Psych verbs in Brazilian Portuguese: causation and argument structure[1]

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Abstract

Psychological verbs are discussed in the literature because of their peculiar syntactic behavior. Specially Object Experiencer verbs are known to be expressed in distinct and unsystematic ways across languages. Two issues regarding these verbs are their aspectual nature and a type of 'alternation' process (with the experiencer in subject position). In this paper, we analyze Brazilian Portuguese Object Experiencer verbs, focusing on these issues. Based on a study of 170 verbs, we claim that these verbs describe complex states in which a stimulus state activates (in a causative relation) a mental state in an experiencer. A small subgroup of these verbs can have, additionally, an eventive reading, motivated by a metaphorical process. Similarly, eventive verbs also present a psychological stative reading. Besides, all Object Experiencer verbs appear in an inverse form, which is not the causative alternation, as the presence of both arguments is mandatory: the experiencer in subject position, and the stimulus in oblique position. The pragmatic prominence of the experiencer enables such inverse construction, a re-construal of the eventuality described by the verb. For our analysis, we adopt the Lexical-Constructional Model, arguing that properties of BP Object Experiencer verbs derive from their integration into specific argument structure constructions.

KEY-WORDS: psych verbs, argument structure constructions, causative states, metaphor, pragmatic prominence.

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1. INTRODUCTION

Psychological verbs, or simply psych verbs, are broadly discussed in the literature because of their peculiar syntactic behavior in several languages. These verbs were already investigated in English (Postal 1971; Grimshaw 1990; Pesetsky 1995; Arad 1998; Cervel 2015), Spanish (Marín & McNally 2011), Finish (Pylkkänen 1997, 2000), Polish (Biały 2005; Rozwadowska & Bondaruk 2019), French (Ruwet 1972), Italian (Belletti & Rizzi 1988), European Portuguese (Mendes 2004); Brazilian Portuguese (Cançado 1995; Cançado & Franchi 1999), Japanese (Iwata 1995), among many other languages and also in crosslinguistic perspectives (Talmy 1985; Landau 2010; Alexiadou & Iordăchioaia 2014; Verhoeven 2014; and others). Psych verbs are characterized by their two arguments, an experiencer and a stimulus. They describe an eventuality in which the experiencer holds a certain psychological state in relation to the stimulus. One of the interesting facts about the behavior of the broad class of psych verbs is that the experiencer can be subject, as in *John fears/loves/hates Mary*, or object, as in *John frightens/worries/bothers Mary*.

The first type of psych verbs, the Subject Experiencer verbs, or SubjExp verbs in short, following Pesetsky's (1995) terminology, present a stative transitive configuration, and does not pose problems for linguistic analysis. But the second type, the Object Experiencer verbs, ObjExp verbs in short, are expressed in distinct and unsystematic ways across languages (Talmy 1985; Landau 2010; Croft 2012). Thus, these verbs pose important problems for linguistic analysis, especially in relation to argument structure. Two of the main issues regarding these verbs is their aspectual nature and event structure, whether they are stative, eventive or ambiguous, and also the fact that these verbs, despite being ObjExp verbs, can appear with the experiencer argument in subject position, and the stimulus argument in oblique position, in a type of argument structure inversion process.

In this paper, taking Brazilian Portuguese (henceforth BP) as our object language, we provide an analysis of ObjExp verbs, focusing on these two main issues regarding their argument structure properties. Based on a detailed study, we claim that these verbs describe complex states in which a stimulus state activates (in a causative relation) a mental state in an experiencer (following Pylkkänen 1997, and Arad 1998). We show as well that a small subgroup of these verbs can have, additionally, an eventive reading. This eventive reading is motivated by a metaphorical process. And, in a similar way, eventive

verbs can also present a psychological stative reading, which, we shall remark, is a very productive process. Besides, all ObjExp verbs of the language appear in an inverse form, which we do not assume to be an argument structure alternation, because both arguments remain mandatorily: the experiencer appears in subject position and the stimulus is an oblique headed by *com* 'with'. We claim that the pragmatic prominence of the experiencer enables these verbs to appear in such inverse construction, presenting a re-construal of the eventuality described by the verb.

Current proposals in the literature generally leave out the pragmatic and cognitive facets involved in the event structure and the inversion of ObjExp verbs. In this work, differently, we take these matters into consideration, and we propose a constructionist analysis for the behavior of BP ObjExp verbs (within the Lexical-Constructional Model framework – Ruiz de Mendoza 2013). In our analysis we show that cognitive and pragmatic factors, namely metaphor and the experiencer's pragmatic prominence, have impact on these verbs' argument structure. Our study shows that the experiencer and its psychological state are inherent properties of verbs, but also the semantic pole of argument structure constructions. These properties are, thus, relevant for the argument structure organization of the language. With this research, we hope to contribute to the long-standing and vast debate about ObjExp verbs in Linguistics.

The paper is organized as follows: Section 2 describes the semantic-syntactic behavior of ObjExp verbs in BP. Section 3 goes into the details of the specific psych argument structure constructions of BP. We show their formal and functional properties, and how they accommodate different types of verbs. We make our final considerations in Section 4.

2. THE SYNTACTIC-SEMANTIC BEHAVIOR OF OBJEXP VERBS IN BP

Our analysis comprises 170 BP ObjExp verbs, collected from a lexical database of BP: VerboWeb (Cançado et al. 2017 – www.letras.ufmg.br/verboweb). We make use of a robust body of data, which results from a thoroughly methodological process of gathering an analysis of linguistic information. Additionally, a quantitative study was carried out, in two stages. First, the study aimed at comparing instances of the inverse structure of ObjExp verbs with instances of the inchoative construction of change of state verbs. And, in a second stage, to be presented in Section 3, a comparison was made between the

number of instances of the inverse structure and the number of instances of the stative causative structure of ObjExp verbs. We used the Web/Dialects corpus of Corpus do Português (Davies 2016 - www.corpusdoportugues.org/web-dial). Grafmiller (2013) criticizes studies on English psych verbs, mentioning the lack of representative data, and the fact that these analyses rarely make use of more than a small set of constructed sentences. Contrastively, we believe the study to be presented in further detail in the next sections is well grounded in a significant set of BP data. This is one important aspect that distinguishes our work from most other researches about psych verbs.

2.1 *The stative interpretation*

In BP, as in many other languages, ObjExp verbs occur in transitive sentences, presenting a specific thematic structure:

(1) A partida do filho preocupou/angustiou/entristeceu a mãe.

the departure of.the son worried/distressed/saddened the mother

{Stimulus, Experiencer}

'The son's departure worried/distressed/saddened his mother.'

Other verbs which behave as *preocupar* 'worry', *angustiar* 'distress', and *entristecer* 'sadden' are (the complete list of the 170 BP ObjExp verbs analyzed can be accessed at VerboWeb):

(2) Acalmar 'calm down', Alegrar 'cheer up', Amedrontar 'scare', aborrecer 'annoy', Assustar 'frighten', Comover 'move', Consolar 'comfort', Constranger 'embarrass', Decepcionar 'disappoint', Deprimir 'depress', Emocionar 'move', Encantar 'delight', Enfezar 'infuriate', Enfurecer 'infuriate', Enraivecer 'infuriate', Entediar 'bore', Entristecer 'sadden', Fascinar 'fascinate', Frustrar 'frustrate', Horrorizar 'horrify', Importunar 'annoy', Impressionar 'impress', Incomodar 'annoy', Irritar 'annoy' Magoar 'hurt (feelings)', Maravilhar 'amaze', Oprimir 'oppress', Perturbar 'annoy', Reconfortar 'comfort', Sossegar 'calm down', Tranquilizar 'calm down'

In the vast literature about these verbs, many authors assume that causativity is the reason why ObjExp verbs differ from SubjExp verbs, and it is the factor which determines the realization of the stimulus argument in subject position (Grimshaw 1990; Arad 1998; Iwata 1995; Pesetsky 1995; Pustejovsky 1995; Pylkkänen 2000; Biały 2005; Grafmiller 2013; Alexiadou & Iordăchioaia 2014; among others). The basic idea behind a causative analysis is that the stimulus argument causes an emotional state in the experiencer argument. This position goes against proposals such as Belleti & Rizzi's (1988) unaccusative analysis and Landau's (2010) locative approach. Some authors (as Alexiadou & Iordăchioaia 2014) assume that the ObjExp verb class, in relation to their causal structure, defined as a relation between two sub parts temporally distinct, behave just like canonical change of state verbs, as *break*. However, others point out that there is something peculiar about the causal relation established between these verbs' arguments (Iwata 1995; Pustejovsky 1995; Jackendoff 2007; Croft 2012). More specifically, other authors associate this causal relation to stativity (Arad 1998; Pylkkänen 2000; Biały 2005). Following this path, we suggest that ObjExp verbs in BP present a complex stative causal structure.

