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FACULDADE DE FILOSOFIA, LETRAS E CIÊNCIAS HUMANAS  
DEPARTAMENTO DE LETRAS MODERNAS  
PROGRAMA DE PÓS-GRADUAÇÃO EM ESTUDOS LINGUÍSTICOS E  
LITERÁRIOS EM INGLÊS

RODRIGO GARCIA ROSA

**Construções de Movimento Causado em um Corpus de Aprendizes de  
Inglês: da observação à experimentação**

São Paulo

2020

**Versão Corrigida**

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**Rodrigo Garcia Rosa**

Tese apresentada ao Programa de Pós-Graduação em Estudos Linguísticos e Literários em Inglês do Departamento de Letras Modernas da Faculdade de Filosofia, Letras e Ciências Humanas da Universidade de São Paulo, para a obtenção do título de Doutor em Letras.

Orientadora: Profa. Dra. Stella Esther Ortweiler Tagnin

São Paulo

2020

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## FOLHA DE APROVAÇÃO

Rodrigo Garcia Rosa

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“The limits of my language are the limits of my world. All I know is what I have words for.”

- Ludwig Wittgenstein -

## ABSTRACT

ROSA, R. G. **Construções de Movimento Causado em um Corpus de Aprendizes de Inglês: da observação à experimentação.** 2020. 211 f. Tese (Doutorado) - Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 2020.

This dissertation investigates the production and comprehension of English caused-motion constructions by EFL learners with four Romance language backgrounds, namely, Brazilian Portuguese, Spanish, French and Italian. In order to study the phenomena, the research proposes a methodological approach at the interface between observational (corpus linguistics methods) and experimental studies (data elicitation approaches) for the selection, compilation and extraction of the data. From the theoretical perspective of Cognitive Construction Grammar (GOLDBERG, 1995; 2006), this study identifies four constructional domains for caused motions, against which the learner data are analyzed: (1) literal caused motions with instantiating verbs (eg. *put the toys into the box*); (2) figurative caused motions with instantiating verbs (eg. *get yourself in trouble*); (3) literal caused motions with modifying verbs (eg. *they laughed him out of the office*); and (4) figurative caused motions with modifying verbs (eg. *She talked me into stupor*). The observational analysis made use of the EFCamDAT corpus and targeted the languages mentioned at four levels of proficiency, from A2 to C1 levels in the CEFR. On the experimental side, the study devised and applied an acceptability judgment task with 120 EFL Brazilian learners at two levels of proficiency: B2 and C1. The study aimed at investigating the development of caused motions by testing two aspects and their effect on the use and comprehension of the structure: (1) level of proficiency and (2) the degree of linguistic complexity of the structures in question.

The results of both the observational and experimental studies showed that proficiency does affect learners' performance with caused motions, much more significantly than typological differences (for that we used a control group of German learners). On the matter of linguistic complexity, the results showed that learners have a descending level of use and recognition of caused motions that is proportional with the ascending level of semantic complexity of the structures. Also, as advocated by Ellis (2013), Hampe (2010) and Xia (2017), low-level

constructions (i.e., phraseologisms) did seem to play a role in determining some uses of caused motions, especially those of the last domain (figurative caused motions with modifying verbs).

**KEYWORDS:** Construction Grammar, learner corpus, data elicitation, caused motions, EFL

## RESUMO

ROSA, R. G. **Construções de Movimento Causado em um Corpus de Aprendizes de Inglês: da observação à experimentação**. 2020. 211 f. Tese (Doutorado) - Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 2020.

Esta tese investiga a produção e compreensão de construções de movimento causado (CMC) do inglês por alunos nativos de quatro línguas românicas, a saber, português brasileiro, espanhol, francês e italiano. Para tanto, esta pesquisa propõe uma interface metodológica entre os estudos observacionais (linguística de *corpus*) e experimentais (abordagens de elicitación de dados) para a seleção, compilação e extração dos dados. Sob a perspectiva da Gramática da Construção Cognitiva (GOLDBERG, 1995; 2006), este estudo identifica quatro domínios construcionais de CMCs, à luz dos quais os dados de aprendizes são analisados: (1) CMCs literais com verbos de instanciação (ex. *put the toys into the box*); (2) CMCs figuradas com verbos de instanciação (ex. *get yourself in trouble*); (3) CMCs literais com verbos de modificação (ex. *they laughed him out of the office*); e (4) CMCs figuradas com verbos de modificação (ex. *she talked me into stupor*). A análise observacional fez uso do *corpus* EFCamDAT para extração de dados das línguas mencionadas em quatro níveis de proficiência, de A2 a C1 no CEFR. Da perspectiva experimental, o estudo elaborou e aplicou uma tarefa de julgamento de aceitabilidade a 120 alunos brasileiros da EFL em dois níveis de proficiência: B2 e C1. O estudo teve como objetivo investigar o desenvolvimento de CMCs, testando dois aspectos e seus efeitos no uso e compreensão da estrutura: (1) nível de proficiência e (2) grau de complexidade linguística das estruturas em questão.

Os resultados dos estudos observacionais e experimentais mostraram que a proficiência afeta o desempenho dos alunos no uso de CMCs, de modo mais significativo do que afetam diferenças tipológicas (para isso, usamos um grupo de controle de alunos alemães). No que tange à complexidade linguística, os resultados mostraram que o uso e reconhecimento de CMCs é inversamente proporcional ao nível crescente de complexidade semântica das estruturas. Além disso, como defendido por Ellis (2013), Hampe (2010) e Xia (2017), construções lexicais (ou seja, fraseologismos) pareciam desempenhar um papel na

determinação de alguns usos de CMCs, especialmente os do último domínio (CMCs figuradas com verbos de modificação).

**PALAVRAS-CHAVE:** Gramática de Construções, corpus de aprendizes, elicitación de dados, CMCs, EFL

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# 1. Introduction

Cognitive linguistics adopts the perspective according to which cognition is *embodied*, *perspectival* (GEERAERTS, 2006) and *viewpointed* (TALMY, 2000), that is, our experiences are, to a large extent, biased and constrained by our physical bodies. Thus, if language indeed reflects this cognition, a rather indisputable fact in current linguistic theory, it is expected that its internal structure will mirror the conceptualization processes (LANGACKER, 2013) of this cognition. This idea puts the cognitive view of language in stark contrast with the formalist theories, especially the generativist perspective, for which the mind/body dualism (EVANS; GREEN, 2006), a cartesian philosophical principle, still prevails and is used as the basis of their approach to language, a rationalist one. Therefore, to cognitive linguistics, the way speakers conceptualize the objective reality, that is, how TIME, SPACE and MOTION are subjectively conceptualized and reflected in the linguistic organization are not only relevant topics, but necessary ones for the description of languages and also for the understanding of the mechanisms underlying language production and processing by speakers, be they native or nonnative learners of languages. TIME, SPACE and MOTION have been the main foci of research of many of the founding fathers and mothers of this linguistic theory and among them all, Leonard Talmy set out to investigate how MOTION is conceptualized by speakers and how this is grammatically encoded in different languages. This brings us to the main topic of this dissertation, that is, the production and comprehension of motion events. More specifically, given the inherent cross-linguistic differences between language groups, this dissertation aims at investigating how motion events (English caused-motion constructions) are produced and interpreted by L1 Romance speakers who are learners of English as a foreign language (henceforth EFL).

In order to do that, in this Introduction we start off by contextualizing the state of affairs of motion events, present the main aims and objectives and put forward our research questions.

## 1.1 Motion events

One of the first structured studies to observe how the expression of motion varied grammatically in different languages was Talmy (1972 apud CROFT et al. 2010). In the linguist's initial model, he puts forward a typology of motion events by contrasting the structure of English with that of polysynthetic languages of California, more specifically Atsugewi. While contrasting these two languages, Talmy adopts an event-level semantic approach and introduces the notion of *translatory situation*, an event in which a FIGURE moves along a PATH. This *translatory* situation, according to Talmy, is composed of four event-level semantic components, that is

- (i) FIGURE (F): the object that is moving or located in relation to another object;
- (ii) GROUND (G): the other object (the point of reference);
- (iii) DIRECTIONAL (D): how the object is moving or located in relation to the other object;
- (iv) MOTIVE (M): the state (movement or location) of one object in relation to another object.

Thus, in the sentence '*polluted water rained into the reservoir*', the components above, constitutive parts of the *translatory structure* represented in the sentence, will characterize different parts of this semantic event as follows

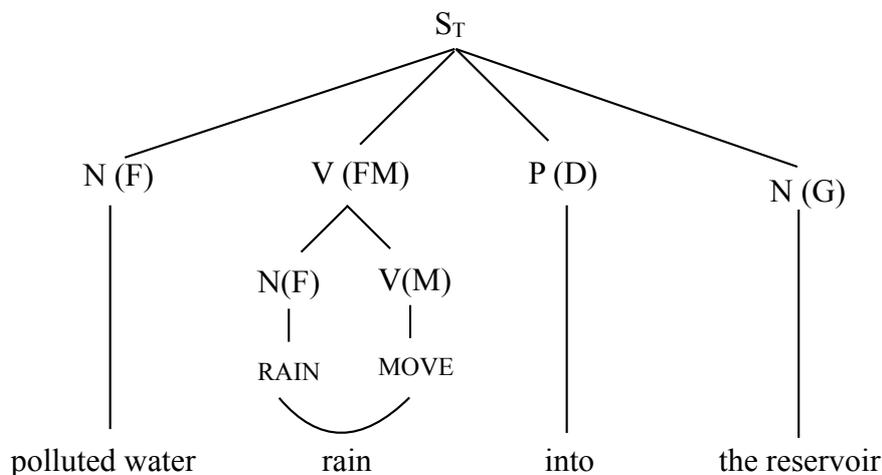


Figure 1 - Example of a translatory structure (TALMY, 1972, p. 62)

As the Fig. 1 shows, the main predicate of the sentence, the verb *rain*, is the result of a conceptual operation, named *conflation*, which merges two components of the translatory structure, the conceptual FIGURE ‘RAIN’ and the MOTIVE ‘MOVE’. According to this analysis, conflation is a pervasive operation in Atsugewi, as the language typically conflates some aspects of the FIGURE with the MOTIVE (just like *to rain* in English), as well as creates other types of complex events, that is, verbs that conflate MOTIVE, DIRECTIONAL and GROUND (*to shelf* would be an English example).

In later publications (TALMY, 1985, 2000 apud CROFT et al., 2010), Talmy goes on and observes that conflation is a conceptual operation that is also present in other languages, thus affecting how motion verb constructions are grammatically encoded. In light of this observation, the original idea of *translatory structure* and its constitutive semantic components (FIGURE, GROUND, DIRECTIONAL and MOTIVE) are, then, revisited as the new focus is now turned to *motion events* and how different languages conceptualize them. In the new model, Talmy identifies the categories of GROUND, PATH and MANNER and sets out to investigate cross-linguistically how different groups of languages incorporate such notions in the conceptual structure of verbs; in other words, the new perspective proposes a three-way typology for motion events vis-à-vis the way that the categories of GROUND, PATH and MANNER are incorporated in the conceptual structure of verbs. Thus, events are said to be *manner-incorporating*, *path-incorporating* and *ground-incorporating*.

In English, for instance, verbs denoting motion events are said to incorporate the MANNER component, resulting in predicates that exhibit not only the notion of movement, but also how this movement is conceptually realized. As (1) — (4) show, the predicates in bold conceptually synthesize in one verb the notions of MOTION and MANNER:

- (1) The bottle **floated** *into* the cave.
- (2) The dog **ran** *into* the kitchen.
- (3) He **rolled** the ball *into* the hole.
- (4) They **scared** the cat *out of* the room.

In the sentences above, the verbs incorporate the *way* the main event takes place in their conceptual structure, that is, the MANNER (respectively *floating*, *running*, *rolling* and *scaring*). The notion of PATH (the path of motion for the figures *the bottle*, *the dog*, *he* and *they*), on the other hand, is expressed by the complex prepositions *into* and *out of*, which Talmy calls *satellites* of the main verb<sup>1</sup>.

Thus, in predicates such as (5) below, *walk*, just like the examples in (1) to (4), will be analyzed as an event that incorporates MOTION and MANNER (= *walking*) and the satellite *into* will encode the PATH of motion.

(5) *He **walked**<sub>(motion+manner) into the room</sub><sub>(path = satellite)</sub>.*

Unlike English, other languages, like Spanish and Portuguese, do not conflate MOTION and MANNER, but rather, seem to amalgamate MOTION and PATH. These are the so-called *path-incorporating events*, which are exemplified in (6) and (7) below.

(6) La botella **entró** a la cueva *flotando* ('*the bottle entered the cave by floating*')

(7) A garrafa **entrou** na caverna *boiando* ('*the bottle entered the cave by floating*')<sup>2</sup>

Motion events in Spanish and Portuguese sentences behave differently in comparison to English. The verbs in bold express the notions of MOTION and PATH (the verb *entrar* implies 'to move into a closed area'), whereas the MANNER, that is, the *way* the event takes place, is encoded in the satellite in the form of a present participle verb behaving syntactically as an adjunct for the main verb phrase (*flotando/boiando* = *floating*). Therefore, in conceptual terms, languages are contrastively dichotomized into groups as to how the notions of MANNER and PATH are lexicalized, either in the main verb or in the satellite of the sentence. In languages like English and German, the verb seems to encapsulate both the notions of

---

<sup>1</sup> English also has path-incorporating verbs like *arrive*, *enter*, *exit*, *ascend*, etc. but these are loanwords which have kept the original conceptual structure they had in the languages they were taken from.

<sup>2</sup> The present participle forms *flotando* and *boiando* (= *floating*), used as satellites to express the notion of manner, are not compulsory items for the acceptability of the sentences.

i. La botella entró a la cueva.

ii. A garrafa entrou na caverna.

Therefore, manner is not always explicitly stated in these languages.

MOTION and MANNER and the PATH will come in the form of a satellite. In Romance languages like Spanish and Portuguese, though, the verbal predicates will express the notions of MOTION and PATH and the MANNER will be encoded in a satellite. The distinction is summarized in Table 1.

Table 1 - Types of MANNER confluations

Language	Verb	Satellite
English: <i>He <b>walked</b> into the room</i>	MOTION + MANNER <i>walk</i>	PATH <i><b>into</b> the room</i>
Portuguese <i>Ele <b>entrou</b> no quarto correndo</i>	MOTION + PATH <i>entrar</i>	MANNER <i>andando/a pé</i>

The typology outlined above satisfactorily captures the different ways in which motion events are encoded cross-linguistically. Thus, in sentences such as (8) below, the motion event characterizes a general scene in which a manner-incorporating event (*rolled*) acts upon the FIGURE *the barrel* and makes it move towards a PATH encoded by the preposition *into*. In English motion events, then, the category of PATH is a satellite that *frames* the event, in that it specifies the verb by complementing its conceptual structure.

(8) The boys **rolled** the barrel *into* the cellar.

This way, languages will be classified according to how this PATH framing is realized, either in the verb or in the satellite. Since English will encode PATH in the satellite, this language is classified as a *satellite-framed language*. In contrast to this category, are languages like Spanish and Portuguese, which will incorporate the PATH into the verb, whereas the MANNER will be attributed to the satellite, as (6) and (7) above showed. Therefore, languages with path-incorporating events like Spanish and Portuguese will be named *verb-framed languages*.

## 1.2 Motion events in L2: between verbs and constructions

Although Talmy's most recent model (TALMY, 2000) has been extensively used in the cross-linguistic investigation of motion events and has been considerably successful in doing so, some typologists of different theoretical inclinations object to the analysis. Bohnemeyer et al. (2007), for instance, reject the model on the basis of the units that are being compared cross-linguistically. In other words, the authors state that Talmy's model establishes different lexicalization patterns in languages, but says very little about general constraining mechanisms that languages impose on these semantic events. In the words of Bohnemeyer et al. (2007, p. 502) themselves,

[...] a typology of linguistic event segmentation based on verb phrases or clauses would at best be a typology of the semantics of verb phrases or clauses. It would not tell us directly about the constraints different languages impose on the segmentation of events of a certain kind. In the absence of a universal 'event phrase', the best we can aim for is a property of constructions that singles out those constructions in each language that package the information about an event in comparable ways. (emphasis added)

In the excerpt above, Talmy's model is criticized on the basis of what can and what cannot be compared across two or more languages from a typological perspective. According to the linguists, verb phrases or clauses are not comparable across languages given that these are language-specific categories whose functions can only be described against the language system they belong to. In other words, just like any other lexical item, comparing verb phrases across languages would be the same as claiming that different languages have different verb types and verb classes<sup>3</sup>. The point raised here is addressed by Haspelmath (2010) in what he calls the *paradox of comparability of incommensurable systems*, that is, given the non-existence of a universal *event structure* that is differently realized cross-linguistically,

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<sup>3</sup> Although the criticism is based on the fact that lexical items do not lend themselves well to typological classifications, it is of utmost importance to emphasize that in construction grammar, even words are considered to be low-level constructions, since they are also form-meaning pairings. Low-level constructions will be discussed in more detail in Chapters 2 and 3.

linguists comparing languages should turn their focus to general constructional properties, or *comparative concepts* (HASPELMATH, 2010, p. 2) such as tense, case, causation, etc., that are capable of accounting for different language instantiations.

The points of disagreement raised by Bohnemeyer et al. (2007) are motivated by the authors' needs to account for constructions from a typological point of view, that is, their main concern lies in whether such a category (verb phrase) could be used to group languages together or not. The answer is clearly *no*, since each language has its own *types of verbs* and this does not seem to be a comparable category across groups of languages. The emphasized part in Bohnemeyer et al.'s (2007) passage offers an alternative approach in that it mentions the need for constructions that package this kind of information and which could be compared across languages. By positing constructions that denote such motion events, typologists could, then, compare these linguistic categories and move away from classes of verbs or verb types. This typological solution also seems to be in consonance with a whole body of cognitive researchers concerned with the acquisition of foreign languages. In other words, investigating whether learners have or do not have **L2<sup>4</sup> constructions** in their mental grammar seems to be an adequate way of accounting for nonnative knowledge of a foreign language. Also, accepting Talmy's model to account for nonnative knowledge of an L2 may imply, as far as motion events are concerned, that learners who succeed in using target-like constructions in English<sup>5</sup> managed to do so solely by operating with certain classes of verbs in a rather item-based fashion; that is, no evidence of learning of schematic syntactic constructions could be posited. However, research on the acquisition of L2s from a cognitive perspective (BAICCHI, 2015; ELLIS, 2013; GRIES; WULFF, 2005; MANZANAREZ; LÓPEZ, 2008; VÁSQUEZ, 2008 and others) has systematically shown that L2 learners do have knowledge of more abstract argument structure constructions (like (9) to (12)), regardless of the verbs that occupy the verbal slots.

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<sup>4</sup> L1 and L2 stand, respectively, for *first* and *second language*.

<sup>5</sup> It is important to notice that the use of the term *target-like* aims at identifying the cases in which learners use motion event constructions like a native speaker of English would use them. However, that does not mean to say that, in the absence of a target-like construction, learners would necessarily refrain from conveying the information needed. Brazilian learners, for instance, could come up with "*he crossed the bridge by car*" in place of a more target-like "*he drove across the bridge*".

Caused-motion Construction (X CAUSES Y TO MOVE Z)

- (9) John put the roses in the vase.
- (10) She brought the problem to my attention.
- (11) They laughed me out of their office.
- (12) The boys drank themselves into a stupor last night.

This research agenda is largely committed to answering a question that is quite relevant to SLA (second language acquisition), that is, do foreign/second language learners have L2 constructions as abstract as the caused motion X CAUSES Y TO MOVE Z, represented in (9), (10), (11) and (12)? In other words, learners' capacity to produce and process sentences like (9) and (10) could be said to stem from lexical knowledge of the argument structures of *put* and *bring*, since these verbs are ditransitives that require both a direct object and an oblique directional/locative argument. Nevertheless, the same cannot be said about (11) and (12) in which the main verbal predicates, respectively *laugh* and *drink*, do not require a third oblique argument (*out of their office* and *into stupor*). Therefore, if production and processing of (11) and (12) are attested, it does not seem to be plausible to claim this is the result of lexical knowledge. To put it differently, constructions of the type exemplified in (11) and (12) could only be the result of more abstract representations in learners' cognition and not the result of specific lexicalization patterns.

This position, also defended in this dissertation, is theoretically discussed in Chapters 2 and 3. Chapters 4 and 5 bring the analyses of the observational and experimental learner data that provide us with the empirical support to validate our hypothesis with caused-motion constructions in L2.

### **1.3 Aims and objectives**

The idea that foreign language learners have access to L2 constructions is one of the theses defended by Cognitive Construction Grammar (GOLDBERG, 1995, 2006, 2013, 2019) and its application to L2 acquisition (BAICCHI, 2015; ELLIS, 2013; GRIES; WULFF, 2005).

Such a perspective is also the one used in this dissertation in the treatment of the expressions discussed above in sections 1.1 (sentence 8) and section 1.2 (sentences 9 to 11). More specifically, this research investigates the production and processing of caused-motion constructions by foreign language learners of four different L1 backgrounds, namely, Brazilian Portuguese, Spanish, Italian and French. In order to do that, we look at learner production from EFCamDAT, a learner language database administered by Cambridge University and propose an analysis of learner production at four levels of proficiency. In order to control for typological factors, the analysis includes a control group of learners whose L1 represents a satellite-framed language (i.e., German). The aim of the analysis with observational data is to verify developmental factors, but also to check learners' production of four types of caused-motion constructions with an ascending level of linguistic complexity. This aspect is discussed in Chapter 3 and analyzed in Chapters 4 and 5.

In order to probe into the other end of the production and processing continuum, Chapter 5 reports the analysis of an experiment (acceptability judgement task) applied to 120 Brazilian learners of English. The experimentation intervention was needed to complement the observational data analysis conducted on EFCamDAT, but it also meant to shed some light on the interpretation assigned by learners to the same types of caused motions with ascending levels of complexity. Both analyses, the corpus-based and the experimental one, are supposed to probe into the representation of caused-motion constructions in the cognition of learners whose first languages are verb-framed. On practical grounds, the analyses were conducted with regard to hypotheses derived from our general research questions, which we present below.

#### **1.4 Research questions**

In each respective chapter, the analysis was conducted in light of working hypotheses derived from the following research questions:

- Does learner proficiency affect the *production* of caused-motion constructions? If so, to what extent?
- Is learner *production* of caused-motion constructions affected by the linguistic complexity<sup>6</sup> of the structures in question? If so, to what extent?
- Does learner proficiency affect the *comprehension* of caused-motion constructions? If so, to what extent?
- Is learner *comprehension* of caused-motion constructions affected by the linguistic complexity of the structures in question? If so, to what extent?

The questions above, as well as the answers provided by the research, aim at contributing to constructionist studies of L2 acquisition in general terms and, more specifically, to the understanding of how constructions in a foreign language can be interpreted and produced by learners whose first languages differ typologically from the target language.

## 1.5 Outline

The dissertation is organized in 6 chapters. In Chapter 2, we sketch out the main theoretical foundations of this research by discussing and presenting the main pillars of Adele Goldberg's Cognitive Construction Grammar (GOLDBERG, 1995; 2006), Fillmore et al.'s (1988) typology of idioms and Ellis' (2013) constructional approach to L2 acquisition. Chapter 3 discusses and analyzes English caused-motions by reviewing the treatment this construction receives in descriptive grammars (QUIRK et al., 1985) as well as in relevant constructional literature on the topic, that is, Goldberg (1995). The chapter also taps into the role of low-levels constructions (HAMPE, 2010) and specific classes of verbs (XIA, 2017) on the interpretation of caused motions. Chapter 4 discusses and analyzes the observational learner

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<sup>6</sup> We are fully aware of the fact that the term *linguistic complexity* evokes a whole body of research conducted by researchers interested in defining, by and large, which languages and/or language structures are more or less complex from a learning perspective (CULICOVER, 2013). From such a perspective, *complexity* must be objectively defined and must offer a clear measure with which researchers can judge constructions as more or less complex. Here, we do not aim to offer a formal measure of complexity, but as the discussion throughout will show, our idea of complexity involves constructional complexity (instantiating vs modifying verbs) and semantic reading (literal vs figurative reading) in caused motions.

data. Since the dissertation makes use of two methodological approaches (observation and elicitation), the methodology was not presented in a unified chapter. Instead, each chapter contains its own discussion on the relevant methodological approach. Thus, in Chapter 4, we discuss some of the main aspects of corpus linguistics, presents EFCamDAT and also present our data extraction choices. Chapter 5 brings the experimental data for caused motions. Similarly to the previous chapter, this one starts with a brief discussion on data elicitation techniques, aims and objectives. It also addresses aspects related to methodological approaches at the interface of observation and experimentation. Lastly, it discusses the design and application of our acceptability judgment task and proposes the analysis. Chapter 6 presents the conclusion of this dissertation with the answers to the questions posed in this Introduction.

## Chapter 2

### Theoretical foundations

#### 2.1 Introduction

This chapter presents the theoretical foundations upon which rests the analysis of the learner data to be carried out in Chapters 4 and 5. It starts by reviewing the now classic Fillmorean typology of idioms (FILLMORE et al., 1988) that observes different kinds of lexical regularities in the structure of language. As will be discussed, Fillmore's typology is thought to have inaugurated the constructional era in linguistic studies (CROFT; CRUSE, 2004; EVANS; GREEN, 2006; SALOMÃO, 2002) since it was the first systematic investigation of the grammatical properties of partially filled idiomatic expressions (formal idioms). The idiomatic and grammatical constraints of formal idioms (eg. *let alone*) have led to different understandings of constructions and the role of non-predicability in conventional expressions. Given the inherent cross-linguistic nature of our learner data, the chapter also advocates for a necessity to move away from language-specific lexicalization patterns and presents a constructional account (GOLDBERG, 1995, 2006, 2019) that provides an alternative explanation by integrating the semantics of the verb with that of the construction, thus neutralizing verb class properties of particular language groups. The discussion of the role of verbs and constructions is particularly important given the general claim of this dissertation, i.e., that learners also have access to schematic L2 caused motions. The chapter also addresses the constructional treatment given to L2 constructions by emphasizing constraints proper to L2 acquisition.

