THE DYNAMIC IMPLEMENTATION OF NON-OVERT ARGUMENTS IN NOMINALIZATIONS

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- ABSTRACT: Valency is an inherent property of nominalizations representing higher-order entities, and as such it should be included in their underlying representation. On the basis of this assumption, I postulate that cases of non-overt arguments, which are very common in Brazilian Portuguese and in many other languages of the world, should be considered a special type of valency realization. This paper aims to give empirical support to this postulate by showing that non-overt arguments are both semantically and pragmatically motivated. The semantic and pragmatic motivations for non-overt arguments may be accounted for by the dynamic implementation of the FDG model. I argue that the way valency is realized by means of non-overt arguments suggests a strong parallelism between nominalizations and other types of non-finite embedded constructions – like infinitival and participial ones. By providing empirical evidence for this parallelism I arrive at the conclusion that there are at least three kinds of non-finite embedded constructions, rather than only two, as suggested by Dik (1997).

- KEYWORDS: Nominalization; embedded constructions; valency; overt argument; non-overt argument.

1 Introduction

Dik (1985) provides some universal principles concerning the formation and expression of derived constructions in natural languages, showing how they work with respect to three constructions types, derived intransitives, causative constructions and nominalizations. The former two cases involve valency reduction and valency extension respectively, and the latter is derived from a verbal predicate and, in spite of consisting of an embedded version of the same predication, the embedded verbal predicate is adjusted to the expression pattern of a nominal term (DIK, 1985, p. 21).

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Considering that predicate formation rules take a predicate frame as input and deliver a derived predicate frame as output, Dik (1997) argues that any property of the input predicate can be modifiable through predicate formation. Since a predicate frame codes such types of information as the predicate form, the predicate type, the quantitative and qualitative valency, these properties, which are coded in the predicate frame, provide a natural basis for distinguishing different types of predicate formation processes (DIK, 1997, p. 5-6).

Predicate formation rules have the important function of extending the set of basic properties/relations that can be designated in the language, and given that clause structures are built up around predicate frames, the rules and strategies for construing clause structures can make use of the full set of predicates (basic and derived) available in the language. For this reason Dik (1997, p. 2) says that both basic and derived predicates, together with basic and derived terms, are contained in the so-called 'Fund' of the language.

Since action-nominalizations may fill the slot of an embedded construction, it is convenient to see the treatment Dik gives to nominalizations in a taxonomy of embedded constructions.

Dik (1997) takes much effort to provide the semantic and formal parameters which combine in different ways to produce a great variety of types of embedded constructions. Nevertheless, since recurrent patterns can be discerned in this variety, it is possible to construe a taxonomy of embedded constructions with general cross-linguistic validity, which may be seen in Figure 1.
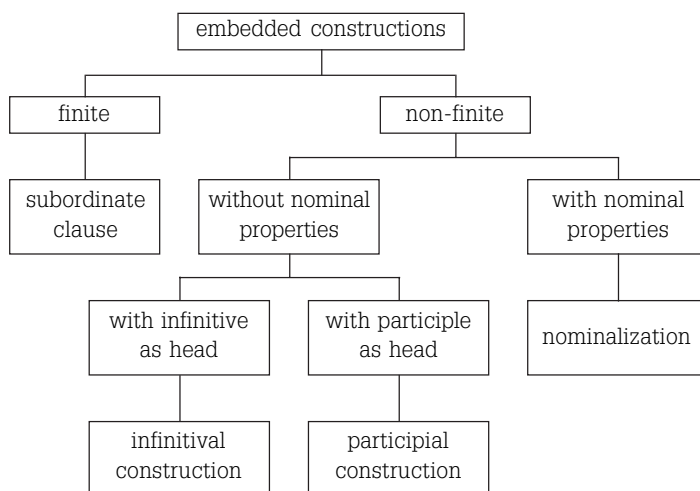

Figure 1 – Types of embedded constructions (cf. DIK, 1997, p. 142)

As can be seen in Fig. 1, according to Dik (1997), embedded constructions may be finite and non-finite. While finite embedded constructions are realized as subordinate clauses, non-finite ones may or may not have properties in common with primary, nominal terms. If they do, they are realized as nominalizations.[2] If not, they may have either an infinitive or a participle as their Head. Consider (1a) and (1b):

(1) a. *Maria*   *lament-ou*
     Maria   regret-IND.PRF.3.SG

     que   *João*   *tenh-a*   *demiti-do*   *Pedro*
     that   João   have-SBJV.PRF.3.SG   dismiss-PST.PTCP   Pedro
     'Maria regretted that João had dismissed Pedro'

   b. *Maria*   *lament-ou*
     Maria   regret-IND.PRF.3.SG

     a   *demi-ssão*   **_de_**   **_Pedro_**   *por*   *João*.
     the   dismiss-NMLZ   of   Pedro   by   João
     'Maria regretted Pedro's dismissal by João.'

In each case, the underlined constituent in the embedded construction specifies the same state-of-affairs. The construction in (1a) is a finite subordinate clause where João is an Agent in the subject position and Pedro is a Patient in the object position. In the case of productive nominalizations in Brazilian Portuguese, like (1b), the predicate itself acquires certain nominal properties; in fact, we see that in (1b) the Patient constituent appears as a possessor phrase, which is specially suited for expressing a semantic relation of possession within a nominal term. Because of that, nominalizations adopt possessor phrases for expressing certain semantic functions which typically make part of the argument structure of a verbal predicate. The fact that *Pedro* appears in (1b) as a possessor phrase is interpreted by Dik as a nominal property, and the nominal phrase *a demissão de Pedro* 'the dismissal of Pedro' is described as a nominalization (DIK, 1997, p. 157-8).

According to Dik (1997), besides nonfinitess, the main feature infinitives and participles constructions have in common with nominalizations is the possibility of being the Head of an embedded construction. But there is another relevant feature, which is shared by all types of non-finite embedded constructions: they may be realized as closed or open predications,[3] as the

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[2] Since I am concerned with overt and non-overt valency it is quite clear that the kind of nominalization I am dealing with here is the one that represents such entities of a higher level, as second-order entities or states-of-affairs, as for instance *writing*. Therefore cases of first argument nominalizations (actor-nominalizations) like *writer* are excluded.

