbal nouns, the object participant must be mapped onto a different function, the possessor); 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.”

The difference between infinitival nouns and other nominalizations is summarized in (15), where selection of grammatical functions is treated separately from the syntactic realization of those functions.<sup>6</sup>

(15) Properties of infinitival nouns and other kinds of nominalization in Italian

| nominalization type           | selectional properties  | realization of grammatical functions                            |
|-------------------------------|---|---|
| infinitival noun              | object function retained:<br>N <OBJ>                          | complement of verbal head in a mixed category construction only |
| other kinds of nominalization | object participant mapped onto a possessor function: N <POSS> | possessor function realized as a <i>di</i> -phrase              |

<sup>6</sup> Within the framework of Lexical-Functional Grammar, this differentiation corresponds to the distinction between f-structure argument functions and c-structure positions to which they are mapped. While phrase structure rules remain constant, different f-structure argument functions may be selected by different kinds of nominalization.

The analysis of infinitival nouns as nominalizations that must retain 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 nominalized.

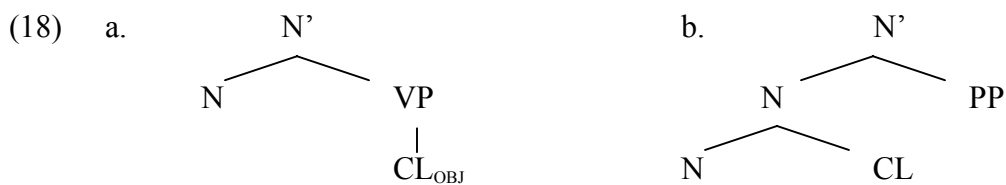
- (16) a. Italian (Zucchi 1993: 245, citing Grimshaw and Selkirk 1976):  
 il rader-si di Piero  
 the shave.INF-REFL of Piero
- b. Catalan (Alsina 1996: 91):  
 el despullar-se sorollós de les nimfes  
 the undress.INF-REFL noisy of the nymphs  
 'the noisy undressing of the nymphs'
- c. Spanish (Ramírez 2003: 132, citing Grimshaw and Selkirk 1976):  
 el afeitar-se de Juan  
 the shave.INF-REFL of Juan

The reflexive clitic does not prohibit nominalization, since it functions as a valence-reducing morpheme and does not require the object participant to be overtly expressed in the syntactic structure (Alsina 1996: 81-114; also Grimshaw 1982a for French). The presence of pronominal clitics, however, blocks nominalization of an infinitive, apparently since pronominal clitics overtly express the object participant. As infinitival nouns require the verb's object function to be retained, and that function can only be realized in a verbal construction, pronominal clitics are also not allowed outside the mixed category construction and cannot appear within regular NPs, as in (17) from Catalan (see Zucchi 1993: 245; Skytte, Salvi, and Manzini 1991: 564 for Italian; Ramírez 2003: 131 for Spanish).

- (17) Catalan (Alsina 1996: 92):  
 ?\* La llebre va intuir el mirar-la fix del caçador  
 the hare PAST sense the look.INF-it.ACC fixed of the hunter  
 'the hare felt the fixed looking at him of the hunter'

To account for this difference, I assume that in Italian, the use of a pronominal clitic requires at least some fragment of verbal syntactic structure, i.e. that clitics differ from regular affixes in being "post-lexical". This treatment is consistent with the representation

of Romance pronominal clitics in sentence structure in Grimshaw (1982a,b), Bresnan (2001: 147-148), Dalrymple (2001: 79-81). The view of pronominal clitics as separate entities in the syntactic structure is supported by evidence that, at least in Standard Italian, pronominal clitics and their hosts do not behave as a single phonological word (Peperkamp 1996; but cf. Monachesi 1996; for a discussion of differences between pronominal clitics and affixes see, inter alia, Gerlach 2002). This explains some of their properties that are not characteristic of normal affixes, including the flexibility in their linear placement, as well as the similar behavior of object pronominal clitics and lexical objects with respect to nominalization of infinitives. The presence of even a minimum verbal structure rules out the use of the infinitival noun in a purely nominal construction. Reflexive clitics, on the other hand, function as grammatical markers rather than a realization of an object, and hence can occur in a nominal structure without a verbal projection. Presented below are tentative structures for nominalized infinitives with pronominal clitics (a) and nominalized infinitives with a reflexive clitic (b), which could explain why the reflexive clitic is compatible with genitive prepositional phrases, while pronominal clitics can only be licensed within the verbal part of a mixed category construction. Further research is needed to establish whether the further predictions of this analysis are adequate.