#### 2.2 Cognitive Construction Grammar: idioms and constructions

The idea of constructions is a rather ubiquitous one, found in pedagogical, descriptive and traditional grammars of almost every language. However, the status of constructions advocated in Cognitive Construction Grammar (henceforth CCG) is one which is in stark contrast to the view defended by Generative Grammar, in spite of the fact that the term was central in early versions of the chomskyan model, that is, in Transformational Grammar (CHOMSKY, 1957). With the development of the framework of Principles and Parameters (CHOMSKY, 1981), the theoretical status of language-specific constructions held responsible for organizing the system of particular languages was replaced by a universalist account in which general and abstract principles were said to govern language acquisition and use. The indisputable cross-linguistic differences were accounted for as variations made available by Universal Grammar (UG) in the form of parameters and the surface differences in languages would be the result of different parameter-setting strategies (HAEGEMAN, 1994). Therefore, word-order differences, for instance, were viewed as instantiations of how specific languages set the word-order parameter. In other words, UG makes binary options available (Verb-Object and Object-Verb in this case) and languages will set the parameter to a VO (the case of English and Portuguese) or to an OV order (the case of Japanese and Korean)<sup>7</sup>.

Although the generative enterprise has reached a robust level of descriptive adequacy through the analysis and observation of various languages, the phenomena contemplated set aside a number of everyday constructions and sentence patterns. Most of these constructions, generally considered idiosyncratic, were deemed peripheral to the core grammar and constructions like idioms, collocations, phraseologisms, etc. were relegated to an apparently unsystematic lexicon. The framework was committed to an idea of modularity that separated the lexicon from the grammar in what Taylor (2012, p. 8) calls the “dictionary-and-grammar model”. Were it true that constructions such as collocations, idioms, pre-fabs, routines and the like were peripheral, unsystematic and extraordinary, the model needed not embrace such phenomena at the risk of jeopardizing its elegance and scientific rigor. Nevertheless, a whole body of research of different theoretical persuasions (COWIE, 1998; FILLMORE, 1968, 1977, 1982, 1985, 2013; FILLMORE et al. 1988; FILLMORE et al. 2003; GOLDBERG, 1995; KRIEF-PLANQUE, 2009; LEVIN, 1993; NATTINGER; DeCARRICO, 1992; PAWLEY; SYDER, 1983; TYLER, 2012; WULFF, 2008), all the way from lexicographers to

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<sup>7</sup> This brief discussion is obviously an oversimplified and condensed explanation of the model. A full account of the model’s descriptive and explanatory potential is out of the scope of this dissertation.

lexicologists, cognitive linguists, discourse analysts, second/foreign language researchers, corpus and computational linguists, acknowledge the centrality of these constructions in language use and in the speakers' knowledge of language. For these researchers, what the generative theory considers to be an "appendix" to the mental dictionary, is in fact extremely pervasive in the structure of languages. Even within some broader strands of generative linguistics, idioms are recognized as an important aspect of language and one that must be accounted for by a theory of language. Jackendoff (2002, p. 167), for instance, claims that,

[...] despite a tendency among grammarians to treat idioms as a relatively marginal phenomenon, there are in fact thousands of them — probably as many as there are adjectives. So theories of grammatical structure and of processing ignore idioms at their own risk.

The first work to draw attention to this aspect of language use in a systematic and taxonomic way was Fillmore, Kay and O'Connor (1988). In other words, the currently available number of detailed analyses about idiomaticity and phraseology gained momentum in linguistics with the analysis proposed by Fillmore and his collaborators.

In their seminal paper, the authors seek to investigate both the grammatical properties of certain lexical expressions and also the lexical properties of a given number of grammatical constructions; hence the name *Regularity and Idiomaticity in Grammatical Constructions: the Case of let alone*. The paper, widely considered to have inaugurated the constructional era in linguistics (CROFT; CRUSE, 2004; EVANS; GREEN, 2006; SALOMÃO, 2002), aims to demonstrate that idiomatic expressions have a central role in speakers' knowledge of language and, as such, must be accounted for by linguistic models that aim to describe this tacit knowledge. Therefore, according to the analysis proposed, languages are composed of an array of recurrent idiomatic expressions whose grammatical behaviors are much more systematic and, to a large extent, more regular than what some formalist theories would suggest. The authors present a typology of idioms<sup>8</sup> aimed to cover all of their formal and functional properties. A summarized version can be seen in Table 2.

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<sup>8</sup> The concept of *idiom* here encompasses all sorts of linguistic patterns that display a level of conventionality. Thus, the term is not used in its common understanding of semantically opaque expressions like 'kick the bucket'.

Table 2 - Typology of idioms (FILLMORE et al., 1988)

Idioms	Properties	Example
Encoding	Conventional and semantically transparent	<i>answer the door, cut a long story short</i>
Decoding	Conventional, but semantically opaque	<i>pull a fast one, kick the bucket</i>
Grammatical	Conventional expressions that comply with general syntactic rules	<i>kick the bucket, answer the door</i>
Extragrammatical	Conventional expressions that break syntactic laws	<i>by and large, long time no see!</i>
Substantive	Conventional expressions with a fixed structure	<i>it takes one to know one, better safe than sorry</i>
Formal	Conventional expressions with unfilled syntactic slots	<i>blow X's nose, drive Obj crazy/mad/bananas</i>
With pragmatic point	Conventional expressions used in specific pragmatic contexts	<i>have a nice day! long time no see!</i>

The encoding/decoding distinction captures the semantic properties of the expressions and the speakers' capacity to figure them out. Although it taps into the idea of *idiomatic vs compositional* expressions (CROFT; CRUSE, 2004), it should not be considered the same since the interpretation load is placed on the speakers and it is up to them to carry out the task of mapping form onto the function. An interesting point to be raised, and one that is even more relevant for us, is how these expressions would be classified, were they interpreted by nonnative speakers and learners of English as a foreign/second language. 'Answer the door' is the conventional way of saying 'open the door when someone is knocking'. A nonnative speaker who has not been presented with this conventional way of speaking might be able to infer its meaning when exposed to it, but might not use it naturally given a communicative situation that required the expression<sup>9</sup>. This brings up an aspect discussed by Croft and Cruse (2004, p. 232) when discussing these idioms, that is, every decoding idiom is also an

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<sup>9</sup> If we take the SLA context into account, an encoding expression like 'answer the door' might be both an encoding and a decoding idiom depending on the learner's level of proficiency. An intermediate learner (B1 in the CEFR) might be able to interpret the expression and use it conventionally, but the same is not necessarily true for a beginner (A1 in the CEFR).

encoding idiom because every semantically opaque expression is also a conventional way of expressing a thought in a language. Therefore, if a speaker does not know an expression, for instance, the decoding idiom *kick the bucket*, they will not know that the expression is the conventional way of saying ‘die’ in an informal and even humorous manner.

The next distinction, *grammatical* and *extragrammatical*, assesses the syntactic behavior of expressions. Grammatical expressions like *pull a fast one* and *kick the bucket* are parsable sequences in that they comply with the generally expected syntactic rules of the language. *Kick the bucket*, for instance, is a regular transitive construction, with a two-place predicate (*kick*) and a nominal complement (*the bucket*). No apparent syntactic abnormality can be found in grammatical idioms of this type. However, the same cannot be said about the extragrammatical *by and large*, for instance. The general rules of many (if not all) languages do not allow for two different parts of speech (PoS) to be coordinated by the conjunction *and*; yet, the expression is perfectly acceptable and used. Both types of expressions are characterized by a certain level of conventionality, but they differ with regard to how they conform to grammatical rules.

The last binary distinction, and the one said to have given rise to what came to be known as the constructionist approaches to language (GOLDBERG, 2013), segments expressions into *substantive* and *formal* idioms. This distinction evaluates the lexical content of the sequences as far as their level of fixedness is concerned. *Substantive* idioms are fully fixed and no paradigmatic replacement of lexical material is allowed without hindering the content of the expression or its grammaticality. In ‘*it takes one to know one*’, a mere alteration in the verb tense is enough to render the expression less acceptable (*It took one to know one*<sup>10</sup>). *Formal* idioms, on the other hand, are partially specified in that certain syntactic slots are left open for lexical material that conforms both syntactically and semantically to the grammatical demands of the slot. In ‘*drive OBJ crazy/mad/bananas*’, the expression is a lexicalized version of a resultative construction<sup>11</sup> in which the complement of the verb (the

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<sup>10</sup> There is one attested instance of *it took one to know one* in COCA: *When I was thirteen, my mother called me a slut, and I told her that it took one to know one* (Fiction/2015). Given the instance is extracted from a fiction, the use of the past tense may be the result of editorial correction for grammatical accuracy, that is, the use of backshift in reported speech.

<sup>11</sup> The resultative construction involves sentences such as “*John talked himself red in the face*” and “*She kissed him unconscious*”. The construction semantics depicts a scene in which X CAUSES Y TO BECOME Z that is linked to the formal properties of Subj V Obj Xcompl (either an AdjP or PP denoting a path phrase)

OBJ) can be replaced by a number of NPs<sup>12</sup> and the result argument (*crazy*) must be an adjective denoting ‘madness’. The subject slot is also open and it can be filled by NPs of the semantic type “animate instigator” (GOLDBERG, 1995, p. 193). Formal idioms like ‘*drive OBJ crazy/mad/bananas*’ or ‘*let alone*’, which are more pervasive than formalist theories would claim, challenge the “dictionary-and-grammar” view of language, since a full account of their linguistic properties must necessarily be based on both lexical and grammatical constraints. This observation, also pursued by other linguists such as Lakoff (1987), served as a springboard for a constructional treatment of structures — argument structure constructions — which were typically explained without recourse to any other thing, rather than pure syntactic operations. Before we delve into these kinds of constructions in more detail, let us briefly discuss the last type of idiom in the typology: idioms *with or without a pragmatic point*.

As the name itself suggests, idioms *with a pragmatic point* are those whose meaning “depends” on contexts they are inserted in and used. These expressions carry factors that are discourse-contextual, thus they are rooted in real communicative settings. Although their semantic status does not necessarily make them decoding idioms, they are also conventional ways of expressing certain thoughts and messages. *Have a nice day* is the conventional way of wishing someone have an enjoyable day, but many other things could be said instead, such as *I wish your day is as enjoyable as it can be*, *seize your day*, *may your day be a good one*, etc. However, speakers tend to use certain formulas which are conventionally associated with these particular moments, that is, they use idioms with a pragmatic point.

The typology summarized above gives examples of expressions and how they would be prototypically categorized. However, Fillmore et al.’s (1988) categorization of idioms, especially the *substantive* and *formal* distinctions — the ones capturing the syntactic fixedness of linguistic sequences — do not seem to challenge the formalist and modular view of language at first glance. The lexical module of componential theories like the Generative Grammar could, in theory, be robust and flexible enough to host a list of expressions that are longer than a word, especially if one considers the fact that substantive idioms are fixed expressions, and as such, do not allow for internal variation of any sort. Formal idioms, on the contrary, pose an inherent challenge to the componential model given that, as idioms, many of their semantic and pragmatic properties are directly related to the idiom itself and cannot be

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<sup>12</sup> The postverbal NPs are semantically constrained and can only be a type of *patient*.

predicted from its component parts, that is, they are non-compositional<sup>13</sup>. Also, they seem to be syntactically regular, but their formal aspects could not be accounted for by general syntactic rules; instead, even their grammatical properties seem to be “idiom-specific”. This is the case of the conjunction *let alone*, whose complex grammatical properties cannot be explained via regular rules used to explain the grammatical behavior of other conjunctions like *and*, *but*, *or* and *than*. *Let alone* has its own grammar and below we present only a few of its constraints as a way to illustrate our point.

i) *let alone* cannot be used interchangeably with *and* in every context:

eg. *Shrimp and squid Moishe won't eat.*

\**Shrimp let alone squid Moishe won't eat.*

ii) *let alone* accepts sentence fragments like *than*:

eg. *John hardly speaks better Russian than Bulgarian.*

*John hardly speaks Russian let alone Bulgarian.*

iii) but *let alone* does not allow VP ellipsis like *than* does:

eg. *Max will eat shrimp more willingly than Minnie will.*

\**Max won't eat shrimp let alone Minnie will.*

iv) *let alone* is a focal construction which demands its coordinated elements to be prosodically salient. The same does not occur with other conjunctions:

eg. *He doesn't get up for LUNCH, let alone BREAKFAST.*

Fillmore et al. (1988, p. 517-519)

The analysis proposed by the linguists for the expression *let alone* aims to show that certain expressions have their own syntactic behavior and these grammatical properties make them belong to different families of constructions. As Croft and Cruse (2004) state, *let alone*

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<sup>13</sup> It is important to highlight that the difficulty of the generative model to account for idioms lies in how the theory views the storage of such linguistic material. In Jackendoff (2002, p. 169)'s terms, “the upshot is that, although idioms must be stored, the way they must be stored cannot be reconciled with a theory in which only individual words are inserted into sentences”.

is one of a family of coordinate conjunctions, one of a family of paired focus constructions and one of a family of conjunctions that accept sentence fragments. In other words, *let alone* is a lexical expression, but it has its own grammar, that is, a grammar that cannot be explained via general rules of the language. As a lexical expression that seems to abide by a "parallel system", this creates a natural problem for a theory that defends an unstructured lexicon upon which a set of general abstract rules are applied.

From the observation of the formal idioms above and how pervasive they are in the general structure of languages, Fillmore et al. (1988) and other linguists like Lakoff (1987), Langacker (1987) and Goldberg (1995) had reasons to believe that the proposed analysis was strong enough to accommodate other structures traditionally analyzed via abstract syntactic rules. In other words, the idea of being "idiom-specific" did not necessarily have to render the explanation idiosyncratic and this model could be capable of accounting for all sorts of sequences ranging from fully lexically specified expressions to totally schematic sequences. In the words of Croft and Cruse (2004, p. 249),

[...] a syntactic rule such as  $VP \rightarrow V NP$  describes a completely schematic construction  $[V NP]$ , and the semantic interpretation rule that maps the syntactic structure to its corresponding semantic structure is unique to that schematic construction [...] Reanalyzing general syntactic rules as the broadest, most schematic constructions of a language is just the other end of the substantive-schematic continuum for idioms/constructions.

The passage above summarizes the basic idea that constructions, as they are understood in modern cognitive linguistic theories, rely heavily on the seminal work by Fillmore et al., (1988) and also gives a glimpse into what the model aims at and is capable of in descriptive and explanatory terms: it proposes that language structure is composed of an array of constructions varying on a scale of fixedness - from fully lexicalized expressions (substantive idioms) to fully schematic patterns (constructions). Thus, in this new view, **constructions** will be at the center of speakers' knowledge of language and will cover a plethora of linguistic phenomena, from morphemes to more extended portions of discourse.

In the following section, the concept of constructions is discussed and exemplified.

### 2.2.1 A constructionist approach to language

Cognitive Construction Grammar, as Goldberg's linguistic framework has been named since the publication of her 2006 book *Constructions at work* (GOLDBERG, 2006), shares with other constructionist approaches (KAY; FILLMORE, 1999; FILLMORE, 2013; LANGACKER, 2013) the central idea that languages are composed of symbolic units formed of a form and a function, that is, a language is the result of a highly structured network of form-function pairings. Nevertheless, if the adherence to the view that natural languages are a network of constructions of different levels of complexity places CCG in the general constructionist agenda (GOLDBERG, 2013), there are also important differences between Goldberg's model and some others, like Fillmore's *Berkeley Construction Grammar* (KAY; FILLMORE, 1999; FILLMORE, 2013) or William Croft's *Radical Construction Grammar* (CROFT, 2001; 2013), which renders CCG a unique, elegant and adequate model in the explanation of specific linguistic phenomena. More importantly, Goldberg's approach to language, as opposed to Fillmore's model, encompasses irregular and idiomatic constructions, as well as accounting for completely regular language patterns, the so-called *argument structure constructions*. Below we will sketch out the main theoretical pillars of Goldberg's Construction Grammar and claim her account of constructions, a non-lexicalist one, provides a good basis of analysis for the learner language to be discussed in the coming chapters.

As was briefly said above, Goldberg advocates for a model that views language as a set of highly interconnected form-function pairings. In other words, "all levels of grammatical analysis involve constructions: learned pairings of form with semantic or discourse function, including morphemes, idioms, partially lexically filled and fully general phrasal patterns" (GOLDBERG, 2006, p. 5). This model of interconnected constructions has had a great many empirical applications in the analysis of various languages, thus giving it a rather robust level of *observational* and *descriptive adequacy*<sup>14</sup>. However, as a member of the family of cognitive approaches to language, the model must also answer whether or not speakers' language knowledge truly reflects this set of interconnected constructions with different levels

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<sup>14</sup> According to Crystal (2008, p.10), "...**observational adequacy** is achieved when a grammar generates all of a particular sample (corpus) of data, correctly predicting which sentences are well formed; **descriptive adequacy** is achieved when a grammar goes beyond this, and describes the intuitions (competence) of the language's speakers...".

of specificity; in other terms, the framework is expected to demonstrate its *psychological plausibility* (EVANS; GREEN, 2006).

On the matter of psychological plausibility, CCG seeks to provide psycholinguistic empirical evidence to support the centrality of speakers' constructional knowledge in a number of experimental research projects. These are aimed at three major areas, that is, firstly the representation of constructions in adult language; secondly, the development of constructional knowledge in first language acquisition and; thirdly, the recognition, storage and production of constructions by foreign language learners, that is, the model aims to determine which role constructions play in SLA (to be discussed in more detail in section 3 of this chapter).

As far as constructional representation in adult language is concerned, Bencini and Goldberg (2000) replicated Healy and Miller's (1970) sorting experiment so as to verify whether the results found by the authors could be extended to prove the recognition of constructions by adult native speakers of English. Healy and Miller's (1970) aim was to check whether participants were more likely to sort out sentences based on verb meaning or whether sentences containing the same subject agents would be grouped together (the effect of verb vs. subject meaning in categorization). It was found that participants sorted out and piled together only sentences with the main verb meaning as opposed to the role played by the meaning of the subject argument. The results led the authors to defend that the verb plays a major role in determining sentence meaning. Bencini and Goldberg conducted a similar sorting experiment with adult native speakers of English and the stimuli were composed of sentences with different argument structures (ditransitive, caused motion, resultative and transitive). The experiment concluded that the syntactic frame, that is, the argument structure construction had a stronger influence on the interpretation of sentences than that played by the verb in the sorting task<sup>15</sup>. That is, the groups of sentences below were piled together, irrespective of the fact that the verbs were different. Participants' criterion for grouping was the type of construction, rather than the verb used (BENCINI; GOLDBERG, 2000, p. 650).

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<sup>15</sup> A number of researchers have replicated Bencini and Goldberg's experiment in SLA contexts. These studies will be reported later in this chapter.

### Caused motions

- (13) a. Pat threw the keys onto the roof.  
b. Laura got the ball into the net.  
c. Meg sliced the ham onto the plate.  
d. Kim took the rose into the house.

### Resultatives

- (14) a. Lyn threw the box apart.  
b. Dana got the mattress inflated.  
c. Nancy sliced the tire open.  
d. Rachel took the wall down.

Bencini and Goldberg's results reinforce the constructional thesis that argument structure constructions (or sentential frames) do have meanings irrespective of the lexical items that fill the grammatical slots.

On the matter of first language acquisition and, differently from results obtained from investigations in adult language use, cognitive researchers have systematically shown that children's first productions are constituted by isolated words as well as unanalyzed chunks of language that seem to have been learned and readily stored in the form of single-unit items (eg. *Get-it, all-gone, what-s-that?* (DIESSEL, 2013, p. 351)). At later stages of acquisition, that is, a few months after the first word-level productions, children begin trying more complex multiword constructions, either by combining two previously used isolated items or by segmenting and analyzing the expressions, thus far used as single units (eg. *whatchdoing*), into their constitutive parts. Research in the area has observed that the emergence of these abstract complex structures is partially due to children's use of certain lexical items, mainly verbs, that prototypically occur in these constructional contexts in adult speech, mainly their mothers' use of language. These prototypical lexical items, that are statistically associated with certain constructions in adult language, are said to connect with syntactic 'open slots' that are filled by semantically relevant material, given the communicative circumstances (eg. **More** \_\_NP as in '*more car, more cereal*'; **All** \_\_VP as in '*all broke, all clean*'). In other words, these are 'pivot schemas' (BRAINE, 1976 apud DIESSEL, 2013, p. 352) from which children derive more complex and abstract constructions.

Results of this kind were obtained from Goldberg et al.'s (2004) corpus study of children's speech. The authors conducted a corpus analysis (CHILDES corpus) of children's use of three English phrase-level constructions and the verbs most commonly used in these frames. The patterns investigated were composed of English VL (*verb, locative*), VOL (*verb, object, locative*) and VOO (*verb, object<sub>1</sub>, object<sub>2</sub>*) constructions by children and the data

analyzed demonstrated strong effects of prototypicality of certain verbs and constructions. Below is a summary of Goldberg et al. (2004)'s main findings.

Table 3 - Verbs and Constructions in child language (GOLDBERG et al., 2004)

VL (Subj V Obl <sub>loc</sub> ) eg. <i>It went in here</i>		VOL (Subj V Obj Obl <sub>loc/path</sub> ) eg. <i>Put another ball in here</i>		VOO (Subj V Obj Obj <sub>2</sub> ) eg. <i>Give me some milk</i>	
<i>go</i>	54% (121/224)	<i>put</i>	31% (16/51)	<i>give</i>	33% (2/6)
<i>get</i>	6%	<i>get</i>	16%	<i>make</i>	33%
<i>fall, come</i>	5%	<i>take</i>	10%	<i>bring</i>	33%
<i>look, live, sit</i>	4% each	<i>do, pick</i>	6%	—	—

As Table 3 shows, the most frequent verbs have a strong correlation with the constructional frames where they occur in terms of argument structure. In the VL frame, for instance, the most frequent verb occurring in the VP slot is *go*, which lexically subcategorizes for a locative argument (54% with *go*, i.e., 121 out of 224 sentences). The same thing holds for *put* in the VOL frame, which lexically demands a transferrable object to be dislocated towards a path. Intuitively, this relationship between highly frequent verbs and certain argument structures is due to the semantic resemblance between the meanings of the lexical items and the meanings posited for the sentence-level constructions (GOLDBERG, 2015). As far as the acquisition of argument structures by children is concerned, the relevant aspect here, this correlation between semantically compatible verbs and constructions suggests that children may use this very correlation to generalize syntactic patterns over lexical instances (GOLDBERG et al., 2004; TOMASELLO, 2003). In the words of Adele Goldberg (2004, p. 299)

The present hypothesis is that it is the high frequency of particular verbs in particular constructions that allows children to note a correlation between the meaning of a particular verb in a constructional pattern and the pattern itself, giving rise to an association between meaning and form.

All things considered, cognitive research aiming at L1 acquisition highlights the role of lexical items, especially verbs, as triggers for pattern generation, in that children are said to derive abstract argument structure form-function pairings from the verbs statistically associated with these structures in light of the input they are exposed to. Although this observation results from empirical studies on children's production in the process of acquisition, the idea is also backed up by some neurolinguistic studies on the plausibility of constructions in the brain. On the matter of how language, and more specifically constructions, are relevant in terms of brain representation, Pulvermüller et al. (2013, pp. 414 - 415) claim that

Recurrent word sequences and more abstract constructions generalizing over such specific sequences are also stored in the brain, possibly by processes distinct from word storage as we argued [...] rules of grammar can then be viewed as emergent properties of multiple stored sequences that are bound to substitute for one another in the same structural slot on the basis of their semantic commonality. Such semantically colored combinatorial assemblies can further merge together to form brain correlates of highly abstract constructions, such as those licensing the mere sequence of (any) noun and (any) verb.

As advocated in the excerpt above, grammar rules are said to emerge from lexically-specified sequences that are stored and continuously recycled in discourse. The abstract constructions, like argument structure constructions, are thus generalized syntactic frames derived from specific sequences and, as such, exhibit a certain level of semantic autonomy. In other words, these abstract constructions also have meanings of their own. This aspect of constructions will be addressed in more detail in the section below.

### **2.2.2 The new concept of constructions**

As we briefly discussed in the previous sections, although CCG is naturally categorized as a constructionist approach to language, there are certain characteristics that make it different from other constructionist approaches like Fillmore's or Croft's construction grammars.

Among these, the belief that constructions are language-specific and that they are usage-based make CCG a functional approach to language<sup>16</sup>. Also, another aspect that moves CCG away from other constructionist approaches in epistemological terms is Goldberg's definition of constructions. The widely cited definition states that

C is a CONSTRUCTION iff<sub>def</sub> C is a form–meaning pair  $\langle F_i, S_i \rangle$  such that some aspect of  $F_i$  or some aspect of  $S_i$  is not strictly predictable from C's component parts or from other previously established constructions.

The definition above encapsulates a lot of important information as well as hints at the descriptive and explanatory power of the model. Thus, a construction is *any* linguistic sequence that is formed of a *form* ( $\langle F \rangle$ ) and a *meaning* ( $\langle S \rangle$ , where S stands for Semantics); however, in order for something to be considered a construction in goldbergian terms, no aspects of its form or meaning must be derived from other constructions or from general abstract rules. The requirement for non-predictability, as Hilpert (2013) highlights, reinforces the theoretical claim of CCG that knowledge of language is, in fact, knowledge of a highly structured network of constructions. The reason is that, by having no predictable forms or meanings, that is, while being unique and not derived from other existing forms, rules or meanings, constructions are seen as single units of knowledge, and not simply as formal pieces of language. The idea of constructions as single units of knowledge endorses the view that language knowledge equals knowledge of a highly structured network because each construction will be considered a self-contained node, thus non-predictable, in this network.

