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Convergencies and divergencies in argument structure theories: The causative and the agentive alternations in Brazilian Portuguese

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This paper addresses two types of argument alternations in Brazilian Portuguese (BP): the causative alternation and the phenomenon we call agentive alternation. Both phenomena involve the occurrence of verbs considered to be transitive in intransitive structures (such as *a tela quebrou* 'the screen broke', in the causative alternation, and *a roupa lavou* lit. 'the clothes washed', in the agentive alternation). The causative alternation occurs, as established in the literature, with change of state verbs. The agentive alternation, however, does not occur with a uniform set of verbs. This fact raises an important issue for lexicalist theories of argument structure, which center their explanation in semantically uniform verb classes. Thus, this paper shows that non-lexicalist analyses for the agentive alternation in BP fare better. By comparing how the agentive alternation is analyzed in two non-lexicalist approaches: Distributed Morphology and Construction Grammar, our aim is to provide a clear description and theorization of the agentive alternation. Despite different conceptions about how language is structured, these frameworks have similar analytical tools leading to a compatible treatment of the agentive alternation. From a theoretical point of view, we compare their commonalities and differences to understand the state of the art of argument structure alternations across frameworks.

1. Introduction

Argument alternations are one of the most central phenomena in the analysis of the syntax-lexicon interface. Since the earliest works on the subject (Fillmore, 1970; Jackendoff, 1975; Wason, 1977), the causative alternation particularly has emerged as a central issue in linguistic analysis. Such alternation is represented in (1), with the verb *break*:

(1) (a) The professor broke the computer screen.
(b) The computer screen broke.

Many researchers have argued that such alternation occurs with change of state verbs, but is not allowed with necessarily agentive verbs, such as *paint*, *wash*, *cut* and others (Fillmore, 1970; Levin, 1993; Levin & Rappaport Hovav, 1995; Reinhart, 2002). And this generalization seems to hold in the study of different languages (Haspelmath, 1993; Whitacker-Franchi, 1989). Thus, lexicalist explanations for the phenomenon treat the alternation as a lexical rule which applies to change of state verbs, deriving the alternated form from a basic lexical argument structure representation (such approach is widely accepted and mainly represented by Levin and Rappaport Hovav's, 1995 work).

In Brazilian Portuguese (BP from now on), however, Galves (1985), Negrão & Viotti (2008), and others have noted that many agentive verbs which would not normally occur in the causative alternation present an intransitive form very similar to the intransitive form of change of state verbs in the causative alternation. Such case is illustrated in (2a), with the verb *pintar* 'paint', and in (2b), with the verb *lavar* 'wash':

(2) (a) A casa pintou toda. (Negrão & Viotti, 2008, pp. 198–199)[1]
the house paint-PAST all.
'*The house painted all.'

(b) A cueca de dinossauros do Calvin está lavando. (Galves, 1998, p. 20)
The underwear of dinosaurs of.the Calvin is washing
'*Calvin's dinosaur underwear is washing.'

It has been argued for by Amaral (2015) and Carvalho (2016a) that, despite superficial similarities with the causative alternation, this is in fact a different phenomenon, which we call the agentive alternation. As far as we can tell, differently from the causative alternation, the agentive alternation seems to occur specifically in BP and is not easily found crosslinguistically, not even in other varieties of Portuguese. Similar occurrences are found in Mandarin Chinese (Cheng, 1989) and Hindi-Urdu, for instance (Bhatt & Embick, 2017). Besides, the alternation has different constraints from the causative alternation, and does not occur with a uniform set of verbs, such as the change of state verbs. Amaral & Cançado (2017) point out that this phenomenon occurs with at least

[1] Unless otherwise stated, all glosses and translations are ours.

three verb classes in BP: contact verbs such as *lavar* ‘wash’, creation verbs such as *pintar* ‘paint’, as exemplified in (2), and also verbs such as *carregar* ‘load’. This type of alternation, consequently, raises an important issue for lexicalist theories of argument structure. As the agentive alternation is not restricted to a single semantic class of verbs, it cannot be lexically derived.

Considering this issue, this paper provides non-lexicalist analyses for the agentive alternation in BP. Since the agentive alternation was quite often impressionistically associated to the causative alternation, we also discuss the latter alternation demonstrating how non-lexicalist approaches derive it and how these approaches can distinguish agentive and causative alternations. Thus, from an empiric point of view, we present two non-lexicalist approaches to argument structure, Distributed Morphology and Construction Grammar, showing how both can explain the occurrence of the causative and the agentive alternations in BP. The first approach centers the explanation for alternations in the syntactic component of grammar, the latter centers the explanation for alternations on semantic-pragmatic constraints. Both approaches assume that event structure is the central determinant of argument realization and is a property not only of verbs, but of the syntactic structure as well. Although these frameworks reflect different conceptions on how the grammar is organized, the analyses of causative and agentive alternations according to their tenets reveal some commonalities between them, which we discuss in Section 5. Such discussion shows that divergent frameworks can have similar intuitions about the relationship between lexicon and syntax, impacting not only on these ‘modules’, but on several analytical tools used. The choice of these two approaches is justified by the fact that they are currently the main representative of argument structure theories in the formal and cognitive/functional poles of linguistic analysis, they both take argument structure and argument alternations as central phenomena in their investigation of language, and they were born, and later developed, mainly to account for argument realization phenomena, especially those which were not accounted for by current lexicalist theories of the time.

The paper is organized as follows. Section 2 provides a description of the alternations; 2.1 discusses the causative alternation, and 2.2 the agentive alternation. Section 3 delves into the theoretical approaches and shows how each of them deals with the causative alternation; Section 4 presents our analyses for the agentive alternation, based on Distributed Morphology and Construction Grammar; Section 5 discusses the analyses presented in Section 4, drawing a comparison between the two approaches. Finally, Section 6 ends the paper with our final remarks.

2. Describing the phenomena: the causative and the agentive alternations

2.1 The causative alternation

In this section, we highlight the main characteristics of the causative alternation, which will be used as a backdrop for the comparison with the agentive alternation. The causative alternation, as formulated in the literature, can be characterized as the twofold syntactic-semantic structuring

of a verb, in a transitive structure or in an intransitive structure. Examples in (3) illustrate the alternation in BP:

(3) (a) O professor quebrou a tela do computador.
the professor break.PAST the screen of.the computer
'The professor broke the computer screen.'

(b) A tela do computador quebrou.
the screen of.the computer break.PAST
'The computer screen broke.'

The transitive structure describes a causation that results in the change of state of an object, and the intransitive structure describes only the subject's change of state, which corresponds to the object in a transitive sentence. In (3a), the professor causes something, voluntarily or not, to the computer screen. In (3a) and (3b), the change of state of the object is the breaking of the computer screen.

Many authors claim that this syntactic phenomenon is strongly connected to the change of state semantics. Thus, only change of state verbs can participate in the causative alternation (as Fillmore, 1970; Hale & Keyser, 2002; Lakoff, 1970; Levin & Rappaport Hovav, 1995, show for English, and Cançado, Godoy & Amaral, 2013 show for BP). Change of state verbs can be defined through the entailment of a sentence of the type *become state* (Lakoff, 1970; Parsons, 1990). For example, the verb *quebrar* 'break' in transitive or intransitive sentences, as in (3), entails the phrase *become broken*. Both (3a) and (3b) entail that 'the computer screen became broken'.

In addition, the causative alternation has non-agentive causation as one of its components (which also differentiates this phenomenon from other related intransitive sentences, such as passives and middles; Schäfer, 2009). A verb participating in such alternation licenses a cause thematic role in subject position (as Levin & Rappaport Hovav, 1995 and Reinhart, 2002 show for English; and as Whitaker-Franchi, 1989 and Souza, 1999 show for BP). The sentence in (4) below, in which the verb *quebrar* 'break' licenses *o impacto* 'the impact' as its subject, exemplifies that property.

(4) O impacto quebrou a tela do computador. {Cause, Patient}
the impact break.PAST the screen of.the computer
'The impact broke the computer screen.'

Importantly, for a verb to participate in this alternation, it must have the two abovementioned characteristics combined: licensing of non-agentive subjects and the entailment of change of state of their objects. Thus, necessarily agentive verbs do not alternate, even if they have patient objects, as the case of *assassinar* 'murder', in (5).

(5) (a) O bandido assassinou o comparsa. {Agent, Patient}
the criminal murder.PAST the accomplice
'The criminal murdered his accomplice.'

(b) *O comparsa assassinou.
the accomplice murder.PAST
'*The accomplice murdered.'

Verbs in which the object does not encode a change of state but is somehow affected by the action, as the created object in (6), do not participate in the alternation either, even with non-agentive subjects in the transitive form:

(6) (a) O desemprego criou vários problemas. {Cause, Creation}[2]
the unemployment create.PAST many problems
'The unemployment created many problems.'

(b) *Vários problemas criaram.
many problems create.PAST
'*Many problems created.'

The causative alternation has been studied in different languages at least since the 1960s (Fillmore, 1970; Lakoff, 1970), being characterized by Schäfer (2009) and Horvath and Siloni (2011) as a universal linguistic phenomenon. Numerous works (so numerous that we cannot mention all here) have been published on the subject, from the most different theoretical perspectives and in analyses of the most different languages. Among these various studies, we can raise some points of agreement in relation to the analysis of the alternation, also delineated in Schäfer (2009). A first point was empirically demonstrated above: the alternation is limited to verbs of a specific semantic type (change of state verbs), and it is also related to causative events that are not necessarily agentive.

