CAUSATIVE EVENTIVE CHAINS AND SELECTION OF AFFIXES IN PORTUGUESE NOMINALISATIONS

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ABSTRACT: In Portuguese, different suffixes are used to construct event deverbal nouns from the same base verb. In this paper, we focus on deverbal nouns constructed from causative verbs. Being event nouns, the meanings of the derivatives of these suffixes differ slightly. We aim to contribute to the understanding of the mechanisms involved in semantic rivalry between affixes, specifically with regard to the knowledge of the semantic features of the verbal base that are sensitive to the semantics of each affix. We propose that the semantic features of the affix must be semantically compatible with semantic features of the lexical-semantic structure of the base verb. Because of a coindexation mechanism (Lieber 2004), the semantic features of the affix will coindex with the semantic features of the verb that are most compatible with its own features (Rodrigues & Rio-Torto 2013; Rodrigues 2008). Our hypothesis permits us to explain why there are so many verbs with different deverbal nouns, with different affixes. The affixes in those situations are not acting as rivals, since they are not competing with each other to exclude each other.

KEYWORDS: causative eventive chain, Portuguese deverbal nouns, semantic rivalry, word formation.

1. INTRODUCTION

In this work, we focus on Portuguese deverbal nouns constructed from causative verbs. In Portuguese it is possible to construct different event deverbal nouns (EDN) by means of different affixes. Examples of these affixes are presented in Table 1 (next page). Because of space limitations, we present only a small sample of these.

Although all the nouns presented in Table 1 are event nouns, their meanings are slightly different, depending on the affix each one contains. The aim of this work is to understand the mechanisms involved in semantic rivalry between affixes. Specifically, we will focus on the semantic features of the verbal base that are sensitive to the semantics of each affix.

In a Lexicalist framework (e.g., Halle 1973; Scalise 1984), each base has idiosyncratic information on the affix/es it may select. Other descrip-

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tions have challenged that traditional account, searching for systematic features that may relate classes of bases with certain affixes. These descriptions include those of Fábregas (2010) and Rodrigues (2008). A recent description of the relation between bases, affixes and the meanings of the derivatives is proposed by Melloni (2010).

BASE VERB	EDN IN *-mento*	EDN IN *-da*	EDN IN *-ção*	EDN IN *-dela*
abalroar 'to crash'	*abalroamento*	*abalroada*	*abalroação*	*abalroadela*
descongelar 'to thaw'	*descongelamento*	*descongelada*	*descongelação*	*descongeladela*

TABLE 1. DIFFERENT EVENT DEVERBAL NOUNS FROM THE SAME VERB.

First, we analyse Fábregas' hypothesis, which we call here an *all or nothing* hypothesis. Second, we propose that the selection of affixes in Portuguese event deverbal nominalisations should not be accounted for as an excluding operation. Instead, it should be observed as a parallel one, realised by a mechanism of semantic coindexation based on the semantic compatibility between the affix and the base (Rodrigues 2008; Rodrigues & Rio-Torto 2013). We conclude that affixes are not acting as rivals, since they do not compete with each other to exclude each other. Some verbs exclude some affixes because they are not semantically compatible. The problem occurs when the same verb seems to let every affix join it.

To evaluate the semantic compatibility between affixes and bases, we aimed to determine if the EDNs are compatible with some constructions, such as *por* 'by'-phrase, "negative + *ficar* 'to get' + past participle", modifiers such as *rápido* 'quick' and *negligent* 'negligent', light verb *dar* 'to give' and *estar a assistir a* 'to be attending something' / *ir proceder* 'to go to proceed with'. We tested these contexts by asking 30 native speakers of European Portuguese to classify sentences with EDNs as acceptable or not. The participants were males and females between 18-30 years old. They were university students with no explicit knowledge of linguistics.

There are two rationales that account for the methodology used:

i) It is a challenge to find some of the constructions with the EDNs under focus in corpora;

ii) Corpora do not indicate unacceptable sentences. The fact that a certain construction does not appear in a corpus does not mean that the construction is unacceptable. For the evaluation of EDNs in this work, examining the unacceptability of constructions is as important as checking their acceptability.

Nevertheless, real examples are provided, when real acceptable constructions were found in corpora or in Google searches. Corpora analysis was carried out using Linguateca (http://www.linguateca.pt/CETEMPublico/). A lack of corpora/Google examples indicates that no examples were found in the corpora/Google search.

The suffixes under focus are *-ção*, *-mento* and *-dela*/*-da*. Our study revealed that suffixes *-da* and *-dela* share the same features. Both suffixes seem to be used under the same conditions. The shared etymology of these suffixes certainly results in the similar usage of both suffixes. According to Meyer-Lübke (1895: 591-593), the suffix *-dela* is the result of the attachment of a diminutive suffix (*-ela*), which came from the Latin suffix -ELLUS, A, to the suffix *-da*. Notice, however, that synchronically, suffix *-dela* is autonomous from suffix *-da*. Following Rodrigues (2013: 174-175), two main arguments support this view:

i) There are many EDNs with *-da* that do not present the correlated *-dela* affixation (*ferida* 'wound' / **feridela*, *alvorada* 'sunrise' / **alvoradela*) and vice versa (*furtadela* / **furtada*);

ii) In the case of nouns deriving from verbs of the 2nd conjugation, with the theme vowel *-e-* (*e.g. correr* 'to run', *lamber* 'to lick'), suffix *-dela* may choose the theme in *-e-* of the verb (*corredela* 'quick and short run, *lambedela* 'quick lick'), besides the theme in *-i-* (*corridela* 'quick and short run', *lambidela* 'quick lick'), which is the past participle theme of the verbs of theme *-e-*, and which is the base of EDNs with *-da* (*lambida*, *corrida* from the verbs *lamber* 'to lick' and *correr* 'to run', respectively).

Apart from the similar usage of both series of derivatives, a dialectal variation is observed here: the suffix *-dela* is more productive in European Portuguese than in Brazilian Portuguese; whilst the suffix *-da* is more productive in Brazilian Portuguese than in European Portuguese. In fact, Google searches show that in Brazilian Portuguese the attachment of *-da* to almost any verb used in a construction with the light verb *dar* 'to give' is very frequent and productive. To avoid redundant data and given the similarity of suffixes *-da* and *-dela*, we will stick to one of those affixes when giving examples of them.

2. AFFIX SELECTION: THE *ALL OR NOTHING* HYPOTHESIS

One way to explain empirical data where some verbs reject certain affixes and choose other affixes is what we call here an *all or nothing* hypothesis. Table 2 provides examples of verbs that only select certain affixes and reject others when forming EDNs. This data supports an *all or nothing* hypothesis.

Base verb	EDN in -*mento*	EDN in -*da*	EDN in -*ção*	EDN in -*dela*
empobrecer 'to become poor; to impoverish'	*empobrecimento*	*empobrecida*	**empobreção*	*empobrecidela*
enegrecer 'to blacken'	*enegrecimento*	*enegrecida*	**enegreção*	*enegrecidela*
escurecer 'to darken'	*escurecimento*	*escurecida*	**escureceção*	*escurecidela*
envelhecer 'to age'	*envelhecimento*	*envelhecida*	**envelheceção*	*envelhecidela*
economizar 'to economise'	**economizamento*	*economizada*	*economização*	*economizadela*
organizar 'to organise'	**organizamento*	*organizada*	*organização*	*organizadela*
idealizar 'to idealise'	**idealizamento*	*idealizada*	*idealização*	*idealizadela*
fossilizar 'to fossilise'	**fossilizamento*	*fossilizada*	*fossilização*	*fossilizadela*

TABLE 2. AFFIX SELECTION IN EVENT DEVERBAL NOUN (EDN) FORMATION.

