

Argument Structure of Activity Verbs in Brazilian Portuguese

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Abstract: We propose in this paper that there are two types of agentive activity verbs in Brazilian Portuguese (BP): *correr* ‘run’ verbs and *escrever* ‘write’ verbs. Based on the hypothesis that grammatical behavior is determined by lexical semantics, we argue that several differences between these types of verbs motivate distinct lexical-semantic representations (or argument structures) for each class. Thus, within a predicate decomposition approach to verb meaning, *correr* verbs are represented by a lexical semantic structure with the primitive predicate DO and an *event* root (following Hale and Keyser 2002 and Harley 2005), and *escrever* verbs are represented by a lexical semantic structure with the primitive predicate ACT and a *manner* root (following ideas first put forth by Pinker 1989). We provide evidence for each predicate decomposition structure and we argue that a subdivision of the agentive activity verbs in two distinct classes, with two distinct argument structures, covers a wider range of syntax-semantics interface phenomena, at least for an analysis of BP.

Keywords: Brazilian Portuguese, lexical semantics, agentive activity verbs, predicate decomposition, DO, ACT.

1. Introduction

Current theories of the syntax-lexical semantics interface have assumed that argument realization is determined to a large extent by the lexical-semantic properties of verbs

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(Fillmore 1971; Levin 1993; Levin and Rappaport Hovav 2005; Koenig and Davis 2006; among others). Many of these theories assume that verb meaning is compositional, and that some parts of meaning, which are recurrent in many verbs, determine their grammatical behavior (Lakoff 1970; Pinker 1989; Rappaport Hovav and Levin 1998; Grimshaw 2005; Wunderlich 2012; among others).

However, even in works based on these assumptions, agentive activity verbs, which are intransitive, but differ in a number of other properties, are assumed to belong to a unique verb class, sharing semantic components, in a single argument structure or lexical semantic representation. Pinker (1989), Rappaport Hovav and Levin (1998, 2010), and Grimshaw (2005), for example, have proposed that agentive activity verbs, such as the English examples *run*, *dance*, *cry*, *write*, *paint* and *sew*, contain in their lexical meaning the manner of acting of the agent argument, being all represented by a lexical semantic structure such as [X ACT<MANNER>]. The authors argue that it is possible to predict that manner verbs are intransitive, since manner roots modify a monadic predicate, even when they present an “apparent argument” in object position. The claim is that, in such cases, the object would actually be an argument of the root <MANNER>, not an argument of the verb *per se*, since it need not be expressed.

In this paper, we present an analysis of agentive activity verbs in Brazilian Portuguese (BP) and we argue that, at least in that language, these verbs cannot be treated as belonging to a unique manner class. These verbs behave differently in respect to a number of grammatical properties, such as the participation in a transitivity alternation. We consider transitivity to be a crucial syntactic property for the grouping of verbs in classes, therefore, distinct behavior in relation to transitivity motivates a subdivision of these verbs in two groups: one which contains items such as *correr* ‘run’, *dançar* ‘dance’, and *chorar* ‘cry’ (which are intransitive and take a cognate direct object), and another which contains items such as *escrever* ‘write’, *pintar* ‘paint’, and *costurar* ‘sew’ (which have both transitive and intransitive forms).

For each of these classes, we propose argument structures in the form of predicate decomposition representations and we motivate each meaning component in the verbs’ decomposition. Following Hale and Keyser (2002) and Harley (2005), we propose that verbs such as *correr* are not manner verbs; rather, they can be more adequately analyzed as *someone does something*. For example, *correr* ‘run’ can be descriptively interpreted as *someone does something, a run*. We propose that their argument structure is [X DO <EVENT>]. Following ideas first put forth by Pinker (1989) and developed by Rappaport Hovav and Levin (1998), we propose that verbs such as *escrever* are actually manner verbs. For example, *escrever* ‘write’ can be interpreted descriptively as *someone acts in a certain manner, which is writing*. We assume that their argument structure is [X ACT<MANNER>] (and also, following Van Valin 2005,

that they have an alternate transitive form, which can be interpreted descriptively as *someone acts in a certain manner, and this action results in a thing*, and has the representation [[X ACT_{<MANNER>}] CAUSE [Y EXIST]]; for *escrever* 'write' we would have *someone acts in a certain manner, which is writing, and this action results in a thing*). We believe, and we will try to demonstrate, that dividing the agentive activity verbs in two classes covers a wider range of syntax-semantics interface phenomena, at least for an analysis of BP.¹

This paper is organized as follows. In the next section, we present the theoretic approach of our research. In section 3, we provide a lexical-semantic analysis for *correr* 'run' verbs and show evidence to support it. In section 4, we present the lexical-semantic analysis for *escrever* 'write' verbs and show evidence to support it. In the last section, we present our final remarks.

2. The Syntax-Lexical Semantics Interface Approach

The theoretic approach adopted here advocates that lexical semantics is crucial to syntax and that syntactic argument realization is determined by the verb's lexical semantics. This proposal imposes great responsibility to the lexicon, which is assumed to be an organized and systematic part of the language, and which holds important semantic information about predicates. We follow the assumptions present in Rappaport Hovav and Levin (1998).

Within this frame, lexical semantic information relevant to syntax groups verbs in classes. Verbs in the same class have lexical semantic properties in common, and behave the same in syntax, in respect to argument realization. A classic example of a verb class is the change of state verbs, which share the lexical-semantic property *change of state* and participate in the causative-inchoative alternation (Fillmore 1970; Levin and Rappaport Hovav 1995).