A second point is that the intransitive counterparts in this alternation have the possibility of morphological marking in many languages, and they may also express the cause of the change of state by means of a PP. In BP, as in several other languages, the intransitive form of this alternation may be marked with the reflexive pronoun (third person reflexive form *se* in Portuguese) and license a causer PP, as shown in (7), below. The reflexive marked sentences, however, do not have a reflexive-like reading. Like in many Romance languages, this marker is syncretic, being present in several sentences that putatively alternate with a transitive form (passives, middles, and reflexive sentences).

[2] The thematic role Creation is taken from Piñón (2007).

(7) A tela do computador se quebrou com a queda.
the screen of.the computer REFL break.PAST with the fall
'The computer screen broke from the fall.'

However, some points of discussion remain, particularly the presence/absence of the cause argument in the intransitive form and the direction of derivation of the alternation. Authors such as Haspelmath (1993), Horvath & Siloni (2011), and Rappaport Hovav & Levin (2012) argue that the intransitive sentences with verbs such as *break* denote spontaneous events and it is not possible to access the cause of the change of state. Thus, these structures are compatible with modifiers that denote spontaneity, such as *by itself*:

(8) The computer screen broke by itself.

Other authors, however, such as Chierchia (2004 [1989]), Labelle (1992) and Koontz-Garboden (2009), point out that the intransitive form marked with the reflexive pronoun describes a causative, not a spontaneous, event. These authors argue that the reflexive pronoun associates the patient with the cause of the change of state. For Labelle (1992), intransitive sentences in French without *se* describe spontaneous, autonomous events, while intransitive sentences with *se* describe events triggered by an external cause. Chierchia's (2004 [1989]) proposal for Italian assumes, as Koontz-Garboden (2009) does for Spanish, that the causative alternation is a reflexivization, and the only argument of the intransitive form accumulates the thematic roles cause and patient of the event. According to Koontz-Garboden (2009), this co-expression of cause and patient in the same argument explains occurrences such as (8), in which we witness the licensing of an adjunct indicating that the causer and the causee coincide in the sentence.

Another question debated in the literature is the direction of derivation between the sentences, that is, which is the basic argument structure of the verb and whether the transitive or the intransitive is the derived form. From a morphological point of view, Haspelmath (1993) shows that in different languages, four patterns can be found: the derivation of the transitive from the intransitive (causative), the derivation of the intransitive from the transitive (anticausative), the derivation of both forms from the same root (labile), and the absence of morphological derivation between transitive and intransitive forms (equipollent). Disregarding morphological derivation, authors such as Chierchia (2004 [1989]), Levin and Rappaport Hovav (1995), Reinhart (2002) and Koontz-Garboden (2009) argue that the alternation is an intransitivization of a basically transitive verb or sentence. For Chierchia (2004 [1989]) and Koontz Garboden (2009), the alternation is treated as the formation of a reflexive sentence. Levin & Rappaport Hovav (1995) and Reinhart (2002), in their turn, state that the group of verbs participating in the alternation can only be defined by means of the transitive form, because of the constraints on the subject argument.

Conversely, Hale and Keyser (2002) and Rappaport Hovav and Levin (2012) assume that the alternation is a transitivization of a basically intransitive verb or sentence. For Hale and Keyser (2002), all verbs present only the internal arguments in their argument structure, and the subject is always inserted in syntax after lexical derivation. For Rappaport Hovav and Levin (2012), the transitivization approach explains the occurrence of non-alternating causative change of state verbs, such as *kill* and *destroy* (**the man killed/*the house destroyed*).[3] The authors explain that, although these verbs are in line with the constraints for the alternation, they do not alternate because they are transitive; only intransitive verbs alternate, since the alternation is a transitivization.

In proposals from the theoretical perspective of Distributed Morphology (Alexiadou, Anagnostopoulou & Schäfer, 2006), the lexicon is seen as a repository of roots, not words. Therefore, alternating verbs are always formed in syntax, either in their transitive or intransitive forms. Thus, there is no derivational process between the forms; both are built from the same root (Piñón, 2001). Similarly, in Construction Grammar approaches (Croft, 2012; Goldberg, 1995), both verbs and sentence structures are analyzed as constructions, which are combined in the formation of utterances. Different constructions are associated to different construals of events. Thus, an event described by a change of state verb can be construed as a causative change of state (in a transitive construction) or as a simple change of state (in a type of intransitive construction, called the inchoative construction), also without derivational processes between these forms.

Following the proposals consolidated in the literature, in this paper, we assume the basic consensual properties of the causative alternation for BP: causative change of state verbs occur in both transitive and intransitive sentences, and intransitive sentences accept the reflexive pronoun *se* and a causer PP. In relation to the points of debate, as will become clear in the exposition below, we assume a non-derivational perspective of the phenomenon, which implicates that there is no derivation between the two forms, and we also claim that a causative component is present in the inchoative structure. Such non-derivational proposals will be revisited in Section 4. In Section 2.2, as follows, we show the characteristics of the agentive alternation, contrasting them whenever possible with the causative alternation.

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[3] Note that this pattern may not be the same crosslinguistically. According to Alexiadou, Anagnostopoulou & Schäfer (2015), for instance, the verb katastrafike 'destroy' in Greek alternates, as exemplified below. nact stands for non-active morphology.

(i) Me tin afksisi tis igrasias to hirografo katastrafike.
with the rising the humidity.gen the manuscript destroyed.nact
'*The manuscript destroyed from the rising of humidity.'
(Alexiadou, Agnostopoulou & Schäfer, 2015, p. 35, glosses and translation from the authors)

2.2 The agentive alternation

The agentive alternation consists of a type of transitive-intransitive alternation with verbs that can only accept agent subjects in their transitive form, hence its name. Such alternation is exemplified in (9) with the verb *pintar* 'paint'.

(9) (a) João pintou o carro.
João paint-PAST the car.
'João painted the car.'

(b) O carro pintou.[4]
the car paint-PAST
'*The car painted.'

As the translation in (9b) makes it clear, such alternation is not found in English (and in many other languages, including other varieties of Portuguese, as far as we know).

Although similar to the causative alternation at a first glance, the structural properties of the agentive alternation are different. For starters, the subject argument in (9a) cannot be a natural cause (**a chuva pintou o carro* '*the rain painted the car'). This is a central difference between the agentive and the causative alternations. As seen in Section 2.1, the verbs participating in the causative alternation must be compatible with causers as subjects of the transitive form or as adjuncts in the intransitive structure (see examples (4) and (7)). As expected, the intransitive form of the agentive alternation does not tolerate a PP expressing the cause of the event, as exemplified in (10):

(10) *O carro pintou com o vento.
the car paint.PAST with the wind.
'*The car painted with the wind.'

Another difference between this phenomenon and the causative alternation relates to the licensing of the clitic *se*. The intransitive member of the agentive alternation does not accept the clitic *se* (Amaral, 2015; Amaral & Cançado, 2017; Carvalho, 2016a, 2016b; Cyrino, 2013; Negrão & Viotti, 2008, 2011). This is shown in (11), a modified version of (9b).

(11) *O carro se pintou.
the car REFL paint.PAST
'*The car painted.'

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[4] An attested comparable example can be found at: https://garagecarh8.business.site/, in which a customer evaluates the service provided by a collision repair facility. This example was accessed on January 10, 2024.

(i) Meu carro pintou geral nessa oficina, gostei muito do serviço realizado
my car paint.PAST general in.this garage like.PAST a.lot of.the service realized
'My car was entirely painted at this garage. I really liked the service they provided.'

The only available reading for a sentence like (11) is a (deviant) reflexive one, i.e., one in which the car painted itself. Intransitive-like sentences in BP that can be accompanied by *se* do not have a reflexive-like reading, as examples in (12) and (13) show.

(12) O anel (se) quebrou. (intransitive sentence – part of the causative alternation)
the ring (REFL) break.PAST
'The ring broke.'

(13) Arroz (se) vende fácil. (generic middle)
Rice (REFL) sells easy
'Rice sells easily.'

Although some authors hypothesized that sentences like (9b) could be the effect of an expansion of the causative alternation in BP (c.f. Negrão & Viotti, 2008; Perini, 2008; Whitacker-Franchi, 1989), these were merely suggestions based on the surface similarity between the causative and the agentive alternations. Overall, the facts shown above indicate that the intransitive sentence in the agentive alternation is a sentential type distinct from the ones previously well-discussed in the language, especially the causative alternation.

Galves (1985) was one of the first authors to investigate these intransitive sentences in BP. In her analysis, sentences such as (14) involve, at a first stage, a topic (*a revista* 'the magazine') that ends up being reanalyzed as a subject.

(14) As revistas estão xerocando. (Galves, 1985, p. 42)
the.PL magazines are copying
'*The magazines are copying.'

Thus, for Galves (1985), sentences like (14) are not involved in an alternation, as we conceive them here. Rather, they are a byproduct of the topical orientation of the language.

In a related perspective, Negrão and Viotti (2008) take sentences like (14) to be part of a continuum of impersonalization, which, in their perspective, is defined as sentences with no identifiable volitional subject. They are placed higher in a continuum of impersonalization that encompasses possible sentential types in a language, including passives, transitives, middles and anticausatives. For the authors, these sentences would be part of an expansion of the causative alternation in BP, since verbs like *xerocar* 'copy' participate in two sentential types, in the same way as verbs participating in the causative alternation, like *quebrar* 'break'. Both *xerocar* and *quebrar* have a canonical transitive form, low in a hierarchy of impersonalization, and an intransitive form without a syntactic agent, which is a sentential type high in the hierarchy of impersonalization.

