A SEMANTIC STUDY OF INDUCED MOTION PHRASAL VERBS WITHIN THE FRAMEWORK OF FUNCTIONAL GRAMMARS

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RESUMO

Este artigo é uma análise de sintagmas verbais de movimento na Role and Reference Grammar, e intenta mostrar a relação existente entre elementos espaciais e predicados verbais. O artigo aponta algumas inconsistências na teoria com respeito a suas representações semânticas e sintáticas. Além disso, esboça os princípios que subjazem a tal relação. Uma análise das partículas direcionais que compõem tais verbos tem-se provado reveladora em relação aos aspectos semânticos dos diferentes tipos de verbo de movimento investigados, mostrando assim a importância dos elementos espaciais na gramática, o que contrasta com o status marginal que a eles tem sido atribuído na teoria lingüística.

ABSTRACT

This article constitutes an analysis of induced phrasal verbs of motion in Role and Reference Grammar, in order to prove the interrelation that exists between spatial elements and verbal predicates. It highlights some inconsistencies that exist in the theory with respect to their semantic and syntactic representation. Besides, it outlines the principles that underlie such interrelation. An analysis of the directional particles that form such verbs has proved to be revealing with respect to the semantic features of the different types of verbs of motion investigated. Thus, this shows the importance of spatial elements in grammar, which contrasts with the marginal status they have usually been given in linguistic theory.

PALAVRAS-CHAVE

sintagmas verbais de movimento, representação semântica, representação sintática

KEY-WORDS

phrasal verbs of motion, semantic representation, syntactic representation

1. Introduction: some basic RRG concepts

In Role and Reference Grammar -henceforth RRG- (Jolly 1991, Van Valin 1993, Van Valin & LaPolla 1997) location is said to be expressed through two grammatical structures which are complementary: prepositional phrases –PPs- or adverbial particles. Syntactically, in the constituent projection PPs are labelled argument-adjuncts – AAJs-. This name means that they stand in the middle between arguments and adjuncts. On the one hand, argument PPs function as oblique core-arguments, which means that the preposition functions as a case marker of the prepositional complement –generally a nominal phrase- that is introduced, which works as an argument of the clause. Thus, such PPs are non-predicative. On the other side, adjunct PPs are predicative, since they stand in the periphery of the clause and they function as modifiers of the clause as a whole or of any of its arguments. In the middle of these two kinds of PPs there is another one, which is non-predicative, as the latter, but whose preposition is not a case marker –i.e., it contains meaning in itself- and is therefore predicative, as the former. For this, such kind of PP is called AAJ. An example of this latter type, which is the one that concerns us here, is presented below, where the clause in question is represented both semantically and syntactically:

Mary has put the book down the chair
[**do'** (Mary, Ø)] CAUSE [BECOME **be-down'**(chair, book)]
1. Semantic representation of the induced motion verb put *and its arguments*
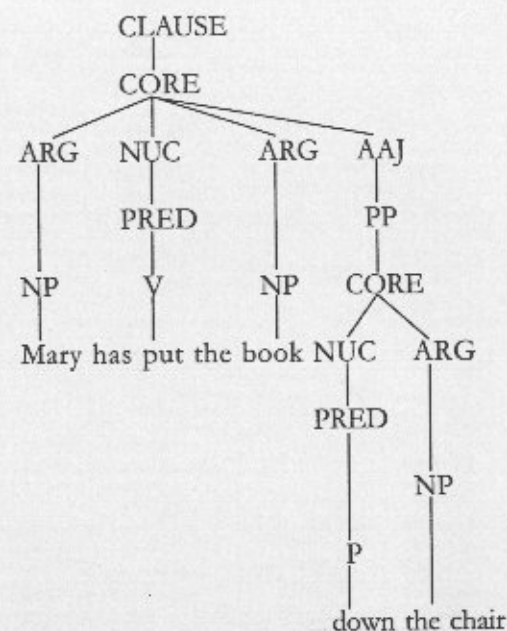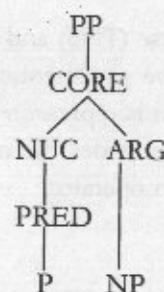