In Table 2, the verbs with the affix operator -*ec*- (*empobrecer* 'to become poor; to impoverish', *enegrecer* 'to blacken', *escurecer* 'to darken', *envelhecer* 'to age') reject event nominalisations with the suffix -*ção*. These facts cannot be explained by productivity reasons. The suffix -*ção* is one of the most productive nominalisers of contemporary Portuguese (Rodrigues 2008: 291:307; Rodrigues 2013: 159-160).

Verbs with the affix -*ec*- adopt the suffix -*mento* as nominaliser in European and Brazilian Portuguese. In Brazilian Portuguese, suffixation with -*da* is very productive. In fact, nouns such as *enegrecida*, *empobrecida*, *envelhecida* and *escurecida* frequently appear in constructions with the light verb *dar* 'to give'. This can be confirmed by a Google search.

Verbs with the suffix -*iz*- (*economizar* 'to economise', *organizar* 'to organise', *idealizar* 'to idealise', *fossilizar* 'to fossilise') reject the suffix -*mento* as nominaliser. Again, the rejection of the suffix -*mento* requires an explanation different to non-productivity, considering that this suffix is very productive. Verbs with -*iz*- select the suffix -*ção* in European and Brazilian Portuguese. In Brazilian Portuguese, these verbs also construct nouns with the suffix -*da* that appear in constructions with the light verb *dar* 'to give'.

Regarding the selection of the suffix -*dela* by verbs with -*ec*- and -*iz*, we have not found these constructions in a dictionary or Google search. However, on presentation to the 30 European Portuguese native speakers, all of them accepted these nouns. These findings lead us to ask why verbs with the affix -*ec*- reject -*ção* and adopt -*mento* on event nominalisations, and in contrast, why verbs with the suffix -*iz*- reject -*mento* and adopt -*ção*. An answer to this will be given in Section 4.1. This enquiry comes from data that may lead to an *all or nothing* hypothesis.

2.1 *What is an* all or nothing *hypothesis?*

An *all or nothing* hypothesis is an explanation that decides the acceptability of affix selection by the following principle:

> *If a base has x in its features, it selects affix 1 and rejects affix 2;*
> *if a base has y in its features, it selects affix 2 and rejects affix 1.*

> Focusing on verbs that have been formed by the affix opera-tors *-iz-* and *-ec-*, an *all or nothing* hypothesis may be applied. It is possible to formulate that:

> - *If a verb has the affix* -ec- *in its morphological structure, it will adopt the suffix* -mento *as a nominaliser and it will reject* -ção.
> - *If a verb has the suffix* -iz- *in its morphological structure, it will adopt* -ção *as a nominaliser and it will reject* -mento.

A problem, however, occurs with the following data:

- a) verbs with *-ec-* and *-iz-* are only a small set of the verbs that con-struct EDNs (cf. Rodrigues 2008: 148-149);[1]
- b) many other verbs accept both *-mento* and *-ção* as well as other event nominalisers.

These data require an explanation to account for the multiple-affix ac-ceptability by the same verb. That explanation will be provided in Sec-tions 3 and 4. Before that, we would like to describe a hypothesis, which we think may exemplify the *all or nothing* hypothesis. After describing the hypothesis, we will test its application to Portuguese event nominalisa-tions. The hypothesis has been formulated by Fábregas (2010) and concerns Spanish nominalisations.

Fábregas (2010) proposed that in Spanish, the selection of the different nominalising suffixes depends on the semantic features of the internal argu-ment of the base verb. Two classes of internal arguments are considered: *rheme path objects* (terminology from Ramchand 2008) and *undergoers*. Rheme path objects are those objects that influence the aspect of the verb according to their own bounded/unbounded character. A mass noun, which is unbounded, leads to an atelic reading of the verb (1a). A count noun, which is bounded, leads to a telic reading of the same verb (1b).

(1)   a. *A Ana comeu arroz durante uma hora.*
           'Ana has been eating rice for one hour.'
    b. *A Ana comeu dois bolos em 5 minutos.*
           'Ana ate two cakes in 5 minutes.'

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[1] Of a total of 2344 EDNs in *-ção*, only 12,5% come from verbs with *-iz-* (Rodrigues 2008: 148).

Undergoers are internal arguments that experience a process, but do not delimit the extension of the process. The count/mass character of the undergoer does not influence the aspectual reading of the verb (cf. (2a)-(2b)).

(2)   a. *A Ana transportou uma mesa durante 1 hora.*
            'Ana has carried one table during one hour.'
       b. *A Ana transportou terra durante uma hora.*
            'Ana has carried soil during one hour.'

According to Fábregas (2010), in Spanish, verbs of change of state with a rheme path object originate nominals with the suffix *-da/-do*, but not with the suffix *-miento*. In contrast, verbs of change of state with an undergoer choose the suffix *-miento* and not *-da/-do*.

These statements belong to the *all or nothing* hypothesis because, if Fábregas is right, *-miento* and *-da/-do* have an exclusive character, since the conditions that admit one suffix exclude the conditions that admit the other suffix.

2.2 *Excluding an* all or nothing *hypothesis*

Bearing in mind that Portuguese and Spanish are both Iberian Romance languages, we investigated whether Fábregas' hypothesis applies to the description of Portuguese nominalisations. The analysis of Portuguese data does not support Fábregas' hypothesis. Of course, this does not mean that the hypothesis is wrong regarding Spanish. In Portuguese, there are verbs with rheme path objects that choose the suffix *-mento* for the construction of event nouns; and there are verbs with undergoers that select the suffix *-da* for the same purpose.

Examples (3a) and (3b) show that the verb *descer* 'to lower, to take down' is a verb with a rheme path object.

(3)   a. *O João desceu a persiana em dois segundos.*
            'João pulled down the blind in two seconds.'
       b. *O João desceu os preços durante dois anos.*
            'João has lowered the prices during two years.'

Nevertheless, the verb *descer* presents a deverbal noun with the suffix *-mento* (*descimento* 'event of lowering, taking something down'), which goes against Fábregas' hypothesis (cf. (4a) and (4b)).

(4)   a. *O descimento dos índios pelas tropas para as povoações portuguesas.*[2]
            'The bringing down of the Indians by the troops to the Portuguese villages.'

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[2] The transitive construction of *descer* is clear in the following utterance: "Esses índios aldeados e aliados eram recrutados pelas 'tropas de **descimentos**', ou seja, **eram** '**descidos**' [bold indicates our emphasis], isto é, trazidos de suas tribos do interior ('sertão') para junto das povoações portuguesas, onde eram catequizados e 'civilizados', de modo a tornarem-

    b. *O descimento de Cristo da cruz.*
      'The descent of Christ from the cross.'

The same verb presents the noun *descida*, with the suffix *-da*.

Other examples of verbs with a rheme path object that give rise to nouns with the suffix *-mento* are given in Table 3.

VERBS WITH RHEME PATH OBJECT	DEVERBAL NOUN WITH THE SUFFIX *-MENTO*
bronzear 'to tan'	*bronzeamento* 'event of tanning'
envernizar 'to varnish'	*envernizamento* 'event of varnishing'
descascar 'to peel'	*descascasmento* 'event of peeling'

TABLE 3. EXAMPLES OF VERBS WITH RHEME PATH OBJECTS, BUT WITH DEVERBAL NOUNS IN *-MENTO*.

The other part of Fábregas' hypothesis would suggest that verbs of change of state with an undergoer choose the suffix *-miento* and not *-da/-do*. However, many examples in Portuguese contradict this hypothesis for Portuguese. In fact, there are many verbs with undergoers that present deverbal nouns with the suffix *-da*. This is especially frequent in Brazilian Portuguese, where the deverbal noun in *-da* occurs in light verb constructions, such as the ones presented in Table 4.