[3] Infinitival and participial constructions may express closed or open embedded constructions. According to Dik, "those embedded constructions in which all argument positions are represented by overtly specified terms are closed, and those in which at least one argument position is not overtly expressed are open" (DIK, 1997, p. 147).

argument structure they are provided with is overtly or non-overtly specified. Although this feature is assigned by Dik to infinitival and participial constructions, I argue that it must include nominalizations too.

Brazilian Portuguese provides a good illustration of the main theoretical assumption that nominalizations have as much potential valency as do other types of embedded constructions, like infinitives and participles. However, differing from the way Dik treats other types of embedded constructions, he makes no reference at all to the open or closed nature of nominalizations working as the head of a predication, which happens to be a relevant property to account for their valency.

This paper deals with overt and non-overt expression of arguments considering a sample of productive nominalizations that represent higher order entities in spoken Brazilian Portuguese. The sample consists of 181 occurrences of nominalizations collected by Santana (2005), taken from three kinds of survey from the Standard Urban Norm Project (NURC/Brazil Project): Formal Elocutions (EF-377: CASTILHO; PRETI, 1986); Dialogues between Informant and Interviewer (DID-237: CASTILHO; PRETI, 1987); and Dialogues between two Informants (D2-360: PRETI; URBANO, 1988). Since the first of these consists of a recorded lesson in classroom, the degree of interaction between the participants is very limited as compared to the other two, which consist of typical conversations. The interviewees are all graduates.

Relying on the FDG framework, which is the way FG was projected into a new architecture by Hengeveld (2004), the main purpose is to give empirical support to the following points: (1) nominalizations are provided with valency (2) when non-overt, valency is both semantically and pragmatically motivated; (3) there is a parallelism among the three types of non-finite embedded constructions postulated by Dik (1997) concerning the way valency is realized by means of a non-overt argument; (4) the multilevel organization of the FDG model and its process of dynamic implementation (HENGEVELD, 2005) may account for the different types of non-overt arguments.

This paper is organized as follows: in section 2 I give a brief description of the way nominalizations are dealt with in the FG framework. In section 3 I compare cases of overt and non-overt arguments to show that the potential argument structure is always realized in nominalizations referring to second-order entities or states-of-affairs. In Section 4 relevant similarities between nominalizations and other types of non-finite embedded constructions are displayed. In section 5 I show that, since the non-overt specified valency is triggered by semantic and pragmatic motivations, this situation can be dealt with very well at the Interpersonal and Representation levels provided by FDG (HENGEVELD; MACKENZIE, 2006). In this section, I also argue that the principles

involved in the dynamic implementation of FDG can be applied very well to non-overt arguments in nominalizations. In the light of these results, I conclude with a new proposal for the taxonomy of embedded constructions postulated by Dik (1997).

2 Nominalization in the FG framework

According to Dik (1997) the fact that Pedro appears as a genitive in (1b) means that *a demissão de Pedro* 'Pedro's dismissal' should be interpreted as a nominal property and Pedro's dismissal should be described as a nominalization. Therefore nominalizations are embedded constructions which to some degree have adjusted to the typical pattern of primary, nominal terms, according to the Principle of Formal Adjustment (PFA):

(2) PRINCIPLE OF FORMAL ADJUSTMENT (PFA):

Derived, secondary constructions of type X are under pressure to adjust their formal expression to the prototypical expression mode of non-derived, primary constructions of type X. (DIK, 1997, p. 158).

The prototypical model of expression of a primary type of term, which refers to some first-order entity, may contain such constituents as determiners, quantifiers, possessors, adjectives and, by definition, a noun as its Head. On the other hand, embedding constructions are a secondary type of term used to refer to second-, third- or fourth-order entities, and their typical ingredients are operators, Predicates, Arguments and Satellites. Dik considers that nominalizations are due to a tendency, consonant to the PFA, to press embedded constructions into the expression format of primary, nominal terms. We can see the types of formal adjustment in Fig 2 below.
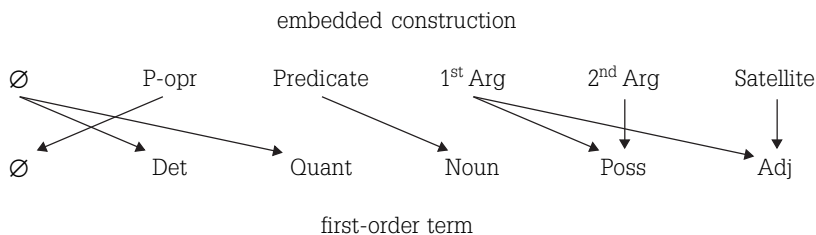

Figure 2 – Formal adjustments (DIK, 1997, p. 158)

Since nominalizations are embedded constructions, they can work as terms in a predication of a higher level. Dik's assumption is that the underlying structure of the nominalization should represent the quantitative and qualitative valency of the input verbal predicate. This view is not unanimous in FG framework. Mackenzie (1985; 1996) argues that productive nominalizations are provided with no valency at all.[4] However, from Dik's perspective it is possible to postulate that the underlying structure of nominalizations, which is by definition abstract in nature, represents the same potential valency as the input verbal predicate. Dik's PFA says that an embedded nominalization has the same function as a typical NP and as a result of this it may adopt formal characteristics of such an NP. Although PFA is functionally motivated, Dik's view has little to tell us about the semantic and pragmatic motivations, which could block the overt specification of all arguments in nominalizations, an issue which will be dealt with in the next section.

3 Non-overt valency in nominalizations: semantic and pragmatic motivations

Brazilian Portuguese has a strong diachronic tendency to the progressive deletion of pronominal reference to NPs previously mentioned in the context. This tendency explains why it is possible to answer such a question as (3a) with the two alternative sentences contained in (3b) and (3c).

(3) a. *Você   am-a   Maria?*
        You   love-IND.PRS.3.SG   Maria?
        'Do you love Maria?'

     b. *Não. Não   a   am-o.*
        No,   not   her   love-IND.PRS.1.SG
        'No. I do not love her.'

     c. *Não. Não   am-o   Ø.*
        No   not   love-IND.PRS.1.SG   Ø
        'No. I do not love (her).'

Due to this tendency it is quite natural for a Brazilian speaker not to fill every argument position if the entity referred to is contextually recoverable. Consequently, the potential arguments cannot be searched around the internal structure of the head by itself but in another place of the discourse context. Therefore, if we consider as overt arguments only those ones around the internal structure of the head nominal predicate, the frequency of overt first argument is reduced in my sources to only 16% (30/181) and of second argument is reduced

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[4] For a more detailed discussion of this issue, see Camacho (2007).

to only 34,0% (41/122). In consonance with the tendency mentioned above, there is a high preference for non-overt valency.