Figure I: Syntactic representation of the verb *put* and its arguments

Above, the PP *down the chair* is represented both semantically and syntactically, as I have just mentioned. According to the semantic representation of the clause in (1), *the chair* is a core argument of the verb, as *book* is. However, in the syntactic representation in figure I the PP *down the chair* is represented as an AAJ, and it is given the same representation and interpretation as adjuncts, which are represented in RRG as follows:

```
            PP
            |
           CORE
          /    \
       NUC      ARG
        |         \
      PRED         \
        |           \
        P           NP
Mary is studying maths in     the library
```

Figure II: Syntactic representation of adjuncts

In figure II the PP as a whole is analyzed as a predicate, independent from the verb. For that reason, it has its own nucleus with its arguments. At this point, it should be noted the fact that it is required a more specific and consistent system representation for AAJs, since they are neither arguments nor adjuncts, and they are given a different semantic representation and a different syntactic one, which makes it difficult for them to get a satisfactory linking algorithm at the syntax-semantics interface.

Finally, once dealt with locative PPs, in this introduction I find it necessary to deal with adverbs. It should be remarked that adverbs and operators are different concepts, though they may be confused, because they interact in many ways. Adverbs are considered to be modifying elements in RRG. They are not restricted to the periphery for that, but they can modify any layer of the clause. They are treated as one-place predicates which take a logical structure (hereafter LS) or subpart of an LS as their argument, following the approach of Jackendoff (1972) and others. Some kinds of adverbs are represented both in the operator and in the constituent projection (manner adverbs, f.i.) when they are core-internal. Though in RRG the difference is not left clear enough, I can say that adverbs are constituents of the clause which have also an operator projection, while operators never have a constituent projection. Thus, adverbs are like operators

in the sense that they modify different layers of the clause, but they have more freedom of occurrence in the clause. I dare state that adverbs are lexical items, while operators are not. Operators are just grammatical elements. To end up this question, an example of how adverbs and operators interact (from Van Valin & LaPolla 1997:166) is provided in figure III. The sentence in it contains an adverb, *happily*, which modifies the action presented by the verb. Due to this, it is both represented in the constituent projection, since it is a lexical item that belongs to the constituents of the clause, and in the operator projection, since it has a grammatical function of modifying the verb in its aspectuality. On the other hand, there are more elements represented in the operator projection: these are aspects related to the kind of action predicated by the verb. They are expressed synthetically, and thus they do not have a constituent projection. Operators are tied to the verb, and so they assume a fixed position in the clause, while adverbs can move more freely in the clause, and they can be related to the verb in a higher or lower degree. If they are, they have an operator projection, as below:
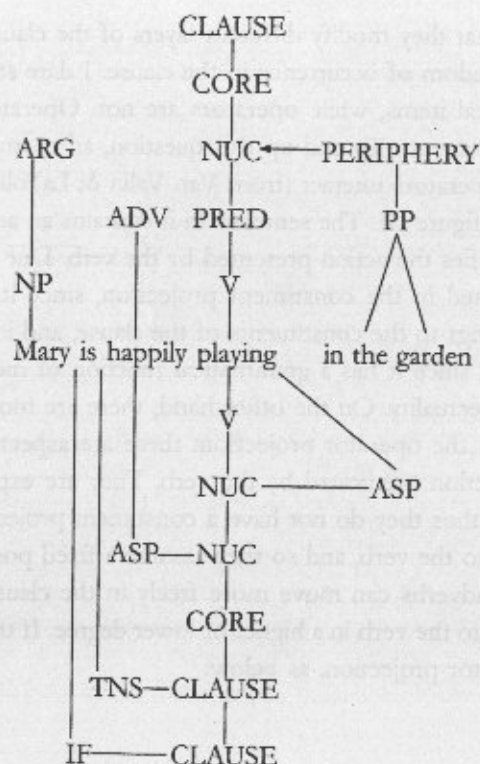
```
                    CLAUSE
                      |
                    CORE
                      |
        ARG         NUC◄──── PERIPHERY
                      |
         ADV  PRED         PP
          |    |           /\
          |    V          /  \
        NP      |        /    \
Mary  is  happily  playing    in the garden
 |   |     |      |
 |   |     V      |
 |   |     |      |
 |   |   NUC──────ASP
 |   |     |
 |   |   ASP──NUC
 |   |     |
 |   |   CORE
 |   |     |
 |  TNS──CLAUSE
 |         |
 IF──────CLAUSE
```