Another vein of exploration is to relate the agentive alternation to morphosyntactic changes in BP. This is the path explored in Cyrino (2007, 2013) and Carvalho (2016a, 2016b). Cyrino (2007, 2013) has as a guiding hypothesis that the agentive alternation is a byproduct of the

loss of *se* in BP. To demonstrate that, the author correlates the decrease of usage of *se* across centuries, a phenomenon largely attested in BP (Cunha, 2010; D'Albuquerque, 1984; Nunes, 1995; Vitral & Ramos, 2006; and many others) with the emergence of the agentive alternation in diachronic corpora. In her search in diachronic corpora, she found sentences like those in (15), which start to occur when *se* becomes optional in some sentential types.

(15) (a) A oito dias appareceu um agoaceiro fino; hoje tornou, porém **nada**
at eight days appeared a water fine today returned however, nothing
cria, tá fina é….
creates so fine is
'Eight days ago, a fine rain appeared; however, it is so fine that nothing gets grown.'

(b) O recrutamento está assolando, a titulo de voluntarios.
the recruitment is devastating in title of voluntaries
'The recruitment is getting devastated in terms of voluntaries'

(Cyrino, 2013, p. 303, glosses and translations from the author)

Cyrino (2013) observes that these sentences bear some structural similarities to middle sentences: the preposed argument is usually inanimate, and the sentences, atelic. Based on these similarities, her guiding hypothesis is that these sentences are middles without *se*.

Carvalho (2016a) builds on Cyrino's (2013) hypothesis to explain the emergence of these sentences in BP. Like Cyrino, she also assumes that these sentences emerge in BP due to the loss of *se*, particularly middle *se*. However, according to Carvalho (2016a, 2016b), the loss of *se* initiated a chain reaction in BP. For this author, the agentive alternation is a byproduct of the generalization some speakers make regarding the structure of the verbs, given the loss of *se* in the system. More explicitly, when generic middles lose *se*, there is no syntactic cue that some verbs are exclusively transitive anymore.

Sentences in (16) and (17) below exemplify the hypothesis put forth by Carvalho (2016a, 2016b). (16) exemplifies that middles with *se* can control PRO in infinitival clauses, which we take as evidence that *se* introduces an arbitrary agent in middles. (17) is a middle without *se*, which does not license a purpose clause. This suggests, once again, that *se* is related to agentivity in middles. In its absence, middle sentences are plain unaccusative sentences.

(16) Água se desperdiça (para PRO irritar dona de casa)
water REFL waste.PRES (to annoy.INF owner of house)
'One wastes water to annoy housewives.'

(17) *Água desperdiça (para PRO irritar dona de casa).
water waste.PRES (to annoy.INF owner of house)
'*Water wastes to annoy housewives.'

(Pacheco, 2008, p. 78, adapted)

Carvalho (2016a) argues that the loss of *se* in middles like (17) led speakers to assume that *desperdiçar* 'waste' has an intransitive form. This is so because the loss of this marker in middles is connected to the loss of agentivity, as the contrast between (16) and (17) exemplify. In other words, the speaker has no formal cue that a verb like *waste* is transitive in a system where middles stop being marked with *se.*[5]

If the loss of *se* indeed led speakers to assume that verbs like *waste* could have an intransitive variant in BP, it is expected that the intransitive form of these verbs is not only restricted to generic middles but can be licensed in presence of different tense and aspect specifications. This is borne out, as (18a) below exemplifies. It is also important to mention that, similarly to middles without *se*, the agent is completely unexpressed in the intransitive counterpart of the agentive alternation. (18b) shows that these sentences are incompatible with purpose clauses, as already exemplified in (17); (18c) shows that a PP with a human noun can only be interpreted with a *by means of* reading, a degraded reading. Finally, (18d) shows that these sentences do not tolerate *by-phrases* and, consequently, cannot be analyzed as passives:

(18) (a) A água desperdiçou muito esta semana.
the water waste.PAST a.lot this week
'*A lot of water wasted this week.'

(b) *A água desperdiçou para irritar dona de casa.
the water waste.PAST to annoy.INF owner of house
'*The water wasted to annoy housewives.'

(c) *A água desperdiçou com o João.
the water waste.PAST with the John
'*The water wasted owing to John.'

(d) *A água desperdiçou pelo João.
the water waste.PAST by.the John
'*The water wasted by John.'

Although Cyrino (2007, 2013) and Carvalho (2016a) have linked the agentive alternation to a morphosyntactic change in BP, there is an undeniable semantic ingredient in this alternation. Cyrino (2007) judges the sentence in (19) as unacceptable (and consequently analyzes it as ungrammatical).

(19) O livro está comprando.
the book is buying
'*The book is buying.'

[5] This does not amount to saying that middles are unaccusative in all languages in which they are unmarked. Germanic middles, for instance, have an unergative structure, according to some authors (cf. Lekakou, 2005, for a crosslinguistic discussion). For a detailed analysis, see Carvalho (2016a).

However, for us, this is an acceptable sentence, provided that there is a context like the following: in the university in which we work, books must be bought by a specific sector. To requisite a purchase, a professor must fill out a form, hand it in at such sector, and wait for 45 days until the book arrives by mail. In such a context, if someone asks a professor about a book they requested 3 days ago, the answer could be something like (19).[6]

This divergence in lexical items allowed in the agentive alternation suggests that the reanalysis of (prior) exclusive transitive verbs that now can alternate is not complete yet. All speakers accept some verbs to be part of this alternation, but the sets do not always overlap. The context presented above indicates an important aspectual/temporal characteristic of the events described by the intransitive form of the agentive alternation: these are processes, durative events, which take some time to develop, and then, come to an end. For that, the intransitive form of the agentive alternation, not unusually, needs specification of these aspectual and temporal properties, as they may not always coincide with aspectual/temporal properties of the verb.

In fact, it is common to find remarks in the literature about aspectual requirements needed in the intransitive form of the agentive alternation. Ciríaco & Cançado (2009: 225) note, in passing, that verbs that participate in the causative alternation do not need temporal adjuncts or aspectual marks of any sort to be judged as acceptable, as exemplified in (20).

(20) O carro (se) quebrou. / O vaso (se) rachou.
the car REFL break.PAST the vase REFL shatter.PAST
'The car broke/The vase shattered.'

(Ciríaco & Cançado, 2009, p. 225, adapted)

This clearly contrasts with verbs participating in the agentive alternation. Besides not occurring with the clitic *se*, as we have already noted, the intransitive sentence in which these verbs are licensed very often requires some aspectual/temporal element. This is exemplified by the contrast between (21a) and (21b).

(21) (a) *O cabelo (se) cortou. /*A roupa (se) lavou.
the hair REFL cut.PAST the piece.of.clothing REFL wash.PAST
'*The hair cut/The piece of clothing washed.'

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[6] Interestingly, Cyrino (2013) judges the same sentence as grammatical in a context compatible to the one we created in the main text:

(i) Não podemos começar o projeto pois este livro ainda está comprando
not can.1pl begin the project because this book still is buying
'We cannot begin the project because this book is still being bought.'

(Cyrino, 2013, pp. 288–289, glosses and translation from the author)

(b) ?O cabelo já cortou. /A roupa já lavou.
the hair already cut.PAST the piece.of.clothing already wash.PAST
'*The hair already cut./ *The piece of clothing already washed.'
(Ciríaco & Cançado, 2009, p. 225, adapted)

Moreover, Carvalho (2016a) reports that intransitive sentences in the agentive alternation are generally more acceptable if they occur in the progressive aspect, according to the speakers she consulted with.

While a sentence like *o cabelo cortou* may be reported as unacceptable by some speakers (cf. (21b)), a modified version of it, with present tense and progressive aspect, is judged as acceptable by the same speakers.

(22) O cabelo está cortando.
the hair is cutting
'*The hair is cutting.'

We can analyze this increase in acceptability of (22) in couple with what Ciríaco and Cançado (2009) reported for (21b) above. It seems that speakers need some aspectual coercion for these sentences. Most speakers use aspectual adverbs for these sentences to coerce an 'end of state' reading. A second group of speakers reject such reading and prefer these sentences to describe ongoing activities. These aspectual differentiations seem to mirror the two possible analyses speakers can informally make of these sentences: the agentive alternation is like the causative alternation, and the sentences that participate in it can have an end of state reading, or it is an entirely different alternation and speakers that only accept it in progressive sentences try to assimilate them to sentential types that focus on the process, like middles.

Authors such as Keyser and Roeper (1984) have claimed that middles are ungrammatical in progressive aspect, as shown in (23).

(23) (a) *Bureaucrats are bribing easily. (Iwata, 1999, p. 531)
(b) *Chickens are killing easily. (Iwata, 1999, p. 531)

Iwata (1999) argues that the ungrammaticality of the sentences in (23) has more to do with the indefinite subject than with a requirement of middles. Indefinite subjects cannot participate in ongoing activities. Iwata (1999) argues that middles in English are generally accepted in the progressive aspect by speakers, provided that the subject is specific, as seen in (24).

(24) (a) These bureaucrats are bribing easily. (Iwata, 1999, p. 531)
(b) These chickens are killing easily. (Iwata, 1999, p. 531)

Considering the contrast between (23) and (24), we can also hypothesize that the fact that some speakers only accept the intransitive counterpart of the agentive alternation in its progressive

form stems from an attempt to treat the intransitive counterpart of the agentive alternation as a generic middle, which can appear either as a generic statement or in progressive form, but is generally not tolerated in past tense. This hypothesis fares well with the diachronic hypothesis developed by Cyrino (2013) about the origin of the agentive alternation in BP presented above.