Not all lexical-semantic properties, however, group verbs in classes (Pesetsky 1995; Grimshaw 2005). Levin and Rappaport Hovav (1992) show, for example, that verbs describing some kind of movement do not form a class, since they differ in accepted syntactic properties, besides presenting intransitive, transitive, or ditransitive syntactic forms. The linguist's job is to distinguish those facets of meaning that are

¹ Assuming distinct classes of agentive activity verbs, we argue against manner/result complementarity, Rappaport Hovav and Levin's (2010) proposal that all activity verbs lexicalize manner and all other verbs, except stative verbs, lexicalize result. Other authors, such as Goldberg (2010), Beavers and Koontz-Garboden (2012), and Mateu and Acedo-Matellán (2012) also argue against manner/result complementarity, in the way it is proposed by Rappaport Hovav and Levin (2010).

grammatically relevant from the ones that are not. Following this assumption, we do not intend to provide here a complete semantic analysis of agentive activity verbs; rather, our purpose is to make explicit the facets of verb meaning that are crucial to the classification of these verbs into syntactically homogeneous classes.²

In order to make explicit these facets of verb meaning, lexical-semantic representations of verbs should be provided. We adopt a type of semantic representation called predicate decomposition, following mostly Rappaport Hovav and Levin's (1998) proposal. This representational methodology takes verb meaning to be compositional and the parts of meaning relevant to argument realization are represented by predicate-argument structures built with primitive predicates, such as ACT, DO, CAUSE, and BECOME, their arguments, and their modifiers (in some cases).³ In (1) we present an example, taken from Rappaport Hovav and Levin (1998):⁴

(1) *run*: [X ACT _{<RUN>}]

This representation can be divided in two parts: one which contains the structural part of the verb's meaning, and another which contains the idiosyncratic part. Structural meaning is recurrent in verbs of the same class and idiosyncratic meaning is specific of a single verb. The structural part of the meaning of *run* is represented by the primitive predicate ACT and the variable X. Variables are arguments of primitive predicates and represent the arguments of the verb. Idiosyncratic meaning is represented by what is called the root. In the structure in (1), the idiosyncratic meaning is represented by <RUN>, which is a modifier of the primitive predicate ACT. Only the root distinguishes verbs in the same class. *Dance* and *write*, for example, would be represented as in (2) and (3).

(2) *dance*: [X ACT _{<DANCE>}]

² See De Clerck, Coleman and Willems (2013), for an overview of different approaches to the classification of verbs.

³ Our use of primitive predicates is based on work by Levin and Rappaport Hovav, as part of a lexical semantic approach. Other areas of semantics, such as formal semantics and cognitive semantics, also make use of primitive predicates, but in a very different way. For example, in Dowty (1979) DO is an aspect operator, not a semantic component of the meaning of verbs, as assumed in this paper. It needs to be clear that predicate decomposition is a metalanguage, a representational approach, which is not attached to any specific theory (Engelberg 2011; Levin and Rappaport Hovav 2011).

⁴ Primitive predicates are notated in capitals; roots, in italics and between angled brackets; square brackets represent the delimitation of an eventuality; modifiers are notated as subscripts. It is a well formedness condition that each predicate decomposition structure bears one and only one root.

(3) *write*: [X ACT <WRITE>]

All roots are categorized ontologically, and the ontological category is also a common feature of verbs in the same class and is syntactically relevant. In the structures (1)-(3), the roots are categorized as *manner*.⁵ The semantic notion *manner* is an ontological category, taken as a primitive of the semantic theory (as the notions of *state*, *event*, *thing*, *place*, among others). Following Harley's (2005) description of this semantic component, we assume that *manner* is related to a certain "adverbial" semantics, expressing the means in which the agent performs an action. Manner roots are not arguments, but modifiers of primitive predicates. Manner verbs form a class, which is represented as in (4).

(4) *verb*: [X ACT <MANNER>]

Roots can also be arguments of primitive predicates. For example, see the representation below, taken from Levin and Rappaport Hovav (2005).

(5) *jog*: [X DO <JOG>]

The root <JOG> is ontologically classified as *event* (Ross 1972; Harley 2005) and is one argument of DO, which is a dyadic primitive predicate and also takes X as its argument. The semantic distinction between *manner* and *event* is relevant, as we will show below, because different semantic and syntactic properties can be derived from different types of roots (Levin and Rappaport Hovav 2005, Harley 2005).

With this information at hand, we now proceed to a lexical-semantic analysis of the agentive activity verbs in BP, which includes the proposal of lexical semantic representations (predicate decomposition structures) for these verbs.

⁵ Roots are not morphologically motivated. Although some verbs may be derived from a word close in meaning to the root (for example, the change of state verb *redde*, derived from *red*, which is very close in meaning to the state root <RED>), others are not (for example the change of state verb *break*, which is not derived from *broken*, the word closest in meaning to the state root <BROKEN>).

3. *Correr* 'Run' Verbs in BP

Let us first consider the verbs of the *correr* 'run' type. Below, we present the analyzed verbs and some sample sentences:⁶

(6) *andar* 'walk', *bocejar* 'yawn', *caminhar* 'walk', *chorar* 'cry', *correr* 'run', *dançar* 'dance', *engatinhar* 'crawl', *espirrar* 'sneeze', *galopar* 'galop', *gargalhar* 'laugh', *gemer* 'grunt', *nadar* 'swim', *piscar* 'blink', *pular* 'jump', *rebolar* 'move one's hips', *requebrar* 'move one's hips', *rir* 'laugh', *roncar* 'snore', *saltar* 'jump', *sambar* 'dance samba', *sapatear* 'tap-dance', *soluçar* 'hiccup', *soprar* 'blow', *sorrir* 'smile', *suspirar* 'sigh', *tossir* 'cough', *trotar* 'trot', *voar* 'fly'.

(7) O atleta corria.⁷
the athlete ran
'The athlete ran.'

(8) Dani dançava.
Dani danced
'Dani danced.'

(9) O ladrão arrependido chorava.
the thief regretful cried
'The regretful thief cried.'