Figure III: Example of a how operators and adverbs work and interact in the clause

In this figure we have the syntactic representation of both the constituent projection, which goes from the clause upwards, and the operator projection, which goes from the clause downwards. Note that they are, in some sense, mirror projections, as can be seen in the representation of the predicate, *(is) playing*. With respect to the constituent projection, we can see how the arguments and the adjuncts work at the level of the nucleus. At such level, we have aspectual operators —represented as ASP- in the operator projection. With respect to such projection, there are operators acting at different levels

in the clause. Thus, tense (TNS) and illocutionary force (IF) work at clausal level. Now, if we pay attention to the adverb *happily*, we see that, as a lexical item, it is represented in the constituent projection, and that, since it also provides the nucleus with aspectual information, it also works as an operator.

2. Theoretical framework and aims of study

This paper is devoted to the study of the specific construction of induced motion verbs when they appear as phrasal verbs. Induced motion verbs are inherently attached to a location, which can be expressed either through a locative PP, which is always an AAJ, or through an adverbial particle, which does not link the verb to a particular situation as the PP does, but situates the verbal action in a specific place. When induced motion verbs occur with such particle they may be considered phrasal verbs. At a syntactic level, such particle has an operator projection. More specifically, it is a directional operator, whose scope can be the core or the nucleus. In this case I will focus on this question at the level of the core, where directionals indicate the orientation of the second argument, not of the verb or of the first argument. At the time being, this area of study has not been developed in RRG, so this paper contributes to cover it. Besides, phrasal verbs constitute an interesting and idiosyncratic phenomenon of the English language, and through a semantic and syntactic analysis of their structure and use this paper contributes to a better establishment and knowledge of such linguistic expressions.

This study is inscribed within the theoretical framework of functional grammars (Halliday 1994, Hengeveld 1992, Dik 1997a, 1997b, etc.), especially of RRG (Van Valin 1993, Van Valin & LaPolla 1997), which is highly concerned with the semantics-syntax interface. The semantic part of RRG has been very useful here, since the system of lexical decomposition and semantic representation has been adopt-

ed. Besides, the fact that *Aktionsart*[1] is taken as the starting point of a semantic study has also been taken from this theory. Besides, this study has been done within the semantic approach of Componential Analysis, according to which lexical decomposition is used as a basic device that provides a description of the meaning components of words (in this case, of movement verbs). These meaning components, thus, have permitted to establish verbs in groups and to deal with their argument structure.

An analysis of samples of the British National Corpus (hereafter BNC)[2] has been carried out. The results obtained show that induced motion verbs are organized in two main groups. The prototypical LS for the verbs I am studying is given below:

[do' (x, Ø)] CAUSE [BECOME be-LOC' (z, y)]
2. LS of induced motion verbs

However, although all the verbs of the corpus correspond to the same predicate type (induced motion verbs), important differences can be found among ones and others, and such differences in meaning constrain the type of PPs and adverbs they occur with. All these verbs can be divided into two main groups: *causative active accomplishment verbs* and *causative accomplishment verbs*. Both groups are similar in that they are accomplishment verbs. According to this, they are *temporally extended (not instantaneous) changes of state leading to a terminal point* (Van Valin & LaPolla 1997:92). Therefore, telicity is an inherent feature of such verbs, and it is this third argument the one which carries the telicity feature: a GOAL argument. This feature can also be expressed, however, through an adverbial particle, where the third argument is not explicit.

Focusing now on *Aktionsart*, it is important to note that the type of mode of action presented by each group differs: active accomplishments invoke a state of affairs (hereafter SoA) that goes from the original point of the UNDERGOER to the endpoint. This is due

to their feature of extended duration [+durative], characteristic of active predicates, which non active accomplishments lack. In fact, depending on whether the GOAL argument is specified or not we can have an active accomplishment or an activity *Aktionsart* respectively. The verbs in the second group do not allow for such alternations, called activity-active accomplishment alternations, by means of which an atelic verb becomes telic (Dowty 1979, Levin 1993). Active accomplishments are realized by GOAL PPs, but they also admit PATH PPs.