VERBS WITH UNDERGOER	DEVERBAL NOUNS IN *-DA*	DEVERBAL NOUNS IN *-DA* IN LIGHT VERB CONSTRUCTIONS
processar 'to process'	*processada* 'event of processing'	*dar uma processada* [literally] 'to give a processing'
pensar 'to think'	*pensada* 'event of thinking'	*dar uma pensada* [literally] 'to give a thinking'
aquecer 'to heat'	*aquecida* 'event of heating'	*dar uma aquecida* [literally] 'to give a heating'
esfriar 'to cool'	*esfriada* 'event of cooling'	*dar uma esfriada* [literally] 'to give a cooling'
engordar 'to fatten'	*engordada* 'event of fattening'	*dar uma engordada* [literally] 'to give a fattening'

TABLE 4. EXAMPLES OF VERBS WITH UNDERGOERS THAT PRESENT DEVERBAL NOUNS WITH THE SUFFIX *-DA*.

-se úteis à Coroa. Deles dependia o sustento dos moradores e a defesa da colônia." (Those Indians introduced in villages and who were Portuguese-allied were recruited by 'troops of bringing down', that is, were 'brought down', that is, they were brought from their tribes from the interior ('sertão') to the Portuguese villages, where they were taught the Catechism and 'civilised', in a way they could be useful to the Crown. The nourishing and the defence of the colony depended on them.) From: http://parahistorico.blogspot.pt/2009/02/trabalho-e-escravidao-indigena-no-para.html (accessed on June 18, 2013).

As the Portuguese data shows, affix selection is not sensitive to the distinction between rheme path objects and undergoers. The verbs presented in Tables 3 and 4 may be bases of verbs with the suffixes -*da* and -*mento*, as exemplified in Table 5.

Verbs with undergoers	Deverbal nouns with -*DA*	Deverbal nouns with -*MENTO*
processar 'to process'	*processada* 'event of processing'	*processamento* 'event of processing'
pensar 'to think'	*pensada* 'event of thinking'	*pensamento* 'event of thinking'
aquecer 'to heat'	*aquecida* 'event of heating'	*Aquecimento* 'event of heating'
esfriar 'to cool'	*esfriada* 'event of cooling'	*esfriamento* 'event of cooling'
engordar 'to fatten'	*engordada* 'event of fattening'	*engordamento* 'event of fattening'
Verbs with rheme path objects	Deverbal nouns with -*da*	Deverbal nouns with -*mento*
bronzear 'to tan'	*bronzeada* 'event of tanning'	*bronzeamento* 'event of tanning'
envernizar 'to varnish'	*envernizada* 'event of varnishing'	*envernizamento* 'event of varnishing'
descascar 'to peel'	*descascada* 'event of peeling'	*descascasmento* 'event of peeling'
descer 'to pull down; to lower'	*descida* 'event of pulling down; lowering; descent'	*descimento* 'event of pulling down; event of lowering; descent'

TABLE 5. VERBS WITH UNDERGOERS AND VERBS WITH RHEME PATH OBJECTS WITH DEVERBAL NOUNS WITH -*DA* AND -*MENTO*.

In earlier works (Rodrigues 2008, 2009, 2012, Rodrigues & Rio-Torto 2013), we have proposed that semantic compatibility between suffixes and bases is responsible for the affix selection. Although aspect does not prove to be important in suffix selection in Portuguese deverbal nominalisations in the way it is described by Fábregas for Spanish, aspectual features do have an important contribution to the deverbal noun formation, as we will show in Sections 3, 4 and 5.[3]

We question those perspectives that consider affix selection as a matter of blocking that operates in an *all or nothing* mode, i.e., if a verb has a certain feature, the verb blocks the adjunction of a certain affix and requires the adjunction of another one. The examples in Tables 2-5 cast doubt on the *all or nothing* mode description of the way suffix selection operates. It

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[3]   As it is well known, aspect also has an important influence on the reading of the deverbal noun. For a recent perspective on this, cf. Meinschaefer (2005).

is intriguing that the same verb may accept so many suffixes that operate in the same word formation rule. An explanation is required to account for the multiple-affix acceptability by the same verb and for the non-blocking of synonyms by means of affix rivalry.

3. MULTIPLE-AFFIX SELECTION

Instead of considering an *all or nothing* hypothesis, we propose a hypothesis that is not excluding in character. This type of hypothesis should not only provide an explanation for the multiple-affix acceptability, but also for those situations where affixes seem to exclude each other. A multiple-affix acceptability occurs when the same base accepts more than one affix for the construction of the same kind of derivatives. An excluding-affix acceptability occurs when the same kind of bases exclude a certain affix and adopt another one.

Notice, however, that many verbs show a multiple-affix acceptability towards some affixes and an excluding-affix acceptability towards other affixes. This is illustrated by verbs with the suffixes *-iz-* and *-ec-*, whose data we synthesize in Table 6. This means that multiple-affix acceptability and excluding-affix acceptability are not mutually exclusive. Verbs with *-ec-* and *-iz-* act with an excluding-affix acceptability towards the suffixes *-ção* and *-mento*. Verbs with *-ec-* adopt the particular affix *-mento* and this adoption systematically co-occurs with the rejection of the affix *-ção*. On the contrary, *-iz-* verbs adopt the particular affix *-ção* and they systematically reject the suffix *-mento*. Nevertheless, the same verbs act with a multiple-affix acceptability in relation to the suffixes *-da* and *-dela*, jointly with *-mento* or *-ção*.

	SUFFIX *-MENTO*	SUFFIX *-ÇÃO*	SUFFIX *-DA*	SUFFIX *-DELA*
VERBS WITH *-EC-*	+	-	+	+
VERBS WITH *-IZ-*	-	+	+	+

TABLE 6. MULTIPLE-AFFIX ACCEPTABILITY AND EXCLUDING-AFFIX ACCEPTABILITY IN VERBS WITH THE AFFIXES *-EC-* AND *-IZ-*.

Our proposal is grounded in the notion of compatibility between the semantic features of the suffix and those of the verb (for the notion of compatibility, cf. Rodrigues 2008; Rodrigues & Rio-Torto 2013). Notice that here we are concerned with semantic factors in affix selection. Other structures (syntactic, phonological), and even pragmatic factors, may interfere with affix selection (Rodrigues 2008, 2012; Rodrigues & Rio-Torto 2013; cf. Bauer et al. 2013: 195-215 for a description of restrictions on bases involved in English event nominalisations).

We depart from the empirical observation that the suffix contains semantic features. The semantic features of the affixes may be observed in two complementary ways:

i) comparing derivatives from different bases having in common the same affix (Tables 7.1, 7.2 and 7.3);

ii) contrasting derivatives from the same base with different affixes (as presented in Table 1).

Base verb	EDN in -*mento*
endividar 'to get in debt'	*endividamento*
alinhar 'to align'	*alinhamento*
endoidecer 'to go insane'	*endoidecimento*
estacionar 'to park'	*estacionamento*
desenvolver 'to develop'	*desenvolvimento*
entupir 'to block'	*entupimento*

TABLE 7.1 DERIVATIVES FROM DIFFERENT BASES SHARING THE AFFIX -*mento*.

Base verb	EDN in -*da*
achar 'to find'	*achada*
olhar 'to look at'	*olhada*
derrubar 'to knock down'	*derrubada*
cozinhar 'to cook'	*cozinhada*
jogar 'to play'	*jogada*
ler 'to read'	*lida*

TABLE 7.2 DERIVATIVES FROM DIFFERENT BASES SHARING THE AFFIX -*da*.