Pylkkänen (2000) argues that state and cause are not incompatible notions in the semantics of a verb. Causative predicates are not an aspectually uniform class, and cannot be associated to accomplishment verbs, as proposed by Dowty (1979) originally. Pylkkänen (2000) also argues that causative verbs are statives when the causally related eventualities described by them are both perceived as states. As a result, we have a complex state decomposable in two substates.

Arad (1998), following Pylkkänen (1997, cited in Arad 1998), proposes that some ObjExp verbs have a stative interpretation, in which a stimulus causes an activation of a mental state, but not a change. This means that the causal relation is established between two states. The causal relation of these verbs is triggered by a stimulus on which the mental state depends to be active; both situations are simultaneous. The author makes an analogy which illustrates very well the situation of an experiencer on the stative reading: imagine someone who is allergic to cats and starts sneezing every time a cat is around. The same occurs when some situation or the thought of it triggers a specific mental state on an experiencer: there is already a mental state inactive which gets activated every time a person perceives or even thinks about this specific situation. From this point of view,

there is no change of state in the experiencer, but only the activation of an existent state. Let us take the following schemas, adapted from Arad (1998: 5):

(3) (a) Eventive causative verbs:

       trigger   change of state

       ----------------> ....(indefinite)

  (b) Stative ObjExp verbs:

       perception of stimulus: _____ stop

              mental state: ....stop

The schemas represent two types of causation: the eventive causation (of verbs like *break*) and the stative causation (of verbs like *worry*). With eventive verbs, illustrated in (3a), there is a trigger which causes a change of state in someone/something. The change happens immediately after the trigger eventuality or action ends; once this change starts, the trigger has no participation in the event anymore. With ObjExp verbs, illustrated in (3b), there is a trigger which activates an existent state in someone simultaneously, that is, this state ceases only when that stimulus stops. There is, thus, an activation of a state, but not a change of state. The type of causation in (3b) is also proposed by Biały (2005) for some ObjExp verbs in Polish. The author argues that the eventuality denoted by verbs such as *martwić* 'worry' is not of the same kind as that of other stative verbs.

In addition, we argue that the causing eventuality may not be a state in the real world, but can be a though inside the experiencer's mind, so there is a dependency relation between stimulus and experiencer. Sentences in (1) do not describe changes of state occurring immediately after the son's departure. The eventuality involving the son could not even have happened, but just the thought about it triggers, not a change of state, but the activation of a psychological state of worry/distress/sadness in the experiencer, every time that she thinks about it. There is no end point or result, but a perception of some stimulus, and this perception triggers some mental state in the experiencer, whenever it takes place.

One empirical evidence for the stative nature of ObjExp verbs is the possibility of *irrealis* modalization in the stimulus argument. In a change of state event, the result

subevent begins immediately after the causer subevent ceases. Consequently, the causer must refer to an existing entity, a *realis* eventuality, temporally antecedent to the change of state. For that, causer arguments of change of state verbs cannot receive *irrealis* modalizers, as show in (4). Stimulus arguments of ObjExp verbs, however, can. Thus, they can be *irrealis* eventualities. The modal expressions of possibility in the stimulus argument, shown in (4) and (5), indicate that a causer event did not happen, and just the thought about something is enough to trigger, not a change of state, but the activation of a psychological state of worry/distress/sadness in the experiencer. The stimulus of BP ObjExp verbs, thus, is temporally simultaneous to the mental experience, it is connected to the experiencer, being part of his/her thoughts.

(4) *A **possibilidade** de cair uma chuva de granizo **quebrou/abriu** as janelas.
    the possibility of fall a rain of hail broke/opened the windows

(5) **A possibilidade** de haver grampo nas linhas telefônicas sempre
    the possibility of have wire in.the lines of.telephone always
    preocupou os governos. (Linguateca)[2]
    worried the governments
    'The possibility of wiretapping in the phone lines has always worried the govern-
    ments.'

(6) E **essa possibilidade** de não ter nem o pouco me **atormenta**,
    and this possibility of not have nor the little me torments
    me **entristece**. (Corpus do Português)
    me saddens
    'And this possibility of not having the minimum torments me, saddens me.'

Furthermore, BP ObjExp verbs do not allow an agentive interpretation, differently from change of state verbs. When a noun originally describing a human is placed in subject position of these sentences, it is metonymically interpretated as some property of that person. For instance, in *o filho preocupou/angustiou/entristeceu a mãe* 'the son worried/distressed/saddened his mother', the son is interpreted as some property of him (his health, his behavior, etc.); *o filho* 'the son' can never be interpreted as an agent, in

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[2] Example from Linguateca's corpora: www.linguateca.pt/ACDC (October 20, 2020)

this sentence. The non-agentive interpretation can be further verified by the impossibility of these sentences to combine with purpose subordinate clauses.

(7) *O   filho preocupou/angustiou/entristeceu a   mãe   para que ela

    the son worried/anguished/saddened   the mother to   that she

    lhe   desse   atenção.

    he.DAT give.PST.SBJV attention

Additional evidence for the stative interpretation of the sentences in (1) can be provided by aspectual tests for the classes proposed by Vendler (1967). First, states lack a final result or telic point, cannot be combined with *in x time* adverbial expressions, but must accept adverbials like *for x times* (Vendler 1967; Dowty 1979).

(8) A   partida   do   filho preocupou/angustiou/entristeceu a   mãe

    the departure of.the son worried/distressed/saddened   the mother

    por alguns dias/*em   poucos dias.

    for some days/ in   few   days

    'The son's departure worried/anguished/saddened the mother for a few days/*in a few days.'

As change of state verbs describe telic events, they are naturally compatible with *in x time* adverbial expressions. Thus, the examples in (8) further demonstrate that ObjExp verbs in BP are not change of state verbs. However, this test does not eliminate the possible activity nature of ObjExp verbs. Rozwadowska & Bondaruk (2019) remark that there is a lot of divergence about stativity tests. The authors argue that a most convincing test for non-eventivity is the incompatibility of stative expressions with the predicate *to happen* (*acontecer* in BP). But this test also fails with BP ObjExp verbs. However, following the idea that a state cannot happen in the world, we propose another test: only eventive verbs can be combined with aspectual expressions which mean that the situation is about to happen. Examples with accomplishment, achievement and activity verbs with the expression *estar para* 'to be about to' are easy to find on Google, but they cannot be

found with *preocupar/angustiar/entristecer* 'worry/distress/sadden' or even with *amar/detestar* 'love/hate', which are proven to be states.