When valency is overtly expressed, the use of a possessor phrase introduced by *de* 'of' is the preferred form to express overt arguments, as attested by the following numbers: the frequency of first arguments as a possessor form is 73.3% (22/30), and the frequency of second arguments is almost the same, that is 73.1% (30/41). The nominalizations included in (4) and (5) are instances of first and second arguments, respectively, expressed as *of*-phrases.

(4) *isso*   *signific-a*   *um*   <u>*aument-o*</u>   ***de***   ***vencimento-s***. (D2-SP-360)
     This   mean-IND.PRS.3.SG   a.M   raise-NMLZ   of'   salary-PL
     'this means a <u>raise</u> **in salary**'

(5) *a*   *responsabilidade*   *n-a*   <u>*manut-enção*</u>   *d-a*   ***casa***...
     the.F   responsibility   in-the.F   maintain-NMLZ   of-the.F   home
     vem   *como*   *complemento*   *né?*   (D2-SP-360)
     comes.in-IND.PRS.3.SG   as   complement   doesn't it?
     'the responsibility in the <u>maintenance</u> **of the home**... comes in as a complement, doesn't it?'

Given that individual participants are expressed by verb arguments, the world's languages display a wide variety in the coding of participants of dependent states-of-affairs. One way of coding participant of dependent states-of-affairs, including nominalizations, is that arguments corresponding to participants shared by the main and the dependent state-of-affairs may be not expressed. According to Cristofaro (2003, p.75-81) this is usually the case when main and dependent states-of-affairs share a participant corresponding to the missing argument, or when the information pertaining to the missing argument is easily recovered or irrelevant in the discourse context. This second alternative very commonly applies to Brazilian Portuguese, as discussed earlier in relation to independent clauses.

In the functionalist literature, that kind of motivations is called economy principle (GIVÓN, 1980, 1990; HAIMAN, 1983; CRISTOFARO, 2003). If both the dependent and the main predications share the same participants, references to these participants may be omitted in the dependent construction.

When the participants of the dependent predicate are predetermined by the semantics of the matrix clause, the speaker may refrain from referring to them, since the correspondent semantic information is provided by the subordination link between the two predications. However, when the participants are not predetermined and there is non-overt reference to them, there is no structural means at all of recovering the missing information; therefore,

the Addressee's last resort is to check his/her short-term information in search for given entities. In this situation, though overt expression of the same argument is morphosyntactically allowed, it may remain unexpressed because it consists of pragmatic information that is shared by the speech act participants. Therefore, the non-expression of an argument does not involve loss of information. This is a typical example of the Principle of Information Recoverability at work (CRISTOFARO, 2003, p.250-251).

Let us proceed with the presentation of the empirical evidence from Brazilian Portuguese. Firstly I will examine only the manifestation of first arguments, and secondly the manifestation of second arguments.

If we take into account the assumption that the potential valency may be expressed outside the scope of the dependent construction, we may consider as arguments non-overt terms expressed mainly by different types of zero anaphora. The first type of zero anaphora represents a first argument which consists of a participant semantically shared with the main predicate, as shown in (6a).

(6) a. *ajud-ar   um   pessoa   que   t-em*
       help-INF   a.M   people   who   have.AUX-IND.PRS.3.SG

       me   ped-ido   para   Ø   faz-er::   program-ação (Ø)
       me   ask-PST.PTCP   to   make-INF   programm-NMLZ

       de   suco-s   d-o   Lanjal (DID-SP-234)
       of   juice-PL   of-the.M   Lanjal

       'to help some people who have asked me to make:: <u>programming</u> of Lanjal juices'

Since the nominalization *programação* 'programming' is part of a purposive adverbial clause, the same participant represented by *me* 'me' in the main clause is shared with the subject/agent of *fazer programação* 'make programming' in the dependent clause. It should be noted that the same nominalization with the first argument overtly specified, as can be seen in (6b), would not be a well-formed construction in Portuguese for reason of redundancy, a matter concerned with the way Representational Level is conceived in FDG..

(6) b. **ajudar um pessoal que que que tem me pedido para fazer:: <u>programação</u> de sucos do Lanjal* **(por mim)**

       'to help some people who have asked me to make:: <u>programming</u> of Lanjal juices **by me**'

The second type of zero anaphora represents a first argument recovering some given entity that have just appeared in the precedent text, but not exactly in the matrix predication, as illustrated in (7a).

(7) a. *num-a vida   dess-e   tipo... a   <u>preocup-ação</u>   principal (Ø)*
         in.a-F life   of.this-M   kind   the.F concern-NMLZ   main

         est-á   centra-d-a
         be.DUR-IND.PRS.3.SG   focus-PST.PTCP-F

         in.the.F   survive-NMLZ
         n-a   sobreviv-ência (EF-SP-405)
         'in this kind of life... the main concern is focused on surviving'

The subject of the text, wherefrom the fragment above was taken out, is prehistoric man's art. For this reason, many references to the prehistoric man are made throughout the text. Thus, the information pertaining to the missing argument (symbolized by Ø) is easily recovered in the discourse context, consisting of short-term information. Now, note that the same nominalization in (7b) with an overt first argument would keep on being a well-formed construction, meaning that either expressing or not expressing the missing argument represents a real choice of the Speaker, a matter concerned with the way the Interpersonal Level is conceived in FDG.

(7) b. *numa vida desse tipo... a <u>preocupação</u> principal **do homem** está centrada na sobrevivência...* (EF-SP-405)
         'in this kind of life... the main <u>concern</u> **of man** is focused on surviving'

The third type of zero expression of argument is not anaphorical but cataphorical. There is a reduced number of cases where non-overt first arguments may be recovered not in the preceding text, but in the following text by means of a relative clause playing the role of a modifier of the nominal head, as illustrated by (8a)

(8) a. *é   MUIto difícil (...) a   gente   separ-ar*
         be.IND.PRS.3SG   VERY   difficult   the.F people.1.PL separate-INF

         a   <u>percep-ção</u>...   d-o   conceito   <u>que</u>   <u>nós</u>
         the.F perceive-NMLZ   of-the.M   concept   that   we

         <u>*faz-emos*</u>   <u>*d-o*</u>   <u>*objeto*</u>. (EF-SP-405:56)
         make-IND.PRS.1.PL   of-the.M   object
         'it is very difficult for us to separate the <u>perception</u>... of the concept <u>that we make of the object</u>'

The potential first argument of *percepção* 'perception', which is missing in the internal structure of the embedded nominalization, would have to be expressed by the oblique marking complement *por nós* 'by us', but it is not, because it ended up being mentioned in the following relative clause modifying the Head noun represented by the nominalization, where it appears as *nós* 'we', i.e., the nominative subject of *fazemos* 'make'. Here again the insertion of a term in the first argument position makes the construction not well-formed, as it may be seen in (8b). Since we have here a missing argument which is not allowed because of redundancy, this type of zero is also semantically motivated.