Overall, these aspectual preferences reported in the literature and in informal acceptability judgments indicate that the reanalysis of these verbs is an ongoing phenomenon for some speakers. Hence, they rely on grammatical elements to accommodate these sentences into more well established sentential types in the language. The speakers that only accept these sentences in progressive form are probably grouping these sentences to middles, which are only licensed in some combinations of tense and aspect.

Besides aspectual properties, the agentive alternation also seems to be restricted by pragmatic properties. Amaral (2015) and Amaral and Cançado (2017) list several semantic contrasts between verbs that participate in the causative alternation and those that participate in the agentive alternation. One of the main differences is the fact that verbs are licensed in the causative alternation solely due to their lexical properties. But verbs that participate in the agentive alternation are not a unified lexical class, a characteristic we will address in sections 3 and 4. Sentences in (25a) and (25b) exemplify that restriction. According to Amaral and Cançado (2017), a sentence like (25a) is easily acceptable in BP, because the context of "sock washing" favors the alternation. The sentence in (25b) does not seem acceptable, unless a very specific context is provided.

(25) (a) A meia lavou.
the sock wash-PAST
'*The sock washed.'

(b) ??A orelha lavou.
the ear wash-PAST
'*The ear washed.'

This contrast is due to the fact that socks are normally washed by machines, whereas body parts are normally washed by a human being. This shows that the impact of pragmatic factors in this alternation can overrule some verbal constraints characterizing it, since we have the same verb in both sentences.

As for the lexical properties of verbs in this alternation, Amaral (2015) observes that there are at least three classes of verbs that participate in the agentive alternation. These are contact verbs, such as *cortar* 'cut' and *lavar* 'wash', creation verbs, such as *pintar* 'paint', and verbs such as *carregar* 'load'. Verbs from these three groups are all agentive transitive verbs, which specify some type of manner of action in which the agent acts, affecting a second participant. However, these similarities are too general to define a verb class.

Even though several verbs of the language can participate in this alternation (given that the restrictions are too wide), a small number of verbs have been effectively attested in such

alternation. Amaral (2015) attests 36 verbs, Amaral and Cançado (2017) mention 37 verbs. Using a list of verb classes in Whitaker-Franchi (1989), Carvalho (2016a) finds 13 attested examples of alternating verbs that participate in the agentive alternation. The discrepancy between the numbers in these works do not mean that Amaral (2015) and Amaral & Cançado (2017) accept 23 more verbs to alternate than Carvalho (2016a). Probably, the pragmatic constraints alluded to before are responsible for the quantitative differences in the three studies. This reinforces that this alternation is more sensitive to extralinguistic factors than the causative alternation (or other well documented alternations, such as the dative alternation).

In sum, the agentive alternation has many distinctive features in comparison to the causative alternation: it occurs with agentive verbs only, it does not accept a causer PP or *se* in the intransitive form, and it is not specific to a single verb class. Because of that, we assume, agreeing with Amaral (2015) and Carvalho (2016a), that both alternations, although similar in form, result from distinct phenomena. Besides, because the agentive alternation involves a semantically nonhomogeneous set of verbs and extralinguistic constraints, it poses an interesting challenge for lexicalist approaches to argument structure. Thus, in Section 3, we describe two approaches to argument structure, which we believe can explain both the causative and the agentive alternations.

3. Approaches to argument structure

The term "argument alternation" describes a linguistic phenomenon in which there are two different syntactic argument realizations for the same verb. Under a lexicalist point of view, one of these forms is assumed to be derived from the other (which is considered the basic lexical form of the verb). The derivation occurs via lexical rules that apply to semantically defined verb classes (Levin 1993). The causative alternation is a classic example of such phenomenon, as we have shown in Section 2.1.

However, as we have been discussing throughout the paper, the agentive alternation poses an important problem for lexicalist approaches. As seen in Section 2.2, it does not apply uniformly to a specific verb class, so it cannot be analyzed as a lexical rule that derives one form from the other. In this section, we introduce two different theoretical frameworks which provide non-lexicalist approaches to argument structure: Distributed Morphology and Construction Grammar. These frameworks will be used in Section 4 to explain the agentive alternation and contrast it with the causative alternation, also in a non-derivational perspective.

3.1. Distributed Morphology

Distributed Morphology is an approach to the architecture of grammar couched within the Minimalist Program (Chomsky, 1995). It assumes all the basic tenets of the Minimalist Program but pays special attention to the properties of words and their contribution to the syntactic structure. In this framework, words are not ready in the lexicon. Instead, they are built in the

syntactic component with the same operations used to build sentences. Figure (1), adapted from Harley and Noyer (1999), represents the design of grammar in this framework:

Figure 1 shows that the properties normally ascribed to the lexicon are distributed among three lists in this framework. List 1 has features and roots that are relevant for the syntactic derivation. They will be assembled (merged) with other features in the syntactic component. Once significant units are formed, they will be available for movement and copy, as words in sentences are. After the syntactic structure is built, the derivation is sent to the phonological and semantic components, as traditionally assumed in Generative Grammar.

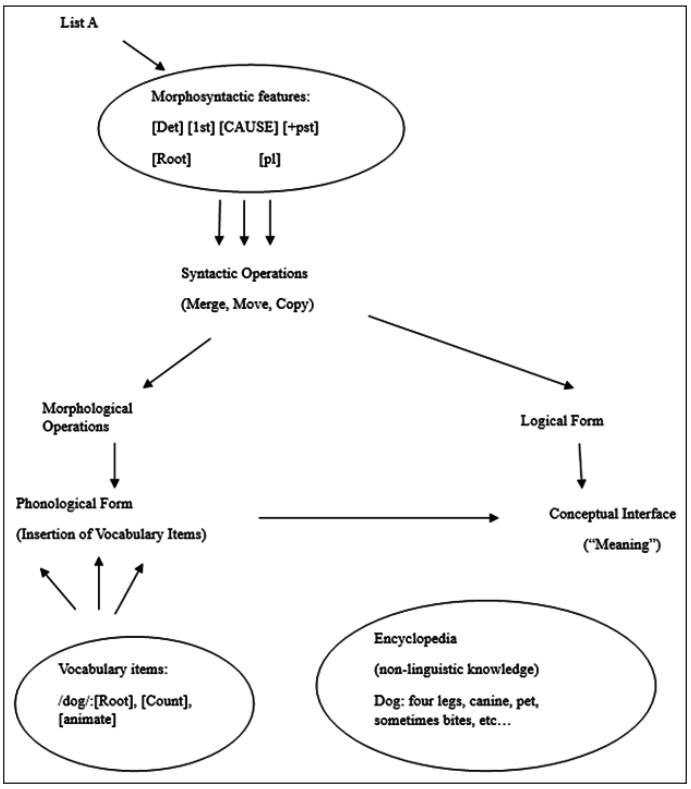


Figure 1: Architecture of grammar in Distributed Morphology (adapted from Harley & Noyer, 1999, p. 1).

Before reaching Phonological Form (PF), the output of the syntactic derivation may undergo morphological operations, – for instance, local dislocation of morphemes – depending on the content generated. After that, the Vocabulary Insertion takes place in List B. Meanwhile, in the Logical Form (LF) side, usual semantic operations take place. Finally, the derivation reaches List C, Encyclopedia, where some correspondence is made between the expression formed and the special meanings it may have. *Dog*, for instance, may refer to someone dishonest besides its literal meaning. This second interpretation is provided by the Encyclopedia.

The architecture of grammar in **Figure 1** keeps the generative Y model but distributes the properties traditionally ascribed to the lexicon (special meanings, idiosyncratic phonology, and features that guide the syntactic derivation) into these three lists. All phenomena can be reexamined to evaluate the impact of these lists in its description and explanation. This is also the case when we consider argument structure alternations.

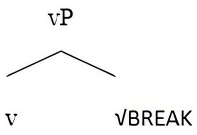
In Distributed Morphology, argument structure alternations are the byproduct of different syntactic configurations. That is, a given root can be licensed in two or more different syntactic structures that share some syntactic-semantic properties. Although this can be informally perceived as an alternation by the speaker, these two or more syntactic structures bear no derivational relationship inside the grammar. Consider again the sentences shown in (3), repeated below as (26). They exemplify how the causative alternation can be treated in this framework:

(26) (a) O professor quebrou a tela do computador.
the professor break.PAST the screen of.the computer
'The professor broke the computer screen.'

(b) the screen of.the computer break.PAST
'The computer screen broke.'

With words built during the syntactic derivation, the formation of the verb is already the product of a syntactic derivation, depicted in (27). It starts as the root √*break*, an acategorical element, in syntax. The root is categorized by a functional element -*v, n, a,* or other – in order to become a syntactic object.

(27)



Currently, there is a debate in the literature about the content of roots. While some authors maintain that the root has virtually no specification (cf. Acquaviva, 2008; Harley, 2014; Panagiotidis, 2020, among others), others defend that at least lexical roots must have some specification responsible for their licensing in a syntactic structure (cf. Arad, 2005; Harley, 1995; Marantz, 1996, 1997).

We consider here that the root has a semantic specification, which warrants that it will be licensed in a specific syntactic configuration. However, its content is underspecified, contributing only with some ingredients to the semantics of the whole sentence. That is, the root √*break* cannot be characterized as causative, for instance. Rather, it has some semantic specification that can be combined into a syntactic structure that will be read as causative.