(9) No início   do   mês,   Mark Zuckerberg disse que a   rede
in.the beginning   of.the month Mark Zuckerberg said   that the network
social **estava   para   construir** o   melhor "jornal   personalizado...". [3]
social was   to   build   the best   newspaper personalized
'Earlier this month, Mark Zuckerberg said that the social media was about to build the best personalized newspaper...'
(accomplishment)

(10) O   cofundador da   Microsoft previu   que uma   pandemia **estava**
the co-founder of.the Microsoft predicted that a   pandemic was
para chegar. [4]
to   arrive
'Microsoft's co-founder predicted a pandemic was about to come.'
(achievement)

(11) Um ano entretanto passou e   ainda **estou para abraçar** o Bruno.[5]
one year however passed and yet   am   to   hug   the Bruno
'A year has passed in the meantime and I am still about to hug Bruno.'
(activity)

(12) *O   rapaz ainda **estava para amar/detestar** a   atual   namorada.
the boy   yet   was   to   love/hate   the current girlfriend
(state)

(13) *A   partida   do   filho **estava para preocupar/ angustiar/**
the departure of.the son   was   to   worry/   distress/
entristecer a   mãe.
sadden   the mother

[3] https://exame.com/tecnologia/facebook-deve-adotar-hashtags-em-breve-diz-wsj/. (October 20, 2020)
[4]   https://www.uol.com.br/tilt/noticias/redacao/2020/08/09/otimista-gates-espera-crise-do-coronavirus-controlada-ate-o-fim-de-2022.htm. (October 20, 2020)
[5]   https://www.facebook.com/LuisFilipeBorges/photos/a.401815969853/10158338061934854/?type=3. (October 20, 2020)

Finally, we also provide evidence for the causation relation between the stimulus and experiencer arguments of BP ObjExp verbs. According to Pinker (1989) and Parsons (1990), recurrent paraphrases in recurrent groups of verbs can be considered evidence of the semantic content of these items. As verbs are complex semantic elements (Dowty 1979; Levin & Rappaport Hovav 2005; Croft 2012), their meaning can also be expressed through complex periphrastic expressions. We can associate sentences with ObjExp verbs with causative paraphrases ((14b) is a paraphrase of (14a)):

(14) (a) A   partida   do   filho preocupou/angustiou/entristeceu a   mãe.
          the   departure of.the   son   worried/distressed/saddened   the mother
          'The son's departure worried/anguished/saddened his mother.'
     (b) A   partida   do   filho causou a   preocupação/a angústia/a
          the   departure of.the   son   caused the concern/the anguish/the
          tristeza da   mãe.
          sadness of.the   mother
          'The son's departure caused his mother's concern/anguish/sadness.'

Contrastively, the same type of paraphrases is not possible with SubjExp verbs, which do not describe a causal relation between the arguments. A sentence such as *o João ama a Maria* 'João loves Maria' does not mean that *a Maria causou o amor do João* 'Maria caused João's love'; in this case, Maria is only the target of João's love.

In conclusion, BP ObjExp verbs describe an eventuality composed of two substates causally related, resulting in a complex state. We have given evidence for the complex stative nature of BP ObjExp verbs.

2.2 *Change of state psych verbs and psych change of state verbs*

As shown, BP ObjExp verbs are stative. Some ObjExp verbs, however, 12 verbs out of 170, can also have an eventive reading, with agent (15a) or causer (15b) subjects:

(15) (a) O   menino travesso   assustou/amedrontou   o   cachorro por   querer.
          the boy   mischievous frightened/scared   the dog   for   will
          'The mischievous boy intentionally frightened/scared the dog.'

(b) O disparo da   arma assustou/amedrontou o cachorro.

   the firing   of.the gun   frightened/scared   the dog

'The gunfire frightened/scared the dog.'

In (15a), an agent acts intentionally and causes a change of state in someone or even in some animal; and in (15b), an event causes a change of state in someone or even in some animal. Both sentences describe a causal relation between two subevents not completely simultaneous, in which there is a result subevent immediately following someone's action or a causer subevent. The result is that the dog gets frightened or scared, temporally after the boy's action and the gunfire; we could even say that this result is physically perceived on the dog's facial expression, bodily reaction etc.

Other verbs which behave as *assustar* 'frighten' and *amedrontar* 'scare' are (data from VerboWeb):

(16) acalmar 'calm down', alegrar 'cheer up', aporrinhar 'annoy', atazanar 'annoy', atemorizar 'scare', aterrorizar 'terrorize', consolar 'comfort', distrair 'distract', entreter 'entertain', tranquilizar 'calm down'

But, as we have already pointed out, these verbs also have a stative reading, like all other BP ObjExp verbs. In (17), we show an example of *assustar* 'frighten' in the stative reading. Note that the stimulus argument is the possibility of a happening, an *irrealis* eventuality, as previously argued, not an actual event. In contrast, (18), a sentence with the same verb in the eventive reading, does not allow the causer argument to be an *irrealis* eventuality, as expected.

(17) A **perspectiva** de uma volta da   Guerra Fria, com Jirinovski

   the perspective   of a   return of.the War   Cold with Jirinovski

   no   poder, **assustou** os   Estados Unidos. (Linguateca)

   in.the   power frightened the States   United

  'The prospect of a Cold War comeback, with Jirinovski in power, frightened the United States.'

(18) *A **possibilidade** da   arma disparar **assustou**   o   cachorro.

the possibility   of.the gun   fire   frightened   the   dog

In (17), there is no change of state immediately following some causer subevent; the event could not even have happened, but just the thought about it triggers, not a change of state, but the activation of a psychological state of fright, whenever the Americans think about it. It is interesting to note that this activated mental state cannot occur with animals, as in (18). This means that in the stative reading the object must refer to a human being, the only experiencer who can hold a mental state. In the eventive reading, however, the experience seems to be more physical and punctual, which allows the occurrence of an animal as a patient.

Many authors have shown the same type of dual behavior for ObjExp verbs in English (Arad 1998; Grafmiller 2013), Finnish (Pylkkänen 2000), Spanish (Marín & McNally 2011), Greek and Romanian (Alexiadou & Iordăchioaia 2014), Polish (Biały 2005; Rozwadowska & Bondaruk 2019), BP (Cançado 1995), and others. For instance, in Spanish, Marín & McNally (2011: 468) show examples in which ObjExp verbs appear in stative or agentive interpretations, depending on the case assigned to the object arguments. Verbs assigning dative case are stative, while those assigning accusative case are associated with an agentive interpretation.

(19) (a) Marta lo   molesta.
         Marta him.ACC   bothers
       'Marta (actively) bothers/is bothering him.'
      (b) El humo le   molesta.
          the smoke him.DAT   bothers
       'The smoke bothers him.'

Alexiadou & Iordăchioaia (2014: 61) also show that in Greek and Romanian there are some verbs like *enohlise* and *enervat* 'annoy', which can have both interpretations: the eventive reading, with agent or causer subjects ((20a) for Greek and (21a) for Romanian), and the stative reading ((20b) for Greek and (21b) for Romanian). This behavior is due to the ambiguous nature of the aspect of ObjExp verbs.

(20) (a) O   Janis/to pehnidi enohlise ti   Maria se deka   lepta.

        the   John/the game   annoyed the Maria in ten   minutes

        'John/the game annoyed Mary in ten minutes.'

    (b) I   Maria/to   kurema tis Marias   ton enohlise to Jani

        the Maria/the haircut   the Mary.GEN him annoyed the John.ACC

        ja mia ora.

        for an   hour

        'Maria/Maria's haircut annoyed John for an hour.'

(21) (a) Ion/   jocul   a   enervat-o   pe Maria în   cinci minute.

        John/ game.the has annoyed-her ACC Mary in   five minutes

        'John/The game annoyed Mary in five minutes.'

    (b) Ion/   Freza   lui   Ion a   enervat-o   pe   Maria

        John/ haircut the.GEN John has annoyed-her ACC Mary

        timp de o   oră.

        time of an hour

        'John/John's haircut annoyed Mary for an hour.'