As we have pointed out, many lexical-semantics proposals have assumed that verbs such as *run*, *dance* and *cry* in English contain a manner component in their lexical meaning (Pinker 1989; Rappaport Hovav and Levin 1998, 2010; Grimshaw 2005). Within a predicate decomposition approach, as shown in (4), Rappaport Hovav and Levin (1998), for example, propose that these verbs are represented by a structure with ACT and a *manner* root. Although this type of semantic representation is largely accepted, Levin and Rappaport Hovav (2005) themselves assume that further research is needed. We quote the authors:

⁶ See Van Valin and Wilkins (1996) for an analysis of the arguments of verbs such as *cry* and *laugh* as agents.

⁷ In our examples, we use the verbs in the past imperfective form (*pretérito imperfeito do indicativo*). According to Comrie (1976), activity verbs are more compatible with the imperfective grammatical aspect, although the perfective does not render ungrammaticality.

In our event structure for an activity verb, a primitive predicate ACT is modified by a manner root [...], an analysis which contrasts with Hale and Keyser's ([...] 2002) analysis of comparable verbs, which treats the root as the argument of a predicate DO, roughly comparable to ACT, as in [x DO <JOG>]. [...]. We do not choose between approaches here, since additional investigation into the representation of such verbs is needed. (Levin and Rappaport Hovav 2005:77)

Hale and Keyser (2002) did not explicitly propose a lexical-semantic representation for these verbs in terms of predicate decomposition structures. Nevertheless, the results they reached in syntax suggest a different semantic analysis of these verbs, as Levin and Rappaport Hovav (2005) point out. We will not discuss here Hale and Keyser's (2002) work, but we will take advantage of Harley's (2005) arguments, who proposes, within Hale and Keyser's (2002) theory, that the ontological category of the roots of these verbs is actually *event*, and not *manner*.

Harley's (2005) arguments are based on lexical aspect, more specifically, on the distinction between activity and semelfactive semantic properties. The author shows that the verbs *run* and *jump*, both classified as activities, have distinct aspectual properties. *Run* denotes an unbounded (durative) eventuality, and *jump* denotes a bounded (punctual) eventuality, that is, a semelfactive eventuality. These properties cannot be derived from a manner semantic representation, since this semantic component does not allow a bounded reading. A structure like [X ACT <MANNER>] can only derive an unbounded activity, as argued for by Wunderlich (2012). Since it is desirable to keep these verbs in the same class, because they share syntactic and semantic properties, Harley (2005) proposes to categorize the roots of these verbs as *event*. This is due to the fact that events can be bounded or unbounded, that is, they can be aspectually punctual or durative. Thus, differently from a *manner* root, an *event* root is able to derive both activity and semelfactive eventualities.

We agree with Harley (2005), since her proposal provides a more accurate semantic representation without missing important generalizations about activity verbs. Indeed, Harley's (2005) aspectual distinction can be exemplified in BP: within the *correr* class, verbs such as *pular* 'jump', *tossir* 'cough', *espirrar* 'sneeze', and *piscar* 'blink' are semelfactives, and verbs such as *correr* 'run', *nadar* 'swim', *chorar* 'cry', and *voar* 'fly' are activities.

Assuming that the roots of *correr* verbs are ontologically classified as *event*, the argument structure of these verbs cannot contain the primitive predicate ACT, as proposed by Rappaport Hovav and Levin (1998). A predicate decomposition structure should contain a primitive predicate adequately saturated by its arguments. ACT is a monadic predicate that takes a variable as argument and can be modified by a *manner* root (Levin and Rappaport Hovav 2005; Wunderlich 2012). A structure with ACT has

no space for an *event* root. Therefore, we choose a primitive predicate that is compatible with an *event* root to represent this type of verb. As proposed by Ross (1972), DO is a dyadic primitive predicate that takes one variable and one *event* root as arguments. Let us exemplify the resulting structures:

(10) *verb*: [X DO <EVENT>]

(11) *correr* 'run': [X DO <CORRIDA 'run'>]

(12) *dançar* 'dance': [X DO <DANÇA 'dance'>]

(13) *chorar* 'cry': [X DO <CHORO 'cry'>]

In BP, besides the same aspectual difference that holds in English, other semantic and syntactic properties of these verbs point to an analysis of their roots as being ontologically an *event*. We now show what those properties are and how they evidence a different semantic analysis of *correr* verbs.

A consistent piece of evidence that *correr* verbs are more adequately represented by the structure [X DO <EVENT>] is the relation between these verbs and their cognate objects. As in English (Pinker 1989; Horrocks and Stavrou 2010), in BP *correr* verbs can take a cognate direct object (this syntactic property does not change the verbs' argument structures):

(14) A atleta corria corrida de obstáculo.⁸
 the athlete ran run of obstacles
 'The athlete ran obstacle race.'

(15) A Dani dançava dança do ventre.
 the Dani danced dance of.the belly
 'Dani danced belly dance.'

(16) O ladrão arrependido chorava um choro triste e contido.
 the thief regretful cried a cry sad and contained
 'The regretful thief cried a sad and contained cry.'

⁸ Depending on the direct object, the sentence as a whole can have an accomplishment reading. For example, *o atleta correu a corrida final do campeonato* 'the athlete ran the final run of the championship', but, according to Smith (1997), this is a case of derived aspect, which emerges compositionally from the meanings of the activity verb and of the DP in direct object position.

Cognate objects, or even hyponymous objects, which are also accepted by *correr* verbs, are not arguments and behave differently from canonical objects (Jones 1988). Scher and Leung (2005) list a number of properties of cognate objects in BP. For example, they only occur in postverbal position, and they cannot be pronominalized. Compare the sentences in (17), with a cognate object, with the sentences in (18), with a canonical object. The direct object of *correr* 'run' (a cognate object) cannot occur in preverbal position and cannot be pronominalized (17b); the direct object of *amar* 'love' (a canonical object), differently, can occur in preverbal position and can be pronominalized (18b):

- (17) a. A atleta corria corridas de obstáculos.
 the athlete ran races of obstacles
 'The athlete ran obstacle races.'
- b. *As corridas de obstáculos, a atleta as corria.
 the races of obstacles the athlete them ran
- (18) a. A atleta amava corridas de obstáculos.
 the athlete loved races of obstacles
 'The athlete loved obstacle races.'
- b. As corridas de obstáculos, a atleta as amava.
 the races of obstacles the athlete them loved
 'The athlete loved the obstacle races.'