Another important aspect of non-predictability has to do with what the definition above is able to encompass in terms of linguistic material. If a construction is indeed any form-meaning pairing, then it is plausible to claim that constructions will comprehend any linguistic sequences as long as they comply with the two established criteria: form-meaning pairing and non-predictability. Therefore, they will capture all sorts of things ranging from units as small as morphemes (BOOIJ, 2010) and as long as extended portions of discourse or

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<sup>16</sup> On a comparative account of the constructionist approaches, Evans and Green (2006) point out that the most recent versions of Fillmore and Kay's constructional approach (KAY; FILLMORE, 1999; FILLMORE, 2013) count on the idea of universal generalizations; also, the approach does not favor a view of language based on use and experience. These characteristics separate Fillmore's *Berkeley Construction Grammar*, as it is known, from Goldberg's or Langacker's cognitive construction grammars, which are usage-based.

text types (HOFFMAN; BERGS, 2018). Table 4 summarizes and exemplifies which linguistic phenomena can be captured by the definition of a construction.

Table 4 - Different types of constructions and their levels of complexity (GOLDBERG, 2006, p. 5)

Morpheme	e.g. <i>pre-</i> , <i>-ing</i>
Word	e.g. <i>avocado</i> , <i>anaconda</i> , <i>and</i>
Complex word	e.g. <i>daredevil</i> , <i>shoo-in</i>
Complex word (partially filled)	e.g. [N-s] (for regular plurals)
Idiom (filled)	e.g. <i>going great guns</i> , <i>give the Devil his due</i>
Idiom (partially filled)	e.g. <i>jog &lt;someone's&gt; memory</i> , <i>send &lt;someone&gt; to the cleaners</i>
Covariational Conditional	e.g. The Xer the Yer (e.g. <i>the more you think about it, the less you understand</i> )
Ditransitive (double object)	Subj V Obj1 Obj2 (e.g. <i>he gave her a fish taco</i> ; <i>he baked her a muffin</i> )
Passive	Subj aux VPpp (PP <sub>by</sub> ) (e.g. <i>the armadillo was hit by a car</i> )

As Table 4 shows, a range of linguistic expressions, usually treated as unrelated to one another by mainstream syntactic theories, can be subsumed under the same phenomenon, that is, they are all constructions. Therefore, on a semantic side, the definition is robust enough to demonstrate the non-predictability (or non-compositionality) of expressions such as *going great guns*, *beat about the bush* or *kick the bucket* and the semantic non-predictability of these expressions seems to be a great diagnosis to decide whether a certain expression can or cannot be considered a construction. As well as being able to account for the evident semantic non-predictability of these expressions, the definition is also able to capture the much less evident formal non-predictability that characterizes certain language patterns, the so-called *extragrammatical idioms*. In *all of a sudden*, *by and large*, *the more the merrier* etc. (HILPERT, 2013), none of these linguistic constructions can be satisfactorily accounted for by general syntactic operations or phrase structure rules. Instead, when analyzed in light of

phrase structure rules, these expressions would feature as a group of ungrammatical constructions. From a constructional perspective, each of these expressions will be a different construction, or a node, that integrates a constructional network. In other words, constructions can vary with regard to their lexical specificity or schematicity. Therefore, in the model these expressions (*by and large*, *kick the bucket*, etc.) will be fully specified constructions (or low-level), whereas the ditransitive construction Subj V Obj1 Obj2 will be a schematic one.

The expressions above, called *decoding* and *extragrammatical idioms* in Fillmore's typology, serve the purpose of clearly demonstrating the efficiency of the definition to capture this kind of linguistic material, both semantically and formally; however, two other kinds of structures must be tackled if the model is indeed to be taken as descriptively adequate and capable of explaining less "apparently idiosyncratic" language patterns. That is, what does the model have to say about argument structure constructions like the ditransitive '*he gave her a fish taco*'? Also, how are simple sentences like '*a dozen roses, Nina sent her mother!*' (GOLDBERG, 2006 p. 21) analyzed from a constructional perspective? We will talk in more depth about this and exemplify CCG's treatment to argument structure constructions like the ditransitive in this section, but first, let the focus be placed on "common" constructions like '*I want to drink coffee*', '*she is craving for a piece of banoffee pie*' or Goldberg's '*a dozen roses, Nina sent her mother!*'.

Goldberg (2006) draws attention to the fact that the formal aspects of constructions, as stated in the definition, should not be seen as *surface form specifics*. In other words, ordinary sentences like '*a dozen roses, Nina sent her mother!*' are analyzed as the result of the integration of many different constructions, eleven to be more precise. The constructions are shown below:

- a. Ditransitive construction
- b. Topicalization construction
- c. VP construction
- d. NP construction
- e. Indefinite determiner construction
- f. Plural construction
- g. *dozen, rose, Nina, send, mother* constructions

Therefore, actual expressions like ‘*a dozen roses, Nina sent her mother!*’ are not to be taken as synonymous to constructions; instead, these are surface instantiations made possible by the free combination of different form-meaning pairings with varying levels of schematicity, that is, actual expressions result from constructions of all shapes and colors, all the way from phonology to discourse. In the examples above, constructions (a), (c), (d), (e) and (f) are all schematic constructions that account for what is traditionally viewed as phrase structure rules that are applied to the lexicon. They are respectively:

- a. Subj V Obj<sub>1</sub> Obj<sub>2</sub> (Ditransitive construction)
- c. V NP<sub>1</sub> NP<sub>2</sub> (VP construction)
- d. Det N (NP construction)
- e. Det<sub>indef</sub> N (Indefinite determiner construction)
- f. N [-s] (Plural construction)<sup>17</sup>

The schematic constructions above will then "use" the lexical items in the actual expression (*dozen, rose, Nina, send, mother*), which are themselves form-meaning pairings, thus constructions, as instances for their formal schemas. For example, in the ditransitive construction Subj V Obj<sub>1</sub> Obj<sub>2</sub>, Obj<sub>1</sub> will be instantiated by the lexical constructions *her mother*, whose combination is also made possible by the NP construction. The same will occur with the remaining formal variables of the ditransitive; each one of them will use a lexical construction to instantiate the syntactic-semantic relation predicted in a scene, resulting in the complete actual sentence. Constructions are also characterized by certain discursive information and this can also be captured from a constructional perspective. The expression used as an example by Goldberg (2006) involves a topicalization construction. As well as formal aspects, such as NP fronting, topicalized constructions are characterized by having discursive prominence on the topicalized NP. Therefore, the expression also involves a topicalization construction with specific discursive and pragmatic aspects, which should never be ignored, given that CCG aims at providing an explanation for the creative potential of

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<sup>17</sup> This is obviously an oversimplified and partial description of the constructions. Needless to say, in order for these to be classified as constructions, these formal aspects must be mapped onto a semantics that is proper to each of these formal patterns.

language, but most importantly, the creative potential of language generated by speakers in real communicative settings (GOLDBERG, 2006).

Last, but certainly not least, the model must also provide a reasonable explanation for schematic constructions like the ditransitive. In other words, the expression ‘*he gave her a fish taco*’ does have a unique formal schema as we briefly showed above (Subj V Obj<sub>1</sub> Obj<sub>2</sub>), but how could it have a meaning irrespective of the lexical items that fill these syntactic slots? To put it differently, does the sequence Subj V Obj<sub>1</sub> Obj<sub>2</sub> have a meaning that does not stem from the verbs and nouns used in them?

Table 4 above shows that various different kinds of language patterns are to be categorized under the title of constructions as long as they are formed of a form and a meaning that is proper and specific to this pattern. However, Goldberg (1995) acknowledges that these patterns have varying levels of complexity, both from formal and functional (here thought to comprise *meaning*) perspectives. A morpheme like {re-}, for instance, is significantly less complex, both structurally and semantically, than a sentence like ‘*she reevaluated the given possibilities*’, to which {re-} is even integrated. Also, the morpheme {re-} does not seem to pose difficulties to the definition of constructions, since it is quite “well-behaved” considering the criteria present in the definition. {re-} has an unpredictable form, that is, it is composed of two phonemes (/r/ and /i:/) and it takes verbal roots (eg. *redo*, *reclaim*, *regain*, *reevaluate*). The semantics of this morpheme is not obscure either. It denotes the repetition of the event to which it is attached and contributes with a reading of ‘*do x again*’, *x* being the event represented by the verb. However, the same ease with which we are able to describe the *symbolic relations* (= form and meaning relationship) in this morpheme cannot be found when we are confronted with complex sentences such as ‘*she reevaluated the given possibilities*’ or ‘*he baked her a muffin*’.

For sentence-level constructions like the ones above, Goldberg (1995) defends that their semantics reflects ***basic scenes of human experience***, such as ‘*someone acting*’, ‘*something causing something to move somewhere*’, ‘*something undergoing a change of state*’, ‘*someone experiencing something*’, etc. (GOLDBERG, 1995, 2006, 2019) and different languages will cross-linguistically vary with regard to how these semantic events are formally codified. The linguist claims that such basic human events are the cornerstone of human communication (GOLDBERG, 2019) and that L1 acquisition data point out that

children’s first language productions are generally restricted to a number of basic concepts such as *agentivity*, *action*, *location*, *possession*, *existence*, etc. (GOLDBERG, 1995). Therefore, the underlying idea is that children acquiring the syntactic structure of a language are, in fact, associating specific grammatical forms of their language, based on the input they receive, to basic events and scenes of their experience (DIESEL, 2013; TOMASELLO, 2003).

In her seminal work, Goldberg sketches out five types of constructions that codify some of these basic events in English:

Table 5 - Argument structures (GOLDBERG, 1995)

<b>Construction</b>	<b>Meaning</b>	<b>Form</b>
Ditransitive	X CAUSES Y TO RECEIVE Z	Subj V Obj <sub>1</sub> Obj <sub>2</sub> Pat faxed Bill the letter.
Caused Motion	X CAUSES Y TO MOVE Z	Subj V Obj Obl Pat sneezed the napkin off the table.
Resultative	X CAUSES Y TO BECOME Z	Subj V Obj Xcomp She kissed him unconscious.
Intransitive Motion	X MOVES Y	Subj V Obl The fly buzzed into the room.
Conative	X DIRECTS ACTION AT Y	Subj V Obl <sub>at</sub> Sam kicked at Bill.

As Table 5 shows, argument structure constructions like the ditransitive, or the caused-motion construction, the main focus of this dissertation, are also constructions in that they exhibit an underspecified semantics that reflects basic scenes of human experience and onto which a specific formal setting is mapped. As will be thoroughly analyzed in the next chapter where caused-motion constructions are discussed, both the semantics and the form of these argument structure constructions are characterized by a series of grammatical constraints that make their form and function unique, thus non-predictable from other existing constructions. In other words, these schematic constructions are posited and believed to represent specific nodes in the network that characterizes the constructional knowledge of speakers.

As for the semantics of constructions, as was said, Goldberg claims that these reflect common, or rather ‘primitive’ events, represented in the form of scenes where ‘*someone is acting*’, ‘*something is causing something to move somewhere*’, etc. This view of meaning, according to which language is thought to represent semantically the everyday actions of human beings as well as their social habits, cultural bias and institutions, physical and psychological perspectives and conventional ways of seeing the objective world is captured by *frame semantics* (FILLMORE, 1977, 1982, 1985). The next section deals with the meaning of constructions as they are viewed through the lenses of frame semantics, that is, a type of semantics of understanding.

### **2.2.3 The meaning in constructions**

According to Boas (2013), constructions do not differ from one another only in relation to their size and level of structural complexity. Constructions are also different according to the way they convey their meanings. As an example, we could use the distinction between lexical and functional constructions. Lexical constructions like nouns, verbs, adjectives and adverbs are highly specific and semantically rich units that codify precise information about speakers, their communities, habits, conventions and their cultural institutions. In other words, lexical constructions encapsulate encyclopedic information, rather than the kind usually provided in dictionaries. That is, knowing *what* a word means involves knowing *when, where, how, who, to whom* and *why* this word is used. Thus, speakers’ knowledge of linguistic expressions is formed of information similarly to how information is shared in an encyclopedia, that is, such knowledge comprehends the linguistic, social and cultural *uses* of language. Rosa (2014) exemplifies this point by contrasting the Brazilian and American idiomatic expressions ‘*pisar na bola*’ and ‘*drop the ball*’ as they are used in two representative corpora of the languages and how knowing these two expressions entails an understanding of the most famous sports in the two countries and their rules. Both expressions, which could be equivalences of use, both meaning ‘*letting one down*’ ((15) and (16) below), can only be understood against a system of knowledge that involves minimal acquaintance with the rules of the sports where these expressions are used: respectively *soccer* and *football*. In soccer, one should not ‘*step on the*

*ball*' at the risk of falling and losing the ball to one's opponent, whereas in football, the same thing occurs, but one is not advised to '*drop the ball*'.

(15) Jornalistas britânicos concordam que governo "*pisou na bola*", diz Kovalick.

(16) Steve, what's the matter? You never *drop the ball*. Why are you doing this to me?

These two expressions show how the knowledge of language expressions does involve the knowledge of the contexts where they are used and how they represent specific social and cultural practices. This kind of knowledge can only be accounted for by a model of linguistic meaning if such a model accepts that language expressions exhibit encyclopedic information and that speakers' knowledge of these also involves knowing such information. Hence, a model whose aim is to describe speakers' knowledge of language must accept that knowing what a lexical construction signifies means having access to an entire system of knowledge to which that particular construction pertains. This system of knowledge, claims Fillmore (1985), refers to a schematization of reality and of speakers' experiences and forms coherent groups of constructions which serve as the background against which a class member is to be understood. Fillmore (1985, p. 230) gives the following example to illustrate the point:

(17) My dad wasted most of the morning on the bus.

In order for speakers to be able to interpret such a simple sentence, a whole system of knowledge, linguistic and non-linguistic, must be activated to serve as the "context" for interpretation. For instance, an accurate account of the sentence entails an understanding of the word '*dad*' as opposed to '*father*' and what this choice reveals about the relationship between both the speaker and his/her father as well as that between the speaker, as an addresser, and the addressee, given that '*dad*' is relatively informal, compared to '*father*'. Furthermore, the use of the verb '*wasted*' in place of '*spent*' or '*used*' signals the speaker's judgment on the way this time was used, that is, not very profitably. Lastly, the word '*morning*', as simple as it might seem to be, entails a detailed system of knowledge which we tacitly access in order to have a full interpretation of the scene portrayed by the sentence. Knowing what '*morning*' means presupposes an understanding of the fact that this is the conventional way to address the pre-noon portion of a day, that is composed of twenty four

hours and that is roughly divided into ‘*morning*’, ‘*afternoon*’, ‘*evening*’ and ‘*night*’; that is, in order to understand the notion of ‘*morning*’, one must know how one’s community of speech frames ‘calendar time’. By contrasting expressions of two languages, it gets easier to understand how important it is to have access to a system of knowledge that is relevant to a specific speech community. The boundaries between ‘*afternoon*’, ‘*evening*’ and ‘*night*’, for instance, are highly dependent on contextual factors such as the presence or absence of daylight. In Brazilian Portuguese, the day is usually divided into ‘*manhã*’ (*morning*), ‘*tarde*’ (*afternoon*) and ‘*noite*’ (*evening/night*). For that reason, it is quite common for Brazilian low-level learners of English not to know which greeting to use (‘*good evening*’ or ‘*good night*’) in certain social events in English-speaking countries. Knowing how to use such expressions requires knowledge of how they are used conventionally, that is, both culturally and socially. In the words of Fillmore (1985, p. 231) himself,

[...] linguistically encoded categories (not just words and fixed phrases, but various kinds of grammatical features and syntactic patterns) presuppose particular understandings of cultural institutions, beliefs about the world, shared experiences, standard or familiar ways of doing things and ways of seeing things.

In the excerpt above, Fillmore explains what meaning is like for a theory of semantics called by him as the *Semantics of Understanding (U-Semantics)* as opposed to the semantics of the conditions of truth (*T-Semantics*). Thus, linguistic categories presuppose certain pragmatic knowledge on the part of speakers that is conventionally associated with the linguistic forms, rather than being part of their conceptual structure as some theories of semantic features would suggest. As such, in order to provide an account of the interpretation of a language expression from U-Semantics’ perspective, two questions must be answered:

- (i) *Why does the language have the category which the form represents?*
- (ii) *Why did the speaker select this form in this context?*

Since the basic understanding is that languages reflect the experiences lived by speakers in real contexts of use while interacting with one another, in order for one to answer the first question, one must have access to the *semantic frame* to which that particular category belongs. It is important to foreground that, according to Fillmore's Frame Semantics, languages are composed of a countless number of semantic frames and these are, as Ferrari (2011) states, a structured system of knowledge, stored in speakers' long-term memory and organized in light of the schematization of speakers' experiences. As for the second question, a full explanation of it must account for the true communicative settings of the speaker/hearer and this involves knowing which frames were discursively activated at the moment, which values each one of their members conveys and which communicative goals they aim to achieve.

The two questions above serve as more general guides for one specific semantic approach to the description of languages, that is, U-Semantics. However, CCG's semantic view is more concerned with what question (i) aims to answer. That is, if it is true that "frames are intended to capture useful chunks of encyclopedic knowledge" (GOLDBERG, 1995, p. 26), then how can frame semantics, and more specifically the notion of *semantic frames*, procedurally describe speakers' tacit knowledge of language in use?

Fillmore (1982) provides an array of examples to illustrate how speakers' knowledge of the meaning, use and function of linguistic expressions can be captured by notion of semantic frames. Should we consider '*land*' and '*ground*' as synonyms, their differences do not seem to be restricted to their internal conceptual structure, since both crudely denote '*solid ground*'. Their differences lie in how these two constructions are used and to which semantic frames each one belongs. In other words, their use must be understood against a system of semantic relations with other constructions and this *background*, in the terms of Searle (1980), should be accessed and described. Fillmore explains that '*land*' belongs to a frame in which it is opposed to the idea of '*sea*', whereas in another frame '*ground*' is to be contrasted with '*air*'. Both frames license certain linguistic expressions that corroborate such a contrast. The expression '*hit the ground*', for instance, can be used to describe any one thing coming from above and hitting the surface of the Earth, as the examples taken from the COCA corpus below illustrate.

- (16) Streaks of water or ice particles trailing from a cloud that evaporate before they **reach the ground**. (COCA/Magazine/2016)
- (17) When those swirling air masses **touch the ground** and pick up loose material, they become visible as dust devils. (COCA/Magazine/2006)
- (18) But they're heavy, and they have a long way to fall, so they **hit the ground** like oversized locomotives, smashing shops and houses and the people sleeping inside them. (COCA/Fiction/2016)

As for *'land'*, which is said to contrast with 'sea', its frame licenses expressions like *'Land ahoy!'*, which is used to denote *'solid ground'* when one is at the sea. The examples from COCA below corroborate the analysis.

- (19) I beg Riley to row faster, and he does! We **reach land**. I hop off the boat gleaming with joy. (COCA/Fiction/2019)
- (20) when you **get on land** after having been on a ship for a very long time your equilibrium is not quite right and you tend to weave. (COCA/Spoken/2006)
- (21) You can go for hours flying in a plane and not **see any land**. (COCA/Spoken/2010)

The examples above show that *'land'*, in contrast with its near-synonym *'ground'*, can be understood in opposition to the word *'sea'*. Even example (21), where *'flying in a plane'* is mentioned, the contrast is maintained. *'land'* here is described from above and the sentence implies that you can fly for hours and see nothing but *'water'*. Another example provided by Fillmore (1982) contrasts the use that speakers make of the words *'coast'* and *'shore'*: *'coast'* is said to refer to the limit between land and the sea from the perspective of the land, whereas *'shore'* also refers to such a limit, but the perspective adopted is that of the sea. Therefore, it is expected that a trip *'from coast to coast'*, for instance, is to be made inland and *'from shore to shore'* will be made by the water, as the examples below, taken from COCA, demonstrate.

- (22) Again, these protests are taking place across the country **from coast to coast**. (COCA/Spoken/2018)
- (23) The Thames dried up, and Alice heard of people who walked **from shore to shore** on the muddy bottom. (COCA/Fiction/1993)

So far, the examples given analyzed nominal constructions which are generally considered to have a certain level of synonymy. However, Fillmore also advocates that all sorts of linguistic categories belong to specific frames and, as such, exhibit properties of complex intertwined systems. Therefore, the same will certainly apply to the category of verbs, whose conceptual structures display a complex system of relations and valency<sup>18</sup>. Fillmore (1982; 1985) exemplifies this category with the widely cited Commercial Transaction Frame, which involves the lexical item ‘buy’.

In the Commercial Transaction Frame, to which the verb ‘buy’ belongs, the encyclopedic knowledge we have of this verb evokes a number of attributes that are associated with this lexical item and which are participants of the scene portrayed by this linguistic expression. That is, specifically for verbs, the frame evokes a number of *participant roles* that are seen as entities responsible for the representation of that particular scene. Among the participants, or actors, directed by the verb ‘buy’, we have a *buyer*, a *seller*, *goods* and the *money*. Below is an example taken from the *Berkeley FrameNet Project* (BAKER, n.d. <https://framenet.icsi.berkeley.edu/fndrupal/>) for the Commerce\_buy frame.

<b>Commerce_buy</b>		
<b>Definition:</b> These are words describing a basic commercial transaction involving a <b>Buyer</b> and a <b>Seller</b> exchanging <b>Money</b> and <b>Goods</b> , taking the perspective of the <b>Buyer</b> . The words vary individually in the patterns of frame element realization they allow. For example, the typical pattern for the verb BUY: <b>Buyer</b> buys <b>Goods</b> from <b>Seller</b> for <b>Money</b> .		
<b>Core Frame Elements</b>		
<b>Buyer</b>	The <b>Buyer</b> wants the <b>Goods</b> and offers <b>Money</b> to a <b>Seller</b> in exchange for them.	Jess BOUGHT a coat
<b>Goods</b>	The Frame Element (FE) <b>Goods</b> is anything (including labor or time, for example) which is exchanged for <b>Money</b> in a transaction.	Only one winner PURCHASED the paintings

Figure 2 - The Commerce\_buy frame and its core elements

<sup>18</sup> The term ‘valency’ in linguistics, which is derived from chemistry, is broadly defined as “[...] the number and type of bonds which syntactic elements may form with each other [...] A **valency grammar** presents a model of a sentence containing a fundamental element (typically, the verb) and a number of dependent elements (variously referred to as arguments, expressions, complements or **valents**) whose number and type is determined by the valency attributed to the verb [...] The notion is similar to that used in **case grammar**, where cases are sometimes referred to as **valency roles**.” (CRYSTAL, 2008, p. 507)

As the Fig. 2 shows, the description of the Commerce\_buy frame specifies which participant roles are revolving around the nucleus 'buy'. This specification, though, is a lexical one in that the entities described are not characterized as general semantic roles such as *agents*, *themes*, *benefactives*, etc. Nevertheless, the relevance and importance of such a fine-grained lexical description is not to be challenged, especially if one remembers which are U-Semantics' aims, that is, to understand why speakers create the categories they do and why they select these in specific communicative contexts. Therefore, the identification of semantic roles is of utmost importance for frame semantics, since it partly explains the meaning of the lexical item that is the nucleus of the frame, and also provides important pieces of information about the ways of living, cultural practices and beliefs of speakers of a particular community of speech.

The identification of participant roles is not only deemed relevant for theoretical reasons. This understanding contributes, for instance, to the distinction of near-synonyms, since the description and analysis also establish a different hierarchical status among the participants involved and propose that certain roles may be *profiled* over others within the same frame. A profiled participant role serves as a focal point within a scene represented by the frame, thus having more prominence and salience within the given structure (FILLMORE, 1977; LANGACKER, 2013). This profiling process can satisfactorily account for the conceptual differences in pairs of verbs as 'loan/borrow', 'buy/sell' and 'give/take' in that in the first verbs of each pair, the 'doer' is the salient element, whereas in the second verb of each pair, the profiled element will be the 'receiver'. The example below, taken from COCA, makes the case.

(24) They sell their cars, and then **they** *loan* us money. (COCA Spoken/2015)

In the sentence above, the 'loan-giver' is emphasized as the salient element, that is, the one held responsible for executing the scene portrayed by the verb 'loan'. However, if the verb was replaced by 'borrow', this would alter the profiling process, making it necessary to emphasize the 'loan-receiver' and de-emphasize the 'loan-giver', as (25) shows.

(25) They sell their cars, and then **we** *borrow* money from them.

In spite of keeping all the participants in the scene (24) present, we must notice that the change in the choice of verb alters how this scene is organized as well as how the focus is placed on certain elements. The same thing applies to the other pairs exemplified above.

A case similar to the pairs of verbs above is used by Goldberg (1995) to illustrate how specific participant roles of verbs can be profiled. It is the case of ‘rob’ and ‘steal’, which denote the same crude event, but whose conceptual structures and differences in use can be accounted for by which participant roles are profiled in the frame they both belong to. At first, both verbs require similar participant roles, that is, a ‘thief’, the ‘target’ and the ‘goods’; however, different elements will be focalized within the same scene in which both verbs could be the nucleus. In a scene portrayed by ‘rob’, both the ‘thief’ and the ‘target’ will be profiled, whereas in ‘steal’ the ‘thief’ and the ‘goods’ will be salient and the ‘target’ will be left de-emphasized. This is represented below schematically.



Figure 3 - Profiling of participant roles in ‘rob’ and ‘steal’ (GOLDBERG, 1995, p. 45)

The elements in bold above refer to the participants being profiled in the frame depending on the verb that occupies the position of the nucleus. This profiling process can be evidenced in the analysis of both verbs in use.

- (26) a. One of two males attempted to **rob** a female of her property... (COCA/News/2012)
- b. Two males beat a man in an attempt to **rob** him until a witness intervened. (COCA/News/2012)
- c. The driver must have been very certain no one would **rob** him in his absence. (COCA/Fiction/1990)
- (27) a. You **steal** our coffee from your dad? (COCA/Fiction/2012)
- b. He'd been known to **steal** things, given the opportunity... (COCA/Fiction/2012)

- c. You must protect it against opportunistic hackers seeking to **steal** your data or hijack your Wi-R. (COCA/Magazine/2012)

(ROSA, 2014, p. 38)

The sentences above empirically endorse the semantic requirement of the main predicates 'rob' and 'steal'. In sentences (26a, b and c), the profiled participants are respectively the **thieves** 'one of two males', 'two males' and 'no one' and the **targets** 'a female', 'him' and 'him' (= the driver). In (26a), the **goods** are also explicitly stated, but these are a non-core frame element since their deletion does not compromise the grammaticality or the semantic acceptability of the sentences whatsoever, as (28) shows below. The omission of core frame elements, either the **thieves** or the **target**, renders the sentences unacceptable, though, as (29) exemplifies.