(8) b. * *separar a <u>percepção</u> do objeto **por nós** do conceito que **nós** fazemos do objeto*
    'to separate the <u>perception</u> **by us** of the concept that **we** make on the object'

In short, the evidence here discussed points to two types of zero, no matter whether they are either anaphorical or cataphorical: when missing participants in the dependent construction are semantically determined by argument sharing relation with the matrix predicate, their expression by zero is obligatory; on the other hand, when missing participants are textually recoverable, the expression by zero is optional, being either overt or non-overt for reason of short-term information between speech act participants.

Now, taking into account some quantitative evidence, if we add to these three kinds of missing arguments represented by anaphorical and cataphorical zeroes just discussed those ones that are overtly expressed, they make up 68.0% (125/181) of first arguments formally specified. The remaining 32.0% (56/181) of first arguments consist of non-referential noun predicates (30 cases) and semantically undetermined subject arguments (26 cases). Let's see before a case of semantically undetermined subject, as illustrated in (9).

The promotion the speaker refers to in (9) must be carried through by the Ministry of Justice which determines the career of the state attorney, but she does not, at that point in the discourse, deem relevant to mention the agent:

(9) | *dentro* | *d-o* | *aument-o* | *de* | *vencimento-s* | *hav-eria...* |
     |---|---|---|---|---|---|
     | inside | of-M | raise-NMLZ | of | salary-PL | there.be-IND.FUT.IRR.3.SG |
     | *um-a* | <u>*promo-ção*</u> | ***de*** | ***tod-o o*** | ***pessoal*** (D2-SP-360) | |
     | a-F | promote-NMLZ | of | all-M the.M | staff | |

    'together with the raise of salary there would be... a <u>promotion</u> **of all the staff**'

This situation of subject semantic indetermination is similar to that of passive voice constructions like (10a) or other predications containing an undetermined subject, like (10b), where the lack of a subject NP shows that the respective

state-of-affairs may be applied to any arbitrary person and the non-overt subject has a generic reading.

(10) a.

o	*pessoal*	*foi*	*promov-id-o*
the.M	staff	be.IND.PRF.3.SG	promote-PST.PTCP-M

promov-eu	*se*	*o*	*pessoal*
promote-IND.PRF.3.SG	REFL	the.M	staff

'the staff has been promoted'

b.

promov-eram	*o*	*pessoal*
promote-IND.PRF.3.PL	the.M	staff

'one has promoted the staff'

The deverbal construction in (11), on the other hand, contains an instance of a non-referential nominalization, functioning as the complement of a noun, as it may be seen in *falta de divulgação* 'lack of divulgation' where *divulgação* "divulgation" exerts the function of complement of the noun *falta* 'lack'.

(11)

o	*teatro*	*é*	*menos*	*acei-t-o*
the.M	theater	be.IND.PRS.3.SG	less	accept-PST.PTCP-M

pel-o	*público*	*por*	*falta*	*de*	<u>*divulg-ação*</u>	(DID-SP-234)
by-the.M	public	for	lack	of	divulge-NMLZ	

'the theater is less accepted by the public because of lack of <u>divulgation</u>'

This usage means that the noun assigns a property without referring, thus providing only a lexical description for a state-of-affairs. The noun gets close to the status of a zero-order entity, the less prototypical referential category: while referring to a zero-order expression, this kind of nominalization cannot refer to real entities, but only to the property it denotes (cf. KEIZER, 2004).

Let us proceed now by examining the empirical evidence for second arguments. If we apply the same quantitative procedures to second arguments of the predicate underlying the nominalization, as we applied to first arguments, the results are surprisingly comparable: adding up the overtly expressed cases (n=41), the cases of non-expressed arguments for reason of semantic sharing (n=6), the cases of arguments pragmatically resumed by zero anaphora (n=26), and the cases of arguments expressed in the following context (n=4), we reach a total amount of 68.0% (77/122) of expressed arguments, compared to 18.0% (22/122) of undetermined referents and 14.0% (n=17) of non-referential nominal heads.

Example (11), here repeated as (12) for convenience, contains an instance of a second argument, *teatro* 'theater', which is semantically shared with the main predicate. The overt expression of the second argument, which is not allowed for semantic reason of redundancy, would make it a not well-formed construction.

(12) **o teatro é menos aceito pelo público por falta de divulgação **do teatro***
  'the theater is less accepted by the public because of lack of divulgation **of the theatre**'

Example (13a) contains an instance of a nominal predication whose second argument slot recovers some given entity that has just appeared in the precedent text not exactly in the main predication as a kind of short-term information available for the speech act participants.

(13) a.

ele	*perceb-eu*		*que*	*er-a*		*capaz*	*de*
he	realize-IND.PRF.3.SG		that	be-IND.IPFV.3.SG		able	of

CRI-AR::...	*e*	*cri-ar*	*um-a*	*imagem*
create-INF	and	create-INF	an-F	image

(...) então::	*ele*	*v-ai*		*tent-ar*	*us-ar*
(...) then	he	go.AUX-IND.PRS.3.SG		try-INF	use-INF

est-a	**cri-ação**...	*que*	*ele*	*é*		*capaz*	*de*
this-F	create-NMLZ	that	he	be.IND.PRS.3.SG		able	of

faz-er...	*para*	*garant-ir*	*a*	*caça*	(EF-SP-405)
do-INF	in order to	guarantee-INF	the.F	prey	

'he realized that he was capable TO CREATE... and to <u>create an image</u> (...) then... he's going to try using this **creation**...he is able to do... to guarantee the prey'

Note that *criar uma imagem* 'to create an image' is recovered by a nominalization represented by *criação* 'creation' in the following sentence, where there is a missing argument. Nevertheless, the insertion of an overt expression of this missing argument does not make it an ungrammatical construction, as illustrated in (13b), because Portuguese grammar would allow the repetition of [*da*] *imagem* '[of the] image' as the second argument of *criação* 'creation'. As it may be seen, this kind of zero anaphora is due to a pragmatic motivation.