On the other hand, accomplishment verbs only invoke the SoA at the endpoint. They express the resulting state of a non-active process of change. It is not the change what is evoked by these verbs; only the result is. Accomplishment verbs lack the feature of duration, so the referring scope of the accomplishment only points to the endpoint, in time and in space. They do not admit PATH PPs. With respect to their LS, 'BECOME' in both types of verbs indicates that they are accomplishments. Below, the two groups of verbs analyzed are provided:

a. **Induced *active accomplishment* motion verbs**: guide, lead, conduct, escort, accompany, show, direct, draw, tow, usher, carry, bear, bring, fetch, transport, deliver, ship, dispatch, despatch, take, propel.
b. **Induced *accomplishment* motion verbs**: fit, fix, install, place, space, clap, locate, situate, site, position, station, stick, remove, wrench, extract, withdraw, eject, bar, jam, seal, stuff (in the sense of 'put into'), scatter, sprinkle, cast, chuck, toss
4. Induced motion verbs in English

3. Induced motion verbs with AAJs

The two types of induced motion verbs are distinguished by, besides their *Aktionsart*, the types of PPs they take. Thus, locational prepositional phrases can be divided in two types, according to a

differentiating feature: dynamicity. In this way, induced active accomplishments are related to [+dynamic] prepositions such as *to*, *towards* or *into*, while induced (non-active) accomplishments are tied to [-dynamic] prepositions, such as *in*, *on*, or *at*. As can be deduced, the types of PPs are directly tied to the LS of the two types of verbs. This, however, is a question of markedness, and not a close established fact, which can be represented as below:

ACT. ACCOMPLISH. MOVM. VERBS			ACCOMPLISH. MOVM. VERBS
P (be-via')	G (be-at')	S (NOT be-at')	G (be-at')
through	to, into	from, off	in, on, at

Figure IV: Frequency of occurrence of the different types of prepositions with induced motion verbs

4. Induced motion verbs as phrasal verbs

This section constitutes the heart of this paper, and it deals with induced motion verbs modified by operators, in comparison with how they collocate when they take AAJ PPs. As has been shown in the previous section, GOAL prepositions proper of active accomplishment movement verbs are [+dynamic], that is, *to* and related ones. They can be represented in LS as '**be-to**'. On the other hand, GOAL prepositions typical of accomplishment movement verbs share the common semantic feature [+static], that is, *at* and related ones, and their LS would be '**be-at**'. Consequently, one may predict that GOAL operators typical of active accomplishment verbs are the same morphologically and semantically: *to* and related ones. However, this is not the case. The main issue is that when causative active accomplishment verbs are accompanied by an operator (adverbial particle in the constituent projection, as has been noted above), they do not admit [+dynamic] GOAL operators such as the ones presented below:

to, into, onto, towards, etc.

5. Locative expressions which contain the feature [+dynamic]

The words in (5) can therefore be used as prepositions, but not as adverbial particles. This means that in order to form a phrasal verb they cannot be used. Such spatial items must always have a specified landmark in order to be realized with active accomplishments, that is, they can only function as GOAL prepositions. This is shown below with the verb *carry*:
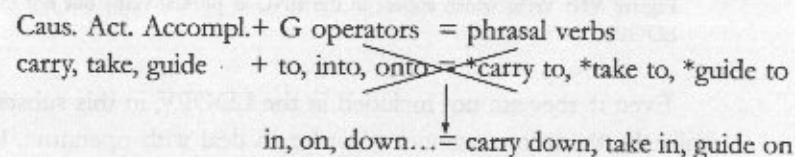
a. **F9H 546** Flood tolerant species of willow and alder on the reservoir margins **carry** the tree cover *down*.

b. *****Carry** the tree cover *to*.

c. **CER 1103** If they appeared likely to do so he would then map out a strategy and advise students or co-workers on how to refine them and **carry** them *through* to fulfilment.