Following Jones (1988), Leung and Scher (2006) propose that, in BP, cognate objects are modifiers, and not arguments of the verbs. The authors show that sentences with cognate objects can be paraphrased by sentences with simple modifiers, such as adverbs and PPs. For example, a sentence such as *o ladrão arrependido chorava um choro triste e contido* 'the regretful thief cried a sad and contained cry' can be paraphrased by *o ladrão arrependido chorava tristemente e contidamente* 'the regretful thief cried sadly and in a contained manner'. Thus, following the authors, we assume here that sentences with cognate objects are not real transitives and that *correr* verbs are intransitive verbs which allow modifiers in direct object position (Horrocks and Stavrou 2010). Other kinds of direct objects are also possible with *correr* verbs, such as DPs denoting distance or time. Dowty (1991) and Horrocks and Stavrou (2010) argue that these direct objects, just like cognate objects, are not arguments of the verbs, but modifiers; they can be replaced by a modifier PP maintaining the sentence's meaning. For example, *a atleta corria 1 km* / *a atleta corria por 1 km* 'the athlete ran 1 km' / 'the athlete ran for 1 km'.

As argued for by Jackendoff (1990), cognate phrases are used to specify some components of the verbs' meaning. For example, in (14), *corrida de obstáculos* 'obstacle race' is the specification of a running event. Hence, a running event is part of the verb's meaning. In the same way, *dança do ventre* 'belly dance', in (15), is a specification of a dancing event, and *um choro triste e contido* 'a sad and contained cry', in (16), is a specification of a crying event. Therefore, a dancing event is part of the meaning of *dançar* 'dance', and a crying event is part of the meaning of *chorar* 'cry'. In the cognate DPs, the noun is the element that denotes an event (Leung and Scher 2006); thus, we conclude that these verbs contain an eventive noun in their lexical meaning.

We can exemplify the relation between the cognate phrases and the verbs' meaning components with verbs named denominal in the literature (Jackendoff 1990):

(19) *Mary buttered the bread with unsalted butter.*

In (19), the cognate DP *unsalted butter* specifies a type of butter. It is assumed that the noun *butter* is contained in the verb's lexical meaning. Using Levin and Rappaport Hovav's (2005) representation for the verb *butter*, we can associate the nouns in the cognate DPs with elements in a predicate decomposition structure.

(20) *butter*: [[X ACT] CAUSE [Y BECOME WITH <BUTTER>]]

The element <BUTTER>, which is the verb's root in the structure, is specified in the cognate DP. *Butter* denotes a thing, which is the ontological category of the verb's root, <BUTTER>. We can extend this analysis to all verbs in the same class (*powder*, *pepper*, *perfume*, and so on). The class can be represented by the structure below:

(21) *verb*: [[X ACT] CAUSE [Y BECOME WITH <THING>]]

All of the verbs represented by this structure accept a cognate DP headed by the preposition *with*, as in (19).

Similarly, we propose that the sentences in (14)-(16), with cognate DPs in complement position, specify the information present in the verbs' roots. Comparing *correr* verbs and their cognate objects with *butter* and its cognate DP, we conclude that if the cognate phrase specifies an event, then, the ontological category of the roots of these verbs is also *event*, in the same way as the cognate phrase in a sentence with *butter* specifies a thing and the ontological category of the roots of these verbs is *thing*. This conclusion evidences the structure below:

(22) *verb*: [X DO <EVENT>]

To complete our argument, we must now provide a diagnostic test to confirm the eventive denotation of the nouns *corrida* 'run', *dança* 'dance', and *choro* 'cry'. Events, in opposition to manners, things, places, and so on, can last in time, more specifically they "take time" (Moens and Steedman 1988). Thus, DPs that denote events can occur in subject position of the verb *durar* 'last'.⁹ This is the case of the examples below:

(23) A corrida durou horas.
the run lasted hours
'The run lasted for hours.'

(24) A dança durou horas.
the dance lasted hours
'The dance lasted for hours.'

(25) O choro durou horas.
the cry lasted hours
'The cry lasted for hours.'

In opposition, DPs related to actual *manner* verbs, such as *escrever* 'write', *pintar* 'paint', and *costurar* 'sew', as we will propose in the next section, cannot be subject of *durar* 'last':

(26) *A escrita durou horas.
the writing lasted hours

(27) *A pintura durou horas.
the painting lasted hours

(28) *A costura durou horas.
the sewing lasted hours

The events contained in the meaning of semelfactive verbs, such as *pular* 'jump', *espirrar* 'sneeze', *tossir* 'cough', among others, however, may not last long enough in

⁹ These characteristics may vary crosslinguistically, since lexicalization does. As Levin and Rappaport Hovav (1995) argue, for example, the verb *blush* in English lexicalizes as an activity, bearing syntactic and semantic properties of activity verbs, while the translation of this verb in Italian, *arrossire*, lexicalizes as an achievement, bearing syntactic and semantic properties of achievement verbs. About different lexicalizations across languages, see also Talmy (1985).

time, since they describe punctual eventualities. It is still possible, though, to argue that the nouns *pulo* ‘jump’, *espirro* ‘sneeze’, and *tosse* ‘cough’ denote events. First of all, these nouns can be interpreted as having some kind of small duration, just as some types of achievements (degree achievements, for example). This is the case of the noun *pulo* ‘jump’, as in (29).

- (29) O pulo durou um décimo de segundo.¹⁰
 the jump lasted a tenth of second
 ‘The jump lasted a tenth of a second.’