Finally, Arad (1998: 6) argues that, in English, verbs such as *frighten* may present the eventive reading (with agent or causer subjects) (22), and the stative reading (23):

(22) Nina/the explosion frightened Laura.

(23) The nuclear war frightened Nina.

The author proposes that these ObjExp verbs have three semantic readings, which correlate with different syntactic structures. As Alexiadou & Iordăchioaia (2014), Arad (1998) assumes that aspectual properties are the set of lexical properties which enable these verbs to appear in these distinct syntactic structures.

Thus, it seems that in many languages some ObjExp verbs have the eventive and stative readings, just like in BP. However, our analysis differs from those for other languages in affirming that all BP ObjExp verbs allow for the stative reading, and only some of them also allow for the eventive reading. Those few ones that allow for the eventive reading behave, in this interpretation, as canonical change of state verbs. As

argued for by Arad (1998), ObjExp verbs in their eventive reading lose all their special psychological syntactic behavior. Also, Alexiadou & Iordăchioaia (2014) affirm, for Greek and Romanian, that, in this case, ObjExp verbs occur in the causative alternation.

(24) (a) O   menino travesso/   o   disparo da   arma assustou/
      the boy   mischievous/ the firing   of.the gun frightened/
      amedrontou   o   cachorro.
      scared   the   dog
      'The mischievous boy/the firing of the gun frightened/scared the dog.'
  (b) O   cachorro se   assustou/amedrontou.
      the dog   REFL frightened/scared
      'The dog got frightened/scared.'

    Going now on the other direction, many BP eventive verbs can also be used in a psychological interpretation.

(25) (a) O   menino malvado   sufocou   o   gato.
      the   boy   mischievous suffocated   the cat
      'The mischievous boy choked the cat.'
  (b) A   proteção excessiva da   mãe   sufocou   o   filho.
      the protection excessive of.the mother   suffocated   the son
      'His mother's excessive protection suffocated him.'
(26) (a) O   excesso de vinho embriagou o   rapaz.
      the   excess   of wine intoxicated the boy
      'The excessive consumption of wine intoxicated the boy.'
  (b) A   beleza da   jovem embriagou o   rapaz.
      the beauty of.the girl   intoxicated the boy
      'The beauty of the young girl intoxicated the boy.'

This phenomenon is pointed out, for instance, by Arad (1989) in English (*shake, agitate, disturb,* etc.), and also in French by Ruwet (1972) (*agiter* 'shake', *briser* 'break'*, épater*

'impress', etc.). Bouchard (1995) goes further and assumes that any eventive verb can be interpreted as a psych verb, if certain requirements are fulfilled.

Thus, we have the following picture in different languages: few ObjExp verbs may allow for an eventive reading, and many eventive verbs may allow for a psychological reading. Maybe the aspectual ambiguity analysis proposed by Arad (1998) and Alexiadou & Iordăchioaia (2014) can afford for the eventive and stative readings described above. For Arad (1998), for example, change of state and agentivity are the relevant properties for the interface between the lexicon and syntax. ObjExp verbs can present such distinct syntactic structures because of the existence or the absence of these properties. Thus, in her view, the experiencer nature of the argument is not a relevant property for argument structure. This seems to explain part of the psychological reading of eventive verbs. But, certainly, it cannot explain the very productive metaphorical process behind this phenomenon. It is worth to note that the 'ambiguity' presented by eventive verbs in their psychological reading is a very systematic and broad process across languages, motivated by a more general cognitive principle, the metaphor. Grafmiller (2013) shows that there is a very productive tendency for verbs denoting physical activities to be employed metaphorically as psychological states. Thus, to suggest that so many eventive verbs present two aspectual readings does not seem to be a plausible explanation.

Besides the vast occurrence of this metaphorical process, an aspectual ambiguity proposal cannot account for another intriguing characteristic of ObjExp verbs in BP: the inverse structure in which they all occur, which obligatorily brings both arguments of the verb, experiencer and stimulus.

2.3 *The inverse form of ObjExp verbs in BP*

One interesting phenomenon of BP ObjExp verbs is that they can occur in an inverse structure, with the experiencer in subject position, and the stimulus in oblique position:

(27) (a) A   partida   do   filho preocupou/angustiou/entristeceu a   mãe.
        the   departure of.the son   worried/distressed/saddened   the mother
      {Stimulus, Experiencer}
       'The son's departure worried/distressed/saddened his mother.'

   (b) A mãe   se   preocupou/angustiou/entristeceu com a   partida

the mother REFL worried/distressed/saddened   with the departure

do   filho. {Experiencer, Stimulus}

of.the son

'The mother got worried about/distressed by/sad about her son's departure.'

This process is very regular and productive: all 170 analyzed verbs, in their stative reading, show the inversion with an experiencer in subject position, and with the stimulus argument in oblique position, marked by the preposition *com* 'with'. The reflexive *se*, typical mark of many argument structure inversions and alternations in BP, is also present. But this is not a causative alternation, generally attributed to psych verbs in different languages (Biały 2005; Alexiadou & Iordăchioaia 2014), or a lexical ambiguity, as proposed by Pesetsky (1995) for English.

Let us start our analysis with Pesetsky (1995)'s proposal for English. The author, in a fine-grained semantic investigation, describes the difference between SubjExp and ObjExp verbs in terms of semantic roles. The stimulus, generally assumed for both classes, is divided into three basic semantic roles: causer, subject matter and target. He argues that verbs like *worry* establish a causal relation between their arguments, and the first DP in (28) bears a causer thematic role. However, these verbs present an alternated counterpart, in which the experiencer appears in subject position. For Pesetsky (1995: 57), *the television set* in (29) bears a subject matter thematic role, and the sentence has a stative interpretation.

(28) The television set worried John. {Causer, Experiencer}
(29) John worried about the television set. {Experiencer, Subject Matter}

In (28), the subject of John's worry might not be the TV set itself, but events related to the TV cause John to worry about other matters. Thus, the first DP of the sentence cannot be the subject matter or the target of the analyzed verb. In (29), otherwise, the DP in subject position is the subject of the emotion. The author argues that the two alternate sentences have different meanings, and, as so, different argument structures.

Alexiadou & Iordăchioaia (2014) argue that in Greek and Romanian ObjExp verbs also have alternated forms. But the alternation is different with the two different types of

ObjExp verbs: eventive and stative. The alternation with eventive ObjExp verbs forms a more frequent alternation than in English, shows morphological marks and has a systematic behavior. In these languages, the alternation of eventive ObjExp verbs is a sub-case of the causative alternation, which involves a change of state. Greek regularly uses non-active morphology and realizes causers with the preposition *me* 'with' in non-psych and psych verbs' alternated forms (30). Romanian employs reflexive morphology and the preposition *de la* 'from' for causer arguments in the derived form (31).

(30) (a) Ta nea **enohlisan** ti Maria.
the news annoyed.ACT the Mary.ACC
'The News annoyed Mary.'

(b) I Maria **enohlithike** **me** ta nea.
the Mary annoyed.NACT with the news
'Mary got annoyed with the news.'

(31) (a) Știrile **au** **enervat**-o pe Maria.
news.the have annoyed-her ACC Mary
'The news annoyed Mary.'

(b) Maria **s-a** **enervat de la/*de către** știri.
Mary RF-has annoyed of at/*by news
'Mary got annoyed with/*by the news.'
(Alexiadou & Iordăchioaia 2014: 63)

Still, the authors argue that stative ObjExp verbs in both languages do not present the causative alternation. The two alternate sentences exist, but they propose that, as in English, this is not an alternation with a change of state, rather, these examples are few idiosyncratic alternate forms that are available in the language. The alternation pairs are few and do not show a regular pattern. Each specific verb appears with a different preposition in the alternated form: *worry about*, *bore with* etc. Besides, the object of emotion of an alternated verb is introduced by different markers: in Greek by *de* 'of' or *ja* 'about', not marking a causer, while in Romanian several prepositions can appear, depending on the verb. So, they assume that in English the two forms must be different verbs, and have distinct meanings, as proposed by Pesetsky (1995).