We will assume here that the causative alternation involves result roots, i.e. roots that encode a result of some action. They are in complementary distribution with manner roots, which describe the manner of the action, rather than its result (cf. Rappaport Hovav & Levin, 2010).

The fact that result and manner are meaning ingredients already present in roots signals that these meaning specifications are of an ontological nature that persists regardless of the categorization imposed on these roots. Hence, result roots (categorized as verbs or as nouns, as in *the break*), always encode the result of some action.

The ill-formedness of (28) is due to the fact that the result of the action is negated in the sentence, which leads to a contradiction of the root's specification. By contrast, sentences with manner roots are not contradictory when the result of the action is negated, as shown in (29) below.

(28) #John broke the vase, but the vase didn't break.

(29) John swept the floor, but it is still dirty.

The contradiction in (28) can lead one to hypothesize that the root in this case encodes a change of state or a causative component, not only a result. Since a result is a mandatory part of a causative sentence, it may be difficult to tease these notions apart. However, the fact that the same verb can be used in metaphoric/idiomatic contexts, as shown in (30a-b), and no causative/change of state is involved, shows that a change of state or a causative component cannot be attributed to the root. It is also worth noting that the verb does not alternate in such cases, as the ungrammaticality of (30c) shows. This can be taken as evidence that the verb itself does not alternate. Rather, the syntactic structure as a whole must comply with required elements for the alternation to be possible. The verb is just one of the ingredients of this syntactic structure.

(30) (a) John broke the world record.
(b) John broke the deal.
(c) *The world record broke/*The deal broke.

Following Alexiadou, Anagnostopoulou & Schäfer (2015), we assume that the change of state reading is the byproduct of a syntactic structure with two verbal layers. Different readings with adverbs like *again* demonstrate such interpretation (cf. Alexiadou, Anagnostopoulou & Schäefer, 2015; Von Stechow, 1996). In (31), for instance, this property is illustrated with the change of state interpretation of *close*: two readings are generated (a repetitive one and a restitutive one).

(31) John closed the door again.

The context for a repetitive reading can be the following: John closed the door of his office as soon as he arrived at work because he has an important document to send to his clients today. After 2 hours, he opened the door because it was too warm inside his office, but he could not stay focused on his work because people were talking outside. Thus, he decided to close the door again.

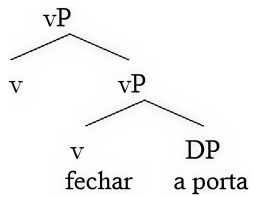
In such a reading, John repeated the whole action, i.e., the process of taking the knob, pulling it, and the result of closing the door. A restitutive reading is obtained when the result of

the action is encoded. For a similar context, consider that John had only opened a crack in the door, but quickly changed his mind when he noticed the voices outside and decided to close the door again. This gives rise to a restitutive reading of *again*, in which the result state is focused and the whole process related to pulling the door to a certain angle is not present. Importantly, the presence of these two readings indicates that both the process and the result of the action are encoded in the syntactic structure since an adverb can modify either one of those components.

Interestingly, the intransitive counterpart of (31), *The door closed again*, is also ambiguous. Similar contexts to the ones presented for (31) can elicitate the two readings. The key difference in this case is that the agent is not involved in the action. The trigger of the change of state is unknown, cannot be revealed or is a natural force in intransitive sentences. We exemplify the contexts for *The door closed again* with natural forces for the sentences to sound more natural. The repetitive reading for *The door closed again* is suitable in a context where the wind was so strong that it closed the door. Someone opened it, but the wind ended up closing it again. The restitutive reading of *again* is obtained if a crack in the door was opened by the wind, but the wind closed it again. Like we saw for the transitive sentence in (31), the whole action is not repeated in the case of a restitutive reading, only the final part of the action in which a previous state is restituted. Hence, these types of intransitive sentences also have two verbal layers – one encoding process and another encoding result.

Given the result of these tests, the syntactic representation in (32) is a structure for the process and result layers that intransitive and transitive sentences share. For the repetitive reading to be obtained, the adverb *again* must adjoin to the topmost vP. For the resultative reading, *again* adjoins to the embedded vP, which encodes the result state. Importantly, it is not necessary to assume that these vPs have features or labels encoding the process and the result of the action described. If causation involves two events, two vPs, one on top of the other, the event will be interpreted as causative. The representation in (32) is, thus, the syntactic correlate of the semantic characterization of causative events.

(32)



The difference between transitive and intransitive sentences in this perspective is the presence of an external argument. Then, this proposal disassociates external argument from causation. Causation is the presence of two verbal layers; external argument is a syntactic argument present in transitive sentences. In this perspective, the syntactic assembling of the building blocks of sentences creates most of the semantic information associated with transitive and intransitive

sentences (cf. Alexiadou, Anagnostopoulou & Schäfer, 2015; Schäfer, 2009). This assumption about the relationship between syntax and semantics differs from other grammatical theories also interested in argument structure alternations, such as Construction Grammar, discussed in the next section.

3.2. Construction Grammar

In Construction Grammar theories (Croft, 2001, 2012; Fillmore & Kay, 1993; Goldberg, 1995; Kay & Fillmore, 1999; Langacker, 2008), the grammar is composed of a network of organized and linked constructions. Constructions are the linguistic expressions of a language, and they have morphosyntactic form and semantic/pragmatic/discourse function. One important distinction between Construction Grammar theories and other syntactic theories, such as Distributed Morphology and Generative Syntax as a whole, is that the link between syntax and semantics (seen as a symbolic correspondence) is internal to the construction, and not attributed to linking rules between different modules of grammar or to the result of assembling syntactic primitives in syntax. This is represented in **Figure 2**, from Croft (2007), which schematizes the components of a construction.

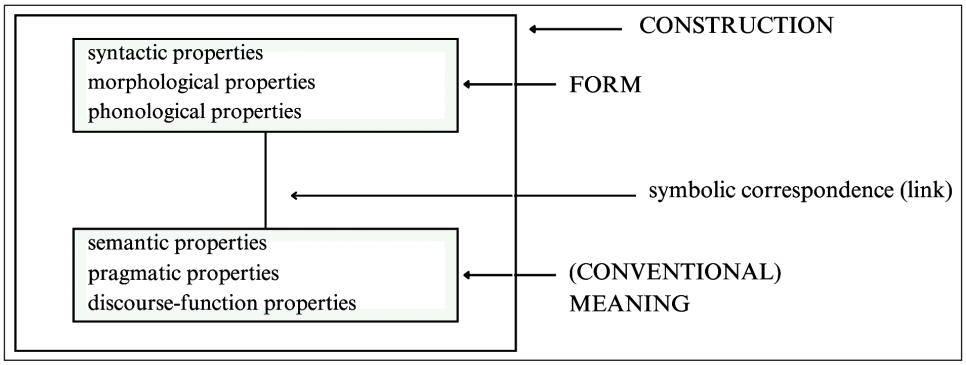


Figure 2: the components of a construction (Croft, 2007, p. 472).

The internal structure of each construction varies in complexity and schematicity. Constructions can be simpler atomic and more specific structures (like words), or more complex schematic structures (like sentences). Intermediate levels of complexity and schematicity are found between those extremes, as **Table 1**, also from Croft (2007), shows.

In **Table 1**, words like *this* and *green* exemplify simpler and more substantive constructions (atomic and specific). And a syntactic structure such as [SBJ *be*-TNS VERB-*en by* OBL], which underlies passive sentences (*the cake was eaten by the kids*), exemplifies a complex schematic construction. In between, we can find word classes (demonstratives, adjectives), which are atomic but schematic, and idioms (*pull someone's leg*), which are complex, but mostly specific (as these structures typically pick out specific words). An important assumption of Construction Grammar

Construction Type	**Traditional Name**	**Examples**
Complex and (mostly) schematic	Syntax	[SBJ *be*-TNS VERB-*en by* OBL]
Complex and (mostly) specific	Idiom	[*pull*-TNS NP-*'s leg*]
Atomic and schematic	syntactic category	[DEM], [ADJ]
Atomic and specific	word/lexicon	[*this*], [*green*]

Table 1: Complexity and schematicity continuum in the internal structure of constructions (Croft, 2007, p. 471, adapted).

theories is that all constructions have meaning. Therefore, even the most schematic syntactic structures have both formal and semantic, pragmatic, and discourse-function information. The passive construction, for instance, is related to semantic properties such as topicality and agentivity (Croft, 2012; Givón, 1994) that cannot be predicted from the individual words in a passive sentence.

Assuming this theoretical standpoint, both verbs and argument structure are also constructions, that is, they are both pairings of meaning and form, as any other type of construction. Verbs are atomic specific constructions, like other words, they evoke specific events, contain rich information about the participants of such events and the relations between them. Argument structure constructions, which underlie the structure of sentences, are schematic complex constructions which describe event types (also known as event structures) (Croft, 2012; Goldberg, 1995; Kalm, Regan & Croft, 2019). In terms of form, argument structure constructions indicate the organization of arguments and their syntactic roles. As verbs describe specific events and argument structure constructions describe event types (or event structures), verbs will be integrated into argument structure constructions if the event they describe can be construed as an event of the type described by the construction.