(13) b. *ele percebeu que era capaz de CRIAR::... e <u>criar uma imagem</u>...(...) então:: ele vai tentar usar esta <u>criação</u> **da imagem**... que ele é capaz de fazer... para garantir a caça....*

  'he realized that he was capable TO CREATE::.... e to <u>create an image</u>... (...) then:: he's going to try to use that <u>creation</u> **of the image**... he is able to do...to guarantee the prey...'

Consider now example (14a). It contains an instance of nominalization where a non-overt argument may be recovered in the following text by means of a relative clause which is marked in bold.

(14) a.

é	*inCRÍvel*	*o que*	*aparec-e*	*lá*
be.IND.PRS.3.SG	inCREDible	what	happen-IND.PRS.3.SG	there

o-s	<u>*cort-e-s*</u>	**que**	**eles**	**d-āo**	**n-a-s**
the.M-PL	cut-NMLZ-PL	that	they	make-IND.PRS.3.PL	in-the.F-PL

cena-s   (DID-DP-234)
scene-PL

'it is inCRedible what happens there the <u>cuts</u> **they make in the scenes**'

Here again the insertion of a term in the second argument slot makes the construction not well-formed, as illustrated by (14b), where the reference to the arguments of *cortes* 'cuts' is realized inside the relative clause that follows this nominalization.

(14) b. * *é inCRÍvel o que aparece lá os <u>cortes</u> <u>das cenas</u> **que eles dāo nas cenas** é::*

'it is inCREdible what happens there the <u>cut</u> of the scenes **that they make in the scenes**'

The inappropriateness of an overt second argument can be explained in terms of the Principle of Information Recoverability by Cristofaro (2003), which can be understood as the tendency to reduce the length or complexity of an utterance so that redundant information may be omitted.

Consider once again the example in (13a) in comparison with the example in (14b) just mentioned above. The arguments of *criação* 'creation' in (13a), which are given zero anaphora expression in the nominalization, are easily recoverable from the preceding text. The potential first argument is *ele* 'he', i.e, *o homem pré-histórico* 'the prehistoric man', and the second argument is *imagem* "image". Unlike (13a), the arguments in (14a) could be overtly expressed, but the application of the above-mentioned principle leads to non-overt arguments in the term headed by the nominalization *criação* 'creation'.

Now let us take in account (15a):

(15) a.

na medida... em que	*acab-ava*	*a*	*caça*	*d-o*
as	end-IND.IPFV.3.SG	the.F	prey	of.the-M

lugar OU (que)	*em virtude*	*d-a*	*época*	*d-o*	*ano*
place OR (that)	by virtue	of-the.F	season	of-the.M	year

n-o	*inverno*	*por exemplo...*	*imigr-avam*		*para*
in-the.M	winter	for example	migrate-IND.IPFV.3.PL		to

lugar-es	*mais*	*quente-s*	*eles*	*também*	*precis-avam*
place-PL	more	warm-PL	they	also	need-IND. IPFV.3.PL

acompanh-ar...	*a*	**migr-ação**	*d-a*	*caça* (EF-SP-405:49)
follow-INF	the.F	migrate-NMLZ	of-the.F	prey

'as the prey of the place ended OR (that) by virtue of the season… in the winter for instance… they used to migrate to warmer places, they also needed to follow the… **migration** of the prey'

The first argument of the nominalization migração 'migration' the noun *caça* (literally 'prey' meaning 'animals to be hunted') does not represent secondary or background information, but rather by displaying a contrast with the parallel expressions given in (15b-c), the presence of the repeated adpositional phrase *da caça* 'of the prey' becomes absolutely necessary to the thematic continuity.

(15) b. *migr-ação*   *d-o*   *homem*
migrate-NMLZ   of-the.M   man
'man's migration'

c. *migr-ação*   *d-a*   *caça*
migrate-NMLZ   of-the.F   prey
'prey's migration'

Furthermore, although there is a first mention to *a caça do lugar* 'the prey of the place' consisting of pragmatically new information, when it is mentioned again, it is a given information and so it should be expressed as a zero anaphora, but in fact it is represented by the full NP *a caça do lugar* 'prey of the place' in order to avoid confusion between both types of migration, man's migration and prey's migration, even though the first state-of-affair is not represented by a nominalization in (15a), but by the verbal predicate *imigravam* 'migrate'. Therefore, the overt expression of this argument is prompted by pragmatic and semantic motivations.

It is exactly the pragmatic role of nominalization in creating discourse continuity that determines the formal expression of the arguments. If the pragmatic function of the potential arguments of the predicate underlying nominalization is the introduction of a new referent, nominalization should allow an overt NP corresponding to this argument; if, on the other hand, there is a discourse function of preserving text cohesion by recovering a preceding complete predication, the potential arguments are not overtly expressed.

The data just analyzed show that the open nature of nominalizations depends on a set of semantic and pragmatic factors, a kind of motivations earlier called economy principle (GIVÓN, 1980, 1990; HAIMAN, 1983; CRISTOFARO, 2003).

As it was assumed earlier, if both the dependent and the main predications share the same participants, references to these participants may be omitted in the dependent construction.

The missing participants are due to two kinds of motivations: in case of semantic predetermination, the speaker may refrain from referring to an argument of the embedded nominalization because the correspondent semantic information is provided by the subordination link between the two predications. However, when there is no structural means at all of recovering the missing information, the Addressee's last resort is to check the Contextual Component in search for given entities. In this situation, though overt expression of the same argument is morphosyntactically allowed, it may remain unexpressed because it consists of pragmatic information that is shared by the speech act participants. Therefore, the non-expression of an argument does not involve loss of information.

These two kinds of motivations, the semantic and the pragmatic, are typical instances of the Principle of Information Recoverability at work (CRISTOFARO, 2003, p.250-251). This principle fits in well with the way FDG is organized. Thus, in FDG,

> each level of representation within the grammar feeds into the contextual component, enabling subsequent reference to various kinds of entity relevant at each level as soon as they are introduced in the discourse. The operation of formulation draws on this component so that that the availability of antecedents and visible referents may influence the composition of (subsequent) discourse acts (HENGEVELD; MACKENZIE, 2006, p.670-671).