Analyzing now BP ObjExp verbs, we have a different picture from English, and from Greek and Romanian. The phenomenon in this language is very productive in the stative reading: all 170 analyzed verbs show the inverse form, exemplified in (27b). The existence of a distinct ObjExp verb for each alternate form, proposed by Pesetsky (1995) for English, is very hard to be assumed for BP, since all 170 BP ObjExp verbs show a very regular pattern in this process.

In relation to Greek and Romanian, we agree with Alexiadou & Iordăchioaia (2014), assuming that ObjExp verbs in BP, in the stative reading, do not occur in the causative alternation. However, our analysis differs in assuming that the phenomenon is regular, frequent and systematic in BP. Compare the sentences:

(32) (a) O   grito da   soprano quebrou a   taça de cristal.

the   shout of.the soprano broke   the glass of crystal

'The soprano's shout broke the crystal glass.'

(b) A   taça de cristal (se)   quebrou (com o   grito da   soprano).

the glass of crystal REFL broke   with the shout of.the soprano

'The crystal glass broke from the soprano's shout.'

(33) (a) A   partida   do   filho preocupou/ angustiou/entristeceu a   mãe.

the   departure of.the   son   worried/   distressed/saddened   the mother

'The son's departure worried/distressed/saddened his mother.'

(b) A   mãe   se   preocupou/angustiou/entristeceu com a   partida

the mother   REFL worried/distressed/saddened   with the departure

do   filho.

of.the son

'The mother got worried about/distressed by/sad about her son's departure.'

In (32), we present an example of the causative alternation; in (33), we show an example of the inversion of ObjExp verbs. Despite similarities in form (the presence of the clitic *se* and the transitive object in subject position), the two phenomena have important distinctions. First, as many authors argue, the intransitive form derived from the causative alternation has no causer argument (Haspelmath 1993; Rodriguez 2009; Ruiz de Mendoza 2013). The causer can only optionally appear in adjunction. In the

inverse form of ObjExp verbs, however, the stimulus cannot be omitted. Thus, in (33), there is an inversion of the thematic and syntactic structures of ObjExp verbs, both perspectives maintain the same arguments and the same causative relation.

This difference between the alternation of change of state verbs and the inversion of ObjExp verbs is also shown in the related forms of adjectival and stative passives; change of state verbs cannot occur with the causer argument in these structures, even in adjunction, whereas for ObjExp verbs, the presence of the stimulus is obligatory (if not explicit in syntax, it must be recoverable in near context).

(34) *A   taça de cristal está/ficou   quebrada com o   grito   da   soprano.
      the   glass of crystal is/became broken   with the shout of.the soprano

(35) A   mãe   está/ficou preocupada/angustiada/ entristecida com a
      the mother   is/became worried/   distressed / sad   with the
      partida   do   filho.
      departure of.the son
      'The mother got worried about/distressed by/sad about her son's departure.'

These facts are validated in a quantitative search in Corpus do Português. We have found that, for the seven most frequent ObjExp verbs in the corpus (*angustiar* 'distress', *comover* 'move', *decepcionar* 'disappoint', *deslumbrar* 'dazzle', *frustrar* 'frustrate', *magoar* 'hurt', and *preocupar* 'worry'), with no possibility of eventive reading, in 67,51% of the times the stimulus argument appears headed by a preposition in the inverse form. Contrastively, for ten also frequent change of state verbs (*quebrar* 'break', *ativar* 'activate', *consolidar* 'reinforce', *danificar* 'damage', *manchar* 'stain', *consagrar* 'establish', *fechar* 'close', *romper* 'break', *poluir* 'polute', and *trancar* 'lock'), the prepositioned causer only occurs in inchoatives 3,88% of times. Also, the few occurrences of ObjExp verbs' inverse structures with no PP adjunct in the corpus can be explained by the recoverability of the stimulus in context, as in (36):

(36) Preocupou-se **em   encontrar   um   homem de Deus para mim**.
       worried-REFL in   find   a   man   of God for   me
       E   não só   **se   preocupou**, mas encontrou. (Corpus do Português)

and not only REFL worried   but   found

'He worried about finding a man of God for me. And not only did he worry, but he actually found one.'

      Rozwadowska & Bondaruk (2019) propose a similar analysis for Polish (in opposition to Biały's 2005 proposal). The authors show that the stative ObjExp verbs (37a) have an alternate form, which present the reflexive clitic *się* and an obligatory instrumental DP (37b), marked morphologically. When the instrumental DP is missing, the sentence becomes ungrammatical. This DP functions as a complement of these verbs and represents a target or a subject matter, not a causer. As a consequence, the alternate form cannot be the result of a causative alternation. Evidence for that is that the instrumental DP cannot be replaced with *od*-PPs (37c); *od* typically introduces the causer argument in the inchoative form of change of state verbs.

(37) (a) Matematyka/Maria   interesuje   Marka.
         maths.NOM/Mary.NOM   interests.IMPERF Mark.ACC
         'Maths interests Mark.'
    (b) Marek   interesuje   się *(matematyką)/*(Marią).
         Mark.NOM interests.IMPERF REFL maths.INSTR/Mary.INSTR
         'Mark is interested in maths/in Mary.'
    (c) *Marek   interesuje   się (od   matematyki)/(od   Marii).
         Mark.NOM interests.IMPERF REFL from maths/   from Mary
         '*Mark is interested from maths/from Mary.'
         (Rozwadowska & Bondaruk 2019: 83)

      Another distinction between the inverse form of ObjExp verbs and the inchoative form of the causative alternation relies on aspectual and event structure properties. While inchoatives describe a telic change of state in a patient, without an external force, the inverse sentences with ObjExp verbs are stative. To demonstrate that, we apply once more the aspectual tests from the previous section. First, in (38), we show that these inverse forms, as states, accept adverbials like *for x times* and cannot be combined with *in x time*;

second, we show, in (39), that they cannot accept expressions denoting eminence to happen:

(38) A   mãe   se   preocupou/angustiou/entristeceu com a   partida
     the mother REFL worried/distressed/saddened   with the departure
     do   filho **por muitos dias/*em muitos segundos**.
     of.the son for   many   days/ in many   seconds
     'The mother got worried about/distressed by/sad about her son's departure for many days/*in many seconds.'

(39) *A   mãe   estava para se   preocupar/angustiar/entristecer com
     the mother was   to   REFL worry/   distress / sadden   with
     a   partida   do   filho.
     the departure of.the son

At last, we argue that stative ObjExp verbs in BP still entail a causative relation between the stimulus and experiencer arguments in the inverse form. Evidence can be given by the same type of paraphrases presented in the previous section ((40b) is a paraphrase of (40a)):

(40) (a) A   mãe   se   preocupou/ angustiou/entristeceu com a
         the   mother REFL worried/   distressed/saddened   with the
         partida   do   filho.
         departure of.the son
         'The mother got worried about/distressed by/sad about her son's departure.'

    (b) A   partida   do   filho causou a preocupação/angústia/ tristeza
         the   departure of.the son   caused the worriedness/distress/sadness
         da   mãe.
         of.the mother
         'The son's departure caused the mother's worriedness/distress/sadness.'

Hence, the inverse form of ObjExp verbs in BP, as the non-inverse form, describes a complex state, with two substates causally related. Consequently, both forms of ObjExp

verbs present the same aspect, and the same thematic roles. The inverse sentences only differ from their counterparts in the perspective they present for the eventuality: in non-inverse sentences, the eventuality is described from the perspective of the stimulus, and in inverse forms the eventuality is described from the point of view of the mental experience, attributing prominence to the experiencer. We can conclude, then, that we are dealing with a pragmatic factor.