6. Examples of use of carry.

As can be seen in (6.b), they reject those GOAL operators. However, they admit as GOAL operators those which, functioning as prepositions, are prototypically realized as GOAL prepositions with non-active accomplishments, as seen in (6.a). Even more, if we look at (6.c), we can observe that PATH operators are admitted with active accomplishments. This is predictable, since PATH prepositions are typical of active accomplishment verbs, but what is quite striking is that PATH operators can collocate with some non-active accomplishments, although the resulting constructions obtained are generally idiomatic. This is illustrated in (7):

I am looking forward to **put** you *through*.

7. Example of a phrasal verb formed by a non-active accomplishment and a PATH operator

It follows that *to* and related items can only function as prepositions, never as particles or operators. This leaves an empty slot in phrasal verbs which are formed by active accomplishments and GOAL operators. This empty slot is covered by spatial items with GOAL function which prototypically collocate with non-active accomplishments when they function as prepositions (*at* and related ones, as I have put forward). This process would be represented as follows:

Caus. Act. Accompl.+ G operators = phrasal verbs

carry, take, guide + to, into, onto *carry to, *take to, *guide to

in, on, down... = carry down, take in, guide on

FigureV: Process of interchange of functions of locative expressions

In this respect, the most common operators are *out* and *up*, which are characterized by Brinton (1988) as being the GOAL particles *par excellance*. According to this author, they provide the verb with the notion of goal orientation, and they provide an abstract landmark which is arbitrary. That is, the endpoint is situated where the speaker considers adequate, and the hearer understands it in that way. Here this discussion will not be entered, though it is left open for further research.

It remains to consider the fact that in the corpus I have found more phrasal verbs formed by causative active accomplishments than by causative accomplishments. After having carried out a quantitative analysis of the data, the results obtained point at the fact that there are more occurrences of causative accomplishment verbs with the three arguments than of causative active accomplishment verbs. That is, the former seem to need more strongly a landmark which establishes a concrete referent of space. On the other hand, the latter show a much higher tendency to occur with adverbial particles –operators–. This may be due to their higher self-explanatory power, and to the lower explicitness of the former with respect to the direction

of the process expressed by the verb.

Thus, active accomplishments contain more directional meaning than non-active accomplishments, which explains why they tend more frequently to omit the AAJ, or even the adverbial particle, as the figures in table I show:

	CAUS. ACT. ACCOMPLISH.	CAUS. ACCOMPLISH.
Cases with AAJ or OP/ Total n° of samples= %	421/1713=24,6 %	743/1412= 52,6 %

Table I: Frequency of causative movement verbs realized with an AAJ or an directional OP.

The results obtained clearly show that active accomplishments are used less frequently with operators or with AAJs than non-active ones. This is due to the alternations these verbs allow for between being activities or active accomplishments, based on the absence or presence of the [+telic] feature, which does not happen to non-active accomplishments. The following alternations exemplify this:

a. **GU6 1427** Unspoken premises **guide** the judicial hand.

b. **G3G 1363** At a Recovery, the Intelloids **guide** mindless servatons *into* the caverns.

8. Activity-active accomplishment alternation.

In these examples we have the verb *guide*, but there is a different LS for any of them: in (8.a) *guide* has the LS of an active verb, while in (8.b) it has the LS of an active accomplishment verb. This alternation does not happen with accomplishment verbs: with *place* verbs, if the AAJ or the operator are not specified, they are nonetheless represented in LS, which is always the same, because their *Aktionsart* does not vary. When the GOAL argument is not specified it is represented with an empty slot, indicating that there may be something there. As I have already remarked at previous stages, this idea differs from Van Valin & LaPolla's (1997), who state that when

place verbs do not have an AAJ specified they have a semantic valence of two, which implies that they do not leave an empty slot. In my view, this idea is not correct, since a different LS implies a different *Aktionsart*, and in the case of non-active accomplishments it is invariable. To go on with this topic, I should be stressed that out of the verbs in the two lists, the ones below do not present any occurrences with operators:

CAUS. ACT. ACCOMPLISH. VERBS	CAUS. ACCOMPLISHMENT VERBS
	Install
	Scatter
	Clap
Deliver	Locate
Tow	Scatter
Propel	Wrench
	Remove
	Extract
	Withdraw
	Eject
	Bar

Figure VI: Verbs that did not appear as phrasal verbs in the BNC.