(28) One of two males attempted to **rob** a female...

(29) a. \*One of two males attempted to **rob** her property...<sup>19</sup>

b. \*Two males beat a man in an attempt to **rob** until a witness intervened.

c. \*The driver must have been very certain no one would **rob** in his absence.

The same thing applies to sentences (27a, b and c), but in these cases, the acceptability is guaranteed by the explicit mention of both the **thief** and the **goods** participants. Like in the previous examples with 'rob', the omission of any of the core frame elements will generate unacceptable statements, as (30) below demonstrates.

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<sup>19</sup> The unacceptability of (29a) must be understood with the interpretation of 'her property' as an object whose dislocation was caused by the *robbing* event, that is, the **goods**. However, the NP can also serve as a **target** and, as such, the sentence is not unacceptable, as the example (i) below shows.

i. ...its employees apparently vandalized and **robbed the property** when they raided it a second time (Web/ 2012)

A similar interpretation of 'her property' as the **target** would be given for the NP 'bank', which is the most frequent collocate for 'rob' in COCA (1296 occurrences).

- (30) a. \*You **steal** your dad?  
b. \*He'd been known to **steal**, given the opportunity...<sup>20</sup>  
c. \*You must protect it against opportunistic hackers seeking to **steal**.

At first glance, the explanation provided by frame semantics for core and non-core frame elements is not significantly different from any other theory of grammar that stipulates subcategorization processes and semantic selection of complements by verbal predicates. That is, formalist theories could apparently solve this distinction by claiming that in syntax both verbs restrict the semantic kinds that will instantiate their objects. From such a perspective, '*rob*' would require a **target** and '*steal*' would require a **theme** for this position. Goldberg (1995) claims that, while such a stipulation is able to account for the unacceptability of the sentences discussed in (29) and (30), it fails to foreground another relevant conceptual distinction in the pair of verbs, that is, the extent to which the **target** is affected by the event denoted by the verb. In the scene portrayed by '*rob*', the target is clearly negatively affected by the '*robbing*' event, but the same does not occur with '*steal*' given that this participant role is not even focalized in the depiction of the scene. In the "stealing scene", the only explicit mention states that a certain agent got hold of goods that did not belong to him/her without stating who these goods belong to or how negatively affected these targets are by the '*stealing*' event. This analysis is reinforced by samples extracted from COCA where '*steal*' is used figuratively and the effect felt by the **target** is rather positive.

- (31) a. His male beauty was enough to **steal** her breath. (COCA/Fiction/2012)  
b. It is such a nice movie, and Richard Farnsworth will just **steal** your heart.  
(COCA/Spoken/1999)

In the sentences above, the **target** is clearly positively affected by the "stealing event" and this explanation can only be posited with a semantic theory that relies on the idea of focalization of specific elements over others and how these can be differently emphasized within the same scene. Moreover, such an observation is part of the pragmatic information

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<sup>20</sup> It is important to point out that both (30b) and (30c) are acceptable only when the **goods** are discursively salient or when '*stealing*' is understood as a "general and usual practice" of the agents in the sentences.

contained in the scene these verbs belong to. As such, this observation must be part and parcel of a full account of the scene, especially if one is concerned, like U-Semantics is, with the motivation behind a community of speech for having created a certain linguistic symbol.

As we have seen, the frame account of the conceptual differences between ‘*rob*’ and ‘*steal*’ will capture significant features of the lexical items licensed by the frame. This is possible due to the fact that, from a frame semantics perspective, anything that is significant to the scene, be it purely semantic, pragmatic or discursive, should be part of the description of that frame. Nevertheless, we cannot dispute the fact that the focalization of such participant roles will mirror formal properties in syntax by being integrated with the argument roles of constructions. This integration will, as we briefly describe below, result in different grammatical functions such as subjects, objects, adjuncts, etc. That is, the way CCG views the relationship between lexical material, semantic/pragmatic content and formal morphosyntactic properties is by proposing an integration between such levels which is mediated by processes of instantiation.

#### **2.2.4 Constructions, verbs and collocational restrictions**

In the previous section, we described the semantic theory to which CCG subscribes in the explanation of the meaning of lexical material, that is, frame semantics. As far as verbs are concerned, it is advocated that different lexical items, like ‘*rob*’ and ‘*steal*’ or ‘*lend*’ and ‘*borrow*’, form a group of coherent elements belonging to the same frame, that is, to a scene that reflects the schematization of the reality and the experiences of speakers of a speech community. The surface differences between each verb in each pair are thought to be the result of different strategies of focalization operated within this conceptual scene. In other words, certain elements, called *participant roles*, are focalized (core frame elements) whereas others will perform the roles of extras in the scene (non-core frame elements). These participant roles, though, are said to be specific lexical realizations and should not be confused with either abstract semantic roles, which are relevant at the constructional level, or with general syntactic functions. That said, it is imperative to distinguish lexical *participant*

*roles* from *argument roles* since the former specifies the actors that verbs require at the lexical level and the latter characterizes, among other things, the semantic requirements imposed by the abstract constructions.

To all appearances, a distinction between, broadly speaking, verbal roles (participant roles) and constructional roles (argument roles) may seem to be an ad hoc stipulation to justify the claim that abstract constructions also have a meaning of their own, irrespective of the lexical items integrating these constructions. However, Goldberg's (1995) classic account of sentences such as (32) and (33) advocates that the acceptability of such expressions can only be explained if one posits that constructions do have a meaning and with it, specific semantic constraints.

(32) She sneezed the napkin off the table.

(33) Dan talked himself blue in the face.

(GOLDBERG, 1995, p. 9)

In the sentences above, the main verbal predicates, respectively '*sneeze*' and '*talk*', do not require certain arguments therein present. From the perspective of lexicosemantic rules, for instance, both verbs are classified as *intransitive verbs*, that is, they are one-place predicates requiring only one argument which, in syntax, should function as the sentence subject. Thus, the acceptability of the expressions in (32) and (33) pose a challenge to a lexicosemantic view that uses the verbs as the determining factors for the number and type of complements in the sentences. The alternative approach, that of CCG, claims that constructions, defined in this chapter (c.f. section 2.2), have meanings and semantic restrictions which are not predicted from the verbs, from other existing constructions or general phrase structure rules. Therefore, given that one-place predicates like '*sneeze*' and '*talk*' do not lexically require three arguments (respectively, '*the napkin*'/'*off the table*' in (32) and '*himself*'/'*blue in the face*' in (33)), CCG claims that these roles, called *argument roles*<sup>21</sup>, are contributed by the semantics of the constructions with which the predicates are integrated. These argument roles are semantic functions that satisfy the predicative relations demanded at

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<sup>21</sup> *Argument role* is the term used in CCG for what other theories of language generally call *semantic roles*, *theta roles* (CHOMSKY, 1981) or *cases* (FILLMORE, 1968).

the constructional level; in this way, they differ from *participant roles* in that they are not committed to one specific verb, but rather, they represent the roles involved in basic schemes of speakers' everyday experiences such as *someone causing something to move*, *someone or something causing something to change its state*, etc., which are said to be mirrored in basic grammatical constructions, named **argument structure constructions** in Goldberg (1995).

The scheme below summarizes the differences between participant roles and argument roles and their connections with verbs and constructions.

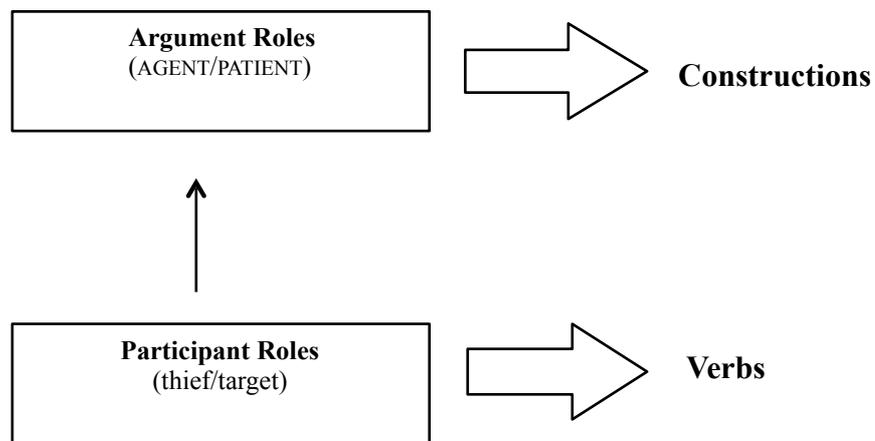


Figure 4 - Argument roles and participant roles

As the scheme above shows, constructions will demand semantically more abstract roles such as AGENTS, PATIENTS, THEMES, RECIPIENTS, etc. Also, the number and type of argument roles is construction-specific, that is, different constructions will specify different types as well as numbers of argument roles. In the figure above, the argument roles exemplified could be present in a transitive construction such as X ACTS UPON Y for which “*they robbed a bank*” could be a lexical instantiation. The semantics of the transitive construction X ACTS UPON Y specifies that an AGENT, here represented semantically by the variable X and lexically by the participant role **thief** (in the case of “*they robbed a bank*”), ACTS UPON an entity which, as our previous discussion clarified, must be a negatively affected PATIENT, here codified in the semantic variable Y and in the lexical actor **target** (= ‘*a bank*’). As this brief description suggests, CCG’s framework proposes integrative processes between constructions and their instantiating lexical items in a rather elegant way, especially if one

considers expressions such as those in (32) and (33), which will be discussed in more depth in the next chapter.

As far as the simple transitive construction X ACTS UPON Y is concerned, CCG claims that when a verb's semantics mirrors the semantics of a construction, that is, when a verb's participant roles are compatible with the argument roles specified by the sentence-level semantics (the case of 'rob'), those will be integrated with these in a process called *fusion*, a term borrowed from Jackendoff (1990) and reconceptualized by Goldberg (1995). In Construction Grammar parlance, *fusion* is used to describe the compatibility between the semantic relations of a verb belonging to a certain class with the semantics of a construction, that is, when a participant role is a more particular instantiation of a general argument role — every **thief** is a type of AGENT and every **target/victim** is a type of PATIENT — these two are said to have been *fused*. Whether or not participant roles are to be fused with argument roles is subject to two constraining principles, which we spell out below.

***The Semantic Coherence Principle:*** only roles which are semantically compatible can be fused. Two roles  $r_1$  and  $r_2$  are semantically compatible if either  $r_1$  can be construed as an instance of  $r_2$ , or  $r_2$  can be construed as an instance of  $r_1$ . For example, the *kicker* participant of the *kick* frame may be fused with the agent role of the ditransitive construction because the *kicker* role can be construed as an instance of the agent role. Whether a role can be construed as an instance of another role is determined by general categorization principles.

***The Correspondence Principle:*** each participant role that is lexically profiled and expressed must be fused with a profiled argument role of the construction. If a verb has three profiled participant roles, then one of them may be fused with a nonprofiled argument role of a construction.

(GOLDBERG, 1995, p. 50)

As the *Correspondence Principle* above states, similarly to how participant roles are profiled within the frame they belong to, argument roles of specific constructions can also be profiled. However, in order for an argument role to be constructionally profiled, it must be

associated with a specific grammatical function (subjects and objects, for instance). In other words, at the lexical level of frames, only core frame elements are compulsorily profiled and this will be determined, among other things, by the conceptual structure of the main predicate. On the other hand, at the constructional level, only argument roles corresponding to a grammatical function, such as subjects and objects, will be profiled. In the words of Goldberg (1995, p. 48), "Every argument role linked to a direct grammatical relation (SUBJ, OBJ, or OBJ<sub>2</sub>) is constructionally profiled".

The application of both the *Correspondence Principle* and the *Semantic Coherence Principle* can be discussed in light of the relationship between the verb 'give' and the ditransitive construction, which we exemplify below with sentences taken from COCA.

- (34) Just because you wanted a president who would **give** you a glitter-farting unicorn and didn't quite get that doesn't mean he's not doing well at the job we hired him for. (COCA/Blog/2012)
- (35) If an employee remains in the job for a year the Government **gives** the employer a tax credit. (COCA/Blog/2012)
- (36) That unofficially **gives** him 355 yards for the season. (COCA/News/2004)

The three sentences above exemplify cases of the ditransitive construction in which three argument roles are specified, that is, an AGENT (*who, the Government, that*), a RECIPIENT (*you, the employer, him*) and a PATIENT (*a glitter-farting unicorn, a tax credit, 355 yards*). In that specific case, though, as we have mentioned before, we find a compatibility between the semantic relations of the verb 'give' and those of the ditransitive construction since every participant role specified by 'give' and its frame is a lexical instantiation of the more general argument roles of the construction. In other words, 'give' is an **instantiating verb** in the ditransitive construction. This relationship is conventionally represented in CCG in the form of matrices that specify all the relevant information to that particular construction, that is, they present the formal, the functional and the lexical layers in an integrative fashion. We present the matrix for the ditransitive construction below.

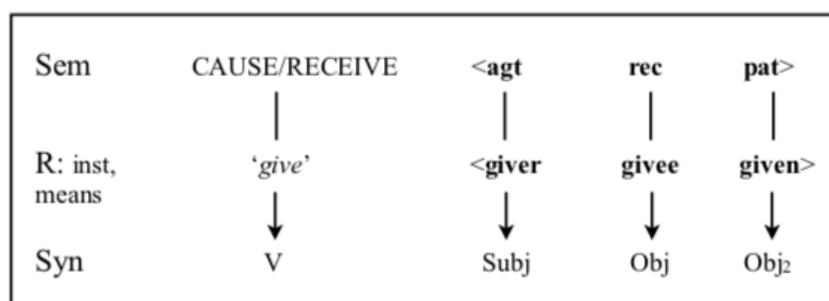


Figure 5 - Ditransitive construction with 'give'.

The matrix above exemplifies what a CCG analysis of ditransitive constructions is like and brings all the information for a full account of their linguistic properties. The first layer, named *Sem(antics)* refers to the abstract meaning of the construction and is meant to portray the experiential scene (a basic transfer from A to B) that is linguistically codified. On this line, we find the argument roles <agent, recipient, patient> and their representation in bold means these are profiled roles, since, as the *Principle of Correspondence* states, they are all linked to one specific grammatical function (represented at the bottom of the matrix). Below the semantic specifications, we find the line entitled *R(elations)*. This is the layer where the lexical relations are described and the participant roles are spelled out. As the type of relation suggests (*instantiation*), each participant role <giver, givee, given> is understood as a lexicalized instance of the more general argument roles. The integration between these two layers, as represented by the continuous lines in bold, is what CCG refers to as *fusion*. At the bottom of the matrix, the formal syntactic functions are presented and they are all compulsory syntactic functions for an acceptable ditransitive.

It is important to point out that the example above illustrates a case in which the semantic relations predicted at the lexical level of the frame to which 'give' belongs are "identical" to the semantic specificities of the ditransitive construction. This is certainly not the same case in other constructions, like the caused motions exemplified in (32) and (33), where we can see a clear mismatch between the lexical requirements of the verbs 'sneeze' and 'talk' and the constructions these are associated with. This construction is thoroughly discussed in the next chapter, so here it suffices to say that CCG has theoretical and descriptive mechanisms that account for such cases.

Back to the relations of instantiation between ‘give’ and the ditransitive, research shows that calling it a *perfect fit* is, if anything, a simplistic account of the relationship that specific classes of verbs keep with certain constructions and vice versa. Researchers working at the interface between cognitive linguistics, especially cognitive construction grammar, and corpus studies (GRIES; WULFF, 2005; HILPERT, 2013; WULFF, 2008) have turned their attention and research agenda to the investigation of the statistical levels of attraction between phrasal patterns (that is, constructions) and lexical items. Gries and Stefanowitsch (2004), based on previous collexeme analyses<sup>22</sup> of the relationship between verbs and constructions, set out to investigate the *ditransitive/to-dative alternation* (36) to determine whether or not certain lexical items have statistical attraction to these constructions.

(37) a. *Ditransitive*: John sent Mary the book.

b. *To-dative*: John sent the book to Mary.

(GRIES; STEFANOWITSCH, 2004, p. 102)

The theoretical interest in such a question lies in the fact that, given that ditransitive and to-datives are alternations and, as such, do not differ with regard to general information structure properties, one would expect that both types of constructions would attract the same groups of verbs. In other words, one would not expect that one type of construction would statistically favor a set of verbs over another. Drawing on corpus data from ICE-GB<sup>23</sup>, the authors found that ‘give’ is the most preferred choice for the verbal slot in the ditransitive construction, that is, it matches, not only semantically, but also statistically with the meaning of X CAUSES Y TO RECEIVE Z. As for the *to-dative* construction, ‘bring’ was found to be statistically associated with the construction verbal slot, differently from what a purely information structure analysis would suggest.

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<sup>22</sup> *Collexeme analysis* refers to an investigation of the statistical attraction and/or repulsion of a lemma in relation to a particular syntactic slot in a construction. That is part of the so-called collostructional analysis developed by Stefan Th. Gries and collaborators.

<sup>23</sup> British component of the *International Corpus of English*.

One could certainly claim that the statistical significance of the attraction between a certain type of verb and a construction might be the result of the text types used in the analysis, that being an issue of methodological reasons. One could also claim that the very semantic compatibility between the lexical content of the verb and the constructional constraints are held responsible for such a preference, that being a fully predictable behavior based on similarities in meaning. Should any of those reasons be true, the statistical preference could not be used to make claims about the knowledge that speakers have about languages and how to use them. In other words, the statistical preference would lack psycholinguistic plausibility. Thus, aiming to test whether these findings could shed some light on the general question of whether or not such statistical knowledge is part of speakers' knowledge of language, Gries et al. (2005) and others (GRIES; WULFF, 2005, SCHMID, 2010) conducted a series of experiments to find that speakers seem to be rather sensitive to collocational properties of constructions such as lexical restrictions, statistical attraction and repulsion.

In light of such findings, as well as children's use of exemplars in the acquisition of L1 (briefly discussed in this chapter), item-specific knowledge in adult grammar and also non-linguistic categorization of information in the form of units, Goldberg (2006) revisited her original definition of constructions to add the rather significant trait of conventionality to it. Thus, the linguist's new definition of constructions, and the one we will adhere to in the treatment of our learner data states that,

[a]ny linguistic pattern is recognized as a construction as long as some aspect of its form or function is not strictly predictable from its component parts or from other constructions recognized to exist. In addition, patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency. (GOLDBERG, 2006, p. 5)

The definition above, which draws on psycholinguistic studies as well as long-standing corpus investigations of phraseological knowledge (PAWLEY; SYDER, 1983; WRAY, 2002), is capable of encompassing the non-predictable phrasal patterns, as the original definition of constructions stated (c.f. section 2.1), but it also captures analytical and

predictable linguistic material that is thought to be stored holistically as units of knowledge in the constructional network. In the words of Goldberg (2006, p. 55),

[f]urther evidence for some amount of redundancy in language comes from the fact that very typically a fully general linguistic pattern is instantiated by a few instances that are highly conventional. In such a case, it is clear that both generalizations and instances are stored.

Besides reflecting the linguistic knowledge of native speakers, as it is argued in the excerpt above, this theoretical maneuver is also explanatorily and descriptively interesting for the analysis of second language knowledge, given the centrality of exemplars in L2 acquisition and use, which will be discussed in more detail in section 3.

Having discussed constructions and how they integrate with verbs and how sensitive they are to different collocational patterns, the model still needs to offer an explanation of how exactly this knowledge of language, which encompasses both non-predictable and conventional (that is, predictable) linguistic material, is organized. That is, what is exactly meant when Goldberg (2003, p. 219) says that “[t]he totality of our knowledge of language is captured by a network of constructions: a ‘construct-i-con.’” In other words, how does the model assert that constructions are related to one another to form a highly systematic network that accounts for knowledge of language? The following section will address this issue and bring an example of a case study on the constructional mapping of the predicate ‘*get*’ (ROSA, 2014).

### **2.2.5 The construct-i-con**

As was previously discussed in this chapter, constructions range from units as small as (i), morphemes to (ii) lexical items, (iii) conventional and partially lexically filled phrasal structures and also (iv) abstract schematic phrasal patterns, that is, argument structure constructions (cf. Table 4).



If we take the idiom *'kick the bucket'* (meaning *'die'*), it is clear that we are before a construction in the very definition of the term. The semantics of the expression is non-predictable and non-compositional, which makes it a form-function pairing on its own, that is, just like any other idiom, *'kick the bucket'* is a low-level construction (a lexical one). Nevertheless, as the scheme demonstrates, this lexical construction “hides” grammatical properties in its internal structure which do not seem to be proper to it, but rather “general”. The scheme above shows that, by abstracting away to more schematic structures, one could claim that *'kick the bucket'* is a more specific instance of a transitive construction with a lexically specified verb, that is, *'kick'*. This partially specified construction is, in its turn, a more specific instance of a general transitive construction (Verb Obj), which could license actual expressions like *'she kissed him'*, *'Tom cleaned the floor'*, etc. In other words, although *'kick the bucket'* complies with the grammatical requirements to be regarded as a construction and, as such, features as a unit in the construct-i-con, it inherits many of its grammatical properties from other existing constructions such as the VP construction and the rather abstract Subject-Predicate construction.

This view of a network of constructions in which the constructional repertoire of speakers is internally motivated and redundantly represented, that is, both the lexical instance and the scheme cohabit in this repertoire, moves the model away from the idea that the construct-i-con is a flat list of unsystematic constructions. More specific constructions like *'kick the bucket'*, despite their semantic uniqueness, are thought to receive some of their grammatical properties from other constructions through different kinds of *inheritance links* (GOLDBERG, 1995). Each one of these links exhibits the means by which the more abstract, high-level construction motivates the more specific, low-level construction. According to Goldberg, four types of inheritance links can be used to account for a number of relations among constructions: *polysemy links*, *metaphorical links*, *subpart links* and *instance links*. They are briefly discussed in the following sections.

### **2.2.5.1 Polysemy links**

Inspired by Lakoff's (1987) analysis of deictic *there* constructions, according to which different uses of the expletive are figuratively motivated by a central deictic reading, Goldberg (1995) claims that certain constructions maintain relationships with and are semantically motivated by other central constructions. Such a relationship is mediated, according to the linguist, by *polysemy links* (abbreviated I<sub>p</sub>), which can be seen as a metonymic relation between a construction that portrays an entire scenario and other related constructions that convey parts of that scenario (HILPERT, 2014). This is the case of the ditransitive construction, whose central meaning X CAUSES Y TO RECEIVE Z licenses other metonymically related constructions, as the examples below show.

(38) X ENABLES Y TO RECEIVE Z

Joe promised Bob a car

(39) X CAUSES Y NOT TO RECEIVE Z

Joe permitted Chris an apple

(40) X INTENDS TO CAUSE Y TO RECEIVE Z

Joe baked Bob a cake

(GOLDBERG, 1995, p. 75)

Therefore, each of the more specific constructions above, which are associated and fused with specific classes of verbs, will be motivated by the more general X CAUSES Y TO RECEIVE Z via polysemy links. That is, the extended senses will inherit the general conceptualization represented by the central sense, on the one hand, but will also, on the other hand, specify such a scenario with particular semantic features of their own.

A similar analysis was conducted in Rosa (2014) for the extended meanings of transitive constructions headed by the verb 'get'. According to the analysis, the various meanings traditionally believed to be associated with the polysemous verb 'get' are, in fact, the result of a process of *fusion* between the verb and different types of transitive constructions. These transitive constructions, which exhibit specific semantic constraints, inherit their syntactic and general semantic properties from a central transitive, whose meaning features a PROTO-AGENT X ACTING UPON A PROTO-PATIENT Y. These specific meanings, outlined in Table 6, are inherited from the central transitive via polysemy links.

Table 6 - Transitive constructions with 'get' (ROSA, 2014, p. 147)

Construction	Meaning	Form
Transitive of <i>obtaining</i>	X OBTAINS Y (Subject: volitional subject)	Subj V Obj <i>I got good results in the test</i>
Transitive of <i>receiving</i>	X RECEIVES Y (Subject: patient)	Subj V Obj <i>She got a letter yesterday</i>
Transitive of <i>possession</i>	X POSSESSES Y (It does not allow for existential paraphrases)	Subj GOT Obj <i>She's got two kids</i>
<i>Existential</i> Transitive	X LOCALIZES Y (It allows for existential paraphrases)	Subj GOT Obj (Obl) <i>We got a problem at home</i>
Transitive of <i>understanding</i>	X RECEIVES Y (It allows for paraphrases with <i>understand</i> )	Subj V Obj <i>I didn't get the message</i>
Transitive of <i>purpose</i>	X OBTAINS Y (The V <sub>inf.</sub> denotes <i>purpose</i> )	Subj V Obj V <sub>inf.</sub> <i>Freddy got the money to pay the rent</i>

Each of the meanings above are analyzed as forming a polysemous network of constructions, all of which are connected to and motivated by the central X ACTS UPON Y construction.

### 2.2.5.2 Metaphorical extension links

Basic constructions can motivate other more specific constructions via *metaphorical extension links* (abbreviated I<sub>m</sub>), in that the semantics of the dominating construction will be mapped onto the dominated construction in a rather explicit way. That is, in order for A to motivate B in such a way that B is seen as a metaphorical extension of A, a specific *conceptual*

*metaphor*<sup>24</sup> must mediate this process. Goldberg (1995) gives the example of *resultative constructions* (42) as being metaphorically motivated by the rather more basic *caused motion construction* (41).

(41) a. They laughed the poor guy **out of the room**.

b. Sam helped him **into the car**.

(GOLDBERG, 1995, p. 152)

(42) a. The gardener watered the flowers **flat**.

b. They drank the pub **dry**.