An aspectual ambiguity analysis, such as Arad's (1998) and Alexiadou & Iordăchioaia's (2014), does not account for the dual behavior of these verbs. Furthermore, configurational approaches, such as the one proposed by Arad (1989), also do not predict the inverse psych stative perspective in BP, nor the systematic metaphorical process of the psychological reading of many eventive verbs. Besides, the systematic nature of the inversion in BP presents a problem for current proposals in the literature, which analyze the phenomenon as an idiosyncrasy, such as Pesetsky's (1995). All these facts suggest that a better approach for the phenomenon would take into account pragmatic and cognitive factors which are relevant for syntax.

3 A CONSTRUCTIONIST PROPOSAL FOR OBJEXP VERBS IN BP

Inspired in Arad's (1998) initial stative analysis, we propose a constructionist approach to deal with BP data, taking into account pragmatic and cognitive motivations for the processes under investigation. The different interpretations of ObjExp verbs and their alternation are normally attributed to aspectual ambiguity, intrinsic meaning distinctions in the lexical items *per se*. But we argue that such proposal cannot explain the systematicity of the PB facts and also the ample occurrence of eventive verbs with a psychological interpretation. Thus, our claim is that the different readings of BP ObjExp verbs and their inverse form are attributable to the argument structure constructions into which they can be integrated. This theoretical standpoint accounts for BP data, explaining the meaning distinctions, the systematicity, and the inversion process, besides providing the cognitive and pragmatic mechanisms which constraint these verb-construction integrations.

3.1 *A constructionist account of argument structure*

In our account of BP ObjExp verbs, we assume a cognitive/constructional view of language and grammar, and consequently, of argument structure. We follow mainly the Lexical-Constructional Model, or LCM (Ruiz de Mendoza & Mairal 2011; Ruiz de Mendoza 2013; Cervel 2015; Ruiz de Mendoza & Miró 2019). We choose this model because the LCM is a theory of construction grammar which offers a series of conditions for the integration of verb and argument structure constructions. The LCM differs from other constructionist accounts in recognizing the complexity of verbal meaning and its important role in this integration and in the meaning of the sentence as a whole. This theory provides a more complex analysis of the verb and different levels of constraints for lexical-construction integration. Differently from Goldberg (1995), for instance, which is concerned with finding the conditions an argument structure construction imposes on a verb, the LCM investigates the role of verbs in this integration. Since we are dealing with verb classes and the possible integration of these verbs into argument structure constructions, through distinct processes, this is the adequate theory for the analysis of our data.

In the LCM, along with many cognitive constructionist theories (Goldberg 1995; Croft 2012; Langacker 2008), a construction is defined as a form-meaning (function) pairing. Constructions are recognized when they are replicable in the language, which means that they have become entrenched in the speaker's mind. In this view, argument structure is also constructional and argument structure constructions are thus form-meaning pairings of this type, where the form is regarded as the structure of a sentence in terms of distribution of arguments in syntactic functions and the meaning is the description of an event structure (Goldberg 1995; Croft 2012; Ruiz de Mendoza 2013; Kalm et al. 2019).

Argument structure constructions are the backbones of the sentences, which are formed by the combination of verbs and other lexical items through argument structure constructional meaning. Verbs are projected into syntax through argument structure constructions. According to Ruiz de Mendoza (2013), full formal language expression requires, as a first step, subsumption of a verbal predicate into an argument structure construction. But subsumption (the lexical-constructional integration) is a constrained process. Since Fillmore's (1970) first findings, in Lexical Semantics literature, many works have been dedicated to explaining why some verbs are or not allowed in some
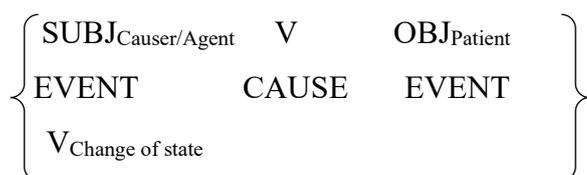
types of argument structure constructions, viewed as types of argument structure alternations (Pinker 1989; Levin 1993; Levin & Rappaport Hovav 2005).

In light of these assumptions, the LCM proposes that there are both internal and external constraints which regulate subsumption. Internal constraints are related to the conceptual structure and inherent meaning of verbs and constructions. And external constraints are related to more general cognitive principles, such as metaphor and metonymy, and pragmatics, such as the prominence of an eventuality participant.

According to Ruiz de Mendoza (2013) and Kalm et al. (2019), verbs and argument structure constructions are made up of the same type of event structure elements. Thus, considering only internal factors, subsumption occurs when the lexical-semantic meaning of the verb is entirely compatible with the meaning of the construction, and both match. The integration of verbs into argument structure constructions may occur through the identification of lexical and constructional features, when verb and argument structure construction describe the same event structure, with equal number of verb participants and argument structure arguments. In this case, there is conceptual compatibility, verb and argument structure construction are directly compatible.

We can illustrate these postulates with a classic example: the causative construction. The causative construction is well described in the literature for many languages and constitutes the prototype of event conceptualization (Talmy 1985; Langacker 1990; Croft 2012). In BP the causative construction has a transitive form, with two arguments, agent/causer and patient, and describes a causal relation between them, or between two subevents which contain them. Based on this idea, we propose that the causative construction can be represented as in (41). The first line of the representation relates form (syntactic functions) with the argument semantic labels; the second line expresses the event structure described by the construction, the third and last line expresses the nature of the event structure described by the verbal element in the construction.

(41) CAUSATIVE CONSTRUCTION

$$\left\{ \begin{array}{lll} \text{SUBJ}_{\text{Causer/Agent}} & \text{V} & \text{OBJ}_{\text{Patient}} \\ \text{EVENT} & \text{CAUSE} & \text{EVENT} \\ \text{V}_{\text{Change of state}} & & \end{array} \right\}$$

It is also established in the literature that some verbs are lexically causative (Fillmore 1970; Levin 1993; Ruiz de Mendoza 2013, Kalm et al. 2019). The change of state verbs (e.g *break*) construe the event they describe in the same way as the causative construction. We can illustrate this with a predicate decomposition structure for change of state verbs, as presented by Cançado et al. (2017).
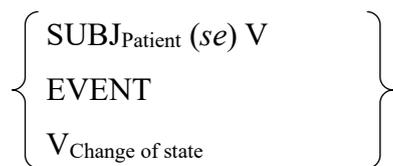
(42) change of state v: [[X ACT$_{\text{(volition)}}$] CAUSE [BECOME [Y *<STATE>*]]]

In the semantic structure of this verb class, we have: an event ([X ACT$_{\text{(volition)}}$]) causing another event ([BECOME [Y *<STATE>*]]). Change of state verbs are, thus, integrated naturally into the causative construction, for there is full conceptual compatibility between verb and argument structure construction.

(43) The soprano broke the crystal glass. {Causer/Agent, Patient}

As is well known, however, change of state verbs also occur in other argument structure constructions. Kalm et al. (2019) argue that an eventuality described by a verb can have more than one construal, depending on the available argument structure constructions. One example is the inchoative construction. For Ruiz de Mendoza & Miró (2019), in the inchoative construction, the situation described by change of state verbs is construed as if the patient is responsible for the change of state, without external intervention. This gives rise to the causative alternation (Fillmore 1970; Levin & Rappaport Hovav 2005), a typical property of these verbs.