Base verb	EDN in -*ção*
compensar 'to compensate'	*compensação*
avaliar 'to evaluate'	*avaliação*
resignar 'to resign'	*resignação*
modificar 'to modify'	*modificação*
inalar 'to inhale'	*inalação*
restituir 'to return; to restore'	*restituição*

TABLE 7.3 DERIVATIVES FROM DIFFERENT BASES SHARING THE AFFIX -*ção*.

All the derivatives presented in Tables 7.1, 7.2, 7.3 mean 'event'. However, there are semantic differences between them due to the specific affix used to construct each one. Those semantic differences have consequences on the construction of the sentences where those nouns may be inserted.

Martin (2010) has proposed different properties for the French affixes *-age*, *-ment* and *-ion*. Those properties have to do with: i) the length of the eventive chain of the verbal base; ii) the degree of agentivity of the subject;

iii) the incremental relation between the event and the theme; iv) ontological domains; and v) discontinuity.

In Rodrigues (2008), we have distinguished the semantic features of Portuguese suffixes that form EDNs. Now we will relate those semantic features to some of the properties proposed by Martin (2010) for French, and with other properties that we advance here (Section 3). We will only focus on the properties proposed by Martin that are relevant for the distinction of Portuguese deverbal nouns, i.e., length of the eventive chain: i) acceptability of a *by*-phrase; and ii) acceptability of the change of state.

The first property proposed by Martin (2010) concerns the length of the eventive chain. Following Levin & Rappaport Hovav (1995: 94), we consider that a causative verb has the following lexical-semantic structure:

$$[[x \text{ DO-SOMETHING] CAUSE } [y \text{ BECOME } STATE]]$$

A verb such as *empobrecer* 'to impoverish, to get poor' has two constructions. A transitive causative one is realised in (5).

(5) *A conjuntura empobreceu o país.*
     'The conjuncture impoverished the country.'

An intransitive unaccusative construction is realised in (6).

(6) *O país empobreceu.*
     'The country got poor.'

Whilst the sentence in (5) denotes the full causative eventive chain, the one in (6) denotes only the change of state, which is a subevent of the full causation chain. A suffix may be sensitive to the full causative eventive chain denoted by the verb or only to a subevent of the causation chain. According to Martin (2010: 118-119), in French the suffix -*ment* only selects the subevent that indicates the change of state of the event, and -*age* selects the entire causation chain.

Martin (2010: 118-119) does not provide enough empirical evidence to convince us of the distinction between the meanings of two deverbal nouns such as *gonflage* 'event of inflating, blowing up' and *gonflement* 'event of inflating, blowing up, inflation'. The author suggests that the noun *gonflement* requires a *by*-phrase to get the full causation chain captured in its meaning. Contrarily, the noun *gonflage* gets the full causation chain meaning on its own, with no need for the compositionality with the *by*-phrase. However, in both cases, there is no context that clearly indicates which one of the meanings is understood.

3.1 Length of the eventive chain: acceptability of a by-phrase

To obtain sufficient empirical support for the validity of the property proposed by Martin, we suggest that the length of the causative eventive chain should be checked against a criterion such as the (non) acceptability of a *by*-phrase. If the event noun rejects the *by*-phrase, the event noun does not provide for the instigator subevent of the full event. This property has a relation with agentivity, which is documented by Martin (2010: 122). The acceptance of the *by*-phrase has to do with the acceptance of the external argument that realises the instigator/agent of the event. The fact that nominalisations take the external argument of the verbal base as non-obligatory has been noticed by many authors (e.g., Grimshaw 1990; Alexiadou 2001). Sichel (2010) and Roeper (2005) offer useful summaries on this. What we aim to observe here is whether or not some deverbal nouns completely reject the external argument, not if they simply dispense with it.

To make this criterion valid and avoid false results, deverbal nouns from unergative verbs and unaccusative verbs lacking a causative construction should not be tested. This problem does not appear in our work, since we are studying the formation of deverbal nouns from causative verbs. Applying this property to Portuguese, we observe that deverbal nouns with the suffixes *-da/-dela* always reject the *by*-phrase (cf. (7a)–(7d)).

(7)   a.   *A arranjadela do candeeiro pelo Mário demorou dois segundos.
              '*The repairing of the lamp by Mário took two seconds.'
       b.   *A investigadela do assunto pelo João demorou dois minutos.
              '*The investigating of the subject by João took two minutes.'
       c.   *A mexedela dos ingredientes pela Ana demorou dois segundos.
              '*The mixing of the ingredients by Ana took two seconds.'
       d.   *A moidela do cereal pelo moleiro demorou dois minutos.
              '*The milling of the cereal by the miller took two minutes.'

Nouns derived from the suffix *-ção* accept a *by*-phrase, as can be seen in (8). Examples (8a)-(8f) were evaluated by native speakers. Sentences (8g)-(8h) were found in a Google search. Compare (8a) with (7b), and (8b) with (7d), where pairs of event nouns from the same verb present different reactions to the *by*-phrase, depending on the suffix, which has formed them.

(8)   a.   *A investigação do assunto pelo João demorou dois minutos.*
              'The investigation of the subject by João took two minutes.'
       b.   *A moição do cereal pelo moleiro demorou dois minutos.*
              'The milling of the cereal by the miller took two seconds.'

    c. *A mastigação das maçãs pela Ana demorou dois segundos.*
      'The chewing of the apples by Ana took two seconds.'

    d. *A abalroação do barquinho pelo navio deu-se rapidamente.*
      'The crashing of the small boat by the ship was fast.'

    e. *A refinação do açúcar pelo trabalhador demorou duas horas.*
      'The refining of the sugar by the worker took two hours.'

    f. *A descongelação do peixe pela Ana demorou dois minutos.*
      'The defrosting of the fish by Ana took two minutes.'

    g. "*O posicionamento favorável à possibilidade de **investigação pelo** Ministério Público baseia-se, basicamente, nos argumentos oriundos da Segurança Pública* [...]"[4]
      'The favourable position concerning the investigation by the Public Ministry is based, basically, on the arguments that come from the Public Security [...].'

    h. "*Avaliação pelo* superior hierárquico. É o método mais comum."[5]
      'Evaluation by the hierarchic superior. This is the commonest method.'

The responses of the native speakers indicated that nouns derived by means of the suffix *-mento* reject a *by*-phrase (9)-(10). Compare sentence (9a) with (7d) and (8b), and sentence (9b) with (8d), where derivatives from the same verbs behave differently towards the *by*-phrase, depending on the suffix.

(9)   a. *O moimento do cereal pelo moleiro demorou dois segundos.*
       '*The milling of the cereal by the miller took two seconds.'

    b. **O abalroamento do barquinho pelo navio deu-se rapidamente.*
       '*The crashing of the small boat by the ship was fast.'

Curiously, it is possible to find EDNs with the suffix *-mento* with the *by*-phrase construction, in corpora. This contrasts with the results obtained with the native speaker test. See, for instance (10a)-(10b):

(10)   a. *par=ext65712-soc-95a-2*: "*O carro patrulha começou então a perseguição, que terminou, após disparos que não feriram ninguém, com o **abalroamento** de uma outra viatura, **pelo carro dos suspeitos**.*"
       'The police car started, then the persecution, which ended after some shots that didn't hurt anyone, with the crashing of another car, by the suspects' car.'

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[4] https://www.google.pt/?gfe_rd=cr&ei=dwy4U6GEPOPe8gfD0YBY&gws_rd=ssl#q=%22investiga%C3%A7%C3%A3o+pelo%22.

[5] https://www.google.pt/?gfe_rd=cr&ei=dwy4U6GEPOPe8gfD0YBY&gws_rd=ssl#q=%22avalia%C3%A7%C3%A3o+pelo%22.

b. *par=ext151231-des-98a-1*: "[...] *e depois com o* **abalroamento** *do Willia-ms do campeão do mundo, o canadiano Jacques Villeneuve,* **pelo Tyrrell de Ricardo Rosset***, nos derradeiros instantes do treino em frente às pis-cinas*."