To summarize, my analysis of infinitival nouns in Italian is based on the distinction between the lexical licensing (the nominalization rule requires retention of some of the verb's grammatical functions) and the syntactic licensing (or the set of language-specific constraints on the expression of various grammatical functions within noun phrases and verb phrases). The distinction explains restrictions on the expression of object participants with infinitival nouns in terms of obligatory category mixing at the level of f-structure attributes: the infinitival nouns are required to retain a grammatical function which the syntax of NPs cannot express.

### 3. Nominalization in Wan (Mande): retention of oblique functions

#### 3.1. Ways of expressing oblique participants with nominalization

The example of Italian infinitival nouns illustrates how a multi-dimensional approach to syntax can account for instances of category mixing that involve no specialized mixed category construction but are instead manifested in mixed selectional properties (the nominalization retains the object grammatical function of the corresponding verb). In the case of Italian this pattern of mixing resulted in ineffability of certain arguments in the syntactic configuration of NP. I now turn to a very different case of category mixing that can be accounted for in the same way.

In this section I discuss argument realization with nominalized verbs in Wan, a Southeastern Mande language spoken in Côte d'Ivoire. I will argue that, like in Italian, nominalization in Wan retains some grammatical functions of the original verb, and in particular, its oblique functions; the consequences of this retention, however, are very different. Most importantly, unlike in Italian, nominalizations in Wan have *more* options for expressing their arguments than regular non-derived nouns, even though Wan has no special construction that would be characterized by mixed syntax. I will show that this somewhat paradoxical pattern is due to the peculiar syntactic structure of Wan, namely, to the placement of the verb's postpositional arguments outside of the VP. Nevertheless, this pattern of category mixing can be accounted for once the two independent licensing mechanisms are recognized.

Wan has a number of different kinds of deverbal noun. Some of them are derived by suffixation, others by adding a free-standing marker to the verb. The suffix *-ŋ* derives forms that modify nouns (in Wan, this position is restricted to NPs); this nominalized form functions as part of a larger noun phrase. In Wan, possessive constructions are formed by juxtaposing possessor NPs and the head noun, without any additional marking; in the examples below, the nominalized verb introduces a modifier of the head noun.<sup>7</sup>

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<sup>7</sup> All examples come from the author's field notes. Abbreviations are used as follows: ACT – suffix deriving action nouns, ALIEN – possessive pronoun used with free nouns (“alienable” possession), COP – copula, DEF – definite marker, NMLZ – nominalizing suffix, PL – plural marker, PROG – marker of the progressive aspect, REFL – reflexive pronoun.

- (19) a. [ *à zò-ŋ* ]<sub>NP</sub> *zē* ‘the reason of his coming’  
           3sg come-NMLZ reason
- b. [ *p̄ ló-ŋ* ]<sub>NP</sub> *goli* ‘money for eating’  
           thing eat-NMLZ money
- c. [ *ŋ gâ-ŋ* ]<sub>NP</sub> *kóŋ* ‘the village of my destination’  
           1sg go-NMLZ village

The suffix *-wā* derives action nouns from verbs as well as from adjectives and other nouns. The distribution of action nouns is the same as that of a regular noun; in (20a,b) action nouns appear in the subject position. Note that in Wan, the word order is S-O-V-Other, with subjects and objects preceding the verb and all other arguments and adjuncts following it.

- (20) a. [ *tā p̄ mù é fìlā-wā* ]<sub>NP</sub> *á m̄-lé*  
           surface thing PL DEF bleach-ACT COP last-PROG  
           ‘Bleaching of the clothes is taking a long time.’
- b. *lāā gólí bē-wā é s̄-ŋ ŋ lèŋ ǝ*  
           2sg.ALIEN money ask-ACT DEF please-NEG 1sg to NEG  
           ‘I don’t like it when you ask [me] for money.’

Finally, verbs can be nominalized by adding to the non-finite form of the verb a free-standing marker *é*, which coincides with the definite marker used with nouns. In this sense, the use of the marker is somewhat similar to the use of infinitival nouns in Italian. Nominalizations of this kind can be used in all nominal syntactic positions; in (21), the nominalized verb appears within an adverbial PP.