According to Croft (2012), in a cognitive perspective, linguistic expression is the product of construal, i.e., how the reality is perceived and (re)construed in the speakers' mind by the use of language. In a functionalist perspective, the author proposes that which parts of the construal are linguistically coded (profiled) are motivated by the speakers' communicative goals. Thus, each type of situation speakers experience in the world, and the verbs that describe them, have the potential for alternative construals, and different linguistic expressions can profile an experience in different ways, highlighting or drawing out specific parts of it. This is an important aspect of the theory in the explanation of argument alternations. Argument alternations arise in a language because the specific event described by a verb can be construed in different ways, allowing a single verb to be integrated into different argument structure constructions.

We can now discuss how the causative alternation can be treated in Construction Grammar. Change of state verbs, such as *break*, can be combined with two distinct constructions: the transitive construction (which underlies sentences such as *the professor broke the computer screen*), and an intransitive construction, traditionally called the inchoative construction (which underlies sentences such as *the computer screen broke*) – without a derivational relation between these forms (Goldberg, 1995; Langacker, 2008; Ruiz de Mendoza & Mairal, 2011). The alternation arises because the specific event described by verbs like *break* can be construed in different ways. It can be construed as a force relation (Croft, 2012), in which a trigger (volitionally or not) forcefully impacts an object, causing it to change state, or it can be construed as a caused change of state of an object, with a non-agentive external cause. In the representation in **Table 2**, of the transitive construction, the trigger participant is subsumed under the more general role Agent/Cause, and the affected participant is subsumed under the more general role Theme.

Transitive construction	
Meaning	Agent/Cause → Theme *Force*
Form	[SBJ VERB-TNS OBJ]

Table 2: The structure of the transitive construction in BP.

In the representation in **Table 3**, of the inchoative construction, the trigger participant of the change of state can only be a non-volitional cause, so it is specified and subsumed under the role Cause. The participant which changes state is also specified and it is represented as a Property Theme, following Croft, Pešková & Regan (2016). According to the authors, the Property Theme is the affected participant which changes state, it changes its properties as a result of the event. Depending on the type of change the event causes in the affected participant, other types of Themes are possible in the transitive construction, such as Design Theme (creation events) or Path Theme (motion events). However, in the inchoative construction, as we have shown and as widely attested in the literature, only participants which change state are licensed.

Inchoative construction	
Meaning	Cause → Property Theme *Force*
Form	[SBJ (se) VERB-TNS (PP $_{COM}$)]

Table 3: The structure of the inchoative construction in BP.

In the inchoative construction, there cannot be an agent participant evoked. Hence, as seen in Section 2 and also in Section 3.1, verbs that specify (obligatorily evoke or entail) agentive participants are not expected to occur in the inchoative construction. However, these changes of state do not rule out the participation of an external cause. Thus, as also seen in previous sections, the inchoative construction can be combined both with the clitic *se* and causative adjuncts (specially the causer PP) in order to express the causer participant. Following Negrão & Viotti (2015), Amaral, Oliveira & Oliveira (2023) suggest that inchoative *se* in BP indicates a non-agentive causation, the same type of participant that is profiled by causer PP adjuncts. Therefore, the event structure of inchoative constructions maintains the causative semantics of the event, evoking that a non-volitional external force is responsible for the change of the state of the affected participant. However, such cause is not profiled as an argument in the construction, thus it is represented with dotted underlines in **Table 3**, following Croft's (2012) notation. The cause participant can be profiled by the clitic *se*, by an adjunct PP phrase, or both.

4. Different explanations for the agentive alternation

Section 3 showed how Distributed Morphology and Construction Grammar treat alternations using the causative alternation as a toy example. We can now offer analyses for the agentive alternation in these frameworks, using the results of the analyses of the causative alternation as a backdrop to understand the syntactic characterization of the intransitive member of the agentive alternation and its semantic properties.

4.1. A syntactic view of the phenomena: Distributed Morphology

The pair of sentences in (33) illustrates the agentive alternation. One of the tests we can apply to probe the syntactic structure of sentences like (33b) is the availability of two readings with the adverb *again*. Recall that transitive and intransitive sentences with verbs that participate in the causative alternation are ambiguous between a repetitive and a restitutive reading, depending on which verbal layer the adverb *again* attaches to. Importantly, if two readings are available for (33a) and (33b), it means the intransitive sentence in (33b) has a bieventive syntactic structure, with a process and a result layers, just like intransitive sentences in the causative alternation. If only one reading is available, the structure in which the verb appears is not causative, as defended by Carvalho (2016a, 2016b).

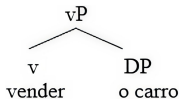
(33) (a) João vendeu o carro de novo.
João sell.PAST the car of new
'John sold the car again.'

(b) O carro vendeu de novo.
the car sell.PAST of new.
'*The car sold again.'

Consider a context for a repetitive reading in (33a): João sold the car to a man. The man regretted the purchase almost immediately and brought the car back to the store. After two days, the man realized that the deal was actually very good and went back to the store, so João sold him the car again. In such a context, we can only have a repetitive reading for the action, i.e., João made the whole selling transaction again. Since selling is not a gradable action (one cannot sell a car a bit), there is no way to only restitute part of the action, as it is possible with verbs that participate in the causative alternation. If the man intends to buy the car again, he can only restitute part of the action if he comes back in time.

The sentence in (33b) behaves in a similar way: we cannot stop the action of selling the car and resume it later from the point where it stopped. Even if we describe the action in such a way, this is not how the event unfolds. Therefore, (33b) can only have a repetitive reading, in which the car is sold again. It cannot have a restitutive reading, in which one part of the selling process is restituted to a previous state. Since the restitutive reading is unavailable, the agentive alternation is, thus, represented in a different syntactic structure, where only a process is encoded and there is no result of the action. Assuming that its syntactic structure reflects this difference in the adverbial reading, the structure of the vP *vender o carro* 'sell the car' would be as follows:

(34)



Another difference between the agentive and the causative alternations is the type of root involved, as mentioned in the previous section. The structure in (34) can only license manner roots, since it is not a bieventive structure. As we know, a contradiction does not arise when the result of the action is denied in sentences with manner verbs, since these verbs encode no result. The sentences in (35) and (36) exemplify this property with the verbs *sweep* and *wash*, which participate in the agentive alternation in BP.

(35) John swept the floor, but it is not clean.

(36) John washed the clothes, but they are still dirty. We will have to wash them again.

In sum, using Distributed Morphology, these alternations are primarily differentiated due to their roots' specification. As manner and result roots must be licensed in different syntactic structures (or different portions of syntactic structure), the differentiation between the type of roots licensed in causative and agentive structures will ultimately lead to the postulation of distinct syntactic structures for the intransitive counterparts of the causative and agentive alternation. This framework can thus distinguish the syntactic structure of these alternations. But, as mentioned before, this alternation cannot be accounted for with structural principles alone. Not all monoeventive vPs can be licensed in this alternation, as examples in (37) illustrate.

(37) (a) A meia lavou.
the sock wash-PAST
'*The sock washed.'

(b) ??A orelha lavou.
the ear wash-PAST
'*The ear washed.'

We claim that the difference between (37a) and (37b) is that socks can be washed by washing machines, whereas machines do not usually wash ears. If we find or create one scenario where ears are washed by a machine, (37b) may become an acceptable sentence. This contrast shows that, besides the structural properties necessary for an intransitive vP to be eligible to participate in the agentive alternation, the event must be conceived as somehow spontaneous. The reason for this is straightforward: if the agent is completely absent in these sentences, the event must be independent from it, otherwise the sentence could not be intransitive.

A way to formalize this requirement in Distributed Morphology is by using Encyclopedia, which deals with non-linguistic information. All vPs that are formed with manner verbs and a DP are in principle entitled to participate in this alternation, as far as syntax is concerned. However, after syntactic derivation, they are evaluated for their spontaneity in Encyclopedia. This evaluation takes into consideration the speaker's world knowledge, which explains why (37a) is judged as acceptable, and (37b) as unacceptable.

4.2 A semantic view of the phenomena: Construction Grammar

In the perspective of Construction Grammar, the agentive alternation in BP is the byproduct of the integration of a particular group of verbs into two different argument structure constructions: the transitive construction and a different type of intransitive construction, which Amaral (2015) calls result construction. As discussed in Section 2, the agentive alternation has distinct properties from the causative alternation. Thus, the result construction cannot be equaled to the inchoative construction, which is the intransitive counterpart of the causative alternation. We use these labels for the intransitive sentences discussed in this work because Construction Grammar conceives constructions as a pairing of structure and meaning. Therefore, the meaning ascribed to a construction usually differentiates it from similar structures from a formal point of view.

As already discussed, the event structure of the transitive construction (recall **Table 2**) construes the event described by the verb as a force event, in which an Agent forcefully acts on a Theme. Verbs such as *lavar* 'wash', *vender* 'sell', and *cortar* 'cut' describe events in the experience of speakers that can be construed as force events, so these verbs are naturally integrated into this type of transitive construction.

(38) Alguém lavou a roupa.
someone wash.PAST the clothes
'Someone washed the clothes.'

A subset of the verbs that can be integrated into the transitive construction can also be integrated into the result construction, giving rise to the agentive alternation as a byproduct. Following Amaral's (2015) semantic analyses, and as already argued in Section 4.1, these verbs are all obligatorily agentive and correspond to manner verbs, those which specify a type of action and do not describe change of state events. Once these verbs are integrated into the result construction, the event structure evoked by this intransitive form characterizes the expected result of the action described by the verb, that is, given that such action is accomplished, the expected result of that action, according to the speakers' experience, was obtained. This is exemplified in the result construction in (39), with *lavar* 'wash'.