(GOLDBERG; JACKENDOFF, 2004, p. 536)

Although the sentences above exhibit a similar syntactic configuration, both groups of structures have linguistic constraints that provide them with independent constructional status in the grammatical repertoire of speakers. Goldberg (1995, 2006) draws special attention to the arguments following the Obj, which are respectively realized by PPs (*out of the room* and *into the car*) and AdjPs (*flat* and *dry*) which denote different semantic roles. In (41), the PP denotes a PATH along or towards which the Obj is physically caused to move, hence the name *caused motion construction*. In (42), however, the AdjPs denote a change of state which the argument denoted by the Obj was made to go through. Constructions with these kinds of arguments are commonly referred to as *resultative constructions*. Goldberg claims these constructions are interrelated in that resultatives are metaphorical extensions from the more

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<sup>24</sup> *Conceptual Metaphor Theory* (LAKOFF; JOHNSON, 1980), one of the first theories within cognitive semantics, claims that metaphors are not to be understood as simple stylistic language devices. Instead, they mirror how thought and language are conceptually organized, that is, in a fundamentally metaphorical manner. To such a theory, speakers *think* metaphorically and these thoughts are organized by cross-domain mappings that connect conceptual domains and license linguistic expressions relevant to the speech communities where these expressions are used. A classic example of a conceptual metaphor is that of the '*conduit metaphor*' (REDDY, 1979), which serves as the conceptual basis for expressions of communication in English. Lakoff and Johnson (1980) analyze the conduit metaphor along the lines of the following cross-domain mappings:

- i. ideas are objects
- ii. linguistic expressions are containers
- iii. communication is sending

The mappings above license the following expressions, for instance: *you have to put each concept into words very carefully*, *you must get the word out to the general public*; *take this message to everyone you can*.

physical and concrete caused motion constructions. This inheritance is motivated by a conceptual metaphor that equates CHANGE OF STATE with CHANGE OF PLACE. To put it another way, *flat* and *dry* in (42) above, both of which represent results of a change of state, are also analyzed as changes of places, but *metaphorical* changes of place not *concrete* ones. The motivation via metaphorical extension links is exemplified below.

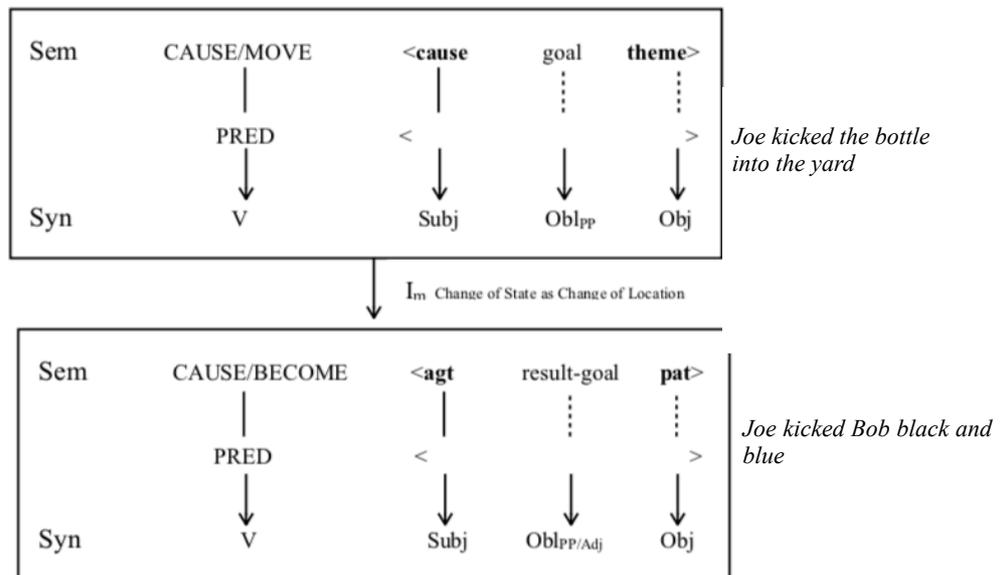


Figure 7 - Metaphorical extension links between caused motion and resultatives (GOLDBERG, 1995, p. 88)

The last kind of link, the instance link, is briefly discussed in the next section.

### 2.2.5.3 Instance links

Inheritance relations mediated by *instance links* (abbreviated  $I_i$ ) occur when one construction in particular is considered to be a special case of another construction, that is, an instance of a more general pattern, as the name itself suggests. Thus, lexically specified constructions with a fixed and conventional/idiomatic meaning, and which are formally similar to other more schematic constructions, are said to inherit their formal and/or semantic properties from such

more general constructions via links of instantiation. Goldberg (1995) exemplifies this relation with the idiom ‘*drive X crazy/bananas/bonkers/over the edge*’ whose result argument is restricted to a group of words connoting ‘*insanity*’. In ‘*drive X crazy*’, both the formal aspects and the semantics of the expression resemble the more general resultative construction in that prototypical resultatives are formally structured as Subj V Obj Obl<sub>PP/Adj</sub> and functionally represent a scene in which X CAUSES Y TO BECOME Z, exactly the scene portrayed by ‘*drive X crazy*’ in (43) and (44) below.

(43) The whole women equality thing **drives me crazy** on a more personal level than the work place. (COCA/Web/2012)

(44) My mother used to **drive us nuts** with food when we were kids. (COCA/TV/2019)

It is important to remember that, given Goldberg’s (2006) new definition of constructions, lexicalized expressions like ‘*drive X crazy*’ can be considered constructions in their own right, as long as they are conventionalized forms of conveying the idea they express. To confirm empirically whether ‘*drive X crazy*’ has a constructional status in language use, a search on COCA for the lemmatized verbs co-occurring with the result argument ‘*crazy*’ was conducted (March of 2020). The search generated the following figures:

Table 7 - COCA search for Verb Obj ‘*crazy*’

Verb	MI score	Freq. V + ‘ <i>crazy</i> ’	% of V + ‘ <i>crazy</i> ’	General Freq. of V
<i>drive</i>	3.64	391	0.32	120747
<i>call</i>	2.12	419	0.11	371200
<i>go</i>	1.31	813	0.06	1262075
<i>think</i>	1.06	812	0.05	1493360
<i>know</i>	0.69	886	0.04	2112737
<i>like</i>	-2.09	145	0.01	2368863
<i>see</i>	-1.25	138	0.01	1258974
<i>say</i>	-0.83	142	0.01	969302
<i>get</i>	-0.39	345	0.02	1744578
<i>make</i>	-0.37	207	0.02	1028279

The search used to generate the results above established a span of three positions for the occurrence of the result argument *'crazy'*. Therefore, many of the verbs contained in the table are not grammatically related to the argument *'crazy'* in a causative relation. This is the case of *'know'* for which most instances are sentences like *'I know you're crazy'* or *'I know it sounds crazy, but if you just...'*. Thus, *'drive'* is the first verb occurring with *'crazy'* which describes a CAUSE TO BECOME scene. On top of that, *'drive'* is the only verb whose MI score<sup>25</sup> is above the conventionally accepted 3.0 and, as such, shows that it occurs statistically significantly with the result *'crazy'*. The figures for *'drive'* should, then, be roughly read as follows: *'drive'* occurs 120.747 times in the entire corpus, out of which 391 occurrences collocate with *'crazy'*. This corresponds to a level of mutual attraction between *'drive'* and *'crazy'* of 3.64, which is above the conventionally accepted 3.0 for statistical significance. These figures show that *'drive X crazy'* is a frequent and conventional expression, thus it can be considered a construction of its own. Nevertheless, one cannot dispute the fact that its formal and functional properties are inherited from the more schematic resultative construction, since it also features a Subj V Obj Obl<sub>PP/Adj</sub> form and a scene in which someone causes someone else to become something, exactly what schematic resultatives represent. This relationship between resultatives and the idiom *'drive X crazy'* is represented in the matrices below.

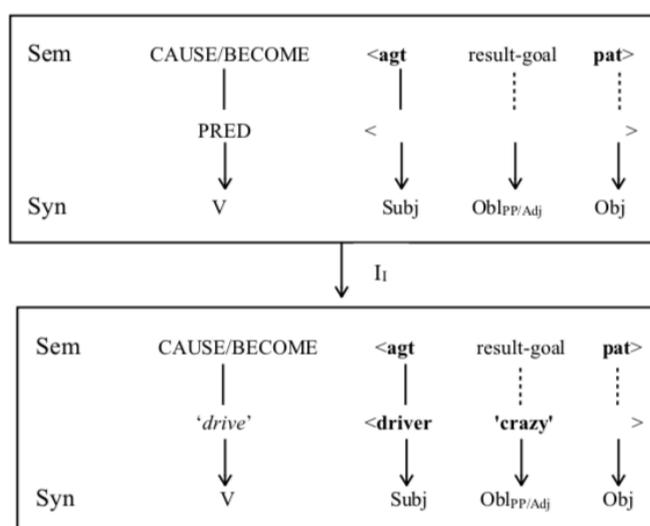


Figure 8 - Resultatives and *'drive X crazy'* (GOLDBERG, 1995, p. 80)

<sup>25</sup> According to McEnery and Hardie (2012, p. 247), MI score is “a statistic that indicates how strong the link between two things is. Mutual information can be used to calculate collocations by indicating the strength of the co-occurrence relationship between a node and collocate”.

Inheritance links, claims Goldberg (1995), are an important aspect of language knowledge in that they can be viewed as cognitive strategies that speakers make use of to generate new linguistic material. Therefore, recurring inheritance links that mediate processes between constructions and that account for the motivation of certain constructions in light of others can be said to have a high type frequency and, as such, have a determining role in the productivity of newly learned constructions. In other words, recurring inheritance links can be equated with general grammatical rules, since they can be seen as the strategies speakers will productively resort to in the creation of new language expressions while extending these from other existing constructions.

These inheritance operations, and instance links in special, are important phenomena in the explanation of language use in SLA contexts, since learners may either fail to use some of the links recurrently applied by native speakers in certain constructions or make use of different links when compared to the ones native speakers productively use. Furthermore, as well as these phenomena of inheritance, SLA is subject to a number of processes that make it at the same time different from and similar to the acquisition of L1. CCG's view on SLA is discussed in the next section.

### **2.3 (Re)constructing languages: CCG and SLA**

Although the use of Cognitive Construction Grammar as a theoretical framework for studies in second language acquisition is relatively recent, it could be expected that many of its statements about the processes of L2 acquisition and learning would rely on the general view of language acquisition adopted by CCG as a whole and that is exactly what most literature in the area has accomplished so far. As has been discussed previously in this chapter, the main area of interest of the cognitive agenda and also a refutation to the formal perspectives of L1 acquisition, as it has been observed in longitudinal research in the linguistic development of child language, lies precisely on the matter of how mental grammars are created. According to construction studies in the acquisition of L1 (TOMASELLO, 2003; DIESSEL, 2013), the “creation” of a schematic and abstract grammar follows a systematically inductive method in which children generalize from more particular, concrete and prototypical instances. An

example of “more particular, concrete and prototypical instances” can be found in studies focused on the statistical relationship between verbs and certain argument structure constructions, as has been already been discussed in this chapter (GRIES, STEFANOWITSCH, 2004).

In adult language, collostructional analyses have shown that the statistical attraction between verbs and certain argument structures can be so strong that these verbs are seen as **prototypical instantiations** of specific argument structure constructions (the case of ‘give’ and the ditransitive construction). In a similar fashion, children do not seem to behave differently. Corpus studies on children’s use of verbs and argument structure constructions (GOLDBERG, 2003; ISRAEL, 2004) show they tend to be conservative with regard to such a relationship in that they seem to favor verbs which mirror the argument structure of the constructions in use. In other words, there seems to be a tendency to favor verbs which are prototypically associated with specific argument structure constructions. In addition, research on verbs acquired at earlier stages of the L1 acquisition process has shown that children also tend to favor the category of *light verbs* (i.e. *go, make, have, get*), given their low level of semantic specification. In general, studies on the acquisition of L1 from a cognitive and constructional perspective have all advocated that the development of grammatical knowledge starts from concrete (i.e. lexical) instances. Children are thought to generalize these lexical instances in the creation of schematic grammatical knowledge via general cognitive processes, such as generalization, association, etc. Tomasello (1993) uses the metaphor of “*constructional islands*” to illustrate this process and states that the first structures acquired are, just like islands, seemingly isolated from one another; however, these are all connected to one another and in more advanced stages of the acquisition process these will come together in a kind of “*grammatical archipelago*”.

As far as SLA is concerned, Nick Ellis (2013), a prominent researcher in this area, adopts a perspective of foreign language acquisition and/or learning that takes many of the factors briefly discussed about the acquisition of L1 as central. Among the main factors is the *usage-based thesis*, which claims that linguistic knowledge is conceived and acquired through interaction between speakers while these try to communicate their thoughts, aims and needs (GOLDBERG, 2006; LANGACKER, 1987; TOMASELLO, 2003). However, in spite of the particular mechanisms that characterize L1 and L2 as distinct acquisition processes, Ellis

(2013) claims there is evident influence exerted by the knowledge of L1 on the L2 acquisition process. Ellis (2013) points out that L2 learners have expectations as for the structure of the target language and these are based on their knowledge of the L1 (*L1-tuned expectations*). In addition, L2 learners have a kind of *selective attention*, which essentially does not characterize the L1 acquisition process, in such a way that this selective attention may turn some aspects of L2 relatively opaque to the learner's acquisition process. In other words, cognitive perspectives on SLA will acknowledge the similarities between L1 and L2 acquisition on the grounds of the cognitive processes involved in both tasks; however, studies also show that the task of learning a second language cannot be restricted to the processes and strategies used in the process of L1 acquisition, since "L2A is different from L1A in that it involves processes of construction and *reconstruction*" (ELLIS, 2013, p.366).

Nevertheless, despite involving relatively different processes, the *usage-based thesis*, which essentially revolves around the capacity of speakers to conceptualize their surrounding reality and codify such a reality into symbolic units (or constructions, for GCC), unifies the first and second language acquisition agendas based on the premise that knowing a language, irrespective of whether it is a first, second or third language, means having knowledge of a structured inventory of constructions that belong to such a language. In other words,

If the units of language are constructions, then language acquisition is the learning of constructions. So SLA depends upon learners' experience of language usage and upon what they can make of it. (ELLIS, CADIerno, 2009, p.117)

The passage above highlights two aspects which are of utmost importance for the acquisition of L2 from functionalist and cognitive perspectives, that is, the importance such perspectives give to learners' *experience with language* and also the fact that this experience is not objectively accessed, but rather *interpreted* by learners. These two factors are important aspects for any theory of learning, but they can be especially restrictive for the process of acquiring a second language. Ellis (2013) breaks these two points into three conditioning factors for learning of foreign material to take place and these are (i) *the frequency of input*, (ii) *the form of the linguistic material learners have access to* and (iii) *the function of these*

*forms in discourse*. In the coming sections, each of these determining factors is briefly discussed.

### 2.3.1 Input frequency

The frequency of the linguistic material to which learners are exposed is important in the modeling of the interlanguage<sup>26</sup>, given that it promotes learning, decreases the processing burden and is essential to the entrenchment of constructions (ELLIS, 2013). However, input frequency must be understood as an important variable in a more general scenario and not as the one and only factor that contributes to the learning of language structures. Goldberg (2016)<sup>27</sup> emphasizes that the frequency of language expressions reflects the externalization of grammatical and cognitive properties and, as such, should not be treated as an object of investigation per se, but rather as a tool in the analysis and investigation of meaningful and relevant matters, such as the productivity of constructions, the level of entrenchment of certain expressions in the cognition of speakers, the analysis of how certain patterns characterize specific genres, the verification of what is more conventional and natural in a given community of speakers, etc. As far as SLA is concerned, which is what interests us at this moment, Ellis (2013) foregrounds the importance in distinguishing the frequency of types and tokens, given that the high frequency of types is an important factor in the acquisition of schemes. An example of the importance in distinguishing the type/token frequency can be found in the way certain NPs are pluralized in English. There are at least two different ways in which nominals are pluralized in English, that is, by adding the morpheme -s in the case of regular nouns (*cars, apples, books*, etc.), or through an alteration

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<sup>26</sup> The use of the term *interlanguage* here is not attached to any specific theoretical persuasion. It only refers to the tacit knowledge of a foreign language that learners have. In any case, the traditional definition of the term establishes that the interlanguage is “[t]he linguistic system created by someone in the course of learning a foreign language, different from either the speaker’s first language or the target language being acquired. It reflects the learner’s evolving system of rules, and results from a variety of processes, including the influence of the first language (‘transfer’), contrastive interference from the target language, and the overgeneralization of newly encountered rules” (CRYSTAL, 2008, p.249).

<sup>27</sup> Personal communication (*A Constructionist Approach to Language*) in July of 2016 at the Universidade Federal do Rio de Janeiro.

in the quality of the vowels in irregular nouns (*foot* > *feet*, *goose* > *geese*, *man* > *men*, etc.)<sup>28</sup>. Both “strategies” display a very distinct type frequency, that is, the schematic construction [N-s] is a lot more frequent and productive and, because of that, it is likely to be the preferred strategy of pluralization that speakers will resort to while pluralizing newly learned linguistic material, as opposed to the second kind of alternation. In other words, the schematic construction of pluralization [N –s] is more likely to “attract” nouns (neologisms, coinages and irregular nouns with low frequency and discursive salience) to itself than the other one.

This point can be exemplified with the words ‘*phenomenon*’ and ‘*criterion*’, whose distributions can be seen in Table 8.

Table 8 - Pluralization of irregular nouns on COCA

<b>Singular</b>	<b>Plural</b>	<b>Pluralized</b>
<i>Phenomenon</i> (20.021)	<i>Phenomena</i> (8192)	<i>Phenomenons</i> (52)
<i>Criterion</i> (6993)	<i>Criteria</i> (23810)	<i>Criteria</i> (13)

As the table shows, the distribution of the frequencies for the irregular nouns ‘*phenomenon*’ and ‘*criterion*’, whose normative plural forms are ‘*phenomena*’ and ‘*criteria*’, seem to endorse the fact that the type/token frequency does exert a pressure on speakers’ cognition as far as their grammatical choices are concerned. Although ‘*phenomenon*’ is a relatively frequent token, the pressure exerted by the type frequency on its pluralization, that is, the constructional scheme [N –s], is strong enough to make some speakers “regularize” it in the use of ‘*phenomenons*’. The same thing seems to apply to the word ‘*criterion*’ for which the corpus shows 13 occurrences of regularized forms in spite of the high frequency of the plural form ‘*criteria*’. To put it in simple terms, this could be taken as evidence of the fact that, although ‘*criteria*’ is frequent and discursively salient, some speakers will still resort to a much more ubiquitous strategy of plural formation in English, that is, the constructional scheme [N –s]. In addition to that, from the perspective of language change, the occurrence

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<sup>28</sup> Here we are setting aside the nouns whose morphological alternations are due to etymological matters, such as *criterion* > *criteria*, *corpus* > *corpora*, *medium* > *media*, *focus* > *foci*, etc.

of the pluralized forms may be used as a cue for the regularization of these words in the future, mainly in non-academic genres.

Just like what happens to native speakers and children acquiring their L1, L2 learners are also subjected to such frequency effects in the target language as well as the frequency relations of their L1. These effects may lead L2 learners to make mistaken generalizations about the structure of L2 because of uses that are not prototypical or even because of the low type or token frequency of a construction in the target language. Another factor that may contribute to learners' lack of attainment to certain constructions may have to do with how salient the construction is in linguistic terms. This is the main topic of the following section.

### **2.3.2 Formal issues: salience and perception**

As mentioned previously, selective attention is a restriction to which the system of L2 acquisition is conditioned. This way, the learning of some structures depends on the linguistic characteristics about which the learner has little, if any, power to control. That is, language is full of elements which are more or less salient both from a formal and functional perspective and these form-function correspondences (i.e. symbolic relations) also exhibit distinct levels of salience in terms of contrast. Let us take Ellis' example of the third person singular morpheme which, as well as marking the agreement relations between the subject and the verb, also serves the functional purpose of marking the tense of the sentence, that is, *present*. Comparatively, the third person morpheme -s is both functionally and formally less salient than lexical adverbs like *'today'* and *'every day'*, which obviously denote the time of the event, but also serve to reinforce the tense of the sentence. As a result of the low salience of -s, in contrast with an independent lexical item with the same functional contribution, the acquisition of this morphological feature tends to become more laborious to the learner. In other words, the less salient an element is, the harder its perception will be, according to studies (ELLIS, 2013; CINTRÓN-VALENTÍN; ELLIS, 2016).

The same idea can be applied to common errors basic L2 learners of English struggle to overcome, such as the omission of the morphological mark of past in sentences where past adverbs are given, that is, ‘*she walkø back home yesterday*’ instead of ‘*she walked back home yesterday*’. Like what occurs to the third person morpheme, the morphological mark of past is significantly less salient, thus less conspicuous, than adverbs that perform the same function, in spite of being a highly frequent strategy of past formation. From a functional perspective, we can still highlight that the realization of both morphological marks may also illustrate a case of **redundancy**, that is, given their redundant functions, learners may deliberately avoid their realization. This is discussed in more depth in the following section.

### 2.3.3 Function

The previous section briefly tapped into the cases when two elements with distinct levels of discourse salience can be interpreted as *redundant* by the learner. As a result of this redundancy, less salient and apparently redundant elements may be omitted to the detriment of more prominent elements. This is a clear example of how discourse and communication play a determining role in the choice of items and also in the processing of messages in a second language (ELLIS, 2013). To put it differently, the omission of less salient elements will not, from a communicative perspective, result in the ill-formation of a sentence, since the item in question has little communicative contribution to the understanding and interpretation of the sentence. Another factor raised in Ellis (2013) refers to how *prototypical* the items are and how sensitive to this L2 learning can be. By and large, as discussed in this chapter, constructional studies about the acquisition of L1 show that children tend to be relatively “conservative” in relation to verbs and different argument structures. That is, children tend to be less accepting of *marked relations* between verbs and argument structures, such as in ‘*she sneezed the foam off the latte*’. This is partly due to the fact that prototypes demand less processing effort, show more memorability and are also the best examples in the definition of the category (ROSCH, 1975).

The same effect of prototypicality was verified in Ellis and Ferreira-Junior (2009) in which the researchers analyzed the verbs used more frequently by L2 learners of English in relation to different argument structures. The study showed that L2 learners, similarly to how children do in the process of L1 acquisition, tend to opt for verbs that prototypically instantiate the different argument structures. Another tendency showed that learners seem to prefer semantically generic verbs, like 'go' in V+Loc, 'put' in V+Obj+Loc and 'give' in ditransitive constructions. This tendency was also felt with the learner data to be discussed in chapter 4, that is, we believe that the prototypicality of uses may have been a hindering factor in learners' production and processing of caused-motion constructions with **modifying** verbs (eg. *I'll try to **talk** some sense into her*) given that these are relatively less frequent than caused-motions with instantiating verbs (eg. *I'll **put** you through to customer service in a second* or *I **sent** the letter to her*) (CABRERA, ZUBIZARRETA, 2004).

## 2.4 Summary

This chapter discussed the theoretical pillars upon which this research rests. It started by discussing the now classic Fillmorean typology of idioms (FILLMORE et al., 1988) and how this theory of language, which identifies idioms of varying degrees of schematicity, served as the springboard for constructional models of language, such as CCG (GOLDBERG, 1995, 2006). After a thorough discussion about the constructional view of language (GOLDBERG, 1995, 2006, 2019), the chapter ended with a discussion on how the L2 acquisition is viewed in the constructional agenda.

## Chapter 3

### The caused-motion construction in English

#### 3.1 Introduction

This chapter presents the main grammatical characteristics of English constructions generally referred to as *complex transitive constructions* (QUIRK et al., 1985), *causative resultatives* (GOLDBERG; JACKENDOFF, 2004) and *caused-motion constructions* (GOLDBERG, 1995, 2006, 2018). Such a discussion paves the way for the analysis of the learner data to be carried out in the coming chapters. We start by reviewing the symbolic relations in motion events from a constructional perspective (GOLDBERG, 1995, 2006, 2018; GOLDBERG; JACKENDOFF, 2004) so as to claim that the semantic and syntactic properties of certain motion events, namely the ones with non-instantiation verbs, cannot be reduced to their constitutive parts. In other words, by reviewing the classic CCG account of this argument structure construction, the chapter discusses the construction's related senses, but also provides evidence for the non-predictability of caused-motion events in English, thus emphasizing its rightful place in the speakers' construct-i-con. The chapter also addresses recent investigations on the low-level properties of caused motions (HAMPE, 2010, 2011; XIA, 2017) and discusses issues related to the interpretation of the PP complement (eg. *'the congressman talked the audience into a stupor'*), which does not comply with the prototypical reading of *'direction'*, but instead, seems to denote a change of state. It is advocated that caused motions with prepositional complements denoting *'results'* are somewhere in between prototypical caused motions, given their formal properties, and prototypical resultatives, given their resultative interpretation (DANCYGIER; SWEETSER, 2014). Matters related to the interpretation of the post-nominal PP are of special relevance in the context of SLA, since learners may find it harder to interpret, and consequently produce, figurative language, as opposed to the literal meanings of sentences.

### 3.2 Complex transitive constructions

Transitive complementation has been the focus of attention in grammatical studies due to the centrality that verbs have always had in the grammatical analysis. Dating back to Fillmore's case grammar (FILLMORE, 1968), the canonical analyses aimed at identifying the semantic roles (called '*cases*' in Fillmore's theory) required by different verbs. These semantic requirements, determined in a deep structure, would be held responsible for the wellformedness and/or ungrammaticality of the surface structure constructions. With that in mind, sentences (45) and (46) below would be rendered ungrammatical due to the omission of essential cases demanded by the predicative relations established by the verb.