'[...] and then with the crashing of the world champion's Williams, the Canadian Jacques Villeneuve, by the Ricardo Rosset's Tyrrell, in the last moments of the training in front of the swimming poles.'

Notice that when the noun in -*mento* comes from a transitive verb with unaccusative alternation, the *by*-phrase seemed even more odd to the native speakers to whom we showed the sentences (11a,c,e). Sentences with the same nouns lacking the *by*-phrase (11b,d,f) were accepted.

(11)   a.   **O envelhecimento do papel pela Ana utilizando o fogo demorou dois minutos.*
'*The aging of the paper by Ana using fire took two minutes.'
b.   *O envelhecimento do papel ao sol demorou dois dias.*
'The aging of the paper under the sun took two days.'
c.   **O bronzeamento da pele pela Ana demorou duas semanas.*
'*The tanning of the skin by Ana took two weeks.'
d.   *O bronzeamento da pele demorou duas semanas.*
'The tanning of the skin took two weeks.'
e.   **O descongelamento do peixe pela Ana demorou dois minutos.*
'*The defrosting of the fish by Ana took two minutes.'
f.   *O descongelamento do peixe ao calor demorou duas horas.*
'The thawing of the fish under the heat took two hours.'

These results concerning verbs with unaccusative alternation are corrob-orated by corpora analysis. For instance, the EDNs *envelhecimento* 'aging' and *atrofiamento* 'atrophy', derived, respectively, from the verbs *envelhecer* 'to age' and *atrofiar* 'to atrophy', which admit a transitive and an unaccusa-tive construction, always appear in the corpus without the *by*-phrase (12).

(12)   a.   *par=ext88140-des-95b-1*: "*As razões do* **envelhecimento** *do coração são as do envelhecimento dos músculos.*"
'The reasons of the aging of the heart are those of the aging of the muscles.'
b.   *par=ext57650-clt-94b-1*: "*De outra forma, estaríamos a sustentar um severo* **envelhecimento** *do nosso património edificado, com graves con-sequências para vastos sectores económicos, bem como o* **atrofiamento** *do nosso já débil desenvolvimento arquitectónico.*"
'Otherwise, we would be sustaining a severe aging of our built patrimo-ny, with serious consequences for many economic sectors, as well as the atrophy of our already weak architectonic development.'

This indicates that the suffix *-mento* prefers the subevent [change of state] of the full eventive chain to the totality of the event. In terms of agentivity, the suffix *-mento* prefers the subevent that does not include the agent/instigator of the event, in constrast to the suffix *-ção* (cf. sentences (8e,f) and (11e,f)).

3.2 *Length of the eventive chain: acceptability of the change of state*

The lexical-semantic structure of a causative verb is represented by the schema [[*x* DO-SOMETHING] CAUSE [*y* BECOME *STATE*]]. In Section 3.1, we evaluated the acceptability of the first subevent of that structure by EDNs. In this section we will check for the acceptability of the last subevent. Martin (2010: 121) focused on this in a limited way, but we show this to be important for Portuguese nominalisers.

If the event noun refers to the causative eventive chain excluding the last subevent (change of state effect on the object), the noun will accept the "negative + *ficar* 'to get' + past participle" construction, like the one presented in sentence (13a) (cf. Jackendoff 1990: 133, who presents the same English construction with the same purposes). Compare sentences (13a) and (13b). In this last sentence, the change of state effect on the object is obligatorily implied in the causative eventive chain.

(13)   a.   *Derreti o chocolate, mas não ficou derretido.*
             'I have melted the chocolate, but it didn't get melted.'
       b.   **Comi o chocolate, mas não ficou comido.*
             '*I ate the chocolate, but it didn't get eaten.'

According to the responses of our native-speaking participants, nouns in *-da/-dela* admit the construction presented in (13), as can be observed in sentences (14a-d).

(14)   a.   *O Mário deu uma arranjadela ao candeeiro, mas não ficou arranjado.*
             'Mário gave a repairing to the lamp, but it didn't get repaired.'
       b.   *O João fez uma investigadela do assunto, mas não ficou investigado.*
             'João made an investigation of the subject, but it didn't get investigated.'
       c.   *A Ana deu uma mexedela aos ingredientes, mas não ficaram mexidos.*
             'Ana gave a mixing to the ingredients, but they didn't get mixed.'
       d.   *O moleiro deu uma moidela ao cereal, mas não ficou moído.*
             'The miller gave a milling to the cereal, but it didn't get milled.'

Nouns in *-ção* do not accept the construction that excludes the change of state effect on the object (15a-d).

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(15)   a. *_O João procedeu à investigação do assunto, mas não ficou investigado._
        '*João proceeded with the investigation of the subject, but it didn't get investigated.'

      b. *_O moleiro procedeu à moição do cereal, mas não ficou moído._
        '*The miller proceeded with the milling of the cereal, but it didn't get milled.'

      c. *_A Ana procedeu à mastigação das maçãs, mas não ficaram mastigadas._
        '*Ana proceeded with the chewing of the apples, but they didn't get chewed.'

      d. *_O barquinho sofreu a abalroação pelo navio, mas não ficou abalroado._
        '*The small boat suffered the crash by the ship, but it didn't get crashed.'

Nouns in -_mento_ behave differently from -_ção_ nouns, regarding the acceptability of the "negative + _ficar_ 'to get' + past participle" construction (sentences (16a-f)).

(16)   a. _A Ana procedeu ao envelhecimento do papel, mas não ficou envelhecido._
        'Ana proceeded with the aging of the paper, but it didn't get aged.'

      b. _O papel passou por um processo de envelhecimento ao sol, mas não ficou envelhecido._
        'The paper suffered a process of aging under the sun, but it didn't get aged.'

      c. _A Ana procedeu ao bronzeamento da pele, mas não ficou bronzeada._
        'Ana proceeded with the tanning of the skin, but it didn't get tanned.'

      d. _A pele passou por um processo de bronzeamento, mas não ficou bronzeada._
        'The skin went through a process of tanning, but it didn't get tanned.'

      e. _A Ana procedeu ao descongelamento do peixe, mas não ficou descongelado._
        'Ana proceeded with the defrosting of the fish, but it didn't get defrosted.'

      f. _O peixe passou por um processo de descongelamento, mas não ficou descongelado._
        'The fish went through a process of thawing, but it didn't get thawed.'

From Sections 3.1 and 3.2, we arrive at the following synthesis. When attaching to transitive causative verbs, suffixes -_da_, -_dela_ and -_mento_ share the properties that give them a subeventive character. Event nouns derived by means of these three suffixes have a tendency to select just a part of the event of the full causative eventive chain. They do not obligatorily imply the initial subevent that instigates the event (explicit in the _by_-phrase), nor the final change of state subevent that represents the effect of the change of state on the object (explicit in the "negative + _ficar_ 'to get' + past participle" construction). Until now, we have distinguished the suffix -_ção_ from the other three suffixes. Now we will provide data on the distinction between -_da_/-_dela_ and -_mento_.

3.3 Duration and carefulness towards the event

Event nouns with the suffixes *-da* and *-dela* have the semantic features [-slow] and [-careful] in their meanings. In this sense, nouns with *-da* and *-dela* reject modifiers such as *cuidadoso* 'careful', *meticuloso* 'meticulous', *lento* 'slow', *demorado* 'lengthy' (cf. (17b), (17d), (17f), (17h)) and accept modifiers such as *negligente* 'negligent', *descuidado* 'careless', *rápido* 'quick', and *apressado* 'rushed' (cf. (17a), (17c), (17e), (17g)).