As can be observed, there are less active accomplishments working as phrasal verbs than non-active ones. Of these verbs, some of them never admit operators: removal verbs are a case in point. All of them are included in this chart. With respect to the others, they do admit operators, though I have not found any instance in the BNC and they are not included as phrasal verbs in the *Longman Dictionary of Phrasal Verbs* (1990) -hereafter LDOPV. This means that their use is much less frequent than for any verb of the rest, with the exception of the ones below, which, despite having found instances of them with operators in the BNC, they are not included in the LDOPV:

CAUS. ACT. ACCOMPLISH. VERBS	CAUS. ACCOMPLISHMENT VERBS
Guide	
Transport	Situate
Dispatch/despatch	Site
Escort	Position
Accompany	Sprinkle
Direct	

Figure VII: Verbs which appear in the BNC as phrasal verbs but not in the LDOPV.

Even if they are not included in the LDOPV, in this subsection I will take them into account in order to deal with operators, leaving such lexicographical criteria —that is, the reason why they do not appear in such dictionary, whether there is any difference from these verbs and those called *phrasal verbs*, etc.- for further developments on the matter. For the time being, I include under the term *operators* all adverbial particles or spatial adverbs that occur with motion verbs with the role of situating the action, event or process being predicated of, and I include for the quantification of the data all motion verbs that admit any of these adverbs. Table II shows the frequency of such operators with these verbs:

	CAUS. ACT. ACC. VERBS	CAUS. ACCOMPL. VERBS
Cases with AAJs or OPs/Cases with OPs= %	421/230 = 54,63 %	743/124 = 16,69 %

Table II: Frequency of occurrence of causative movement verbs with operators.

After these results, it can be concluded that causative active accomplishment movement verbs tend to occur with adverbial particles, while causative accomplishment movement verbs tend to be accompanied by PPs.

5. Final remarks

As has been shown in this paper, the GOAL thematic relation is expressed differently in induced active accomplishment movement verbs than in induced accomplishment movement verbs. We may say, thus, that the former have a dynamic feature which is not present in the latter, and that it is this feature which influences the predicate LS as a whole. The result of the action or of the process is the same, and this is due to their accomplishment *Aktionsart*, but the preposition *to* (and related ones: *into, onto...*) as a GOAL for active accomplishment verbs shows that there is a PATH role to undergo first, either if it is explicitly realized in the clause as a PATH PP or not. All this should be reflected in LS.

SOURCE and GOAL are similar in terms of AAJs, because a location is specified. The PATH role cannot be represented as an AAJ because, according to the LS of both kinds of induced motion verbs, a resulting location should be specified –or at least implied, as happens with adverbial particles-. A PATH role does not carry the telicity feature needed in this case. The case with SOURCE is different: an object has been displaced from its original location, and so a new situation has begun, leaving the old one behind. For this process to take place, that old situation must have had an ending.

With respect to phrasal verbs, I have presented some data which can be revealing in order to investigate the two groups of induced motion verbs, and which again prove the interrelation that exists between spatial elements and verbal predicates. Further analysis on this topic is necessary in order to find the internal structure of phrasal verbs, and to give an answer to many issues which remain unsolved with respect to the reasons why they behave in a specific way.

Aceito em junho de 2004.

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Glossary of terms

Adjuncts. They are the peripheral elements of the clause. They are also called, in this sense, non-arguments, and they are usually adverbs such are *yesterday* or *tomorrow* or PPs of location, either of space or of time, such as *after the party*. They modify the clause as a whole,

but they do not license the introduction of any argument in it. Thus, they are not directly attached to the predicate, so if they are not essential for the correct interpretation of the clause.