(45)\*Mary gave the book

(46)\*I saw

In case grammar parlance, the ungrammaticality (or unacceptability) of the sentences above results from non-compliance with the conceptual structures of the verbs '*give*' and '*see*' require as complements. '*Give*' is a three-place predicate that asks for a subject, a direct object and an indirect object, whereas '*see*' is a two-place predicate that demands a subject and an object. The ungrammaticality of (45) and (46) is said to be derived from the absence of the complete set of case relations established in the deep structure. Therefore, the semantic relations could not be mapped onto the syntax on the surface structure, thus affecting the wellformedness of the sentences. These predicative relations, as established by verbs and their semantic-syntactic requirements, have been the norm in mainstream linguistics (CHOMSKY, 1965, 1981; LYONS, 1968, 1977) ever since, but they have also been adopted across the board in language studies, from descriptive grammars (CARTER; McCARTHY, 2006; QUIRK et al., 1985) to pedagogical grammars of English (CELCE-MURCIA; LARSEN-FREEMAN, 1999).

By the name of "*complex transitive complementation*", Quirk et al. (1985), for instance, analyze sentences such as (47) and (48) below by projecting the semantic relations of specific verbs onto the structure of clauses.

(47) She presumed *that her father was dead*.

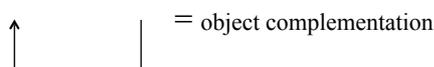
(48) a. She presumed *her father to be dead*.

b. She presumed *her father dead*.

(QUIRK et al., 1985, p. 1195)

In the grammarians' analysis, the italicized elements in (48b), for instance, are to be analyzed in association with the predicative relations maintained between a nominal subject and a predicate in simple nominal clauses. The post-verbal complements '*her father*' and '*dead*' are, then, analyzed respectively as an *object* and an *object complement*. Thus, '*her father dead*' in (48b) is analyzed as a small and reduced version of the infinitive clause in (48a), which could, in turn, be expanded into the *that*-clause in (47). The complementation of '*dead*' in relation to '*her father*' is exemplified below.

(49) She presumed [*her father* [*dead*]].



The same analysis is extended to complex transitive sentences in which the post-verbal complements denote respectively a THEME and an oblique complement with a directional reading, as in (50) and (51) below.

(50) In a normal setting, she would **push** them *out of the way* with a flick of the finger (COCA/Fiction/2017)

(51) Yeah. I want to **get** him *into protective custody*. (COCA/TV/2016)

According to Quirk et al.'s (1985) analysis, in sentences such as (50) and (51), the complementation pattern will name the italicized PPs following the direct objects *predication adjuncts* which, say the authors, are customarily of two types: 1) prepositional phrases of space; and 2) prepositional phrases of direction. The examples provided are shown below.

- (52) I slipped the key *into the lock*.  
(53) He stood my argument *on its head*.  
(54) The attendant **showed** us *to our seats*.  
(55) May I **see** you *home*?  
(56) They **talked** me *into it*.

(QUIRK et al., 1985, p. 1201)

Sentences (52), (54), (55) and (56) all exemplify adjuncts denoting *direction*, whereas (53) brings a spatial adjunct with a metaphorical reading. The authors draw attention to the fact that this clause pattern takes causative verbs (eg. *put, get, stand, set, lay, place, send, bring, take, lead, drive, etc.*), but also accepts non-causative events such as the ones in (54), (55) and (56), whose verbs could, respectively, be paraphrased as '*conducted*', '*escort*' and '*persuaded*'.

The analysis satisfactorily accounts for data of the type exemplified in (52) and (53), given that the clause patterns are mirrored by the verbs' semantics as for the number of required arguments. Therefore, with this type of data in mind, one need not even posit that the directional phrases should be labelled '*adjuncts*', since they are predicted by the lexical-semantic demands of the main predicate. Instead, these directional phrases could be considered complements, just like any other nominal complement required by two-place or three-place verbal predicates. On the issue of three-place predicates, as endorsed by Lyons (1977, p. 495 - 496),

Most recent treatments of case-grammar tend to give the impression that only nominals may fulfill valency-roles in the propositional nuclei of sentences. This is not so. Locative (and directional) adverbs may also occur as the complements of the appropriate verbs [...]

As Lyons (1977) states, should one consider that the predicative relations in clauses are derived from the conceptual structure of verbs, it does not seem to be reasonable to analyze the directionals in (52) and (53) as adjuncts, given that adjuncts are *circumstantial* and *non-core* elements in the structure of sentences. Another descriptive problem that emerges from considering the directionals as adjuncts, this time in (54), (55) and (56), lies in the fact that, as the authors themselves stated, verbs such as '*show*', '*see*' and '*talk*' are not causative

in their prototypical use. If the directionals in (54), (55) and (56), respectively ‘*to our seats*’, ‘*home*’ and ‘*into it*’ were real adjuncts, hence non-essential sentence elements, their deletion would not jeopardize the grammaticality and/or acceptability of the sentences, which is what the sentences below seem to demonstrate, with the exception of ‘*talk*’, which is monoargumental.

(54) a. The attendant **showed** us ~~*to our seats*~~.

(55) a. May I **see** you ~~*home*~~?

(56) a. \*They **talked** me ~~*into it*~~.

As the examples above show, the deletion of the so-called adjuncts does not compromise the acceptability of the sentences. However, can we still paraphrase the verbs in (54a), (55a) and (56a) to mean ‘*conducted*’, ‘*escort*’ and ‘*persuaded*’? The answer is clearly “no” and this shows that such verbs only acquire new meanings when they are integrated with sentential structures that predict the realization of directional PPs as sentence arguments. In order to reconcile the analysis of directional PPs as adjuncts and non-causative verbs that conform to the patterns in (54), (55) and (56), the explanation should posit that the verbs ‘*show*’, ‘*see*’ and ‘*talk*’, for instance, respectively mean:

- (i) to conduct someone up to a place by showing the way;
- (ii) to escort someone somewhere;
- (iii) to persuade someone to do something by talking.

Such an explanation, though efficient with the data above, would face empirical problems, given the number of verbs which could conform to such a pattern. Also, should the verbs really encapsulate the meanings in (i), (ii) and (iii), the directional PPs would be essential elements for their grammaticality; thus, the deletion of PPs would render the constructions unacceptable. As (54), (55) and (56) show, this is not the case. Instead, these data seem to be on better descriptive grounds if we posit what the most obvious observation would state. That is, as we have discussed before, such verbs seem to mean what they mean only when the sentential pattern, one with a caused-motion meaning, *coerces* them to denote a causative event. Proposals of schematic events at the semantic level that operate with pre-event notions of MOTION, EFFECT, PRODUCT, etc. and that do not rely on the verbs that

instantiate these relations, have been put forward (LYONS, 1977), but not until the advent of construction grammar (FILLMORE et al. 1988; GOLDBERG, 1995; LANGACKER, 1987) did the idea of meaningful sentential schemes gained momentum in linguistics. In the following section, we describe CCG's account of these complex transitive constructions.

### 3.3 From verbs to constructions

Goldberg (1995) also addresses the descriptive problems of accounting for the data in (54) to (56) through a postulation of extra verb senses or by compositionally explaining the meaning of such constructions via processes of integration between the semantics of the verb and the prepositional phrase. For the linguist, such problems back up an alternative explanation that proposes the existence of an independent construction formally codified as [Subj [V Obj Obl]], where V is a nonstative verb and Obl is a directional phrase. This independent construction functionally portrays a central scenario in which an X CAUSES Y TO MOVE Z<sup>29</sup> and is meant to encompass all expressions of the kind below:

(57) They **laughed** the poor guy out of the room.

(58) Frank **sneezed** the tissue off the table.

(59) Mary **urged** Bill into the house.

(60) Sue **let** the water out of the bathtub.

(61) Sam **helped** him into the car.

(62) They **sprayed** the paint onto the wall.

(GOLDBERG, 1995, p. 152)

To Goldberg, the expressions above behave quite idiosyncratically and, as such, their grammatical properties cannot be satisfactorily explained via processes of compositionality. The first point of refutation comes from the fact that certain verbs that occur in caused

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<sup>29</sup> In X CAUSES Y TO MOVE Z, the correspondence between the semantic formula and an actual expression like '*they laughed the poor guy out of the room*' is as follows: X (*they*) CAUSES TO MOVE (*laughed*) Y (*the poor guy*) Z (*out of the room*)

motions are not causative per se ((63), (64) and (65) do not denote any sort of caused result or caused change of place when they occur in contexts other than the constructional pattern [Subj [V Obj Obl]]).

(63) Joe **kicked** the dog into the bathroom.

(64) Joe **hit** the ball across the field.

(65) Frank **squeezed** the ball through the crack.

(GOLDBERG, 1995, p. 153)

'*Kick*' and '*hit*' do not exhibit any trait of caused change of place (like *put* does, for example) and '*squeeze*' itself does not imply any sort of motion caused by the event on its object. The movement of the *ball* is coerced by the reading of movement provided by the construction. Another point to be raised has to do with the fact that verbs with different numbers of arguments can be hosted by the construction. Caused motions can host and are licensed with one-place predicates like *laugh*, *sneeze*, *cry* ((66)), two-place predicates like *speak*, *drink*, *help* ((67)) and three-place predicates like *put*, *get*, *add* ((68)). These data reinforce the thesis that constructions denoting caused motion with these verbs could not be analyzed as a reflection of the semantics of the verb.

(66) a. But I guarantee he's going to **laugh** you out of his office. (COCA/TV/2004)

b. Thought he'd **sneeze** himself right off the shrouds on the way up here (COCA/Fiction/2007)

c. I think in some quite literal sense, he **cried** himself into a space where he couldn't continue (COCA/Fiction/2005)

(67) a. After all He created it and I figure anyone who can **speak** the universe into existence also has the power to control climate. (COCA/Blog/2012)

b. You said your brother **drank** himself to death literally. (COCA/Spoken/2014)

c. Gavin **helped** him into the box. (COCA/Fiction/2012)

(68) a. We're going to box these things up in just a minute and **put** them on some trucks (COCA/Blog/2012)

b. I can **get** you into the house on two conditions. (COCA/TV/2010)

c. Please share with me which ones you like, so I can **add** them to my list. (COCA/Blog/2012)

In defense of a constructional explanation for independent caused motions, Goldberg also discusses the treatment given by some analyses that try to account for the data above based on an association between compositionality and pragmatic inference of the construction. Gawron (1986) and Pustejovsky (1991) both defend that caused motions are the result of a compositional *co-predication* between the verb and the directional PPs, the latter being either considered adjuncts or arguments, while the reading of causation would be pragmatically inferred. Goldberg refutes the idea that the directional PPs are arguments required by the conceptual structure of verbs because, as we have already discussed, this could only be envisaged in a model that would force verbs to have extra senses (see (i), (ii) and (iii) above). This model would make even one-place predicates like the ones in (66) have to have an additional meaning to account for the two internal arguments (= Obj and Obl), none of which are licensed by the actual meaning of *laugh*, *sneeze* or *cry*. On the other hand, treating the directional PPs as adjuncts could not be the case, since these do not have the semantic reading of usual PP adjuncts (as in '*she left the note in the room*'); also, as we have discussed, were they adjuncts, we could expect these to be deleted without compromising the meaning of the verb. Lastly, on the idea that the causation is pragmatically inferred, this analysis does not rule out the fact that certain verbs are not allowed in the caused-motion construction like *encourage*, *persuade* or *convince*.

(69) \*She **encouraged/persuaded/convinc**ed me into the room.

The refutations towards a lexicalist view, that is, that such constructions are operated by the semantics of the verbs or licensed by general pragmatic principles, corroborate the idiosyncratic nature of the caused-motion construction and reinforce the constructional thesis, for which (66) to (68) exemplify an independent kind of structure that features in the grammatical knowledge of speakers. Caused motions are, then, one independent construction and are schematically represented in the matrix below.

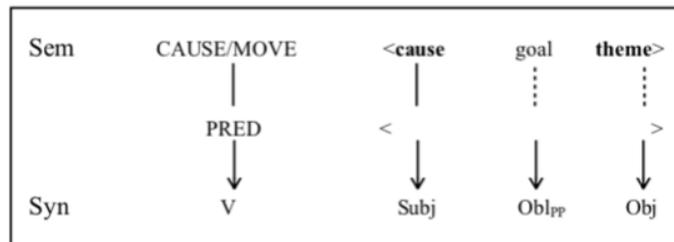


Figure 9 - Central caused-motion construction (GOLDBERG, 1995, p. 160)

The matrix above represents the central sense of the caused motion, but the construction also exhibits different senses, which are extensions of this central one. These distinct senses account for the different verb classes that caused motions can be integrated with and this characteristic is particularly relevant for the learner data to be discussed in the coming chapters, given the strong reliance that nonnative speakers might have on lexical content, according to some analyses. These related senses are described in the next section.

### 3.3.1 The caused-motion construction and its related senses

Thus far, we have discussed that speakers' knowledge of language, at least of those whose languages have prototypical caused-motion events, count on a central construction whose sense portrays a scenario in which an X CAUSES Y TO MOVE Z. As the data above showed, this construction can be integrated with a number of verbs, irrespective of their argument structure and this shows that their function could only be accounted for by principles of integration that rely both on the lexical content of the verbs and on the schematic semantic contribution of constructions. However, some language data show that certain related senses for the central meaning of the construction must be postulated, since they seem to be extensions from this central meaning, in that they modify the type of motion exhibited in X CAUSES Y TO MOVE Z.

The first extended sense includes cases in which motion is not strictly entailed by the event, but rather potentially signals such a movement. This category includes verbs such as *order*, *ask*, *invite*, *urge*, etc. Examples of such a sense are given below.

## I. Conditions of satisfaction entail X CAUSES Y TO MOVE Z

(70) Caprio **ordered** him out of the car. (COCA/News/2009)

(71) I cannot **ask** him into my house. (COCA/Blog/2012)

(72) And thank you for **inviting** us into your home tonight. (COCA/Spoken/2019)

(73) The widow **urged** them into the bedroom. (COCA/Web/2012)

As the examples above demonstrate, none of the verbs directly denotes a type of movement or entails that the movement is to be realized, but pragmatic *conditions of satisfaction* (SEARLE, 1983) associated with the denotation of the predicate show that, if the *ordering, asking, inviting* or *urging* are satisfied, the sentence's THEME will be moved.

The second sense related to the central X CAUSES Y TO MOVE Z includes force-dynamic verbs (TALMY, 1985) like *allow, let, release*, etc. which are integrated with the underspecified meaning of the construction, that is, "enablement". This reading of "enablement" is only accomplished with this class of verbs, which denotes the removal of a barrier. Examples of that sense are given below.

## II. X ENABLES Y TO MOVE Z

(74) ...**allow** people out of the dark and into the sunlight as well. (COCA/News/2005)

(75) We're not truly free unless we can **release** them into the world. (COCA/Movie/2016)

The next sense is somehow the opposite of the one above, since it hosts verbs which denote the impediment of movement, imposed by a barrier, on the part of the THEME. Verbs like *keep, lock, barricade, trap*, etc. are integrated with the construction, whose sense establishes a prevention of movement.

## III. X PREVENTS Y FROM MOVING COMP(Z)

(76) On Jan. 15, 2003, Pieper, 46, **locked** himself into his family's garage... (COCA/News/2004)

(77) ...injuries **kept** him out of the ring for nearly two years. (COCA/News/2019)

(78) This is the type of thing that can **trap** people into the lower classes. (COCA/Blog/2012)<sup>30</sup>

The argument COMP(Z), explains Goldberg (1995), refers to the complement of the potential movement, which is respectively coded by the prepositions *into*, *out of* and *into* in the examples above.

The last sense involves a class of verbs which denote some sort of assistance from the AGENT in the dislocation of the THEME. This construction is integrated with verbs like *help*, *assist*, *guide*, *show*, *walk*, *lead*, etc. Examples are provided below.

#### IV. X HELPS Y TO MOVE Z

(79) His mother **helped** him into the van and waved as it backed out of the driveway. (COCA/Fiction/2016)

(80) The cobblestone drive was smooth under her shoes when the man **assisted** her out of the back. (COCA/Fiction/2004)

(81) Drivers should look for flaggers or pilot cars to **guide** them through the construction areas. (COCA/News/2014)

(82) I wish I could **show** you out of my garden... (COCA/Blog/2012)

(83) Telling you, man, I just **walked** her out of the bank. (COCA/TV/2007)

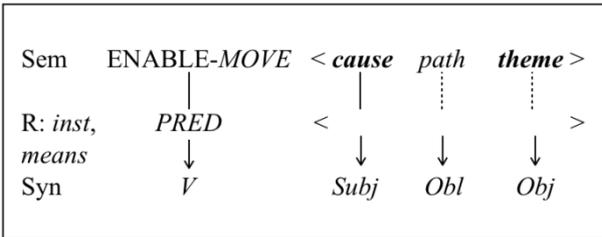
(84) Saying nothing, he led her into the ballroom. (COCA/Fiction/2017)

As was said, X CAUSES Y TO MOVE Z is the central meaning of the construction, of which the others represent extended senses. These senses are motivated by the central meaning via polysemy links in that each particular sense represents a modified extension of the causation present in the central construction: (I) conditions of satisfaction entail X CAUSES Y TO MOVE Z, (II) causes to move by *enabling*, (III) causes *not* to move by *preventing* and (IV) causes to move by *helping*. The inheritance relations are represented, as usual, in the form of the matrices below.

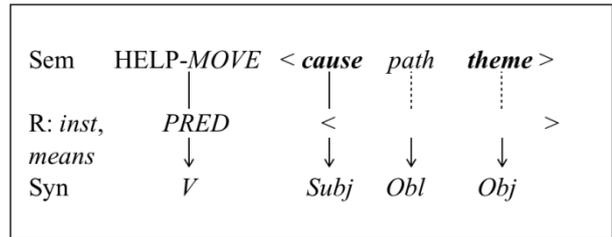
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<sup>30</sup> The place denoted by 'lower classes' is a metaphorical place, rather than a physical one. In any case, the prevention to move from such a place, be it literal or metaphorical, is maintained in the reading of the construction.

We can **release** them into the world

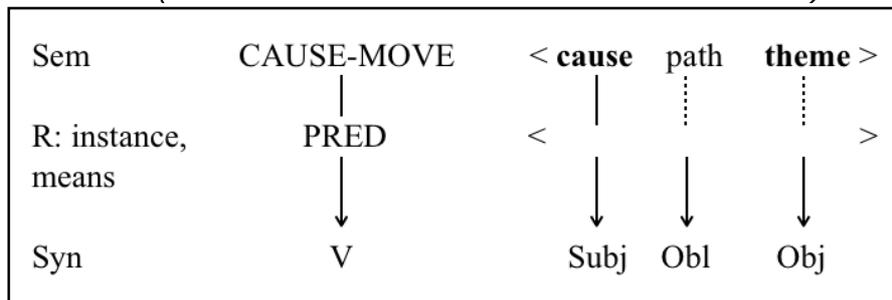


His mother **helped** him into the van



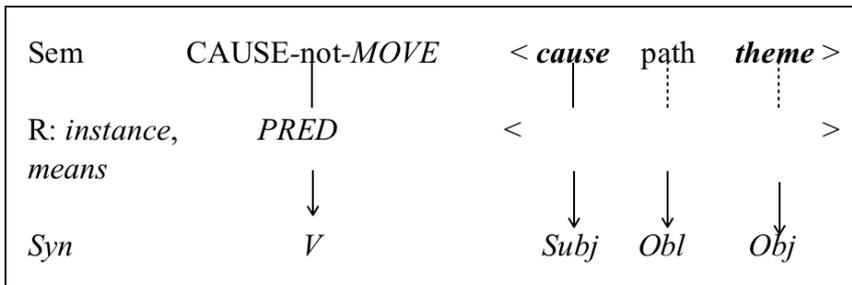
Ip: cause-enable

Ip: cause-aid



Ip: cause-prevent

Injuries **kept** him out of the ring



Ip: conditions of satisfaction

Caprio **ordered** him out of the car

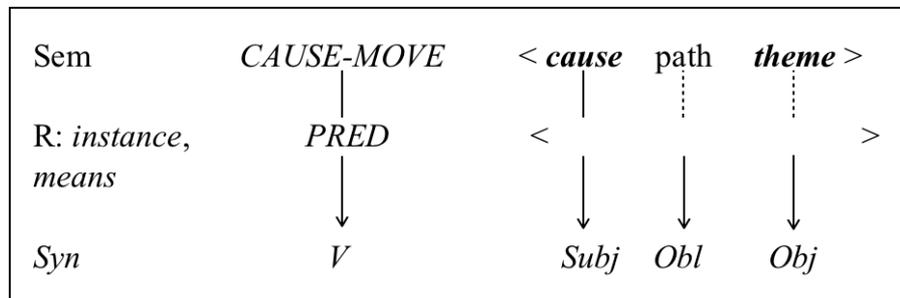


Figure 10 - The caused-motion construction and its related senses (GOLDBERG, 1995, p. 163)

### 3.3.2 Constructional constraints

At first glance, the number of senses associated with the central reading of the caused-motion construction, as well as the number and types of verb classes associated with each sense, might seem to weaken the constructional status of caused motions. To put it in different terms, one could ask oneself why is it that an independent construction must be posited, given the number of modified senses it can have? Also, a framework based on the semantic constraints of specific verb classes could, in principle, account for the data discussed above without necessarily having to postulate an “extra” schematic form-function pairing, thus decreasing the cognitive burden of the model and reducing the construct-i-con. Such a view may seem to be a desirable one, especially because lexical causatives (eg. ‘kill’ or ‘melt’) are also low-level constructions and, as such, must feature in the mental grammar of speakers; however, Goldberg (1995) discusses constraining factors on both the *causer argument* of (85) and on the *nature of the causation* exemplified in (86), which could only be equated with an existing caused-motion scheme in the model.

- (85) a. Chris pushed the piano up the stairs.  
b. The wind blew the ship off course.  
c. \*The hammer broke the vase into pieces.

- (86) a. ??Paul encouraged him into the room.  
b. ??Pat begged him into the room.

(GOLDBERG, 1995, pp. 164-165)

Goldberg (1995) claims these sentences are not acceptable, but a search on COCA revealed some instances of caused motions with *encourage* (eg. *we have to encourage more women into technology related jobs*) and *beg* (eg. *I got ta beg her into taking me back, whatever it takes*)<sup>31</sup>. The unacceptability mentioned by Goldberg refers to an idea of *direct causation*. Differently from the central caused motion, the ones in (86) need a cognitive

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<sup>31</sup> A great part of the few instances of *beg* in caused motions presented the low-level way-construction (eg. *I begged my way into the conference as a science writer*)

mediation of the object for the interpretation. In other words, these are paraphrases to the following:

- (87) a. Paul encouraged him to get into the room.  
b. Pat begged him to get into the room.

The infinitive clause *to get into the room* takes the objects *him* as their notional subjects. As such, the causation exerted by *encourage* and *beg* does not directly cause them to move, but rather cause them to decide to move. This will be recapped in the coming sections in the form of semantic constraints that endorse the postulation of a caused-motion construction.

### 3.3.2.1 The causer argument

As the sentences in (85) above suggest (they are repeated and extended here in (86)), the causer argument of caused motions can be *volitional agents* (86a) and *natural forces* (86b), but the general constructional scheme X CAUSES Y TO MOVE Z does not allow for its causer argument to be an *instrument*, as (86c) demonstrates.

- (86) a. Chris pushed the piano up the stairs.  
b. The wind blew the ship off course.  
c. \*The hammer broke the vase into pieces.  
d. The hammer broke the vase.

Given the acceptability of (86d), whose AGENT is an inanimate one, the imposition does not seem to result from the lexical semantic restrictions of the predicate *break*. Therefore, the constraint is derived from what the construction imposes on the type of causer, since *break* can be integrated with the caused-motion construction, as the examples below show.

(87) She **broke** it into six pieces and gave each one of us a piece. (COCA/Fiction/1991)

(88) I watched doubtfully as the woman **broke** three eggs into a big mug... (COCA/Fiction/2007)

(89) She **broke** the bar into four pieces. (COCA/Fiction/2011)

The other semantic restrictions which, claims Goldberg (1995), guarantee the constructional status of caused motions are related to the type of causation present in the construction. This is discussed in the following section.

### 3.3.2.2 Constraints on the causation of caused motions

Causation is characterized semantically by the occurrence of two events, one of CAUSE and another of EFFECT/RESULT. Kemmer and Verhagen (1994) distinguish two types of constructions which display readings of causation, but whose forms differ from one another. Expressions such as *'they insulted me, so I left'* and *'I made her cry'* both exhibit traits of causation, but only the latter can be considered an analytical causative, given that in this construction, causation is not coded in a lexical item, as it occurs in the first sentence (i.e. *'so'*). Instead, in *'I made her cry'*, both events are encoded in one clause, hence the name *one-clause structure*. As far as caused motions are concerned, Goldberg (1995, p. 176) states that semantically they are characterized by a general reading of "direct causation" and are governed by the following constraints:

- (i) No cognitive decisions can mediate between the causing event and the entailed motion: the (un)acceptability of the pair *\*she encouraged me into the room/she encouraged me to go into the room* shows that verbs such as *encourage*, *persuade* and *convince* entail that the object of the causation, here represented by the pronoun *me* makes a cognitive decision, thus acting as the logical subject of the infinitive clause. In other words, one cannot *convince* or *persuade* someone to do something if they do not decide to do it. In

*'she lured me into doing it'*, no *convincing*, *persuading* or *encouraging* take place. Thus, the sentence is acceptable, since the object, in this case, is not capable of making its own decisions. That is, there is no cognitive mediation on the part of the object.