(17)   a.   *O Mário deu uma arranjadela rápida e descuidada ao candeeiro.*
            'Mário gave a quick and careless repairing to the lamp.'
       b.   **O Mário deu uma arranjadela demorada e meticulosa ao candeeiro.*
            '*Mário gave a lengthy and meticulous repairing to the lamp.'
       c.   *O João fez uma investigadela negligente e apressada do assunto.*
            'João made a negligent and rushed investigation of the subject.'
       d.   **O João fez uma investigadela cuidadosa e demorada do assunto.*
            '*João made a careful and lengthy investigation of the subject.'
       e.   *A Ana deu uma mexedela rápida e descuidada aos ingredientes.*
            'Ana gave a quick and careless mixing to the ingredients.'
       f.   **A Ana deu uma mexedela demorada e cuidadosa aos ingredientes.*
            '*Ana gave a lengthy and careful mixing to the ingredients.'
       g.   *O moleiro deu uma moidela apressada e descuidada ao cereal.*
            'The miller gave a rushed and careless milling to the cereal.'
       h.   **O moleiro deu uma moidela meticulosa e lenta ao cereal.*
            '*The miller gave a meticulous and slow milling to the cereal.'

These results are in accordance with data collected from corpora or from a Google search (cf. examples (18a) and (18b)).

(18)   a.   "*dei uma **olhada** rápida* na programação do VerãoArteContemporânea"[6]
            'I gave a quick glance at the 'VerãoArteContemporânea' programme'
       b.   "A chuva ontem *deu uma **refrescada** rápida*, mas depois o calor voltou"[7]
            'The rain caused a quick refreshing, but then the heat came back'.

In this aspect, nouns in *-da*/*-dela* contrast with nouns with *-mento* and *-ção*. Nouns with *-mento* and *-ção* accept both series of modifiers, since they are unmarked in relation to the semantic features [-slow] and [-careful]. Sentences (19) and (20) show the *-mento* derivatives.

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[6] https://www.google.pt/?gfe_rd=cr&ei=Tv3U__uAune8gf63oGYCg&gws_rd=ssl#q=%22dei+uma+olhada+r%C3%A1pida%22.

[7] https://www.google.pt/?gfe_rd=cr&ei=UwK4U9_iIuze8ge0YCwDw&gws_rd=ssl#q=dei+uma+refrescada+rápida.

(19) a. *A Ana procedeu ao envelhecimento lento e cuidadoso do papel.*
'Ana proceeded with the slow and careful aging of the paper.'
b. *A Ana procedeu ao envelhecimento rápido e descuidado do papel.*
'Ana proceeded with the quick and careless aging of the paper.'
c. *A Ana procedeu ao bronzeamento meticuloso e lento da pele.*
'Ana proceeded with the meticulous and slow tanning of the skin.'
d. *A pele passou por um processo de bronzeamento rápido e descuidado.*
'The skin went through a quick and careless process of tanning.'
e. *A Ana procedeu ao descongelamento demorado e cuidadoso do peixe.*
'Ana proceeded with the lengthy and careful defrosting of the fish.'
f. *O peixe passou por um processo de descongelamento rápido e negligente.*
'The fish went through a quick and negligent process of thawing.'

Examples from corpora in (20) show that an EDN ending with the suffix -*mento* may take both series of modifiers.

(20) a. *par=ext184265-clt-soc-94b-1*: "*Evitar os produtos de **bronzeamento rápido** que apenas tingem a pele sem a proteger.*"
'Avoid the products of quick tanning which only colour the skin without protecting it.'
b. *par=ext773884-clt-soc-94a-2*: "*As pessoas que pensam que só os escaldões é que aumentam o risco de contrair cancro da pele e que imaginam que um **bronzeamento lento e cuidadoso** é seguro para a saúde têm de se desenganar.*"
'People who think that only sunburns improve the risk of skin cancer and who imagine that a slow and careful tanning is safe for the health have to disillusion themselves.'

The same occurs with EDNs bearing the suffix -*ção*. In (21) sentences given to the native speakers are provided; in (22) examples from corpora corroborate (21).

(21) a. *O João procedeu à investigação rápida e descuidada do assunto.*
'João proceeded with the quick and careless investigation of the subject.'
b. *O João procedeu à investigação demorada e meticulosa do assunto.*
'João proceeded with the lengthy and meticulous investigation of the subject.'
c. *O moleiro procedeu à moição lenta e cuidadosa do cereal.*
'The miller proceeded with the slow and careful milling of the cereal.'
d. *A Ana procedeu à mastigação lenta e cuidadosa das maçãs.*
'Ana proceeded with the slow and careful chewing of the apples.'
e. *A Ana procedeu à mastigação rápida e descuidada das maçãs.*
'Ana proceeded with the quick and careless chewing of the apples.'

(22) a. *par=ext647424-nd-98b-3*: "*Para trás fica uma ideia de uma **investiga-***
          ***ção lenta**, burocrática, labiríntica e ineficaz.*"
          'Left behind stays an idea of a slow, bureaucratic, labyrinthine and inef-
          fective investigation.'

      b. *par=ext832194-pol-93a-2*: "*Os dirigentes do Comité Suíço do Curdistão*
          *apelaram a uma **investigação rápida** para se encontrar o responsável*
          pelos disparos que vitimaram Semsettin Kurt [...]."
          'The heads of the Swiss Kurdistan committee appealed for a quick
          investigation to find the person responsible for the shots that killed Sem-
          settin Kurt [...].'

The implication of the features [-slow] and [-careful] explains why the nouns in *-dela*/*-da* accept the "negative + *ficar* 'to get' + past participle"construction that we have observed in Section 3.2. Nouns in *-mento* are unmarked in relation to the features [-slow] and [-careful]. Thus, their lack of acceptance of the "negative + *ficar* 'to get' + past participle" construction indicates there is no relation with those semantic features.

3.4 Summary

From Sections 3.1-3.2-3.3, we come to the conclusions presented in Table 8.

Suffix	By-phrase	Obligatory implication of change of state effect ("negative + *ficar* 'to get' + past participle")	Modifiers *lento* 'slow', *cuidadoso* 'careful'
-da/-dela	No	No	No
-ção	Yes	Yes	Yes
-mento	No/Yes	No	Yes

Table 8. Synthesis of the properties of nominalisers.

3.5 Constructing features for the suffixes

Suffixes have semantic features that are only observable if we contrast different derivatives used by them in different constructions. From the data that we have detailed here, we may establish the semantic features of the suffixes.
    Remembering the schema of a causative verb:

$$[[x \text{ DO-SOMETHING}] \text{ CAUSE } [y \text{ BECOME } STATE]]$$

for the sake of economy, we may state that the [*x* DO-SOMETHING] is the subevent 1; the CAUSE is the subevent 2; and [*y* BECOME *STATE*] is the subevent 3.

Suffixes *-da* and *-dela* reject the subevent that instigates the event (subevent 1) and the final subevent that corresponds to the change of state effect on the object (subevent 3). These suffixes only apply to the subevent 2. At the same time, suffixes *-da*/*-dela* imply a quick and careless execution of the subevent 2.

Suffix *-mento* does not obligatorily imply the subevent that instigates the event (subevent 1), nor the final subevent that corresponds to the change of state effect on the object (subevent 3). Regarding the [-slow] and [-careful] features, suffix *-mento* is unmarked in relation to them. This means that nouns in *-mento* focus on the subevent 2 as a change of state without the final or complete effect of that change of state on the object.

Suffix *-ção* accepts the subevent that instigates the event (subevent 1), the subevent 2 that corresponds to the change of state and the final subevent that corresponds to the change of state effect on the object (subevent 3). Suffix *-ção* is unmarked in relation to the features [-slow] and [-careful].