Besides, just as semelfactive verbs, these nouns can also be ambiguous between a punctual and an iterative interpretation. In the iterative reading, especially in the plural, these nouns can also occur as the subject of *durar* ‘last’:

- (30) Os espirros duraram alguns dias.¹¹
 the sneezes lasted some days
 ‘The sneezes lasted for some days.’

- (31) A tosse durou meses.
 the cough lasted months
 ‘The cough lasted for months.’

Therefore, with the examples above, we demonstrate the eventive denotation of the nouns related to the verbs of the *correr* class. Moreover, Levin and Rappaport Hovav (2013) propose that verbs with zero-related nominals which denote a result have result roots (for example, *break_v*/*a break_N* and *crack_v*/*a crack_N*), and verbs with zero-related nominals which denote a manner have manner roots (for example, *wipe_v*/*a wipe_N* and *kick_v*/*a kick_N*). Extending their proposal to zero-related nominals like BP *dança* ‘dance’ and *costura* ‘sewing’ (which differ from the verbs only by the absence of the verbalizer morpheme *-r*, present in all BP verbs), we can provide another argument in favor of our analysis. As we have shown in (24), *dança* denotes an event, and in (28)

¹⁰ This kind of sentence is attested in real language use: *o pulo durou cerca de 4 minutos* ‘the jump lasted about 4 minutes’ (<https://rppraque.wordpress.com/2012/11/08/redbull-te-da-asas/> - accessed on 15 April 2015). This sentence was taken from an article talking about Felix Baumgartner’s jump from the stratosphere.

¹¹ We have also found one sentence with the durative interpretation in real language use: *o espirro de Deus durou uma noite inteira* ‘God’s sneeze lasted a whole night’ (<http://hammergm.blogspot.com.br/2011/09/o-dia-que-deus-espirrousegunda-parte.html> - accessed on 15 April 2015).

costura denotes a manner. Thus, according to Levin and Rappaport Hovav's (2013) proposal, verbs like *dançar* should have *event* roots and verbs like *costurar* should have *manner* roots.

As a final support for our proposal, we provide paraphrases for *correr* verbs. Many authors working with predicate decomposition assume that sentence paraphrases can make explicit the parts of the meaning of the verbs (Pinker 1989; Parsons 1990; Cançado, Godoy and Amaral 2013; among others). Let us show an example:

- (32) a. *The vase broke.*
 b. *The vase became broken.*

The paraphrase in (32b) suggests an analysis of *break* as *become broken*, which can be represented in a predicate decomposition structure as [X BECOME <BROKEN>]. The adjective *broken* denotes a state, which is the ontological category of the verb's root, and *become* denotes a change, which is represented by the primitive predicate BECOME.

In the same way, we can relate the structure [X DO <EVENT>] to possible paraphrases with *fazer um evento* 'do/perform/make an event'. For example:

- (33) O atleta corria./ O atleta fazia uma corrida.
 the athlete ran / the athlete did a run
 'The athlete ran.'/'The athlete performed a run.'

- (34) A Dani dançava./ A Dani fazia uma dança.
 the Dani danced / the Dani did a dance
 'Dani danced.'/'Dani performed a dance.'

- (35) O ladrão arrependido chorava./O ladrão arrependido fazia um choro.¹²
 the thief regretful cried /the thief regretful did a cry
 'The regretful thief cried.'/'The regretful thief made a cry.'

The paraphrases above suggest an analysis of *correr* 'run' as *fazer uma corrida* 'perform a run', *dançar* 'dance' as *fazer uma dança* 'perform a dance', and *chorar* 'cry' as *fazer um choro* 'make a cry'. In fact, paraphrases of the same kind are proposed for those verbs in English by Pinker (1989), Hale and Keyser (2002), and Harley (2005). The complements of *fazer* 'do' denote events: *uma corrida* 'a run', *uma dança* 'a dance', and *um choro* 'a cry'. In parallel with the analysis provided for *break*, we can assume that the denotation of these complements reflects the ontological category of the verbs' roots. Besides, the verb *fazer* 'do' in the paraphrases can be associated with the primitive predicate DO in the verbs' representations. So, the paraphrases can also be used to reinforce the evidence shown for the proposed structure in (22).¹³

It is important to note, also, that semelfactive verbs do not have perfect paraphrases with *fazer* 'do'. However, all these verbs can be paraphrased with a sentence which is parallel to the structure [X DO <EVENT>], but with another verb, *dar* 'give/perform'. We emphasize with this fact that primitive predicates are not items of the English (or any other) language, but are elements of a metalanguage, sometimes translatable into different items of a natural language. Note that, despite the change in

¹² These sentences are attested by examples from Google:

- (i) o jornalista foi provavelmente morto enquanto fazia uma corrida pela rua
 the journalist was probably killed while did a run for.the street
 'The journalist was probably killed while running down the street'

<http://www.planobrazil.com/tem-inicio-uma-purga-politica-na-ucrania-sob-o-silencio-da-imprensa-ocidental/> (Accessed on 21 April 2015).

- (ii) o bandido fazia uma dança em casa
 the criminal did a dance in house
 'The criminal danced at home'

<http://tv.diariodonordeste.com.br/video/policia/assaltante-comemora-crimes-com-danca/d69deb8862af38cd293ba62a502595af> (Accessed on 21 April 2015).

- (iii) fazia um choro birrento para que o pai o ouvisse
 did a cry wrong.headed for that the father him would.hear
 'He cried and had a temper tantrum so that his father would hear him'

<http://oconstructo2.blogspot.com.br/> (Accessed on 21 April 2015).

¹³ Other paraphrases for *correr* verbs are also possible, including sentences describing manner. Maybe other paraphrases can make explicit certain entailments of these verbs, but these are not necessarily the recurrent meaning represented in the semantic structures. Therefore, we do not take paraphrases as crucial evidence, but just as reinforcement for our hypothesis.

the verb of the paraphrase, the semantic structure remains the same in the following semelfactives (as the English gloss shows):

(36) O atleta pulava. / O atleta dava um pulo.
 the athlete jumped/ the athlete gave a jump
 'The athlete jumped.'/'The athlete performed a jump.'