In other words, there is interaction between the Representational and Interpersonal Levels and the context. Thus, the choice between overt and non-overt expression of the arguments of nominalizations depends on the Speaker's assumptions concerning both the link between main and dependent clause and the Addressee's short-term memory, as represented by the Contextual Component, as it will be treated in more details in section 5.

To sum up, the evidence discussed so far shows that there are two cases of zero anaphora representing missing arguments in the nominalization: one triggered by semantic motivations and the other by pragmatic motivations. Both kinds of zero anaphora are governed by the same pressure towards maximal simplification of expression, as stated by Haiman's economy principle or Cristofaro's Principle of Information Recoverability.

4 Similarities between nominalizations and other non-finite embedded constructions

I have so far given empirical support to the semantic and pragmatic motivations for non-overt arguments of nominalizations. Now I focus on the similarities between nominalizations and other non-finite embedded constructions with respect to the open or closed nature of predications. Recall that, according to Dik (1997), "those embedded construction in which all argument positions are represented by overtly specified terms are closed, and those in which at least one argument position is not overtly expressed are open" (DIK, 1997, p.147).

Both infinitival and participial embedded constructions are considered by Dik (1997) to have closed and open positions in their argument structure. Example (16) , a case of an inflected infinitive, is a good illustration of a closed infinitival construction in Portuguese, whereas (17) is a good example of a closed participial construction:

(16) *Pass-ei*   *sem*   *me*   *ve-r-em.*   (DIK, 1997, p 146)
Pass.by- IND.PRF.1.SG   without   me   see-INF-3.PL
'I passed by without them seeing me.'

(17) *Ele*   *chega-ndo*   *a*   *São Paulo,*   *fo-mos*   *a-o*   *hotel*
He   arrive-PTCP.PST   at   São Paulo,   go-IND.PRF-1.PL   to-the.M   hotel
'As soon as he arrived at São Paulo, we went to the hotel.'

Now consider (1) repeated here as (18) for convenience. This sentence is an instance of a closed construction headed by a nominalization. In this example, both arguments of the underlying predicate are overtly expressed; the subject/agent as a possessor and the object/patient as an oblique phrase introduced by *por* 'by':

(18) *Maria*   *lament-ou*   *a*   *demissão*   *de*   *Pedro*   *por*   *João*
Maria   regret-IND.PRF.3.SG   the   dismissal   of   Pedro   by   João
'Maria regretted Pedro's dismissal (by João)'

When an infinitival or participial construction expresses a proposition where the subject of the embedded construction and some argument of the matrix clause are identical and pragmatically unmarked, they are called open infinitival or participial construction, as shown in (19a-b). In (19a) the subject of the finite verb *quer* 'wants' in the matrix predicate – the stressed pronoun *ele* 'he' – is in coreference relation with the subject of the non-finite verb in the dependent

predicate establishing with it an anaphorical relationship, whereas in (19-b), we have a situation of cataphora where the subject of the participle in the dependent construction *chegando* 'arriving' is again in coreference with the subject of the main predicate in *fomos* 'we went'.

(19) a.

Ele	*quer*	ø	*trabalha-r*	*na*	*Universidade.*
he	want.IND.PRS.3.SG	ø	work-INF	in.the.F	University.

'He wants to work in the University'

b.

Øchega-ndo	*a*	*São Paulo,*	*fo-mos*	*a-o*	*hotel*
Øarrive.PTCP.PRS	at	São Paulo,	go.PRF-1.PL	to-the,M	hotel

'Arriving at São Paulo, we went to the hotel.'

In the open predications of (19a) and (19b), there is no overt constituent representing the embedded Subject, since the subject, a common case of zero in Portuguese, is left unexpressed under the condition of coreference with the higher Subject (DIK, 1997, p. 148). The same may be applied to nominalizations. Consider the example in (20), where the first argument of the nominalization *resistência* 'resistance' is non-overt by virtue of a coreference relation with the noun *caça* 'prey', which plays the function of subject of the main predicate:

(20)

a	*caça*	*que*	*é*		*o que*	*oferec-e...*
the.F	prey	that	be.IND.PRS.3.SG		what	offer-IND.PRS.3.SG

um-a	*resist-ência* (EF-SP-450)
a-F	resist-NMLZ

'the prey... that is the one that offers... some <u>resistance</u>'

According to Dik, open infinitival constructions are not restricted to those containing an anaphorical term. He mentions another usage of open infinitival constructions whose Subject has a generic rather than an anaphorical value. Let us take in account (21):

(21)

Ø	*É*		*perigoso*	*nada-*	*n-aquel-e*	*lago.*
It	be.IND.PRS.3.SG		dangerous	swim-INF	in-that-M	lake.

'It is dangerous to swim in that lake.'

Since there is no antecedent which the Subject of the embedded construction could be linked to, the non-overt Subject of that type of infinitival construction does not have anaphorical value; instead it expresses that the danger may be applied to any arbitrary person and the non-overt Subject has a generic reading. Again the same is applied to nominalizations, as it may be seen in (22), where

the missing first argument is just a grammatical device to mean that the agent is any arbitrary person:

(22) *É*　　　　　　　*comum*　　　*a*　　　*demissão*　　*de*　　*trabalhador-es*
　　 be.IND.PRS.3.SG　common　　the.F　dismissal　　of　　worker-M.PL
　　 n-o　　　*final*　　*d-o*　　*ano.*
　　 at-the.M　end　　of-the.M　year
　　 'The dismissal of workers is common at the end of year.'

In short, examining instances of the three types of embedded constructions postulated by Dik (1997) from Brazilian Portuguese, I observed that the property of either being closed or being open predication applied to infinitival and participial embedded constructions can be very well applied to nominalizations too. I interpreted some cases of nominalization as open predication because there is no overt constituent representing the embedded Subject. Thus nominalizations consist of embedded constructions whose Subject is left unexpressed either under the condition of coreference with the higher Subject or under the condition of generic reading, and this situation is exactly the same as that one applied to infinitival and participial constructions.

This formal behaviour nominalizations have in common with the other types of embedded constructions shows that the open nature of nominalizations cannot be associated with lack of valency at all. Otherwise the same property should be extended to the two other kinds of open verbal predicates I dealt with here. Next let us see how to interpret this open nature in terms of the FDG model.