Aktionsart. This term is adopted from Vendler (1957 [1967]) in RRG, and it refers to the inherent temporal properties of verbs. There are four basic classes, defined according to three features: [+/- static], [+/- punctual] and [+/- telic]. This last feature refers to the fact that a verb has an inherent terminal point or not. Such four types are states, which are static, atelic and non-punctual (that is, durative), activities, which are non-static (or dynamic), atelic and durative, accomplishments, which are dynamic, telic and durative, and achievements, which are dynamic, telic and punctual. All of them have a causative version, that is, a verb that refers to an induced state of affairs, not spontaneous. Finally, there are also accomplishment uses of activity verbs, and they are identified as active accomplishments. These also have a causative version. Below I provide an example of each of them:

Class	Example	
State	Be	*The cat is asleep*
Activity	Run	*I run every morning around the park*
Achievement	explode	*The bomb exploded at night*
Accomplishment	melt	*The ice melted when the sun rose*
Active accomplishment	march	*The soldiers marched to the barracks*
Causative state	frighten	*The cat frightened the dog*
Causative activity	guide	*The man guided us through the city*
Causative achievement	drop	*Mary dropped the glass*
Causative accomplishment	melt	*The sun melted the ice*
Causative act. accomplish.	march	*The captain marched the soldiers there*

Arguments. Elements of the core that refer to entities in the world. They are normally represented through noun phrases or PPs, both of which belong to the semantic representation of the verb. They are thus directly attached to the predicate.

Argument-adjuncts (AAJ). In RRG we can distinguish three types of prepositions, which determine the kind of prepositions they form. They are: argument-marking prepositions, which mark oblique core arguments. They are not predicative, and they belong to the verbal LS. An example would be *Pass the book to me*, where *to* introduces an argument, *me*, into the clause. The second type is adjunct prepositions, which are predicative —that is, they have a meaning on their own that modifies the meaning of the PP they head-, and they introduce a noun phrase into the clause, but they do not mark arguments of the verb. Instead, they head PPs which are peripheral, as *in* in: *I finished my degree in Madrid.* Finally, we have AAJ prepositions, which stand in the middle between the other two, since they are predicative, as adjunct prepositions, but at the same time they introduce an argument, instead of a modifier, as argument-marking prepositions. This implies that verbs which take AAJ PPs seem to need an AAJ for their LS, as happens with oblique-core arguments, but with the difference that AAJ PPs admit multiple possible prepositions as heads. Let us see an illustration:

a. Mary placed the book on/down/below/under the table
b. Mary gave the book to/*for/*with Mary

As is seen above, it seems that argument-marking prepositions are specified by the verb LS, but AAJ prepositions, though they introduce a semantic argument that the verb in question needs for its LS, are predicative, not referential. That is, they can modify in some sense, and depending on the prepositions chosen the action predicated by the verb differs.

Induced motion verbs. This expression is used to refer to causative verbs of movement.

Logical structure (LS). In RRG, LS refers to the semantic, lexical

representation of the different *Aktionsart* types. In such representation, predicates are represented in boldface followed by a prime. These elements belong to the semantic metalanguage used in semantic decomposition, so they are not words from a specific language. Thus, the verb *run* and the verb *correr* (in Spanish), for instance, would be represented by the same element. Besides this, variable elements are represented in normal typeface, and the modifiers of the predicate are represented with capital letters. The LS for the basic *Aktionsart* types is provided below:

Verb class	Logical structure	Example
State	**predicate'** (x) or (x,y)	*Mary is happy*
Activity	**do'** (x, [**predicate'**(x) or (x, y)])	*Peter is playing football*
Achievement	INGR **predicate'** (x) or (x,y)	*The window broke*
Accomplishment	BECOME **predicate'** (x) or (x,y)	*The dog died*

Nucleus. In RRG, the nucleus is the basic and primary syntactic unit of the layered structure of the clause. The predicate is the semantic element that underlies this syntactic unit. In this sense, the clause is composed of the predicate (that is, the nucleus) plus its arguments and by the peripheral elements to it. The predicate with its arguments constitutes the core, and the core with the peripheral (non-argument) elements form the clause.

Operators. Operators in RRG have a whole domain on their own because they are different from predicates and arguments. In fact, they are grammatical categories that modify the different layers of the clause. There are operators of tense (TNS), aspectuality (ASP), modality (MOD), illocutionary force (IF), negation (NEG), direction (DIR), evidentiality (EVID) and status (STAT). They are very complex semantically, so they are better represented syntactically. In fact, they have an operator projection, which is a mirror projection to the constituent projection. In this paper I pay attention to directional operators, and among these, to those that indicate the direction of

the motion of one of the core arguments, not of the action itself. That is, I am interested in expressions like "Mary put the book down", where *down* indicates the direction of *the book*.