(37) O paciente espirrava. / O paciente dava um espirro.
 the patient sneezed / the patient gave a sneeze
 'The patient sneezed.'/'The patient made a sneeze.'

(38) O bebê tossia. / O bebê dava uma tosse.
 the baby coughed/ the baby gave a cough
 'The baby coughed.'/'The baby made a cough.'¹⁴

We reach the conclusion, then, that the verbs analyzed in this section are not manner verbs, as has been assumed in some studies for English. This is shown by the occurrence of cognate objects, the eventive denotation of the nouns contained in the meaning of the verbs, and the paraphrases with *fazer/dar* 'do/give/perform/make'. All these properties corroborate our proposal that *correr* verbs are more adequately represented by the predicate decomposition structure [X DO <EVENT>].

4. *Escrever* 'Write' Verbs in BP

We have argued up to this point that *correr* verbs should be represented by a structure with the primitive predicate DO. Levin and Rappaport Hovav (2005, 2011) argue that

¹⁴ These sentences are attested by examples from Google:

(i) o gato dava um pulo e escapava
 the cat gave a jump and escaped
 'The cat jumped and escaped.'

<http://ronysouzabr.blogspot.com.br/2015/01/o-pulo-do-gato.html> (Accessed on 21 April 2015).

(ii) era costume fazer-se o Sinal da Cruz quando se dava um espirro
 was usage do-one the sign of.the cross when one gave a sneeze
 'People used to make the sign of the cross when they sneezed.'

<https://br.answers.yahoo.com/question/index?qid=20090327114728AA8GvgH> (Accessed on 21 April 2015).

(iii) qdo [quando] eu dava uma tosse doía até a alma
 when I gave a cough hurt even the soul
 'When I coughed, it hurt even my soul.'

<https://betterbreath.wordpress.com/2013/09/> (Accessed on 21 April 2015).

this primitive predicate is just another representational alternative for the primitive predicate ACT. Hence, assuming our analysis is correct, an inventory of primitive predicates would contain DO, and not ACT, and verbs such as *escrever* 'write', *pintar* 'paint', and *costurar* 'sew' would also be represented with a DO structure. However, although we propose that *correr* verbs are DO verbs, we do not rule out the existence of ACT. Rather, we argue that both predicates are necessary and coexistent. They represent different semantic properties contained in the meaning of verb classes, which will be associated with distinct syntactic properties. For that, it is necessary to keep both in a primitive predicates list.

The need to postulate a primitive predicate ACT emerges from an analysis of BP verbs of the *escrever* 'write' type, which are listed in (39) together with some sample sentences in (40)–(42).

(39) *bordar* 'embroider', *costurar* 'sew', *datilografar* 'type', *desenhar* 'draw', *escrever* 'write', *esculpir* 'sculpt', *pintar* 'paint', *tricotar* 'knit', *tecer* 'weave'.¹⁵

(40) O professor escrevia.
the teacher wrote
'The teacher wrote.'

(41) O Da Vinci pintava.
the Da Vinci painted
'Da Vinci painted.'

(42) A Matilde costurava.
the Matilde sewed
'Matilde sewed.'

These verbs cannot be treated as DO verbs because they differ significantly from *correr* 'run', *dançar* 'dance', and *chorar* 'cry', despite the initial similarity. There are syntactic properties that corroborate the existence of two distinct classes of agentive activity verbs, namely the *correr* class and the *escrever* class. The first crucial difference between these classes is that, while *correr* verbs allow cognate direct objects, as we have shown above, *escrever* verbs allow canonical direct objects:

¹⁵ According to Talmy (1985), romance languages have a tendency not to lexicalize the manner component in verbs. The small set of manner verbs data, found in BP, seems to corroborate this assumption.

- (43) O professor escrevia./O professor escreveu um artigo.
 the teacher wrote /the teacher wrote a paper
 'The teacher wrote.'/'The teacher wrote a paper.'
- (44) O Da Vinci pintava./ O Da Vinci pintou a Mona Lisa.¹⁶
 the Da Vinci painted/ the Da Vinci painted the Mona Lisa
 'Da Vinci painted.'/'Da Vinci painted the Mona Lisa.'
- (45) A Matilde costurava./ A Matilde costurou um vestido.¹⁷
 the Matilde sewed / the Matilde sewed a dress
 'Matilde sewed.'/'Matilde sewed a dress.'

Sentences such as the ones presented above are traditionally considered examples of a type of transitivity alternation. These sentence forms denote different types of eventualities. The transitive ones (considered structures with “verbs of creation”) denote accomplishments¹⁸ and the intransitive ones denote activities.

Another property which distinguishes both classes is the entailment of the use of an instrument by the agent. *Correr* verbs can only accept, in some cases, an instrument, but *escrever* verbs entail the use of an instrument by the agent. Here, we assume that instruments are things, entities of the outside world, which someone uses.¹⁹ In the following examples, we show the behavior of *escrever* and *correr* in respect to the instrument entailment:

¹⁶ *Uma pintura* is not a cognate object in the grammatical sentence *Da Vinci pintava uma pintura*. It is actually a direct object argument of the verb. This phrase can occur in preverbal position and can be pronominalized: *uma pintura Da Vinci pintava/Da Vinci a pintava* ‘Da Vinci painted a picture/Da Vinci painted it’. For details, see Scher and Leung (2005) and Leung and Scher (2006).

¹⁷ *Pintar* and *costurar* are polysemous verbs. Their transitive forms can have both a creation interpretation (exemplified in (44) and (45)) and an affectedness interpretation (exemplified by sentences such as *o pedreiro pintou a parede* ‘the bricklayer painted the wall’ and *a Matilde costurou o remendo na saia* ‘Matilde sewed a patch on the skirt’). In these cases, the nouns related to the verbs do not have a manner interpretation. In this paper, we only analyze the creation sense of these verbs.