5 The dynamic implementation of zero anaphora

The evidence of semantic integration, discussed in section 3, seems to show that the Representational Level plays an important role in the Formulation given that it is at the Representational Level that we can account for cases of zero anaphora motivated by semantic predetermination, a functional behavior directly linked to degree of integration between main and embedded predicates.

However, how can we explain cases of zero anaphora motivated by speaker's choice on the basis of referents presumably available in the Addressee's short-term memory? The best explanation for this kind of choices motivated by pragmatic information must be searched at the Interpersonal Level.

Recall that FDG is a multilevel model of grammar consisting of Interpersonal and Representational levels operating at the stage of formulation, and the Morphosyntactic and the Phonological levels operating at the stage of

codification (HENGEVELD; MACKENZIE, 2006). Given that FDG is a top-down model, its efficiency is directly proportional to the way it resembles language production. Thus, according to Hengeveld (2005), the idea of dynamic implementation calls for the Depth First Principle and the Maximal Depth Principle; both of them are meant to speed up the implementation of the grammar. The depth-first principle states that "information from a certain level is sent down to a lower level as soon as the necessary input information for that level is complete", while the principle of maximal depth states that "only those levels of representation that are relevant for the building-up of (a certain aspect of) and utterance are used in production of that (aspect of the) utterance" (HENGEVELD, 2005, p. 73).

Figure 3 represents the pathways through the grammar. According to Hengeveld, the horizontal arrows concern the consultation of the sets of primitives by the various operations. The dynamic implementation is represented by vertical arrows.
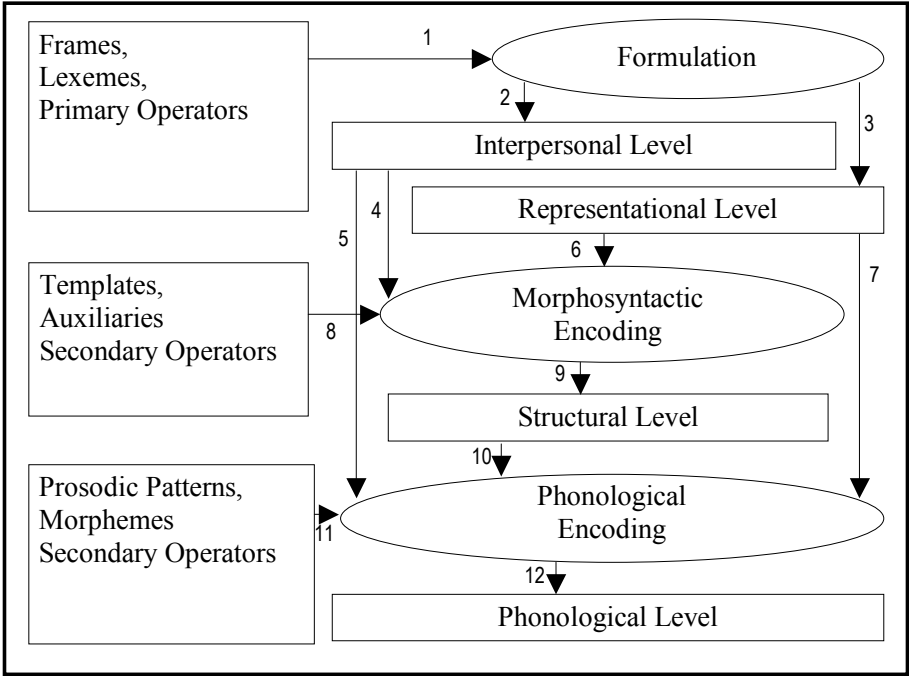

Figure 3 – Pathways through the grammar (HENGEVELD, 2005, p. 75)

Since FDG represents a modular view of the grammar, pragmatics, semantics, morphosyntax and phonology are developed at independent but interrelated levels. The dynamic implementation provides a path through which short-term information may be accessed, while the relevant complementation choices at the Representational Level are being performed.

There are two decisions to be made at the same time when construing a nominalization as an embedded construction. One decision has to do with the Representation Level without any interference of the Interpersonal Level in accordance with depth-first principle. If it is the semantic type of complement-taking predicate that triggers the relevant choice of a given dependent construction, like a nominalization, the Speaker must check out whether there is some sharing of participants to avoid stating redundant information.

The other decision has to do with the Interpersonal Level. The speaker consults the Contextual Component to check out which piece of information is already available to the Addressee in order to provide the Structural Level with the most suitable form. Although the former type of decision draws on the Representational Level, and the latter draws on the Interpersonal Level, the results may be exactly the same at the Structural level, i.e., at the Structural level both the semantic motivation due to sharing of participants and the pragmatic motivation due to availability of short-term information lead to the same expression by either zero anaphora or zero cataphora.

The Interpersonal Level, the Representational Level and the Structural Level must be dynamically integrated in such a way that referential information stored in memory, which is contained in the Contextual Component, is readily accessible even after the relevant complementation choices at the Representational Level have been carried out. This way of processing is already predicted by the FDG framework, where the Interpersonal and the Representational levels are conceived of as operating independently from each other, while the Contextual Component may be accessed at any time (HENGEVELD, 2004, p. 3).

Thus, after the semantic type of the complement-taking predicate has triggered the relevant choice of such a given dependent construction as a nominalization, the speaker needs to access the Contextual Component to check out which entities are available to the Addressee in order to provide the Structural Level with the correct expression form. All these decisions draw on information specified at the Interpersonal Level. Let us resort to some examples of nominalizations, given in (23) and (24), where the stressed pronoun *eles* 'they' refers to the prehistoric men, a piece of information mentioned several times throughout the text. Firstly consider (23):

(23) *eles*   *consegu-em*   *cheg-ar...*   *a*   *é*

       they   succeed.in-IND.PRS.3.PL   arrive-INF   to   be.IND.PRS.3..SG

       óbvio   *um-a*   <u>*evolu-ção*</u>   *[* **deles**]*   (EF-SP-405:57)

       obvious   an-F   evolve-NMLZ   [of theirs]

       'it is obvious that they succeed in arriving at... an <u>evolution</u> [* **of theirs**]'

After selecting the appropriate lexeme with its respective predicate frame at the Representational Level, zero anaphora is chosen for the expression of the argument in (23), representing *eles* 'they' just mentioned in the main predicate.