4. PUTTING SUFFIXES AND VERBS TOGETHER

Now that we have analysed the features of the suffixes, we are able to understand the semantic mechanisms that enable the construction of event deverbal nouns. We will focus on the reasons why event nouns with different suffixes from the same verb have semantic differences between them. We will also aim to determine if suffixes are behaving as real rivals or not.

The argument goes as follows. Affixes have semantic features. The verbal bases also have semantic features related to the event (lexical-semantic structure). Focusing on causative verbs, semantic features are components of the schema that we have adopted:

$$[[x \text{ DO-SOMETHING}]_{[subevent1]} \text{ CAUSE}_{[subevent2]} [y \text{ BECOME } STATE]_{[subevent3]}]$$

The semantic feature of the suffix will coindex with the semantic feature of the verb (corresponding to one of the subevents of the full eventive chain) that is the most compatible feature with its own feature. The conception of coindexation that we adopt is not the same as that presented by Lieber (2004). In Lieber (2004), coindexation operates with semantic and syntactic features. Our proposal eliminates syntactic features and focuses on semantic ones. Coindexation is a semantic operation required in word formation processes such as affixation and compounding (Rodrigues & Rio-Torto 2013). In the case of affixation, coindexation is responsible for the adjunction of suffixes to the base, at the level of semantic structures operating in those formations. Coindexation works with semantic compatibility between the affix and the base.

4.1 Semantic coindexation

Now we will describe the mechanism of semantic coindexation between suffixes and bases.

We have stipulated that *-da* and *-dela* have the semantic features of [-slow; -careful; +subevent 2]. If there is a verb with a lexical-conceptual structure that contains an event coinciding with the subevent 2, then the semantic feature of *-da* will coindex with this feature of the base, forming a deverbal noun whose meaning will be a 'quick and careless event focused on the cause/change of state'. Because of its own semantic feature(s), the suffix highlights the subevent of the verb with which it coindexes. That is why psychological verbs, although having an experiencer, which is a kind of undergoer, may nominalise with *-da* (*relaxada* 'event of relaxing' – *dar uma relaxada* lit. to give a relaxing 'to relax'; *aborrecida* 'event of annoying' – *dar uma aborrecida* lit. to give an annoying 'to annoy'). This contradicts Fábregas' analysis.

The suffix *-mento* has the semantic feature [+subevent2]. Subsequently, the semantic feature [+subevent2] of the suffix *-mento* will coindex with the feature [+subevent2] of the base. The suffix *-ção* has the semantic feature [full causative eventive chain]. It will simultaneously coindex with the three subevents of the lexical-semantic structure of the verb. Because of this mechanism of coindexation, which works in a semantic compatibility mode, the same verb may select all three suffixes *-da/-dela*, *-mento* and *-ção* as long as it contains a full causative eventive chain. The first pair of affixes will capture the subevent 2 implied in the base and will give it a 'quick and negligent' meaning. The suffix *-mento* will capture the subevent 2 implied in the base, without any mark respecting the way it occurs. The suffix *-ção* will capture all three subevents at the same time, giving the derivative a meaning of 'unified and completed event'.

Tables 9, 10 and 11 contain a representation of the coindexation mechanism (for more details on the mechanism, see Rodrigues 2008). The E stands for 'Event' and it denotes a subevent of the eventive chain of the verb. The S stands for 'Suffix' and it denotes the semantic features of the suffix. The indexes [e,s] stand, respectively, for the semantic feature(s) of the eventive chain of the verb and for the semantic features of the suffix that suffer coindexation. In Table 9, the feature [cause] of the suffix *-mento* coindexes with the subevent CAUSE of the eventive chain.

With the coindexation mechanism between the semantic feature(s) of the affix and the semantic feature(s) of the verb that are the most compatible with the first, the suffix highlights the feature of the verb that is more compatible with its own. In this sense, EDNs with different suffixes from the same verb display semantic nuances between them.

		FEATURES OF THE VERB [[x DO-SOMETHING] CAUSE [y BECOME *STATE*]]			FEATURES OF THE AFFIX -*MENTO*
VERB	DEVERBAL NOUN	[x DO-SOMETHING]	CAUSE	[y BECOME *STATE*]	[CAUSE]
descongelar 'to thaw'	*descongelamento*	E	E^{e,s}	E	S^s

TABLE 9. MECHANISM OF COINDEXATION OF THE FEATURE OF THE SUFFIX -*MENTO* WITH THE FEATURES OF THE BASE.

		FEATURES OF THE VERB [[x DO-SOMETHING] CAUSE [y BECOME *STATE*]]			FEATURES OF THE AFFIXES -*DELA* AND -*DA*	
VERB	DEVERBAL NOUN	[x DO-SOMETHING]	CAUSE	[y BECOME *STATE*]	[CAUSE]	[-slow; -careful]
descongelar 'to thaw'	*descongelada* *descongeladela*	E	E^{e,s}	E	S^s	S^s

TABLE 10. MECHANISM OF COINDEXATION OF THE FEATURES OF THE SUFFIXES -*DA* AND -*DELA* WITH THE FEATURES OF THE BASE.

		FEATURES OF THE VERB [[x DO-SOMETHING] CAUSE [y BECOME *STATE*]]			FEATURES OF THE AFFIX -*ÇÃO*
VERB	DEVERBAL NOUN	[x DO-SOMETHING]	CAUSE	[y BECOME *STATE*]	[[x DO-SOMETHING] CAUSE [y BECOME *STATE*]]
descongelarr 'to thaw'	*descongelação*	E^{e,s}	E^{e,s}	E^{e,s}	S^s

TABLE 11. MECHANISM OF COINDEXATION OF THE FEATURE OF THE SUFFIXE -*ÇÃO* WITH THE FEATURES OF THE BASE.

Our model also permits us to understand why verbs with the affix -*ec*- reject -*ção* and adopt -*mento* on event nominalisations, and, in contrast, why verbs with the suffix -*iz*- reject -*mento* and adopt -*ção,* a question posed in Section 2. The suffix -*ec*- that operates in the construction of verbs has the feature [subevent2], that is, [cause/change of state]. The suffix -*iz*- has the feature [full causative eventive chain] that includes the three subevents [[x DO-SOMETHING]$_{[subevent1]}$ CAUSE$_{[subevent2]}$ [y BECOME *STATE*]$_{[subevent3]}$].[8] Thus, the suffix -*iz*- is semantically compatible with the suffix -*ção*; the suffix -*ec*- is semantically compatible with the suffix -*mento*.

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[8] For further details of the affixes -*ec*- and -*iz*-, see Pereira (2013: 293-294; 296-299). In Rodrigues (2008), the relation between the nominaliser -*mento* and the verbaliser -*ec*- and between the nominaliser -*ção* and the verbaliser -*iz*- was already explained by the compatibility between the features of the affixes. Those features were based on the subevents of the eventive chain.

Adopting this perspective, an *all or nothing* hypothesis becomes meaningless. If there are no other constraints (phonological, morphological, pragmatic) that block the selection of one affix, this one may join the verb. However, it will coindex with the most compatible semantic feature with its own semantic feature. That is why there are so many verbs that produce different deverbal nouns, with different suffixes.

5. ARE AFFIXES ACTING AS RIVALS?

Because of the different semantic features involved in each formation, the suffixes in those situations are not acting as rivals. As we have observed, the event nouns have different semantic nuances. Indeed, *descongelada* 'thawing' means a quick and negligent event, whilst *descongelamento* 'thawing' means the course of the process itself. Examples (23a)-(23d) show that EDNs with -*mento* are compatible with a durative reading implied in the construction *estar a assistir a* 'to be attending something' and *ir proceder* 'to go to proceed with'.