¹⁸ That is why we use the perfective grammatical aspect of the verb (*pretérito perfeito do indicativo*) in the examples of transitive sentences. According to Comrie (1976), the perfective grammatical aspect is more compatible with accomplishment verbs.

¹⁹ An anonymous reviewer pointed out that a part of the agent’s body could be understood as an instrument and, in this case, *correr* verbs would also entail the use of an instrument. We assume, therefore, that instruments cannot be part of the agent’s body. Note that even in sentences such as *he wrote something with his finger*, the use of an entity of the outside world, such as paint, sand or something else, is entailed.

- (46) a. O professor escreve com caneta azul.
 the teacher writes with pen blue
 'The teacher writes with blue pens.'
- b. #O professor escreve, mas não usa nenhum instrumento para isso.
 the teacher writes but not use any instrument for that
 'The teacher writes, but he doesn't use any instrument for that.'
- (47) a. O atleta corre com uma perna mecânica.
 the athlete runs with a leg mechanical
 'The athlete runs with a mechanical leg.'
- b. O atleta corre, mas não usa nenhum instrumento para isso.
 the athlete runs but not use any instrument for that
 'The athlete runs, but he doesn't use any instrument for that.'

The sentence in (46b) is contradictory, which shows that the use of an instrument is an entailment of *escrever* 'write'. Contrarily, the sentence in (47b) is not contradictory, which means that *correr* 'run' does not entail the use of an instrument. Besides, in (47) the adjunct is a special type of instrument, called "implement" by Van Valin (2005). The author shows that implements cannot appear in subject position (**uma perna mecânica corre*), differently from real instruments (*a caneta azul escreve* 'the blue pen writes').

Based on these properties, we are able to divide agentive activity verbs in two types: *escrever* verbs and *correr* verbs. As we assume that lexical semantics determines syntactic argument realization, the different behavior of these verbs in relation to the occurrence of cognate direct objects and the transitivity alternation motivates two distinct lexical semantic representations for these classes. In the following lines, we provide evidence that the *escrever* class must be represented by a structure containing the primitive predicate ACT and a *manner* root.

Escrever verbs cannot occur with cognate objects, as shown in (48)–(50).

- (48) *O professor escrevia uma escrita bela.
 the teacher wrote a writing beautiful
- (49) *O Da Vinci pintava uma pintura difícil.
 the Da Vinci painted a painting difficult
- (50) *A Matilde costurava uma costura sem defeitos.
 the Matilde sewed a sewing without defects

The ungrammaticality of such sentences shows that there is not a noun denoting an event in these verbs' lexical meaning that could be extracted and modified. Consequently, these verbs' roots cannot be associated with the ontological category *event*. This assumption can be reinforced by the *durar* 'last' ("take time") test proposed before: events, in opposition to manners, things, or places, can last in time (Moens and Steedman 1988). So, DPs that denote manner cannot occur in subject position of *durar* 'last'. That is the case of DPs formed with nouns related to *escrever* verbs, as in (51)–(53).

(51) *A escrita durou horas.
the writing lasted hours

(52) *A pintura durou horas.
the painting lasted hours

(53) *A costura durou horas.
the sewing lasted hours

In fact, the manner denoting nouns, such as *escrita*, *pintura*, and *costura*, can occur with *escrever* verbs, in a type of cognate DP headed by the preposition *com* 'with'. See (54)–(56).

(54) O professor escrevia com uma escrita antiga.
the teacher wrote with a writing old
'?The teacher wrote with old writing.'

(55) O Da Vinci pintava com pintura texturizada.
the Da Vinci painted with painting texturized
'?Da Vinci painted with texturized painting.'

(56) A Matilde costurava com costura reta.
the Matilde sewed with sewing straight
'?Matilde sewed with straight sewing.'

This syntactic property evidences the existence of the manner component in the verbs of this class. As we have already pointed out, Jackendoff (1990) argues that cognate phrases can be used to specify some components of the verbs' meaning. Also, Levin (1993) argues that cognate DPs in prepositional phrases contribute additional

information to the related verb through the use of a modifier of some kind. As other cognate nouns, the nouns shown above cannot occur without a modifier: **o professor escreveu com escrita*. Just as the cognate direct objects of *correr* verbs, the DPs in the examples above specify the content of the verbs' root, transferring the noun modification to the verb. In these cases, the specification is over the manner in which someone acts. The sentence in (54), for example, can be interpreted as *the manner in which the teacher writes is in an old fashioned way*. Thus, we associate the nouns inside the cognate DPs with the manner semantic component. Interestingly, *correr* verbs, which we propose not to be manner verbs, do not allow cognate DPs headed by *com* 'with': **o atleta correu com uma corrida rápida*.

Another piece of evidence for a *manner* classification of *escrever* verbs' roots is that this class has no semelfactive verbs. In accordance with Harley's (2005) proposal, shown above, semelfactives emerge from bounded *event* roots; *manner* roots are always unbounded, and give rise only to activity verbs.

Concluding, we propose that the primitive predicate ACT is the most adequate one to represent the argument structure of *escrever* verbs, since we have shown that they have *manner* roots. ACT is a monadic predicate that takes a variable as argument and can be modified by a *manner* root (Levin and Rappaport Hovav 2005; Wunderlich 2012). The structures are exemplified below:

(57) *verb*: [X ACT<MANNER>]

(58) *escrever* 'write': [X ACT<ESCRITA 'writing'>]

(59) *pintar* 'paint': [X ACT<PINTURA 'painting'>]

(60) *costurar* 'sew': [X ACT<COSTURA 'sewing'>]

Now let us turn to the transitive form of these verbs. As we have pointed out, these verbs can occur with canonical direct objects, in a transitive form denoting an accomplishment eventuality. As the intransitive forms, the transitive sentences also accept cognate DPs headed by *com* 'with', what shows that these verbs maintain the manner component in the alternate form. See the following examples:

(61) O professor escreveu a carta com uma escrita antiga.
 the teacher wrote the letter with a writing old
 'The teacher wrote the letter with old writing.'