Predicates. They are the non-variable, basic elements of the clause, which can be divided between predicating and non-predicating elements. Predicating elements are of two types: they are normally a verb –a verbal predicate-. In that case, it is the nucleus of the clause. Besided, they can also be non-verbal predicates, as happens with the complements of the copula support with *be* in English. Predicates predicate, that is, they designate properties or relations, while arguments refer to entities in the world. Thus, predicates establish these relations among arguments, and so they related entities in the world or qualify them.

Role and Reference Grammar (RRG). RRG is a linguistic theory that was born in the 70's in an attempt to capture the interaction of syntax, semantics and pragmatics in one grammatical system, and in an attempt to establish a cross-linguistic analysis of languages. It is inscribed within the functional paradigm, which is characterized because it takes language as a system of communication. A basic feature of this theory is that grammatical structures are subject to semantic structures. That is, they are understood and explained with reference to their semantic and communicative functions.

State of Affairs (SoA). As Van Valin & LaPolla (1997: 82) point out, one of the main functions of language is to represent the things that happen in this or any other (fictional or possible) world, that is, states of affairs and their participants. The are four basic types of SoA, classified according to three dimensions: number of participants, whether there is a terminal point, whether the SoA is spontaneous or induced. They are: situations, events, processes and actions, and they correspond to the four basic *Aktionsart* types: states, achievements,

accomplishments and activities respectively.

UNDERGOER. Semantic macrorole, which, together with its counterpart, ACTOR, is basic in the theory to explain most semantic phenomena. Semantic macroroles are a generalization across thematic roles. That is, under the label ACTOR and UNDERGOER –coded as the participant most affected by the action- they embrace a number of thematic roles, called microroles. The ACTOR is the generalized AGENT-type role, and the UNDERGOER is the generalized PATIENT-type role.

Notes

1 The concept of *Aktionsart* is coined in RRG from Vendler (1957 [1967]), and it refers to the mode of action of the verb.

2 The BNC is a computerized multi-source corpus which contains more than 100 million words. One can access to it freely through the World Wide Web or by purchasing the SARA software system. The internet address to get information about it or to access the link which permits to make queries online is http://www.hcu.ox.ac.uk/BNC/. The difference of entering free is that only 50 samples per hit are provided, though this quantity has been enough for my analysis. Samples in the BNC are of 40,000 to 50,000 words, and one can have access to the full text by clicking on the reference code on the left. However, there are also shorter samples, which belong to written unpublished material such as school essays.

O PROCESSAMENTO DE FRASES METAFÓRICAS – IMPLICAÇÕES DA CAPACIDADE DA MEMÓRIA DE TRABALHO [*]

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RESUMO

Esta pesquisa foi desenvolvida com o intuito de investigar a correlação entre a compreensão de frases metafóricas e a capacidade da memória de trabalho. Trata-se de estudo exploratório do qual participaram 20 estudantes do Curso de Letras da UFSC. Para conduzir a investigação, foram aplicadas duas medidas: teste de capacidade da memória de trabalho e teste de compreensão de metáforas. O estudo foi realizado com base na hipótese de que o processamento de metáforas seria exaustivo ao sistema de memória de trabalho, independentemente da construção sintática da frase. Os resultados sugerem que há tendência de correlação entre as variáveis em questão, embora o grau desta correlação seja fraco.

ABSTRACT

This exploratory study analyzes the correlation between the understanding of metaphorical sentences and working memory capacity. The participants were 20 undergraduate students of Letters Course at UFSC. The research was carried out through two measures: listening span test and metaphor comprehension test. The research hypothesis was that the processing of metaphor overwhelms the working memory system — independently of the syntax of the metaphorical sentence. Results indicated that there is a tendency of correlation among the analyzed variables, though the degree of correlation is weak.

PALAVRAS-CHAVE
metáfora, processamento, memória de trabalho

KEY WORDS
metaphor, processing, working memory