- (21) *â gā ŋ klá é lé*  
           3pl went 1sg arrive DEF after  
           ‘They left after my arrival’

I will not discuss further the differences between the various types of nominalization. Most importantly for this study, they behave in the same way with respect to their argument realization properties. More detailed discussion of nominalization in Wan can be found in Nikitina (in prep.).

Unlike Italian or English, Wan has no mixed category construction where a noun would be allowed to take an object complement; when a transitive verb is nominalized, the object participant can only be expressed as a possessor.<sup>8</sup>

To consider how oblique arguments of the verb are realized with nominalization, it is necessary to introduce an essential property of the syntax of Wan that concerns the position of PPs. In Wan, the distribution of postpositional phrases is extremely restricted (see Nikitina ms. for discussion). In particular, postpositional phrases are not allowed NP-internally. Notions expressed by NP-internal PPs in English are encoded in Wan in possessive constructions. Such possessive constructions are often ambiguous as to the relation between the head noun and the possessor, cf. the following example, which cannot be disambiguated by using a postposition, since PPs are not licensed within noun phrases.

(22) *Lèmè (\*mǎ) bātéí*

L. (\*to<sub>P</sub>) gift

‘gift of Leme’ (can also mean ‘gift from Leme’, ‘gift to Leme’, etc.)

Sometimes a relational noun provides some additional information about the semantic relationship between the head noun and the possessor NP. In (23), a relational noun is used to specify the spatial relation. Even though many relational nouns look identical to postpositions, only nouns, and not postpositions, are allowed NP-internally.

(23) *té tǎ wí*  
 fire surface<sub>N</sub> meat

‘meat on the fire’; lit. ‘meat of the fire’s surface’

Besides not occurring within noun phrases, postpositional phrases in Wan also do not occur within verb phrases. The only syntactic position where a PP can appear is outside of all major constituents, following the main verb. This peculiar structure can be

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<sup>8</sup> It may not be obvious that object participants are realized as possessors, since in Wan, as in many other Mande languages (Innes 1967), objects of transitive verbs and possessors of relational nouns are expressed by identical forms. In Nikitina (in prep.) I argue that the distinction can be made on grounds other than the surface realization alone. In particular, the presence of an object participant interacts in a particular way with the expression of the subject participant, suggesting that instead of having a unique syntactic realization (i.e. being expressed as the object function, i.e. in a position restricted to objects), the object participant competes with other arguments for being realized as a possessor.

illustrated with an example where a postpositional argument is selected by an embedded verb. Consider the sentence in (24). The verb *kúnā̃* ‘climb’ takes an oblique argument that is realized as a PP following the finite verb.

- (24) *è kúnā̃ [ yrē é gó ]*  
 3sg climbed tree DEF in  
 ‘He climbed the tree.’

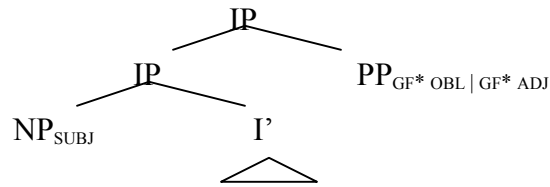
In (25), the same verb *kúnā̃* ‘climb’ is embedded as a complement of the matrix verb *ságlā* ‘start’ and appears in the position preceding the matrix verb. Crucially, the oblique argument of the embedded verb can no longer be expressed next to it but instead must appear in the position following the main verb.

- (25) a. S O<sub>[VP]</sub> V<sub>FIN</sub> PP  
*è kúnā̃ ságlā [ yrē é gó ]*  
 3sg climb started tree DEF in  
 ‘He began to climb the tree.’
- b. \* *è kúnā̃ yrē é gó ságlā*  
 3sg climb tree DEF in started