- (ii) If the caused motion is not strictly entailed, it must be presumed as a *ceteris paribus* implication: two subclasses of verbs are associated with the construction in spite of not implying actual motion. In *'she asked/invited/urged me into the room'*, the movement is guaranteed by conditions of satisfaction. In *'she allowed me into the room'*, the AGENT enables the movement of the THEME by removing a barrier. In both cases, actual movement can only be realized via a cognitive decision on the part of the THEME, but the unacceptability of *'\*she begged/pleaded me into the room'* shows that the AGENT'S determination to make the THEME move must be present. This can be evidenced by the contrast between *'\*he asked the criminal into the jail cell'* and *'he ordered the criminal into the cell'*. Thus, when motion of the THEME cannot be entailed, it must be understood as a *ceteris paribus* implication (all things being equal) that it will move, unless there are pragmatic factors that go against this (in the case of *'\*he asked the criminal into the jail cell'*).
- (iii) Conventionalized scenarios can be cognitively packaged as a single event even if an intervening cause exists: as we have discussed, no intervening causation is allowed in the caused-motion construction. However, in cases when the event is a conventional or generally accepted way of doing things, these conventional scenarios can make the internal grammatical structure opaque in that they become cognitively packaged. This is the case of *'the company flew her to Chicago for a meeting'*. The same kind of cognitive packaging that results in the opacity of the internal grammatical structure of chunks was discussed in Rosa (2014) for the causative *'get something done'*. In spite of having a causative form, which typically implies outsourced causation, the conventional expression (*get x done*) is used emphatically as a transitive construction to signal the pragmatic urgency with which the AGENT must perform the action.
- (iv) If a verb is a change-of-state verb (of effect), such that the activity causing the change of state (or effect), when performed in a conventional way, effects some incidental motion

and, moreover, is performed with the *intention* of causing the motion, the PATH of motion may be specified: this generalization covers a class of verbs that can be associated with the caused-motion construction, but whose entailed motion is of an incidental kind. In *'the chef sliced the sausage into the stew'* or *'the waiter grated parmesan cheese onto the dish'*, none of the verbs conceptually implies the motion of the affected THEME, respectively *'sausage'* and *'parmesan cheese'*; however, motion is implied by the conventional scenario (that is, those actions in real cooking) associated with the events denoted by both predicates. That is, after being sliced, one would expect the slice to move, rather than stand still. Also, when grated, the cheese is expected to fall away from the grater being used. Thus, given the contextual information, such verbs can be associated with the construction, which, in turn, can contribute with the directional phrase for the incidental motion. Nevertheless, in order for this integration to be possible, the explicit PATH can only occur when there is clear intention on the part of the AGENT. This can be shown with the insertion of the adverb *'unintentionally'*, which compromises the acceptability of the sentence. Conversely, with adverbs like *'intentionally'*, *'deliberately'* and *'skillfully'*, which denote volition and intention, or even *'accidentally'*, the incidental motion is reinforced, since they provide the context for the explicit mentioning of the PATH.

(90) \*She unintentionally broke the eggs onto the floor.

(91) The waiter intentionally/deliberately/skillfully grated parmesan cheese onto the dish.

(92) She accidentally chopped parsley into the pot of jam.

- (v) The path of motion must be completely determined by the action denoted by the verb: this generalization states that the motion, in spite of being initiated by the AGENT, is not specified by it, but rather, by the action denoted by the verb. In *'he shoved the cart down the incline'* (GOLDBERG, 1995, p. 172), the PATH is determined by *'shoved'* in that the act of shoving can possibly determine one specific kind of PATH. The evidence for this comes from verbs that can be integrated with the caused-motion construction, but which do not specify the type of PATH. In *'#the journalists laughed the president into his car'*, the predicate *'laugh'* could not possibly specify one type of PATH. Having said that, when

the PATH denotes the exit of a location and the caused motion directs the THEME out of such a place to an unknown or general space, caused motions with *'laugh'* are acceptable: *'the journalists laughed the president out of the room'* or *'the audience laughed the artist off the stage'*. In other words, if the motion caused directs the THEME to a specific place, this must be denoted by the semantics of the verb.

The generalizations above are meant to capture the related senses of caused motions by positing that specific semantic readings will be the result of certain classes of verbs that are to be integrated with the general X CAUSES Y TO MOVE Z. Although Goldberg (1995) manages to discuss such cases without resorting to specific verbal properties, some researchers (BOAS, 2013; HAMPE, 2010; XIA, 2017) have pointed out, based on empirical observations of naturally occurring language data, that lower level constructions, that is, partially lexically specified patterns (eg. *put x in order*), seem to play an important role in determining the use and productivity of caused-motion constructions. Also, some analyses based on adult and child language corpora, especially Hampe (2010), propose an alternative explanation for caused-motion constructions in relation to the role played by polysemy links and the “literal” vs “figurative” readings of caused motions. These two matters, the role of the lexicon and the figurative interpretation of caused motions, are briefly discussed in the coming section.

### **3.4 Low-level caused motions and the figurative interpretation**

#### **3.4.1 Low-level caused motions: from verbs to constructions and back**

In light of the apparent high productivity of the integration between different classes of verbs and the central caused-motion construction, as discussed in the previous section, Xia (2017) offers an alternative approach to that proposed in Goldberg (1995) and Barðdal (2006) for the polysemous senses of the central caused motion and posits that such specific senses belong, in fact, to an intermediary schematic level, where certain verb-class properties are specified.

Based on the usage-based view (CROFT, 2003, GOLDBERG, 2006; LANGACKER, 2013), which proposes that the construc-i-con is composed of different levels of constructional granularity on a schematicity-lexicity continuum, this level is said to be less specific than the level of the actual expressions with specific verbs, but also more general than the constructional schematic level, which the author says is formed of “event-type constructions”. The proposal can be schematized in the figure below.

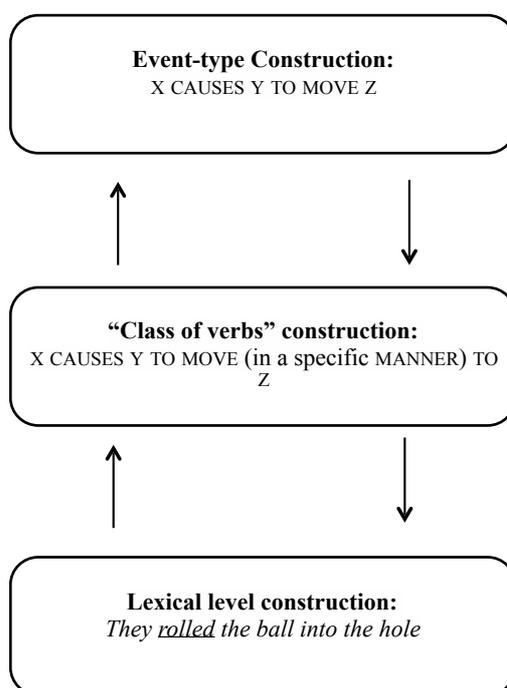


Figure 11 - Levels of schematicity in caused motions

As Xia (2017) states, each constructional layer is an abstraction of the level immediately below. In other words, the schematic event-type construction *sanctions* the “class of verbs” construction which, in turn, sanctions the lexical level construction (as indicated by the arrows going down). Inversely, each constructional level instantiates the level immediately above (as indicated by the arrows going up).

This alternative approach rejects the necessity to postulate a network of polysemy relations in that each level will be a unique kind of construction with specific semantic readings. To put it differently, driven by observations in language corpora, Xia (2017, p. 274)

states that “not only verbal sense changes when a verb occurs creatively in the construction; in addition, new interpretation occurs to the constructional sense”. Xia endorses her analysis by positing the following “class of verbs” constructions.

#### 3.4.1.1 Verbs of motion using a vehicle and *waltz* verbs

(93) He skated Penny around the rink.

(94) He rowed Penny across the lake.

(95) He waltzed her across the floor. (If dance involves a partner.)

(LEVIN, 1993 p. 267–269)

This category includes verbs that denote different kinds of vehicles: *parachute*, *rocket*, *boat*, *bus*, *taxi*, *tram*, *trolley*, *sledge*. Examples can be seen below.

(96) They had the parachuters **parachute** the balls into the centre of the field.

(97) We **sledge** the swan across the shingle.

(98) it was suggested that they **canoe** the vehicles across the river.

(99) ...ask if I would also be willing to **cycle** the torch across the Forth Road Bridge.

(100) These smaller craft will in turn **taxi** the persons to the larger ships overhead.

(101) It is a pretty good pose and he did **rocket** the ball out of the park.

(XIA, 2017, p. 275)

#### 3.4.1.2 Chase verbs and *accompany* verbs

This category is made of verbs of companionship in which both the AGENT and the THEME of the caused motion are interpreted to be in motion. The category includes the examples already discussed in Goldberg (1995), which we present below.

(102) Sam **accompanied** Bob into the room.

(103) Ann **chased** the squirrel out of her house.

(XIA, 2017, p. 276)

### 3.4.1.3 Manner of motion verbs

This category, extensively discussed in Levin (1993), is composed of *verbs of rolling* (*drift, drop, float, glide, move, roll, slide, swing*) and *run verbs* (*charge, dart, dash, 'file', 'march', parade, jump, lope, vault, sidle, skulk, sneak, flit, fly, skitter, sashay, tramp, hike*). Some examples are shown below.

(104) Shepherds **parade** the sheep through the city every year in order to exercise.

(105) When Phoebe tries to **sneak** the dog out of the apartment...

(106) The men **leap** the horses across the field.

(XIA, 2017, p. 277)

Although both categories are grouped together, both classes of verbs impose different semantic constraints on their arguments. *Rolling verb* constructions take inanimate THEMES, whereas *run verbs* of the *run verb constructions* are used to describe the kind of motion that animate THEMES realize.

On the matter of constructional productivity, Xia (2017) states that new senses do not have to be taken onboard to create new constructions, but rather, can be seen to derive from

repeated uses of a certain class of verbs in a specific constructional syntactic frame, which is said to be the case of the “class of verbs” constructions described. In her own words,

Participating in caused-motion constructions, motion verbs do alter the caused-motion sense. In the usage-based model (Langacker 2005a, 2005b), lexical items represent abstractions from actual usage just as constructions do. A new sense might arise from repeated occurrences of the verb in a construction. (XIA, 2017, p. 282)

The passage above claims, based on the usage-based thesis, that sequences of words (classes of verb, in this case) may be schematized just like happens with schematic argument structure constructions, and this affects, according to Xia (2017), the productivity of caused motions. However, Xia (2017) is not the only researcher to have noticed the role certain verb classes and lexicalized expressions play in the productivity of caused motions. The next section taps into this issue and also brings up an aspect of the interpretation of caused motions that is especially relevant to the learner data to be discussed in the coming chapters, that is, the case of *literal* and *figurative* motion in caused-motion constructions.

### **3.4.2 Literal and figurative motions**

Hampe (2010) addresses the issue of *causative resultatives*, the term used by Goldberg and Jackendoff (2004) to name constructions known as *caused motions* and *resultatives* in Goldberg (1995). Nevertheless, differently from Goldberg (1995), Goldberg and Jackendoff (2004) and Barðdal (2006), Hampe's (2010) observations about the relationship between schematic and lexical constructions, as observed in child and adult language corpora, support a research agenda that foregrounds the importance of the lexical material in the use and productivity of caused motions (BOAS, 2003; CROFT, 2003; GOLDBERG, 2006; XIA, 2017). For Hampe (2010), though, the role of low-level lexical constructions is significantly relevant in the evaluation that metaphors play in the interpretation of caused motions and resultatives. In particular, Hampe (2010) aims to reevaluate the role that metaphorical

extensions play in the sanctioning of resultatives from caused motions by proposing that such extensions are lexically motivated. In her own words,

Viewing metaphorical extensions as a strictly local, lexically determined phenomenon, and emphasizing the role of verb-class based constructions (vis-à-vis totally schematic ASCs), this study works towards an alternative account of the growth of a constructional network. (HAMPE, 2010, p.188)

In other words, the proposal aims to offer an alternative explanation for the metaphorical reading of the PP *to anger and boredom* in (107) as a metaphorical extension from the spatial denotation of the directional *out of the way* in (106).

(106) The warm air pushes other air [PP out of the way] - **Literal**

(107) At times it drove his audience [PP to anger and boredom] - **Figurative**

In metaphorical caused motions like (107), the host object, claim Goldberg and Jackendoff (2004), is said to be caused to change its state, as it happens to prototypical resultatives (eg. *'she drives me crazy'*). Thus, in metaphorical caused motions, the PP argument is said to acquire a resultative meaning. Goldberg and Jackendoff (2004) call these two types of constructions *'path'* (eg. *'get you into the party'*) and *'property'*<sup>32</sup> resultatives (eg. *'get you into trouble'*). The same sort of analysis had already been put forward in Goldberg (1995), for whom these language data were explained in terms of metaphorical link extensions. Hampe (2010) objects to this reinterpretation of the data by stating that the unification of both constructions under the title of *'causative resultatives'* represents a symbolic discrepancy for metaphorical caused motions, since they are *formally path* and *functionally property*. Hampe (2010) seems to view the phenomenon in a similar fashion to recent research (BOAS, 2013; XIA, 2017), which shows that in cases where the prepositional complement of a caused-motion construction has a non-spatial figurative reading (as in

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<sup>32</sup> Different way to define *result*.

(107))<sup>33</sup>, the PP complement seems to form a lexicalized expression with the verb (eg. ‘*put \_\_ in order*’). This can be evidenced by the intolerance caused by the substitution of ‘*in order*’ by other elements: \**put x in chaos*, \**put X in disaster*, \**put X right*. In other words, this means that the lexicon is preempting any kind of general syntactic or semantic operation in the licensing of the expression ‘*put \_\_ in order*’. Were this not the case, that is, if ‘*put \_\_ in order*’ were a simple instantiation of the schematic caused-motion construction, in theory, commutations of the PP argument should not generate unacceptable sentences as they do for the verb ‘*put*’. The low-level constructional status of ‘*put \_\_ in order*’ is also backed up by the fact that other verbs do not seem to be constrained as *put* is in ‘*put \_\_ in order*’. In ‘*push \_\_ out of the way/the road/the car/the city/the universe*’, the verb accepts different kinds of directional PPs without compromising the acceptability of the sentences.

Hampe’s analysis of the ICE-GB corpus with VPs parsed as <extr><sup>34</sup> returned a total number of 4,019 sentences out of which 3,514 contained complex argument structures (both caused motions and resultatives) and 3,707 contained resultative phrases (the number is higher than 3,514 due to multiple resultative phrases in cases of verbal ellipses). Of these, 1,937 verb tokens occur with one or more object-related adverbials and 908 with one or more adjectival predicatives. 10,8% of the lexical types used in the corpus are shared between caused motions and resultatives, showing a clear case of overlap of use of lexical material. Among these are *put* and *make*, which are said to be “path-breaking” verbs in the acquisition of caused motions and resultatives, respectively (GOLDBERG, 2006, p. 77-79).

(108) *Spatial caused motions*: and we **put** lemon and cucumber and orange [PP in the Pimms]

(109) *Metaphorical caused motions*: I thought I’d be able to **put** his mind [PP at rest] very easily.

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<sup>33</sup> The *property resultative* ‘*get \_\_ into trouble*’ was also analyzed as a low-level construction in Rosa (2014). Based on naturally occurring data extracted from COCA, the analysis showed a high level of statistical attraction between the phrasal pattern ‘*V \_\_ into trouble*’ and the lexeme ‘*get*’. The quantitative analysis motivated us to consider ‘*get \_\_ into trouble*’ a recurring phraseologism, or a low-level construction.

<sup>34</sup> The syntactic tag for *complex transitive*.

(110) *Resultatives*: But I think **making** people [<sub>AdjP</sub> aware that anybody can do it],  
uhm, is is quite important.

(HAMPE, 2010, p. 191)

'Put' is not attracted by resultatives, just like 'make' is not attracted by caused motions. However, the collexeme analysis carried out in the ICE-BR corpus shows a great salience of 'put \_\_ right' (eg. *So he puts this right and I sort of stand by* (HAMPE, 2020, p. 186)) and 'make \_\_ into y' (eg. *Smack it into car shape* (HAMPE, 2020, p. 205)). This suggests that these are not instantiations of the general, argument structure construction, but rather that they instantiate lower level constructions, that is, lexicalized instantiations of both constructions. These seem to be cases of rather fixed phraseological units, or *formal idioms* in Fillmore's terminology.

In Hampe's analysis of the caused motion data, two basic uses and also the verbs more frequently used in the construction were identified:

- I) Verbs taking directional adverbials (denoting causation of motion): *put, place, bring, get, set, take, turn, send, push, shove, force, lay*;
- II) Verbs taking locative adverbials (denoting prevention of motion): *keep, leave, bear, hold, base*.

This difference is not said to be syntactic, but rather a lexical one that is made possible by the non-adjacent interaction between a verb and an adverbial [V [NP] Adv]; that is, verbs and adverbials in these low-level constructions seem to function as *formal idioms* are structured (FILLMORE et al., 1988). Another important aspect of the data analyzed in Hampe (2010) has to do with the interpretation of the actual caused motion. Both types (those denoting causation of motion and prevention of motion) were found to be denoting either a *literal motion* (physical movement) or a *figurative* one. In the figurative cases, the adverbial will identify a state or condition, but the construal is still spatial, that is, a metaphorical construal that is motivated by primitive metaphors such as STATES ARE LOCATIONS/BOUNDED REGIONS AND CIRCUMSTANCES/CONDITIONS ARE SURROUNDING (GRADY, 1997) will

motivate the figurative reading of caused motions. These metaphors are, then, thought to license the interpretation of the caused motions below.

(111) She just needed to **get** her life [PP back in order].

(112) I'm not trying to **get** more people [PP in trouble].

(ROSA, 2014, p. 191)

(113) The clown **laughed** the boy [PP out of his depression].

(114) **Coax** a two-year old [PP from an incipient meltdown].<sup>35</sup>

(DANCYGIER; SWEETSER, 2014, p. 133)

Following Hampe's (2010) analysis of low-level caused motions and Rosa's (2014) description of phraseological caused motion units with 'get', examples (71) and (72) are analyzed as lexicalized instances of the caused-motion construction, which display a figurative reading. No literal movement is implied in the directional PPs 'back in order' and 'in trouble'. As for (73) and (74), both 'laugh' and 'coax' do not take a directional prepositional argument and, as such, could not form lexicalized expressions with these like 'get' does with 'back in order' and 'in trouble'. However, they also clearly denote a figurative movement on the part of the sentences' THEMES. Language data shows that the schematic caused-motion construction can itself be interpreted figuratively, irrespective of the lexical strategies instantiating it. On this matter, Dancygier and Sweetser (2014, p. 133) state,

[...] scenarios involving Caused Change of State, which is metaphorically understood as Caused Motion, are expressed with the Caused-Motion construction (*laugh someone out of their depression, coax the two-year old away from an incipient meltdown*). In some of these expressions, there is nothing which expresses either spatial motion or change of physical state, and thus no motion words which could be interpreted metaphorically to mean Caused Change of State [...] The most plausible hypothesis is therefore that the Caused-Motion Construction itself is interpreted metaphorically in these cases, to mean Caused Change of State.

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<sup>35</sup> In this example, *coax* and *meltdown* are thought to be metaphorically used to mean *control* and *tantrum*.

The points raised in this section, that is, the effect that low-level and lexicalized expressions have in the interpretation of caused motions as well as the fact that schematic caused motions can generally be interpreted figuratively, are of utmost importance for the learner language to be described and discussed in the coming chapters, since they can affect learners' production and processing of this construction, especially with learners whose mother tongue does not have a syntactic equivalence. The corpus data analyzed in this dissertation shows that learners do rely on verbal meaning and on specific chunks of language to produce the few instances of caused-motion constructions. Also, literal and figurative readings do display significant differences in the use of this construction. This will be thoroughly discussed in the coming chapters.

### **3.5 Summary**

This chapter was devoted to the discussion of the main grammatical characteristics of English caused-motion constructions by reviewing the constructional account of such expressions. The analysis was largely based on Goldberg's (1995) description of caused-motion events and advocated that caused motions have a unique status in the constructional repertoire of speakers. In spite of advocating for schematic patterns in speakers' cognition, the chapter also addressed low-level generalizations (phraseologisms and specific verb-classes) and how these account for the use and productivity of specific caused-motion instances, especially those denoting figurative readings (BOAS, 2013; HAMPE, 2010; XIA, 2017). The chapter proposes a brief discussion of the interpretation of the PP argument, which can have figurative readings, and it is claimed that these figurative caused motions are licensed by primitive metaphors that equate change of LOCATION as CHANGE OF STATE.

Thus, having discussed the main aspects of CCG in Chapter 2 and the main grammatical characteristics of caused-motion constructions in this chapter, we are now left with four kinds of caused-motion events. These are:

- Caused motions with verbs of instantiation (*put, get, take, bring*) denoting literal movement:  
eg. We **got the ball into Shiloh and Seth** early (COCA/News/2019)
- Caused motions with verbs of instantiation (*put, get, take*) denoting figurative movement:  
eg. **Put them out of their misery** right now, hmm? (COCA/Movie/2015)
- Caused motions with verbs of modification (*sneeze, talk, laugh*) denoting literal movement:  
eg. I finally **sneezed this eraser out of my nose**. (COCA/TV/2010)
- Caused motions with verbs of modification (*sneeze, talk, laugh*) denoting figurative movement:  
eg. the ability to critically **think themselves out of oppression** (COCA/Blog/2012)

The four constructional groups seen above will be put to test against the learner data in Chapters 4 and 5, where we will discuss the use and processing of caused-motion constructions by learners, whose first languages belong to the Romance family, namely Brazilian Portuguese, Spanish, Italian and French.

## Chapter 4

### The Caused-Motion Construction in Learner Language

#### 4.1 Introduction

This chapter deals with the selection, extraction and analysis of learner written language production of English caused-motion constructions. The data extraction targeted four groups of learners with regard to their L1 (Brazilian Portuguese, Spanish, Italian and French) and their levels of English proficiency (from A1 to C2 in the CEFR). The data was extracted from EFCamDAT (*Education First - Cambridge Open Language Database*), a morphosyntactically tagged corpus with written language production of learners of English as a foreign language (henceforth EFL). The proposed quantitative analyses aimed to tackle learners' production of caused motions from two different, but rather complementary angles, namely, (1) a *cross-linguistic comparison* of the occurrence of target-like caused motions in the four groups of learners; and (2) the *developmental pattern* in the use of caused motions, as shown by the different levels of proficiency within each L1 group. In light of our discussion about the relevance of low-level constructions in the use and productivity of caused motions (Chapter 3), the analysis also targets the lexical variability in the production of learners across levels of proficiency and L1s, so as to verify the extent to which we can claim learners have access to schematic caused motions or whether they seem to appeal to low-level, lexicalized instances and certain classes of verbs. To that end, the analysis separated learners' verbal production into two groups, *instantiation verbs* and *modifying verbs*, as proposed in Cabrera and Zubizarreta (2004). Lastly, we also discuss the *literal vs. figurative* uses of caused motions and their relation with low-level instances. Before presenting the analyses described herein, the chapter starts with a brief discussion about corpus linguistics and its main aspects as a method of language observation and also presents and discusses EFCamDAT and its interface characteristics.

## 4.2 Corpus Linguistics

So far we have seen that cognitive linguistics, in general, and CCG, in particular, consider speakers' knowledge of language to be an inventory of symbolic structures that are conditioned to the communicative function of language within particular speech communities. Such a characteristic makes CCG a theory of language that is deep-rooted in the use of conventional constructions, that is, linguistic symbols that belong to the mental grammar of native and nonnative speakers; in other words, to their construct-i-con. In addition to that, the *usage-based model* (BYBEE, 2010; LANGACKER, 2013) acknowledges the importance of studies centered on the frequency of language expressions because, as has been discussed, frequency of use may be seen as systematic evidence of linguistic conventionalization. Thus, it can also be used as a diagnosis of what is more or less stable and prototypical in the cognition of speakers; both of native and also nonnative speakers.

Bybee (2006, 2010) proposes that the frequency of constructions has great impact on the modeling of grammar and this can be shown by the capacity of speakers to recognize what is more or less conventional in their language. Likewise, Evans and Green (2006) draw attention to the relationship between frequency of use and the entrenchment of constructions.

[...] the central claim of Cognitive Grammar, with respect to the usage-based thesis, is that usage affects grammatical representation in the mind. Furthermore, frequency of use correlates with entrenchment. Two main types of frequency effects have been described in the literature: token frequency and type frequency. Each of these gives rise to the entrenchment of different kinds of linguistic units. While token frequency gives rise to the entrenchment of instances, type frequency gives rise to the entrenchment of more abstract schemas. (EVANS; GREEN, 2006, p.118)

To the authors, both kinds of frequency effects, *type* and *token* frequency, have a direct connection with the entrenchment of language patterns in the mind. In this way, checking frequency patterns might seem to be an effective way to probe into cognitive representations and strategies. Along the same lines, other researchers working at the interface between

cognitive and corpus linguistics have drawn strong correlations between the mental representation of language patterns and text frequency. Schmid (2010), for instance, systematizes this correlation by postulating a principle which he names *From-Corpus-to-Cognition Principle*. The principle states that “frequency in text instantiates entrenchment in the cognitive system” (SCHMID, 2000, p. 39). Inspired by Halliday's (1993) observations about the relationship between frequency in texts and probabilities in the system, Schmid (2000) postulates the principle, but warns that frequency in texts can only be taken as evidence of cognitive entrenchment if data retrieval and analysis are conducted in accord with standard practices and clear criteria. These criteria, according to Bybee (2006, 2010) Evans and Green (2006), Schmid (2000) and others, have been the focus of attention to those working from a corpus linguistics paradigm, a relatively modern methodological approach that takes language probabilities, as opposed to possibilities, with systematic and scientific rigor.

An exhaustive account of corpus linguistics as an area of investigation, its main methods and research applications goes beyond the objectives of this dissertation, but a few aspects must be covered to contextualize our data selection and extraction. The first refers to the view of language shared among corpus linguists, that is, what language is for, according to corpus linguistics. To these researchers, languages can only be conceived as possible within and through human interaction in discourse (TEUBERT, 2009; SINCLAIR, 1991; LINDQUIST, 2009; McENERY; HARDIE, 2012); that is, among corpus linguists the idea that language cannot be detached from its contexts of use and the speakers that use it is a rather indisputable fact. This view of language places corpus linguistics within a broader area of functional studies, given the similarities shared between functionalist theories and corpus methods. McEnery and Hardie (2012, p. 168) summarize such compatibility by stating that

Language is not seen as an abstract, isolated system, but one that is *used* to communicate meaning, and which is shaped by the ways it is used, by the contexts in which it occurs and by the structure of human cognition [...] [t]he emphasis on language *in use* makes functionalism compatible with corpus linguistics in a way that formalist linguistics is not.