(39) A roupa lavou.
the clothes wash.PAST
'*The clothes washed.'

Note that this characteristic is aligned with the description in Section 4.1 about the presence of a manner (not a result) root in the agentive alternation. By the expected result of the action, we mean that the action described by the verb reached a successful end. It does not mean that the end of the action encodes an end of state reading. According to Amaral & Cançado (2017), when the speaker uses this form, instead of the transitive construction, the communicative goal is not to express who is the agent; the relevant information for the communicative goals of the speaker is the result obtained when the action described by the verb is performed. Yet, according to their analysis, these structures, by not profiling the agent participant of the event described by the verb, implicate that the agent is automatic or non-relevant (an agent or instrument other than the speaker themselves), the event must be conceived as somehow spontaneous, as described in Section 4.1. Assuming this semantic analysis, we propose that the event structure of the result construction in BP is composed of a single Theme participant and can be represented as in **Table 4**.

Result construction	
Meaning	Theme [expected result brought about by an action, somewhat spontaneously]
Form	[SBJ VERB-TNS]

Table 4: The structure of the result construction in BP.

The type of event described by the result construction includes an affected object, for which we choose the label Theme. Theme encompasses all types of possibly affected objects in two-participant manner events, such as *sell*, *wash*, *paint*, *cut* and others. The agent participant, construed as automatic or non-relevant, might be evoked by lexical properties of the verb, but is not profiled in the construction or evoked by it. This was exemplified in (18), in which we showed that purpose clauses (18b), causer PPs (18c), and by-phrases (18d) are not licensed in the intransitive counterpart of the agentive alternation. As the construction does not construe the event as a causative change of state, it cannot combine with *se* or cause adjuncts. As we have argued, *se* and causer PPs evoke and profile a non-volitional causer, which form the event structure of the inchoative construction, but are incompatible with the semantics of both agentive verbs and the result construction.

Accordingly, only specific events that have expected results and that can be triggered by specific types of agents in the experience of speakers can be combined with the event structure of the result construction, as we have shown in Section 4.1. We can recall here the case of the verb *lavar* 'wash'. *Lavar* 'wash' is a verb that prototypically occurs in the agentive alternation, because the speakers' experience of a washing event includes both an expected result (washed objects normally get clean) and an automated agent (normally a machine, or some professional) which makes the event somehow spontaneous. In some contexts, however, the experience of speakers about the washing event may not include these characteristics. When we wash our ears in the shower, for example, although we can have an expected result, we do not have a spontaneous event done by an automated agent. Who washes one's ears, in our experience, is normally ourselves or a caretaker (an identifiable human agent). Hence, *a roupa lavou* (lit. the clothes washed) is well formed, but ?*as orelhas lavaram* (lit. the ears washed) is odd, as shown in (25) and (37b).

There are two main characteristics of this alternation that motivate a constructional, non-lexicalist, approach. First, as already noted in Section 2, the alternation cannot be predicted by the semantic characteristics of verb classes. The group of verbs that occur in the alternation is semantically heterogenous and the only possible generalization is that they describe events in which two participants are involved, an agent and an affected entity. Moreover, not all verbs with this characteristic can occur in the alternation and the same verb may be allowed or not in the alternation depending on the arguments it is combined with, as the case of *lavar as orelhas* 'wash one's ears'. As Amaral and Cançado (2017) show, there are pragmatic constraints on the alternation, as it is used when the speakers have a specific communicative goal in mind and is associated to our experience of the events described by the alternating verbs.

A second motivation is that the result construction has a specific meaning, which cannot be derived from the meaning of the words that occur in it. The result construction describes a construal of a type of event (the expected result brought about by an action) that cannot be

predicted by the meaning of the verbs alone. Evidence that the result meaning is contributed by the construction (not the verb) is the interpretation of negated structures with manner verbs that describe activities. As shown in the previous section, these verbs do not lexicalize results, and this can be demonstrated by the fact that their negation does not lead to a contradiction, as example in (40) demonstrates:

(40) A roupa não lavou.
the clothes not wash.PAST
'*The clothes didn't wash.'

These types of negated sentences do not mean that the action was not performed, they are not denying the occurrence of the events described by these verbs. These sentences are conveying that the result one expects when that specific action takes place was not obtained. When uttering *a roupa não lavou* the speaker is saying that someone (not them, maybe a machine) did the washing of the clothes, but, at the end of the process, the clothes are still dirty.

In sum, the intransitive counterpart of the agentive alternation has specific meaning and form and cannot be predicted by the specific meanings of verbs. Thus, following Amaral (2015), in a Construction Grammar perspective, it can be analyzed as the result construction, a type of argument structure construction. The different forms of argument structure constructions that give rise to argument alternations indicate different construals of events, or different ways in which speakers (re)construe their experience. Thus, these structures are not arbitrary, but they have discourse functions and are motivated by the ways speakers want to describe events, according to their communicative goals. This means that argument alternations are not considered a lexical rule in which one form of the verb is derived from another form. Rather, argument alternations are the result of another phenomenon, the integration of a single verb into different types of argument structure constructions. Each construction evokes a different construal of the event described by the verb. Therefore, the alternation represents the potential for these particular verbs (and the specific events they evoke) to be construed in different ways.

Both Distributed Morphology and Construction Grammar have theoretical tools that can explain the facts about the agentive alternation. In both accounts for the phenomenon, the intransitive structure itself has properties that account for both syntactic and semantic properties of the alternations. Depending on their specific meaning, certain roots/verbs will be combined with such structure, giving rise to the agentive alternation as an epiphenomenon. In Section 5, we discuss these two approaches comparatively.

5. Convergencies and divergencies in argument structure theories

We have argued so far that the agentive alternation in BP poses important problems for a strictly lexicalist account of argument structure. More specifically, two main issues arise in the analysis

of such alternation: the semantic heterogeneity of the verbs which undergo the process, and the external pragmatic factors which seem to constraint it. The causative alternation, differently, is well accounted for in a lexicalist approach since the conditions on the alternation are clearly stated in terms of the semantics of verbs and a specific semantically defined verb class. But the causative alternation is also well accommodated in non-lexicalist approaches, as we have shown in Section 3.

According to Rappaport Hovav and Levin (2015), lexicalist and non-lexicalist approaches to argument structure agree on the types of semantic properties that determine argument realization. The difference is whether these components are seen as lexical (in a lexicalist approach) or extralexical (in non-lexicalist approaches). So, assuming a non-lexicalist perspective on argument structure and on argument alternations, motivated by the agentive alternation, we demonstrated that we can explain both phenomena, and the distinctions between them, without missing any generalizations. In particular, we have shown that two different non-lexicalist approaches can successfully account for the core properties of this alternation: the syntactic based approach of Distributed Morphology, and the semantic-pragmatic based approach of Construction Grammar. The aim of this section is to provide a comparison between such theories, presenting convergencies and divergencies in their analysis of argument structure.

Although sharing a non-lexicalist perspective, Distributed Morphology and Construction Grammar differ in many respects. According to Boas (2014), they represent very different theoretical views, if not "diametrically opposed" views, on language. Being a generative model, Distributed Morphology inherits the basic tenets from Generative Grammar about the nature of linguistic knowledge, language acquisition, and the role of syntax. In this approach, linguistic knowledge is stored in a specific mental component, and language itself is compartmented into distinct modules. Language acquisition is specially facilitated by an innate human linguistic capacity, universal grammar, and the specialized mental component for language. Finally, syntax is the central module of grammar, it is autonomous from other modules and its syntactic processes are internally motivated, that is, they are motivated by the structural nature of the syntactic component. Construction Grammar theories, in their turn, inherit its assumptions from Cognitive Linguistics. In this approach, linguistic knowledge is part of the general human cognition and shares with it its forming properties and components; language is seen as a network of structured and linked constructions, in a way that there are no modules, but each construction carries information about phonology, morphology, syntax, semantics, pragmatic, and discourse function. Language acquisition is facilitated by general properties of human cognition and language use and is construction-based. Finally, syntax is not a module of language, but is one of the facets of a construction, and it is motivated by functional properties.

Another important point for comparison is how these theories view lexical entries. Distributed Morphology assumes that words are built into the syntactic component, so List 1 (recall **Figure 1**), which replaces the lexicon, is a module composed of roots and functional morphemes

of a given language (without specific grammatical categories). There is no list of words stored in the speakers' minds, and roots are combined with functional heads to form words and then sentences during computation. The meaning of roots is restricted to idiosyncratic information, but ontological types of roots can determine the structures with which a root can be combined (as the manner and result roots presented in Section 3).[7] In Construction Grammar, there is no clear boundary between lexicon and grammar, since lexical items are also constructions (recall **Table 1**). This means that the nature of both lexical and complex elements is the same, as assumed in Distributed Morphology. In Construction Grammar, words are atomic and specific constructions, which can be categorized as verbs, for instance, by means of their integration into specific types of morphological constructions. But, differently from Distributed Morphology, in Construction Grammar words have their place in the speakers' mind, together with a list of more complex constructions (which is generally referred to as *the constructicon*). The meaning of lexical items in Construction Grammar, as well as the meaning of complex constructions, is frame-based, and subsumes both idiosyncratic and structural information, including pragmatic and discourse-function information, which, in Distributed Morphology, is separated from List 1 and comprised into Encyclopedia.