The PP argument appears outside all major constituents, including the one formed by the verb that selects for it. The syntax of PPs can be accounted for in terms of the structure in (26) (only the relevant parts of structure are represented). The only position where postpositional phrases appear is following the main verb, adjoined to the IP. Functionally, a PP appearing in this position can stand in a grammatical relation to any verb appearing in the sentence: it can be an argument or an adjunct associated with either the finite verb or any other verb embedded in the sentence; see Nikitina (ms.) for details. This flexibility is represented in (26) by the functional annotation on the PP: the PP can correspond to an oblique argument (OBL) or an adjunct (ADJ) of any grammatical function (GF) expressed in the sentence: its subject’s oblique (SUBJ OBL, if a verb is embedded in the subject), its oblique’s adjunct (OBL ADJ, if a verb is embedded in an oblique), etc.<sup>9</sup>

<sup>9</sup> The stars in the functional annotation (GF\*) allow the PP to be associated with verbs that are embedded even deeper in the structure, such as with nominalized verbs embedded in the possessor of an object NP (OBJ POSS OBL). Such examples, although infrequent, do occur (cf. 28) but are not discussed in detail in this paper.

(26) The position of PPs in Wan



Having introduced the basics of the sentence structure of Wan, I now turn again to the main subject of the present – realization of oblique arguments with nominalized verbs. Constructions with nominalization fall into two types. One type is purely nominal: all arguments of the nominalized verb are expressed NP-internally in the same way as possessors of regular nouns. In this construction, oblique arguments are realized within the NP as noun phrases and not as postpositional phrases. This type is illustrated in (27), where participants that would be expressed in PPs with a verb (in both cases with the postposition *yā* ‘with’) appear as possessor NPs with the nominalization.

- (27) a. [[ *lōmlīŋ* ]<sub>NP</sub> *gà-ŋ*]<sub>NP</sub> *gbè*  
orange go-NMLZ manner  
‘the way of going with oranges’ (lit., ‘manner of going of oranges’)
- b. [[ *gbǎnɛ̃* ]<sub>NP</sub> *wì-té-ŋ*]<sub>NP</sub> *gbè*  
dog hunt-NMLZ manner  
‘the way of hunting with dogs’ (lit., ‘manner of hunting of dogs’)

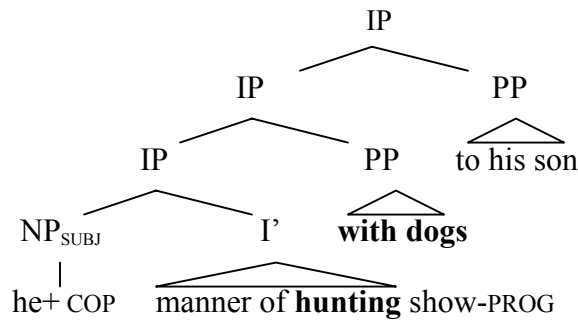
An alternative way of expressing an oblique argument is illustrated in (28). Instead of being realized as a possessor NP preceding the head noun, the oblique argument of the nominalized verb can appear as a PP outside of the noun phrase, but only at the IP level.

- (28) *yāá wì-té-ŋ gbè lā-lé [ gbǎnɛ̃ mù yā ]<sub>PP</sub> [ é gbè lèŋ ]<sub>PP</sub>*  
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.’

The structure of the sentence is represented in (29). Crucially, the nominalization *wì-té-ŋ* ‘hunting’ does not form a syntactic constituent with the PP *gbǎnɛ̃ mù yā* ‘with dogs’, and there is no construction with mixed syntax where a nominalization would project a

VP. Instead, the postpositional argument appears in the position following the main verb, in accordance with the general constraints on sentence structure (26).

(29)



The lack of a single constituent that would include both the nominalized verb and its oblique argument in (29) makes this construction a special case of category mixing, which cannot be accounted for in terms of a hybrid syntactic configuration. In no obvious way does the nominalization in (29) project a mixed category construction that consists of interleaved projections of verbal and nominal structure (cf., e.g., Borsley and Kornfilt 2000, building on “mixed extended projections” of Grimshaw 1991). Still, the syntax of nominalization differs in an important respect from the syntax of regular nouns: nominalizations, but not regular nouns, can be associated with PP arguments. To explain the behavior of nominalizations, it is necessary, as in the case of Italian infinitival nouns, to accept that category mixing does not have to be manifested in a special construction with mixed syntax and to refer to the mechanism of lexical licensing, i.e. to the noun’s ability to retain certain selectional properties of the verb. The account is summarized in the next section.