    Now consider (24):

(24) *eles*   *tinh-am*   *que*   *acompanh-ar*

       they   have-IND.IPFV.3.PL   that   follow-INF

       o   <u>*moviment-o*</u>   Ø   [=*d-o-s*   *anima-is*]   *também:* (EF-SP-405)

       the.M   move-NMLZ   Ø   [= of-the.M-PL   animal-PL]   too

       'they had to follow movement Ø [= of the animals] too'

In (24), on the other hand, zero anaphora expression is not semantically predetermined, but motivated for pragmatic reasons, i.e., the status of given information of the referential expression *animais* 'animals', which is repeated many times in the ongoing discourse. In this specific case, the Contextual Component needs to be consulted in a principled way with the cooperation of both speech act participants. In this case, it is the availability of the referent at the Interpersonal Level that finally triggers the expression of zero anaphora to (24) at the Structural Level.

    As the depth-first principle predicts, cases of semantically predetermined zero anaphora, as contained in (23) are motivated by the following path through the grammar: 1 → 3 → 6 → 8 → 9 → 10 (see Fig. 3); in this case the Interpersonal Level is circumvented. However, cases of pragmatically determined zero anaphora, such as those contained in (24), are motivated by the following path through the grammar:1 → 2 → 4 → 8 → 9 → 10 (see again Fig.3); now it is the Representational Level that is circumvented.

    Now let us take in account the example contained in (25):

(25) **a**   ***caça***   *que*   *é*   *o que*   *oferec-e...*

       the.F   prey   be.IND.PRS.3..SG   what   offer-IND.PRS.3.SG

       uma   <u>*resist-ência*</u>   [*da caça]   [aos homens pré-históricos] (EF-SP-450)

       a-F   resist-NMLZ   [*of the prey]   [to the prehistoric men]

       'the prey is the one that offers... some <u>resistance </u>[*of the prey] [to the prehistoric men]'

My claim is that, during Formulation, the two levels work simultaneously to produce (25). However, given that these levels work independently from each other, the paths through grammar are exactly the same as those followed to construe (23) and (24). In (25), on the other hand, they work simultaneously to produce both types of zero anaphora: the one referring to *caça* 'prey' as the first argument of *resistência* 'resistance' is motivated by semantic predetermination; the other, referring to *homens pré-históricos* 'prehistoric men' the second argument of *resistência* 'resistance', is pragmatically motivated.

6 Conclusion

By analyzing a sample of productive nominalizations in spoken Brazilian Portuguese, I gathered some empirical evidence to give support to the assumption that the lack of overt arguments does not mean nominalizations are devoid of valency. Rather, non-overtness makes clear that nominalizations are aligned with other types of non-finite embedded constructions concerning the open or close nature of the predicates and, therefore, concerning their potential valency, as good evidence that all kinds of predicate working as embedded constructions have a complete argument structure in their underlying representation.

As a consequence, I suggest changing the taxonomy of embedded constructions proposed by Dik (1997, p. 146), which was presented in Fig. 1, into a revised one, now presented in Figure 4, in order to include the nominalized construction into it as modality of embedded construction of the same type as the others, i.e., containing both open and closed slots in its argument structure.
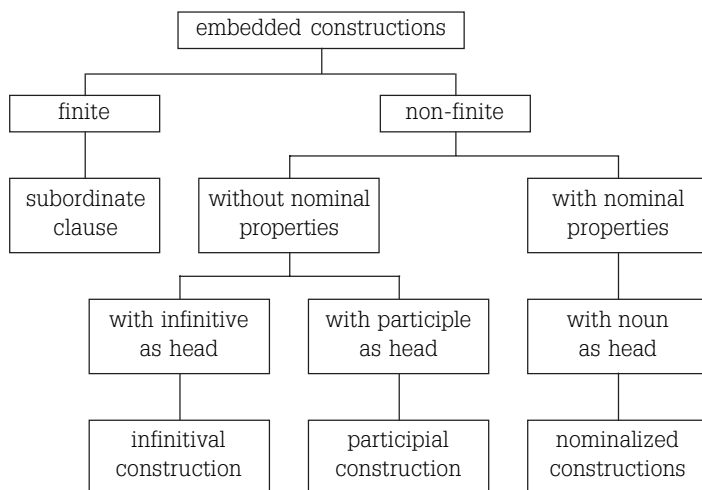

Figure 4 – Types of embedded constructions revised

Finally I also arrived at the conclusion that the dynamic implementation of FDG model accounts for the semantic and pragmatic motivation for non-overt arguments as a result of the interdependence relation among the levels or organization.

Acknowledgements

CAMACHO, R.G. A implementação dinâmica de argumentos não-manifestos em nominalizações. *Alfa*, São Paulo, v.51, n.2, p.213-237, 2007.

- RESUMO: Como a valência é uma propriedade inerente de nominalizações representando uma entidade de nível superior, como um estado de coisas, ela deveria ser incluída na representação subjacente delas. Com base nesse postulado, defendo o princípio de que os casos de argumentos não-manifestos, que são muito comuns tanto no Português Brasileiro como em muitas outras línguas, devem ser considerados um tipo especial de realização de valência. Este trabalho pretende dar suporte empírico a esse postulado, mostrando que argumentos não-manifestos são determinados tanto por motivações semânticas quanto por motivações pragmáticas. Esses dois tipos de motivações podem ser explicados pelo processo de implementação dinâmica do modelo de Gramática Discursivo-Funcional. Sustento a idéia de que o modo como a valência se realiza por meio de argumentos não-manifestos sugere um forte paralelismo entre nominalizações e outros tipos de construções encaixadas não-finitas – como as participais e as infinitivas. Com o apoio de evidência empírica para esse paralelismo, concluo que há pelo menos três tipos de construções encaixadas não-finitas em vez de somente duas, como originalmente sugerido por Dik (1997).

- PALAVRAS-CHAVE: Nominalização; construção encaixada; valência; argumento manifesto; argumento não-manifesto.

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Appendix: List of Abbreviations

1	first person	M	masculine
2	second person	NMIZ	nominalizer
3	third person	PL	plural
AUX	auxiliary	PRF	perfect
DUR	durative	PRS	present
F	feminine	PROG	progressive
FUT	future	PST	past
IND	indicative	PTCP	participle
INF	infinitive	REFL	reflexive
IPFV	imperfective	SBJV	subjunctive
IRR	irrealis	SG	singular