For they are based on such theoretical assumptions, Distributed Morphology and Construction Grammar differ in many aspects of the analysis of the causative and the agentive alternations. A first distinction is the locus of the alternation, which also derives a second difference regarding the motivation for the alternation. In Distributed Morphology the alternation is syntactic. It is a byproduct of the combination of a root with different types of functional heads; the motivation is related to internal properties of the syntax of the language, as seen in Section 4.1. In a non-derivational view, Construction Grammar conceives alternations in a similar fashion. In this framework, too, one sentence is not derived from the other. Rather, alternation occurs when a verb can be integrated into multiple argument structure constructions. A blatant difference, however, is related to the unity of analysis of Construction Grammar, the construction. Since constructions carry functional information, the process is semantic-pragmatic per definition, as well as syntactic, and it is motivated by functional matters, including extra linguistic factors and discourse. Distributed Morphology associates the semantic readings of sentences with specific syntactic configurations built from the assembling of functional heads, which, in composition with roots, give rise to the meaning of the entire sentence. Construction Grammar, in its turn, assumes that the backbones of a sentence are argument structure constructions, i.e., pairings of form (syntactic roles) and function (event structure). This means that the meaning of a construction is not necessarily composed of small syntactic parts that, when together, give rise to a particular reading.

[7] As the status and content of roots are currently under debate, this view depends on the author. See Harley (2014) and the papers on the same volume for a debate about the different views available.

The differences discussed in the two last paragraphs, concerning how words and argument structure alternation are viewed in these two frameworks, can be reduced to an axiomatic difference between formal and functional models. In formal models and in generative grammar specifically, expressions of the language are generated through some principled operations. The intensional mechanisms that give rise to these expressions are among the main lines of research in a formal perspective. This is in stark contrast with functional models, in which the relationship between an entity in the grammar and the functional or discourse elements that influence it is the main line of research. In this way, even though the two frameworks share some analytical resemblances, the different axioms these frameworks assume are responsible for the fundamental different ways Construction Grammar and Distributed Morphology assume language expressions are in our mind, i.e. either stored or generated every time.[8]

Despite fundamental distinctions, however, there are points of contact between the two approaches, especially in the analysis of alternations. The composition of roots with functional heads and the integration of verbs into argument structure constructions are constrained by semantic compatibility between the situation described by the root/verb and the type of event described by the syntactic structure/construction. The notion of compatibility and the ways in which compatibility happens, however, differ in the two approaches. This perspective on the lexicon-syntax interface, common to the two approaches, does not posit derivation nor polysemy as an explanation for argument alternations. In both types of non-lexicalist approaches, alternations are epiphenomenal (Boas, 2014; Levin, 2015, 2018; Ruiz de Mendoza & Mairal, 2011), as they result from the possibility of a single root to be combined with different types of functional heads (in Distributed Morphology) or from the possibility of a single verb to be integrated into multiple argument structure constructions (in Construction Grammar). Thus, in both approaches, event structure naturally determines argument realization, since the event described by roots/verbs must be analyzable as an event of the type described by the syntactic structure/construction. And event structure, differently from the lexicalist view, is not strictly lexical, but emerges in the combination of roots/verbs and syntactic structures/constructions.

Although roots/verbs are central in the determination of the meaning of a sentence, the lexical determination of argument realization is weakened on both approaches. In the case of Distributed Morphology, the syntax plays a more prominent role, while in Construction Grammar verbs and argument structure constructions share the labor in accounting for argument realization. But in both types of analyses, a projectionist account is abandoned in favor of an integration between lexicon and syntax. In the case of the agentive alternation, as seen in Section 4, both analyses, despite assuming distinct premises, obtain similar results. For the non-projectionist view, the

[8] We are aware that there are frameworks within these two strands of research – Formal and Functional Grammar – which have different assumptions about how the units of the language are stored and what these units are. As our aim is to discuss only two frameworks, we don't consider particularities of other approaches.

alternation is not dependent on a semantically uniform class of verbs and can be explained by the fact that verbs with different semantics are compatible with the intransitive structure that gives rise to the alternation.

It is also worth mentioning that the impact of pragmatic factors on this alternation can be accounted for by the two approaches, although in a radically different manner. As Distributed Morphology aims at treating derivationally several characteristics that are ascribed to the lexicon in other frameworks, an account must be given for non-linguistic knowledge. This is addressed by the postulation of Encyclopedia, a list with the non-linguistic knowledge usually associated to some coined expressions, such as idiomatic expressions and popular sayings. In some formulations of the theory, Encyclopedia has also a role in evaluating the root content in comparison to the sentential structure in which it is licensed. In the case of the intransitive counterpart of the agentive alternation, this seems to be necessary since this is an alternation with important pragmatic constraints. In section 4.1, it was suggested that the different intransitive vPs with manner roots are evaluated after syntactic derivation with respect to their autonomy. The more autonomous the vP formed, the better candidates they are for being realized as autonomous events. Hence, the notorious pragmatic factors that guide this alternation are addressed post syntactically, with Encyclopedia evaluating vPs with respect to their likelihood in occurring without an agent. As a result, any vPs that respect the basic syntactic requirements of the intransitive counterpart of the agentive alternation will be formed. However, not all of them will be accepted/produced by the speakers, because some will conflict with our world knowledge. They will then be filtered out by Encyclopedia. In Construction Grammar, on the other hand, the pragmatic constraints on these sentences are part of the construction. They are not treated as non-linguistic knowledge as in Distributed Morphology. Consequently, these pragmatic factors will block several verbal phrases to be formed, as they will not allow specific verbs to be integrated into the construction. Although these different treatments virtually render the same results as for why speakers accept some sentences but not others, the centrality or not of these pragmatic constraints mirror the general architecture assumed by each type of grammar.

Table 5 summarizes the properties of Distributed Morphology and Construction Grammar in comparison.

6. Final Remarks

In this paper, we have shown two types of argument alternations in BP: the well-known causative alternation and the phenomenon we call the agentive alternation. We have shown that the causative alternation in BP follows the general patterns for other languages: the alternation is restricted to the class of change of state verbs which allow agents and causes as the transitive subject, and in the intransitive form, these verbs can be marked by the reflexive pronoun *se* and accept a causer PP. The agentive alternation, differently, does not occur with a semantically uniform group of verbs and, specifically, it occurs with strictly agentive verbs. The intransitive

	Convergencies	Divergencies	
		Distributed Morphology	**Construction Grammar**
Basic assumptions	Non-lexicalist	Generative/formal: – linguistic knowledge is stored in a specific mental component; – language itself is compartmented into distinct modules; syntax is the central module of grammar.	Cognitive/functional: – linguistic knowledge is part of the general human cognition; – language is seen as a network of structured and linked constructions, there are no modules.
View on the lexicon	No clear boundary between lexicon and grammar; the nature of lexical and complex grammatical units is the same.	– Roots are combined with functional heads to form words in the syntactic component; – List 1 is a module composed of roots and functional morphemes; – There is no list of words stored in the speakers' minds.	– Words are atomic and specific constructions; – Words are stored in the speakers' minds, together with a list of more complex constructions.
View on Pragmatic information	Pragmatic factors are necessary to account for linguistic phenomena.	Pragmatic information is separated from List 1 and comprised into Encyclopedia.	The meaning of constructions includes pragmatic and discourse-function information.
View on alternations	Non-derivational	– Alternations are byproducts of the combination of a root with different types of functional heads; – The motivation is related to internal properties of the syntax of the language.	– Alternations occurs when a verb can be integrated into multiple argument structure constructions; – The process is motivated by functional matters.
View on meaning composition	Event structure determines argument realization and emerges in the combination of roots/verbs and syntactic structures/constructions.	– Semantic readings of sentences derive from the assembling of functional heads in composition with roots.	– The meaning of a construction is conventionally associated to it and stored in the speakers' minds.

Table 5: The properties of Distributed Morphology and Construction Grammar compared.

form of the alternation does not take *se* and neither accepts a causer PP. Besides, the alternation is constrained by pragmatic factors. These properties led us to assume that the causative and the agentive alternations, despite similar in form, are distinct phenomena.

Moreover, we have highlighted that the agentive alternation poses important problems for lexicalist accounts of argument structure, as it cannot be explained solely by the meaning of verbs or of a verb class. Thus, in order to account for this phenomenon in BP, we have presented two non-lexicalist accounts for argument structure: Distributed Morphology and Construction Grammar. In both accounts, argument structure is not projected from lexical entries and derives from a shared work between lexicon and syntax. These approaches, although in very different ways, accommodate the non-lexical properties of the agentive alternation, without leaving behind an explanation for the causative alternation.

With this comparative theoretical analysis, we have shown that there is more to the nature of argument structure, besides what can be related to the meaning of verb classes and syntactic structures. To accommodate phenomena such as the agentive alternation, linguistic theories must provide an account of extralexical and even extralinguistic information which impacts the choice of a sentence type over another. Also, as the agentive alternation seems to be a rare phenomenon, only occurring in a few languages, our investigation of the relation between verbs and argument structure in Brazilian Portuguese is an important contribution to the understanding of the particular properties of these languages and what kinds of features they have in common which could license such alternation.

At last, we also hope to have paved the way for a fruitful dialogue between opposed theoretical perspectives, following the insights of Ross (1982, p. 14):

> **It** seems to me that if we can develop insight into ourselves, into our own theoretical inclinations, which really arise, I believe, from our aesthetic, from what we see as beautiful and meaningful, and if we can also be empathic enough to experience, however partially, something of the aesthetic of a colleague, we can begin to overcome our aggressive tendencies towards views which differ form ours. We can become better listeners.

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Competing Interests

The authors have no competing interests to declare.

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