(23) a. *Vamos proceder ao descongelamento do peixe.*
          'We will proceed with the thawing of the fish.'
      b. *Estamos a assistir ao descongelamento do peixe há duas horas.*
          'We are attending the thawing of the fish for two hours.'
      c. "*Vamos **assistir ao estrangulamento** financeiro de muitas autarquias*"[9]
          'We are going to attend the financial strangling of many autarchies.'
      d. "[...] *tinham a obrigação de **assistir ao empacotamento** da madeira antes de ser levada para o porto*."[10]
          'They had the obligation of attending the packing of the wood before it was taken to the port.'

In contrast, event nouns with -*da* do not accept those constructions (cf. examples (24a) and (24b)).

(24) a. **Vamos proceder à descongelada do peixe.*
          '*We will proceed with the thawing of the fish.'
      b. **Estamos a assistir à descongelada do peixe há duas horas.*
          '*We are attending the thawing of the fish for two hours.'

Neither a Google search nor corpora analysis gave results for this kind of construction with EDNs constructed with suffixes -*da*/-*dela*.

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[9] https://www.google.pt/?gfe_rd=cr&ei=dwy4U6GEPOPe8gfD0YBY&gws_rd=ssl#q=%22assistir+ao+estrangulamento%22.

[10] https://www.google.pt/?gfe_rd=cr&ei=dwy4U6GEPOPe8gfD0YBY&gws_rd=ssl#q=%22assistir+ao+empacotamento+da+madeira%22.

Deverbal nouns with -*da*/-*dela* are compatible with the light verb *dar* 'to give'. Although it is possible to find nouns with -*mento* with the light verb *dar* construction, native speakers tend to prefer nouns with -*da* to nouns with -*mento* for that construction. Sentences (25a)-(25c) provide some examples of this.

(25)   a. *Vamos dar uma descongelada ao peixe.*
          'We will give a thawing to the flock.'
      b. **Vamos dar um descongelamento ao peixe.*
          '*We will give a thawing to the flock.'
      c. "*No sábado que vem, é dia de levar o cão ao Veterinario,* **dar uma tos-quiadela** *ao pêlo*»[11]
          'Next Saturday is the day to take the dog to the Veterinarian, to give a shearing to the fur.'

6. CONCLUSIONS

In this paper, we have compared deverbal nouns constructed with the suffixes -*da*, -*dela*, -*ção* and -*mento* from causative verbs. Unless there are other orders of constraints (phonological, pragmatic, etc.), in terms of semantic operations in word formation, it is not possible to state that only a certain kind of verb will select a certain affix, since many affixes occur with the same base. In this sense, we have rejected *all or nothing* hypotheses and proposed an explanation based on the following:

Each affix is provided with semantic features. Those semantic features are semantically compatible (or not) with each one of the event features of the verb. A causative verb may be lexically-semantically described by the schema $[[x \text{ DO-SOMETHING}]_{[\text{subevent1}]} \text{ CAUSE}_{[\text{subevent2}]} [y \text{ BECOME } STATE]_{[\text{subevent3}]}]$.

The semantic feature of the affix will coindex with the semantic feature of the verb with which it is the most compatible. Because of this, there may be a verb with different EDNs. Each deverbal noun has semantic nuances that result from the specific features that operated in coindexation. Those semantic differences are observable in the (non) acceptance of constructions such as *por* 'by'-phrase, "negative + *ficar* 'to get' + past participle", modifiers such as *rápido* 'quick' and *negligent* 'negligent', light verb *dar* 'to give' and *estar a assistir a* 'to be attending something' / *ir proceder* 'to go to proceed with'.

When the same verb accepts different affixes, affixes are not acting as rivals, since they are not excluding each other from verbal selection.

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[11] https://www.google.pt/?gfe_rd=cr&ei=dwy4U6GEPOPe8gfD0YBY&gws_rd=ssl#q=%22dar+uma+tosquiadela%22.

REFERENCES

Alexiadou, A. (2001). *Functional structure in nominals: Nominalization and ergativity*. Amsterdam & Philadelphia: John Benjamins.

Bauer, L., R. Lieber & I. Plag (2013). *The Oxford reference guide to English morphology*. Oxford: Oxford University Press.

Fábregas, A. (2010). A syntactic account of suffix rivalry in Spanish. In A. Alexiadou & M. Rathert (eds.), *The syntax of nominalisations across languages and frameworks*, 67-91. Berlin & New York: Mouton de Gruyter.

Grimshaw, J. (1990). *Argument structure*. Cambridge, MA: The MIT Press.

Halle, M. (1973). Prolegomena to a theory of word formation. *Linguistic Inquiry* 4(1). 3-17.

Jackendoff, R. (1990). *Semantic structures*. Cambridge, MA: The MIT Press.

Levin, B. & M. Rappaport Hovav (1995). *Unaccusativity. At the syntax-lexical semantics interface*. Cambridge, MA: The MIT Press.

Lieber, R. (2004). *Morphology and lexical semantics*. Cambridge: Cambridge University Press.

Martin, F. (2010). The semantics of eventive suffixes in French. In A. Alexiadou & M. Rathert (eds.), *The semantics of nominalisations across languages and frameworks*, 109-139. Berlin & New York: Mouton de Gruyter.

Meinschaefer, J. (2005). Event-oriented adjectives and the semantics of deverbal nouns in Germanic and Romance. The role of boundedness and the mass/count distinction. In M. Grossmann & A. M. Thornton (eds.), *La formazione delle parole*, 355-368. Roma: Bulzoni.

Melloni, C. (2010). Action nominals inside: lexical semantics in morphology. In A. Alexiadou & M. Rathert (eds.), *The semantics of nominalisations across languages and frameworks*, 141-168. Berlin & New York: Mouton de Gruyter.

Meyer-Lübke, W. (1895). *Grammaire des langues romanes*. (Traduction par Auguste Doutrepont et Georges Doutrepont). Tome II: *Morphologie*. Paris: H. Welter Éditeur.

Pereira, R. (2013). Formação de verbos. In G. Rio-Torto, A. S. Rodrigues, I. Pereira, R. Pereira & S. Ribeiro, *Gramática derivacional do português*, 265-319. Coimbra: Imprensa da Universidade de Coimbra.

Ramchand, G. (2008). *First phase syntax*. Cambridge: Cambridge University Press.

Rodrigues, A. S. (2008). *Formação de substantivos deverbais sufixados em português*. München: Lincom.

Rodrigues, A. S. (2009). Portuguese converted deverbal nouns: constraints on their bases. *Word Structure* 2(1). 69-107.

Rodrigues, A. S. (2012). What affixes reveal about word formation? In M. Bloch-Trojnar & A. Bloch-Rozmej (eds.), *Modules and interfaces* (Studies in Linguistics and Methodology 4), 255-270. Lublin: Wydawnictwo.

Rodrigues, A. S. (2013). Nomes deverbais. In G. Rio-Torto, A. S. Rodrigues, I. Pereira, R. Pereira & S. Ribeiro, *Gramática derivacional do português*, 114-165. Coimbra: Imprensa da Universidade de Coimbra.

Rodrigues, A. S. & G. Rio-Torto (2013). Semantic coindexation: Evidence from Portuguese derivation and compounding. In P. ten Hacken & C. Thomas (eds.), *The semantics of word formation and lexicalization*, 161-179. Edinburgh: Edinburgh University Press.

Roeper, T. (2005). Chomsky's *Remarks* and the transformationalist hypothesis. In P. Štekauer & R. Lieber (eds.), *Handbook of word-formation*, 125-146. Dordrecht: Springer.

Scalise, S. (1984). *Generative morphology.* Dordrecht: Foris Publications.

Sichel, I. (2010). Event structure constraints on nominalization. In A. Alexiadou & M. Rathert (eds.), *The syntax of nominalisations across languages and frameworks*, 159-198. Berlin & New York: Mouton de Gruyter.

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