(62) O Da Vinci pintou o quadro com pintura texturizada.
 the Da Vinci painted the picture with painting texturized
 'Da Vinci painted the picture with texturized painting.'

(63) A Matilde costurou o vestido com costura reta.
 the Matilde sewed the dress with sewing straight
 'Matilde sewed the dress with straight sewing.'

This assumption can be reinforced by another construction in BP, a type of manner modification with the use of diminutives:

(64) O professor escreveu a carta bem escritinha.
 the teacher wrote the letter well written.DIM²⁰
 'The teacher wrote the letter well.'

(65) O artista pintou o quadro bem pintadinho.
 the artist painted the picture well painted.DIM
 'The artist painted the picture well.'

(66) A Matilde costurou o vestido bem costuradinho.
 the Matilde sewed the dress well sewed.DIM
 'Matilde sewed the dress well.'

According to Barbosa (2008), these types of constructions in BP are modifiers, denoting the manner in which someone acts.²¹ The sentence in (64) above, for example, can be paraphrased by *o professor escreveu bem a carta* 'the teacher wrote the letter well', indicating that the adverb *bem* 'well' modifies the way in which he wrote (carefully, attentively, with good spelling, and so on).

We can be sure, then, that the manner component is also part of the verbs' argument structure in the transitive form. We propose that these verbs have an alternate argument structure which maintains [X ACT<MANNER>]. In predicate decomposition approaches, accomplishments are assumed to be represented by two subevents, related by a causal predicate (Dowty 1979; Pinker 1989; Rappaport Hovav and Levin 1998). The first subevent, in this case, can be represented by the same structure of the intransitive form. The second subevent must be a structure

²⁰ DIM = diminutive

²¹ See also the analysis of similar sentences in Spanish in Demonte (1991) and Armstrong (2012).

representing the result of the action. Following Dowty (1979) and Van Valin (2005), we argue that if someone writes, paints or sews something, the result is the existence or the creation of an object. Thus, based on Van Valin's (2005) primitive predicate EXIST, we assume the following predicate decomposition representation for the transitive form of *escrever* verbs:²²

(67) *verb*: [[X ACT<MANNER>] CAUSE [Y EXIST]]

(68) *escrever* 'write': [[X ACT<ESCRITA 'writing'>] CAUSE [Y EXIST]]

(69) *pintar* 'paint': [[X ACT<PINTURA 'painting'>] CAUSE [Y EXIST]]

(70) *costurar* 'sew': [[X ACT<COSTURA 'sewing'>] CAUSE [Y EXIST]]

As the verb's root is part of the first subevent in the transitive form and cannot be omitted in both forms, we assume that the basic argument structure of these verbs is represented simply by the structure [X ACT<MANNER>]. These verbs enter a type of argument structure alternation, which derives their transitive counterpart.

With the argumentation presented in this Section, we believe to have motivated the existence of two distinct classes of agentive activity verbs. Besides, we have shown a series of syntactic properties of these classes that evidence their lexical semantic representations. In order to account for the differences we have pointed out, we propose that it is necessary to maintain ACT, as well as DO, in the primitive predicates list.

It is worth, at this point, to make some comments about the theoretical consequences of postulating both predicates DO and ACT. First, we note that within the approach delineated in section 2, it is necessary to keep both primitive predicates, as we have shown that verbs represented with one or the other have different syntactic properties. For example, only DO verbs are able to take cognate direct objects and only ACT verbs are able to take canonical direct objects. Moreover, we should keep in mind that an economic analysis must not overlap an adequate description. In terms of verb classes, specially, we must never underestimate the complexity of language. For example, Levin (1993) lists dozens of verb classes for English and VerbNet lists hundreds (Kipper, Dang and Palmer 2000). Portuguese studies have also reached a significant number of classes (for Portuguese studies see Cançado, Godoy and Amaral 2013 and references therein). Assuming that each class will have its own lexical-

²² For an alternate analysis of these verbs in BP, see Amaral and Cançado (2014) and Amaral (forthcoming).

semantic structure, we cannot suppose that having both DO and ACT in an inventory of primitive predicates is a non-parsimonious theoretical choice.

5. Final Remarks

In this paper, we proposed that there are two classes of intransitive agentive activity verbs in BP. Each one of these classes has different syntactic properties and, as we assume that syntax is determined by lexical semantics, we propose that they should have distinct argument structures (or lexical semantic representations).

The verbs of the *correr* class contain an event component in their lexical meaning, their roots, which are ontologically classified as *event* (Hale and Keyser 2002; Harley 2005). We argued that in a predicate decomposition approach to verb semantics, within an approach to the syntax-lexical semantics interface, *correr* verbs should be represented by a structure with the primitive predicate DO. DO is a dyadic primitive predicate, which takes a variable X and an *event* root as arguments. We have shown that semantic and syntactic properties of these verbs, namely, the eventive denotation of nouns related to them and the possibility of a cognate direct object that specifies an event support our claim.

The verbs of the *escrever* class are manner verbs. Unlike *correr* verbs, these verbs can occur with canonical direct objects and they also entail the use of an instrument, which can appear in adjunct position. We have shown that they also occur with cognate DPs headed by *com* 'with' and a type of modification with diminutives (in the transitive form), which express a specification of the agent's manner of acting. These properties point to the fact that they are manner verbs, having ACT as a primitive predicate in their semantic structure. Differently from DO, ACT is monadic; it takes one argument X and can be modified by a *manner* root. As the transitive forms of these verbs also describe manners, we propose that they can be represented by the structure [[X ACT<*MANNER*>] CAUSE [Y EXIST]], derived by a process of argument structure alternation.

Finally, with these two classes, we have motivated the existence of both DO and ACT in an inventory of primitive predicates.

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