(44) INCHOATIVE CONSTRUCTION

$$\left\{ \begin{array}{l} \text{SUBJ}_{\text{Patient}} \; (se) \; \text{V} \\ \text{EVENT} \\ \text{V}_{\text{Change of state}} \end{array} \right\}$$

(45) The crystal glass broke. {Patient}

In constructionist approaches, so-called 'alternations' result from the possibility of a single verb to be integrated into related, but different, argument structure constructions (Goldberg 1995; Ruiz de Mendoza & Mairal 2011; Croft 2012). In some cases, argument structure constructions describe only part of the event structure described by the verb (Kalm et al. 2019) and verbs are adapted to fit the construction. In the case of the inchoative construction, Ruiz de Mendoza (2013) argues that a re-construal takes place. The inchoative construction presents a different perspective of the event structure described by the verb, and also deprofiles one of the verbal event participants. Re-construal, differently from entire conceptual compatibility, occurs when the construction presents a different type of construal for the same eventuality described by the verb in its lexical meaning. External constraints go into work in this type of subsumption. Rodriguez (2009) argues that the inchoative construction is possible with change of state verbs through a metonymy of the type RESULT for ACTION. Pragmatic factors also take part in this process, since inchoatives are only possible in contexts where the agent/causer participant is unknown, not relevant, or is even intentionally omitted by the speaker (Rappaport Hovav, 2014).

Furthermore, in some other cases of the subsumption process, the constructional meaning can be imposed on the lexical item; this is known in the literature as coercion (Goldberg 1995), and is one of the main arguments for a constructionist approach to language. Coercion takes place in argument structure when there is a mismatch between the event structure described by the verb and the event structure described by the argument structure construction, and constructional meaning is imposed over lexical meaning. Coercion occurs, for example, when an intransitive activity verb is integrated into the causative construction. The verb describes a simple one-participant activity event, but the construction has two arguments and describes a causal relation between them.

(46) Bernie Ecclestone casou   a   filha. (Corpus do Português)

     Bernie Ecclestone married the daughter

     'Bernie Ecclestone provided means for his daughter to get married.'

Lexical classes and verb meaning cannot entirely predict this process; we cannot affirm that all verbs of the *casar* 'marry' type can be integrated into the causative construction. Thus, external factors, cognitive and pragmatic, are responsible for this type of subsumption. In (46), the event structures of verb and construction are not even partly compatible, but we know from experience that parents generally help their children to get married, providing financial assistance for the ceremony and other kinds of support. Thus, the event can be construed as a causative event, in which the parent (construed as an agent) causes the son or daughter (construed as a patient) to be married.

3.2 *The psych stative causative construction and the psych stative Exp-inverse construction*

Going now to BP data, we have proposed that BP ObjExp verbs have a stative reading, as shown in Section 2. Recall example (1):

(47) A   partida   do   filho preocupou/ angustiou/ entristeceu a   mãe.

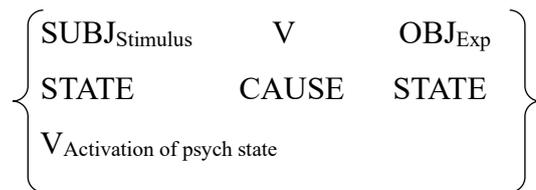   the   departure of.the   son   worried/   distressed/saddened   the mother

  'The son's departure worried/distressed/saddened his mother.'

As described, (47) is interpreted as the thought about the son's departure activating an existent mental state of worry/distress/sadness in his mother. There is no change of state immediately following some action or causer event, consequently, the sentence is not an instance of the causative construction, despite the similarity in form and despite maintaining the same causal construal. We propose, then, that the utterance is an instance of a different construction: the PSYCH STATIVE CAUSATIVE CONSTRUCTION. This is a transitive causative construction, as the causative construction, but it describes a stative situation.

Following Arad's (1998) first insights, although assuming a different theoretical perspective, we propose that the psych stative causative construction describes a causal

relation between two states, or two substates, in a complex state. Our analysis leads us to consider the semantic pole of the psych stative causative construction as a kind of complex stative psychological eventuality, in which a mental state holds in the experiencer argument while a stimulus state is active, simultaneously. The construction can be represented as follows:

(48) PSYCH STATIVE CAUSATIVE CONSTRUCTION

$$\left\{ \begin{array}{lll} \text{SUBJ}_{\text{Stimulus}} & \text{V} & \text{OBJ}_{\text{Exp}} \\ \text{STATE} & \text{CAUSE} & \text{STATE} \\ \text{V}_{\text{Activation of psych state}} & & \end{array} \right\}$$

As we have already described, ObjExp verbs in BP denote the same type of event structure that is represented in (48): a state causes a mental state. Thus, for subsumption to take place with this construction, through conceptual compatibility, the only constraint is that the verb must belong to the ObjExp class. Consequently, all ObjExp verbs can be directly integrated into the psych stative causative construction, by means of internal constraints, that is, the compatibility of the event structure described by both verb and construction.

But one more issue remains regarding the argument structure of ObjExp verbs: the inversion process. Recall (27b):
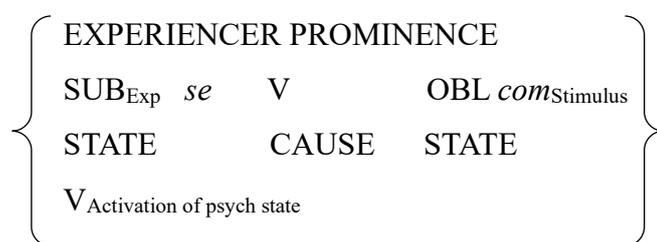
(49) A   mãe   se   preocupou/ angustiou/ entristeceu com
     the   mother REFL   worried/   distressed/ saddened   with
     a   partida do   filho.
     the   departure of.the son
     'The mother got worried about/distressed by/sad about her son's departure.'

As shown, this process is not an alternation of the causative type. Thus, we propose that the inverse form of ObjExp verbs arises when these lexical items are integrated into a construction we name PSYCH STATIVE EXP-INVERSE CONSTRUCTION, presenting a re-construal of the eventuality described by the psych stative causative construction. In formal terms, the construction presents subject, the clitic *se*, verb, and a

prepositional phrase headed by *com* 'with'. Semantically, there are two arguments, experiencer and stimulus, and a stative reading. The experiencer holds a mental state activated by the stimulus, and the construction describes a situation in which two substates are causally related. Differently from the psych stative causative construction, the psych stative Exp-inverse construction highlights the experiencer's mental state, in a re-construal of the event described by the verb, without missing any participants. The construction can be represented as follows:

(50) PSYCH STATIVE EXP-INVERSE CONSTRUCTION

$$
\left\{
\begin{array}{lll}
\text{EXPERIENCER PROMINENCE} & & \\
\text{SUB}_{\text{Exp}} \ \textit{se} \quad \text{V} & \text{OBL } \textit{com}_{\text{Stimulus}} \\
\text{STATE} \qquad \text{CAUSE} & \text{STATE} \\
\text{V}_{\text{Activation of psych state}}
\end{array}
\right\}
$$

In the representation above, besides the functions and roles of the arguments, the general event structure, and the nature of the event structure described by V, we add the discursive-pragmatic element EXPERIENCER PROMINENCE. The psychological event structure of both verb and constructions (with experiencer and stimulus) can be seen as internal factors for subsumption in this case; all ObjExp verbs can be integrated into the psych stative Exp-inverse construction. The difference between both constructions, (48) and (50), lies in the syntactic organization (since there is no deprofiling process, and the event and thematic structures are the same). To motivate this proposal, we assume that discourse may have a role in argument structure constructions, which present alternate options for highlighting participants (Langacker 2008). Thus, an external factor also comes into play in the integration of ObjExp verbs into the psych stative Exp-inverse construction: the pragmatic prominence of the experiencer. The psych stative Exp-inverse construction re-construes the event structure described by the ObjExp verb, attributing prominence to the experiencer participant.