### 3.2. Retention of a grammatical function without syntactic consequences

In Wan, nominalization optionally retains the oblique grammatical functions associated with the verb. In the phrase structure, oblique grammatical functions are realized as postpositional phrases in a position that is not licensed by any syntactic head: such PPs do not form a constituent with the element that selects for it. Due to this property of the syntax of Wan, the expression of an oblique grammatical function with nominalizations is automatically licensed by the phrase structure rules: no special hybrid construction is

required to realize an oblique argument of a nominalization in the same way as it is realized with a verb.

Unlike the infinitival noun of Italian, which must retain the object selection of the corresponding verb, nominalization in Wan retains the oblique functions of the verb only optionally. The corresponding arguments may be alternatively mapped onto possessor functions that are realized NP-internally in a possessive construction.

- (30) *ŋ̄* [ *mī̄* [ *kú* *é* *wā* *wia-ŋ* ]<sub>NP</sub> ]<sub>NP</sub> *éŋ* *m̄*  
 1sg person house DEF underside enter-NMLZ voice heard  
 ‘I heard someone enter the house’

The availability of two alternative options (retaining the oblique function vs. remapping the argument onto a possessor function) is a consequence of the language-specific properties of the particular nominalization rule. Although the sentence structure of Wan allows any noun to take a postpositional argument, only nominalizations make use of this option, despite the fact that semantically, the relation between non-derived nouns and their modifiers can be very similar to the relation between a nominalization and its oblique argument. For example, the noun ‘gift’ denotes an entity transferred from a giver to a recipient; yet the noun is not derived from a verb, and cannot be associated with a postpositional phrase. The recipient and the giver are expressed NP-internally as possessor NPs.

- (31) *Lēm̄* *bātēī̄*  
 L. gift  
 ‘gift to Leme’, ‘gift from Leme’, ‘gift of Leme’

The difference between non-derived nouns and nominalizations follows straightforwardly from restrictions on the lexical licensing of oblique functions, which are only selected by verbs. A noun can only select for an oblique grammatical function if it has retained the selectional properties of the verb from which it was derived, hence there is no way for a non-derived noun to be associated with a PP.

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 verbal and nominal pieces of structure, and no lexical item projecting a

mixture of verbal and nominal categories, 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 accounts for this pattern: category mixing is allowed at the level of grammatical functions selected by the nominalization, but has no correlate at the level of syntactic structure and does not require any special configuration.

#### **4. Conclusion**

Lexical-Functional Grammar is one of the syntactic frameworks that make an explicit distinction between two levels of argument realization. On the one hand, selectional properties of lexical items are encoded as a set of abstract grammatical functions (lexical licensing); on the other, the abstract grammatical functions are realized in syntactic configurations according to the phrase structure rules of the language (syntactic licensing). I have discussed two instances of category mixing that are accounted for in a straightforward way within this kind of multi-dimensional framework. I have argued that, in both cases, category mixing occurs at the level of selectional properties only. Individual nominalization rules may require the derived noun to retain certain grammatical functions of the corresponding verb, which the language will seek to express with a nominal head, within the set of syntactic configurations available, which may sometimes turn out to be impossible. Theories of syntax that do not provide a way of treating grammatical functions selected independently of their syntactic realization fail to account for such instances.

In the two cases, this mixing has very different consequences for the syntax of nominalization. In the case of Italian infinitival nouns, the syntax of the noun phrase provides no way of expressing an object grammatical function other than in a special mixed category construction with an embedded VP. This results in additional restrictions on expressing the object participant with infinitival nouns. In the case of Wan, the syntax of the language is so flexible with respect to the licensing of PP arguments that the expression of postpositional arguments is automatically licensed with nominalized verbs.

As a result, no specialized mixed category construction is needed to express oblique functions retained by nominalizations.

In spite of the obvious differences between the two examples of category mixing, they are accounted for in the same way within a theory of category mixing that distinguishes between grammatical function selection and surface realization. This analysis is not limited to instances of category mixing instantiated overtly by constructions with mixed syntax but has the potential of accounting for gaps in the realization of arguments, as in the case of Italian, where the puzzle to be explained consisted in the *absence* of an expected construction rather than in the presence of a syntactic hybrid. Due to these properties, the analysis presented in this paper is suitable for exploring the typology of category mixing understood as a consequence of the interaction between the language-specific phrase structure rules and the properties of derivational rules.

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