We assume here the relational view of prominence, as proposed by von Heusinger & Schumacher (2019). Prominence of a participant in relation to another in discourse is coded in the construction with the syntactic prominence of the subject argument. As many authors have proposed, pragmatically more prominent participants tend to occupy the

subject position in the sentence (Chafe 1976; Hopper & Thompson 1980; Givón 1983; Talmy 1985; among others). Some specific features of participants are responsible for their prominence. First, humans tend to be more cognitively salient than abstract and inanimate entities; also, real eventualities are more salient than virtual ones (Langacker 2008). Besides, according to Verhoeven (2014), to be in a psychological state is also an important feature for prominent participants. Experiencers are, consequently, strong candidates for pragmatic prominence in relation to stimuli.

Thus, we argue that being an experiencer is a relevant characteristic for syntactic configuration, contrarily to Arad's (1998) assumption. According to Croft (2012) and Croft et al. (2018), the experiencer is not a passive participant. It is someone who is able to intentionally direct his/her attention to the stimulus. Croft (2012) also argues that the variation in argument structure of psych verbs results from this bidirectionality. The psychological state may be construed as the stimulus as the activator of the mental state or as the experiencer directing mental attention to the stimulus. Besides, the author claims that the subject experiencer form is associated with more control on the part of the experiencer: 'a person is assumed to be able to control an event in which s/he is involved, even if the event affects that person' (Croft 2012: 265).

Interestingly, in a search on Corpus do Português, we found that the seven most frequent ObjExp verbs (the same we have investigated in Section 2.3) occur only 17,35% of the times in instances of the psych stative causative construction, while 82,65% of the times they occur in instances of the psych stative Exp-inverse construction (average frequency, considering all seven verbs: *angustiar* 'distress', *comover* 'move', *decepcionar* 'disappoint', *deslumbrar* 'dazzle', *frustrar* 'frustrate', *magoar* 'hurt', and *preocupar* 'worry'). We hypothesize, from this result, that in comparison to the stimuli, experiencers have more subject properties (are conscious entities, with control over their emotions), which grants them the possibility of pragmatic prominence.

However, even if the experiencer in the current BP data is most frequent, the morphosyntactic marks *se* and *com* indicate that the construction in (50) is an inversion type of re-construal of the event structure described by the ObjExp verb. *Se* is originally a reflexive marker in the language, and, although it has a number of different functions, such as marking reflexives, middles and inchoatives, it indicates that the marked construction is an inversion of the original event structure organization (Haspelmath

1993). Besides, Croft (2012) argues that prepositions equivalent to *com* mark the antecedent oblique, a participant which causally precedes the transitive object in the causal chain. These marks are also additional evidence of the causative nature of both types of psych stative constructions.

3.3 *Change of state psych-verbs and psych change of state verbs: an explanation*
Additional evidence for the existence of the psych stative constructions proposed here relies on the fact that several verbs may be coerced by them. As we have pointed out in Section 2, many eventive verbs, in less prototypical uses, systematically allow a stative psychological interpretation. Recall example (25b):

(51) (a) A   proteção excessiva da   mãe   sufocou o filho.
       the   protection excessive of.the mother suffocated the son
       'His mother's excessive protection suffocated him.'
    (b) O filho se   sufocou com a   proteção excessiva da   mãe.
       the son REFL   suffocated with the   protection excessive of.the mother
       'He was suffocated by his mother's excessive protection.'

To explain these cases, we propose that examples in (51) are also instances of the psych stative causative construction (in (51a)) and the psych stative Exp-inverse construction (in (51b)). But subsumption does not result from conceptual compatibility. Change of state verbs occur in psych stative constructions, acquiring a metaphoric psychological interpretation through coercion. In this case, the causation relation between subevents (agent/causer and patient), described by the verb, is metaphorically construed as a causation relation between substates (stimulus and experiencer). Metaphor is a coercing element that licenses lexical-constructional subsumption, as proposed by the LCM. Kövecses (1999) proposes the metaphor EMOTION IS A PHYSICAL FORCE as an instantiation of the prototypical force-dynamic causative event construal. Bouchard (1995) and Ruwet (1972), for French, and Arad (1998) and Grafmiller (2013), for English, already note that a change of state verb, given the adequate context, can be interpreted as a psychological verb.

Through a similar metaphorical process, coercion can also explain the inverse occurrence: an ObjExp verb acquiring a change of state meaning, in the causative and inchoative constructions.

(52) (a) O   bandido assustou   o   cachorro.
          the   thug   frightened the dog
          'The thug frightened the dog.'
      (b) O   cachorro se   assustou.
          the   dog   REFL frightened
          'The dog got frightened.'

Most ObjExp verbs, such as *preocupar* 'worry', can only occur in psych stative constructions (only allowing the stative reading). However, some ObjExp verbs (12 out of 170 verbs in BP), can have a more physical interpretation. We argue that this interpretation is also the result of coercion, when these verbs are integrated into the causative construction, or even into the inchoative construction. In the case of the causative construction, the causation relation between substates (stimulus and experiencer), described by the verb, is metaphorically construed as a causation relation between subevents (agent/causer and patient). In the inchoative construction, the causation relation between substates (stimulus and experiencer), described by the verb, is metaphorically construed as a change of a state in a patient. In both cases, despite the frightening being a mental change, it is physically perceived, as we can observe in the dog's body a physical expression of the result (note that animals cannot be experiencers in psych stative constructions). Subsumption is allowed by an external cognitive process, metaphor.

Finally, to explain why change of state verbs regularly occur in the psych stative constructions, and only few ObjExp verbs occur in the causative and inchoative constructions, we shall remark that metaphorical processes are asymmetrical, and, also, in the metaphorical mapping, the source domain is typically a more concrete domain than the target domain (Lakoff & Johnson 1980; Kövecses 1999). Thus, we can argue that metaphors from the physical domain to the psychological domain are expected to be more regular and productive, and a metaphorical process in the opposite direction is much rarer.

This is reflected in BP data: only 12 ObjExp verbs allow a change of state reading, and these ones allow a physical expression of the mental state, which seems to enable the metaphorical process.

4 Final considerations

In this study, we have analyzed 170 BP ObjExp verbs, based on a large BP verb database (VerboWeb). We have claimed that these verbs describe complex states in which a stimulus activates a mental state in an experiencer. A few of these verbs may also have eventive change of state readings, and many change of state verbs in the language may also have psychological stative readings. Also, all ObjExp verbs appear in an inverse form, with the experiencer in subject position, and the stimulus headed by *com* 'with'.

In order to explain the behavior of BP ObjExp verbs, we adopted the Lexical-Constructional Model, a constructional approach to argument structure. We have argued that the different readings of BP ObjExp verbs and their inverse form derive from the integration of these verbs into certain types of argument structure constructions. In this perspective, ObjExp verbs are naturally integrated into the psych stative causative construction, because of conceptual compatibility. The pragmatic prominence of the experiencer (an external pragmatic factor) enables these verbs to be integrated into the psych stative Exp-inverse construction, presenting a re-construal of the eventuality described by the verb. Change of state verbs can also be integrated into the psych stative constructions and a few ObjExp verbs can be integrated into the causative and inchoative constructions. These lexical-constructional integrations are cases of coercion, motivated by metaphor.

The constructionist account suggested here explains both readings of ObjExp verbs, and accommodates different syntactic forms in which those verbs appear. This approach also accounts for the systematicity of the inversion process in BP and the systematic occurrence of the psychological reading of change of state verbs. A final advantage of a constructionist approach is that it allows the phenomena under investigation to be analyzed as functionally motivated, as a constructionist theory predicts discourse-pragmatic and cognitive constraints for lexical-constructional integration. We believe that this account, although focused on verbs and constructions of BP, might shed light on the long-standing debate about the behavior of ObjExp verbs in other languages.

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