Given the importance that *use* has in functionalism and in corpus studies, it seems to be more than reasonable to state that observations about the structure of language and how it is used could only be made if the analysis relies on naturally occurring data<sup>36</sup>. This perspective, an empirical one, makes it possible for corpus linguists to describe language from a *probabilistic* perspective. Also, the method is capable of presenting the analyst with patterns that speakers are unlikely to conjure up through pure introspection. Fillmore (1992, p. 35) draws attention to this fact by stating that “every corpus that I’ve had a chance to examine, however small, has taught me facts that I couldn’t imagine finding out about in any other way”. These words summarize two determining factors in research done from a corpus linguistics perspective, that is, the *objectivity* of the data being used (as opposed to subjective introspection) and a commitment to the *replicability* of the analyses, since “corpus data can easily be verified by other researchers” (SVARTVIK, 1992, p. 8).

Although corpus linguists are not the only researchers working from an empirical perspective who favors the use of samples of naturally occurring language in their analyses, only corpus linguistics is theoretically devoted to the creation and discussion of systematic methods of large data selection, compilation and observation. These data, or databases, can be used by researchers both in *quantitative* studies, usually centered on the conventionalization of linguistic structures, and in *qualitative* studies, which can help develop and/or (re)shape existing theories of language (McENERY; HARDIE, 2012). Whether the corpus study is a quantitative, qualitative or both quantitative and qualitative, though, is directly connected to the research questions and objectives. Other aspects related to the research aims, which may affect the accuracy of the analysis and the results, concern the corpus *representativeness*, *size* and *nature*.

A representative corpus is one that contains the right number and types of genres about which a research project aims to make generalizations (McENERY; HARDIE, 2012). Biber (1993) defines representativeness in terms of how accurately the corpus represents the

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<sup>36</sup> The understanding that corpus data reflect language in use is not accepted among all language researchers unquestionably. Widdowson (2000), for instance, claims that the developments contributed by corpus linguistics to the description of languages are not to be ignored, but these are “necessarily only a partial account of real language” (WIDDOWSON, 2000, p.7). According to the linguist, this is especially worrying when corpus data are said to be the only valid source to define what real language is like for teaching and learning purposes.

variability in a population, that is, a corpus can only be considered a reliable snapshot of a language or language variety, if its process of compilation respected specific criteria for sampling (TAGNIN, 2008). In other words, the extent to which we can trust in the language material contained in a corpus lies in the procedures adopted in the compilation of the corpus, that is, data are not given *to* the researcher, but rather *by* the language researcher (RASTIER, 2001 apud NEVEU, 2008). Related to this idea of representativeness is the discussion on how big corpora should be. Although some typological classifications on corpora size have been proposed (cf. SARDINHA, 2004, p. 26), its coverage and adequacy depend a lot more on the research questions being raised and a lot less on the objective size and number of words it contains. On this matter, Tagnin (2013, p. 51) states that a corpus can only show what it has and Fillmore (1992, p. 35), along the same lines, goes on to claim that “I don't think there can be any corpora, however large, that contain information about all of the areas of English lexicon and grammar that I want to explore”. That said, the classification of corpora as small or big is not always the most relevant question in a research project, but rather if the corpus is big *enough* given one's research aims and objectives.

Last, but certainly not least, the *nature* of the corpus is also of utmost importance to the success of corpus-driven research. Corpora can be of many “shapes and colors” and the most appropriate kind will depend, as was briefly discussed, on the research objectives. Lee (2010) lists the following types of corpora while discussing their applicability and main characteristics:

- (i) General language corpora (spoken, written and both): as the name itself suggests, general corpora are usually used in research aimed at the investigation of general linguistic features, be them grammatical or lexical. As such, they must contain both a substantive number of words and a wide variety of genres. The *Corpus of Contemporary American English* (COCA) (DAVIES, 2008-) is an example of a general language corpus, given its size (1.0 billion words) and balanced number of genres (TV/movies, blog, web, spoken, fiction, magazine, newspaper, academic).
- (ii) Historical corpora: historical corpora are meant to cover successive synchronic stages of the language in different historical moments (i.e., *diachronic analysis*). The *Corpus*

of *Historical American English* (COHA) is an example and it is composed of 400 million words distributed in a number of genres (fiction, magazine, newspaper, books) and covers the historical moments from 1810 to 2009.

(iii) Specialized corpora: specialized corpora are usually smaller in scale, when compared to general corpora, in that they are meant to capture the lexico-grammatical features of specialized segments, domains and genres. These kinds of corpora are frequently applied to terminological studies. The *Michigan Corpus of Academic Spoken English* (MICASE) is a specialized corpus of academic English with 1.8 million words and texts of the following specialized areas: *biological and health sciences, humanities and arts, physical sciences and engineering, social sciences and education*.

(iv) Parallel and comparable multilingual corpora: Johansson (2007, pp. 9-11 apud LEE, 2010) defines *translation corpora* as containing “original texts and their translations into one or more languages”; *comparable corpora* as containing “original texts in two or more languages matched by criteria such as genre, time of publication, etc.”. *Parallel corpora* are kinds of *bidirectional translation corpora*, that is, a combination of *translation* and *comparable* corpora. An example of a parallel corpus is COMPARA, which is composed of original literary language in Portuguese and English and their translations (TAGNIN, 2008; 2013).

Other major kinds of corpora discussed in Lee (2010) are the ESL/EFL learner corpora. Given the nature of this research and the main aim of this chapter, this kind will be more thoroughly discussed in the section.

#### **4.2.1 ESL/EFL learner corpora**

Like any other type of corpus, learner corpora must be compiled according to certain criteria so as to guarantee the validity of the data therein contained. However, differently from other

kinds of corpora, learner data must respect a couple of variables with regard to the profile of the learners who produce the language and not only the language itself (GRANGER, 2008); in other words, learner corpora compilation must carefully consider the profile of informants as well as the type of language they produce.

As far as learner profile is concerned, Granger (2008) highlights one aspect which is of great relevance for learner data compilation, since this can interfere in the nature of the corpus, thus in what can be generalized from its observation and analysis. This aspect relates to what kind of English this learner corpus will represent: *English as a second language* (ESL), *English as a foreign language* (EFL) or *English as a Lingua Franca* (ELF). By and large, SLA research classifies as L2 any additional language speakers use (SAVILLE-TROIKE; BARTO, 2005), irrespective of whether such an L2 is the language of a country where speakers immigrated to and, thus, use for communication on a daily basis, or whether it is a foreign language to which learners are formally exposed while still in their countries of origin. In a more restricted sense, though, *L2s* and *foreign languages* are distinguished on the basis of how speakers use the target language. Nonnative speakers who use, for instance, English in an English-speaking country for educational or professional reasons are said to be ESL learners. On the other hand, speakers who do not use the L2 in their immediate social context, but rather, learn it for general educational purposes or for occasional cross-cultural communication situations, are strictly classified as EFL learners. In conclusion, speakers who use English on a regular basis in countries where it is not the official language, that is, the so-called *expanding circle*<sup>37</sup> (COOK, 2003), are strictly described as ELF learners. Therefore, although SLA research agenda tends to neutralize these differences, in that any additional language will be an L2 (even a third, fourth or fifth language (SAVILLE-TROIKE, 2005)), one cannot trivialize the relevance of whether the learner corpus contains ESL, EFL or ELF data, since this will mirror different learning mechanisms, strategies and language patterns.

The second characteristic raised by Granger (2008) relates to the naturalness of the language produced by learners. Differently from any other L1 corpora, which might contain language that is *historically constrained* (eg. historical corpora) or *professionally restricted*

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<sup>37</sup> The terms *inner circle*, *outer circle* and *expanding circle* (COOK, 2003, p. 27) are used respectively to refer to English-speaking countries, former colonies where English is an official language and countries where the official language is not English, but whose commercial, cultural and educational systems, on certain occasions and contexts, conform to an English-speaking policy.

(eg. specialized or parallel corpora), learners' production might be the product of rather unnatural contexts of use. In different terms, the naturalness of the language produced, especially by EFL learners, is directly connected to the pedagogical tasks used in the prompting of this language. Such is the case that researchers have turned their attention to investigating the extent to which specific kinds of tasks affect both the accuracy and the complexity of learner language production (ALEXOPOULOU et al., 2017; ALLAW; McDOUGH, 2019) and have found strong correlations between task design features (task complexity, type and L1 background) and the propositional complexity in written texts (ALLAW, 2019). Therefore, learner corpus research must carefully control for these variables so the researcher does not run the risk of asking the corpus for what it cannot offer (TAGNIN, 2013)<sup>38</sup>.

As well as the points tackled above, learner corpora must comply with a series of characteristics, both about the language to be included and the learners, which are presented in the table below.

Table 9 - Learner corpus design criteria (GRANGER, 1998, p.8)

Language	Learner
Medium	Age
Genre	Sex
Topic	Mother tongue
Technicality	Region
Task setting	Other foreign languages
	Level
	Learning context
	Practical experience

The *language* column above mentions the *medium*, that is, spoken or written language production. The medium also affects the *genres* to be contemplated in the corpus, because, while one could expect narratives to be possible both in spoken and written tasks, written

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<sup>38</sup> The lack of certain grammatical or lexical constructions in learner corpora, especially EFL learner corpora, might be of special significance for teaching purposes because this can shed some light on curriculum design and create a demand for the inclusion of certain language patterns which cannot be found in materials for teaching.

language is certainly more conducive to reports or argumentative tasks. Conversely, interviews and dialogues would normally characterize types of speaking tasks. The *topic* and *technicality* of the tasks are also seen as relevant, since they may affect the lexical choice as well as the grammatical structures applied to the execution of the task. At last, *task setting* (timed vs. untimed, assisted vs. unassisted) must also be taken into account because time does seem to affect learners performance as well as whether or not they are allowed access to materials for consultation (eg. dictionaries, grammar books, online corpora) while carrying out the designated tasks.

As for the *learner* column, the first two characteristics are especially relevant for those interested in individual differences and how these affect performance. Although *sex* and *age* may be determining factors themselves, they are also important variables for SLA research that is focused on other individual differences such as *language aptitude* (cf. SKEHAN, 2014) and *age and proficiency* (cf. DeKEYSER, 2014). *Mother tongue* also has great significance in learner corpus compilation, given the whole body of research devoted to the cross-linguistic influence on the acquisition of L2 (cf. KELLERMAN; SMITH, 1986). *Region* and other *foreign languages* are connected, since some learners come from multilingual contexts and this may affect their performance, both for reasons related to general language aptitude or because of typological similarities between the language(s) they dominate. The *level*, says Granger (1998), is a thorny issue because, in the vast majority of instances, this classification is a rather subjective one and does not necessarily reflect the language proficiency of each individual learner. Granger's (1998) solution to this issue is to stick to "external" or "extra-linguistic" factors to determine the proficiency level of learners, such as the teaching level in their schools/universities or hours of formal instruction. The *learning context* refers to what has been already been discussed, that is, whether learners are EFL, ESL or EFL learners and *practical experiences* subsume years and quality of instruction, traveling experiences, materials used by the learner in teaching contexts and other related matters.

Having discussed the main characteristics of learner corpora, within the greatest area of corpus linguistics, the next section presents and characterizes the *EF-Cambridge Open Language Database* (EFCamDAT), the corpus used in the selection of our learner data.

## 4.2.2 EFCamDAT Corpus

### 4.2.2.1 The corpus structure

Education First - Cambridge Open Language Database (EFCAMCAT) is a linguistic database, with 83,543,480 word tokens available online. It contains records of written assignments of 174,743 EFL learners, whose proficiency levels range from A1 to C2 in the CEFR (Common European Framework of Reference). The data is composed of essays written by learners as part of their course on *Englishtown*, an online English course owned by EF Education First. The entire course on *Englishtown* is formed of 16 proficiency levels, which are paired up with the CEFR levels as follows.

Table 10 - EFCamDAT proficiency levels and the CEFR bands

Englishtown levels	1-3	4-6	7-9	10-12	13-15	16
CEFR bands	A1	A2	B1	B2	C1	C2

The 16 levels on *Englishtown* are used in the corpus as the criteria for proficiency segmentation. Each level of proficiency contains 8 units of work on a range of receptive and productive tasks and the written essays constituting the data on EFCamDAT cover an array of topics. A sample of the topics is given below.

Table 11 - Examples of essay topics and levels (HUANG et al., 2017)

ID	Essay Topic
2:1	Describing your favourite day
3:1	Replying to a new penpal
7:1	Giving instructions to play a game
11:1	Writing a movie review
13:4	Giving advice about budgeting
15:1	Covering a news story
16:8	Researching a legendary creature

The IDs describe the proficiency level and the number of the unit

The corpus data contain a total of 1,180,310 scripts and 7,126,752 sentences produced by learners with a wide range of L1 backgrounds. There are 198 nationalities represented in the corpus and among these, Brazilian learners comprise the largest group, featuring 40,4% of the scripts and 31,078,406 number of words. This corresponds to 37,20% of the word tokens in the corpus. The distribution of the most quantitatively significant nationalities, scripts and word tokens is presented below.

Table 12 - Percentage and number of scripts per nationality of learners (HUANG et al., 2017, p. 5)

Nationality	Percentage of scripts	Number of Scripts	Number of words
Brazilians	40,4%	476,817	31,078,406
Chinese	14,0%	165,162	11,909,869
Mexican	7,4%	87,260	5,707,891
Russians	5,9%	70,208	5,454,224
Germans	4,6%	54,597	4,887,108
Saudi Arabians	4,0%	47,340	2,724,638
Italians	3,8%	45,249	3,761,909
French	3,5%	41,626	3,298,343
Taiwanese	2,5%	29,569	2,349,534
Japanese	1,8%	21,374	1,602,328

The data are annotated with part of speech tags (PoS), for which The Penn Treebank Tagset was used, and also contain some grammatical dependencies done with SyntaxNet Parser.

#### 4.2.2.2 The web-based interface

The introductory page of the web-based interface is presented below. It presents the main information of the corpus, which can be accessed at [corpus.mml.cam.ac.uk](http://corpus.mml.cam.ac.uk).

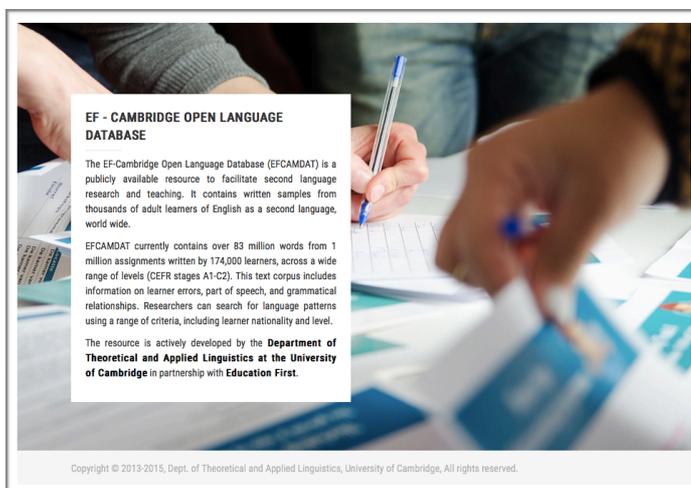


Figure 12 – Overview of EFCamDAT

The script selection makes it possible for the user to select specific *teaching levels* (number 1 in Fig. 13), *script topics* (number 2), the learner *nationalities by continent* (number 4) and finally the *countries* (number 5) the researcher would like to focus on. Numbers 3 and 6 show, respectively, the selected *units* and the *nationalities*. When the selection process is complete, the interface exhibits the profile of the group of learners (number 7).

This resource is actively developed by the **Department of Theoretical and Applied Linguistics at the University of Cambridge** in partnership with **Education First**.

Figure 13 – Selection of scripts on EFCamDAT

Having completed the selection, the corpus provides the possibility of combining PoS searches (number 1 in Fig. 14) with grammatical dependency relations (number 2). This combination is of extreme relevance to those interested in specific grammatical dependency relations, since the corpus has not been parsed for all sorts of grammatical constructions, such as caused motions.

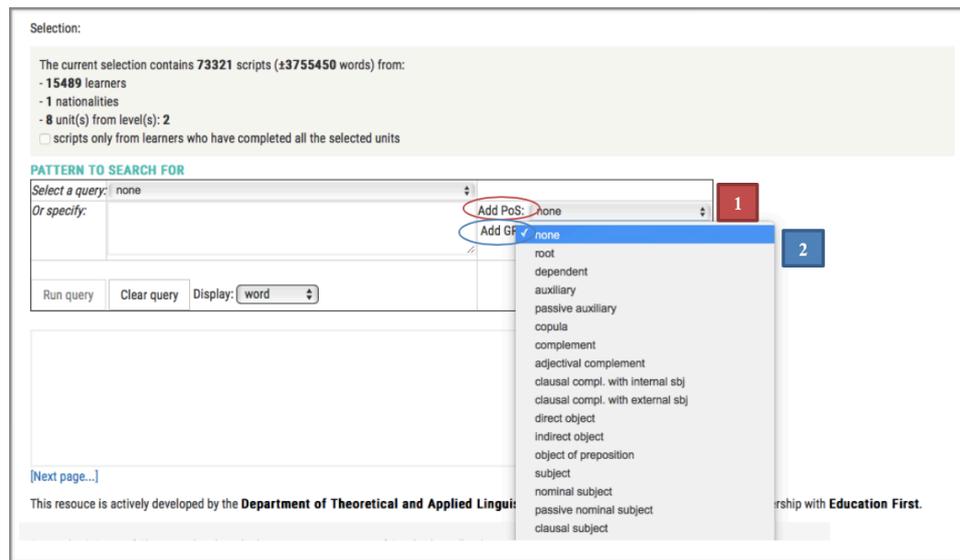


Figure 14 – Searches with PoS and grammatical dependency relations on EFCamDAT

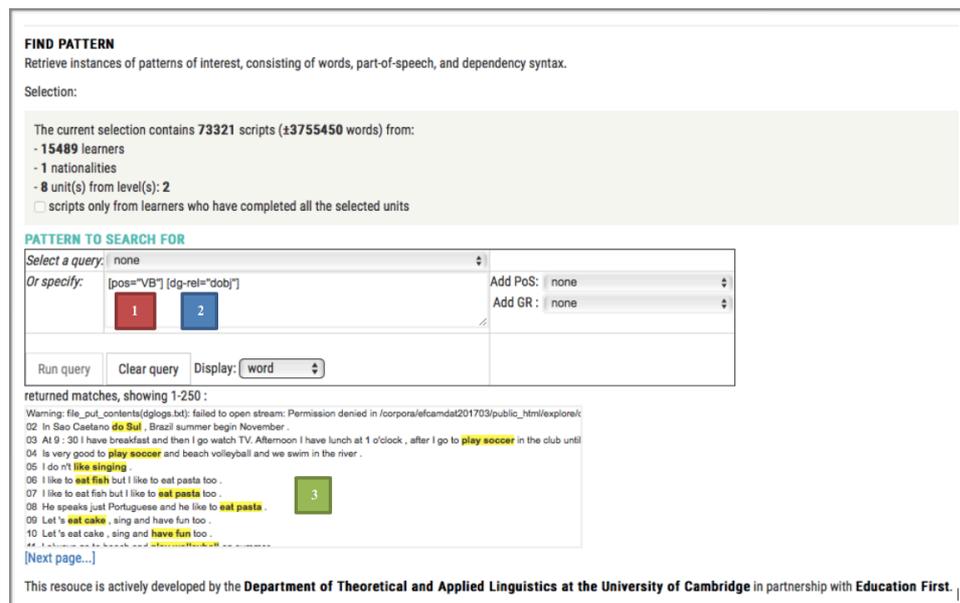


Figure 15 – Example of a verb-object search on EFCamDAT

Above is an example of a simple search that combines the PoS *verb base* ([pos=“VB”]) and a grammatical relation of *direct object* ([dg-rel=“dobj”]). The search results are shown in the form of concordance lines in which the searched items are highlighted in yellow (Fig. 15, number 3). At last, by clicking on any of the results, the researcher can have access to the syntactic parsing for that particular sentence (Fig. 16).

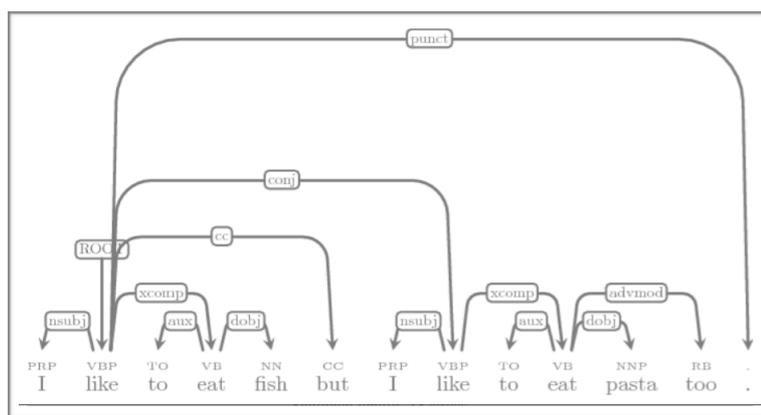


Figure 16 – Example of sentence parsing on EFCamDAT

All things considered, the data on the EFCamDAT follow the standard criteria for corpus data compilation, as discussed by Granger (1998, 2008), and allows the researcher to carry out investigations on a number of lexical and grammatical constructions with a variety of L1 backgrounds. In order to summarize the main corpus characteristics, Table 12 brings the main features of EFCamDAT in light of the criteria defined in Granger (1998).

Table 13 - EFCamDAT main features

Language	EFCamDAT	Learner	EFCamDAT
Medium	Written	Age	Not specified
Genre	Essays	Sex	Not specified
Topic	Varied	Mother tongue	Categorized by nationality
Technicality	Not technical	Region	Specified
Task setting	Untimed/unassisted	Other foreign languages	Not specified
		Level	Teaching level
		Learning context	EFL learners

Having described the corpus that served as our database, the next section presents the criteria adopted for data extraction of learner caused-motion constructions from EFCamDAT.

### 4.3 Extraction of Caused-Motion Constructions from EFCamDAT

The criteria adopted in the compilation of the data to inform our analysis started with the selection of the speakers that would compose our groups of learners, that is, as was established in the Introduction of this dissertation, this research investigates the use of caused-motion constructions by L1 speakers of four different Romance languages, namely Brazilian Portuguese, Spanish, Italian and French. For matters related to typological differences, we have included German, a *satellite-framed* language, as a control group against which the results of the Romance languages could be compared. However, it is imperative to highlight that the inclusion of German in our dataset is not meant to suggest that this analysis aims to draw general typological differences between both language groups. The inclusion is a simple heuristic to foreground the results of our focal groups, that is, speakers of Romance languages.

Considering that EFCamDAT does not contain specific information on the L1s of learners, this variable had to be tackled inferentially by the selection of the countries where these languages are spoken. Below are two charts with information about the number of learners selected and the number of word tokens per L1 (cf. Appendix A for tables with numbers of learners, scripts and words per level of proficiency).

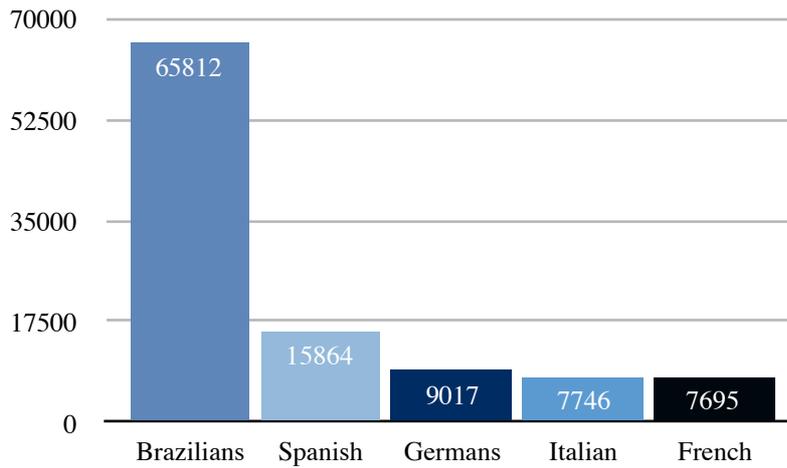


Chart 1 - Number of learners per language

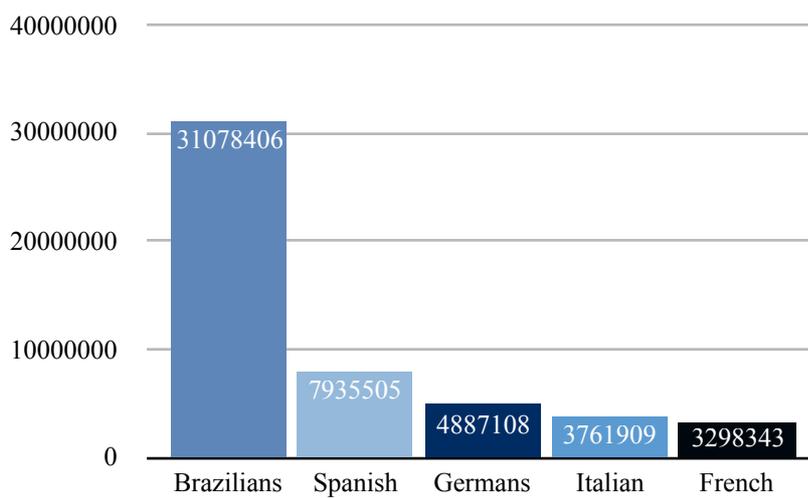


Chart 2 - Number of word tokens per language

The selection of languages by their respective countries was a straightforward process. For Portuguese, the selection process was restricted to Brazil given the high number of scripts, numbers and word tokens the corpus contains of this language. Likewise, Italian, French and German were also restricted, respectively, to Italy, France and Germany. However, Spanish was an exception, in that more than one country had to be selected in order to form a

significant dataset. That is, the 7.935.505 word tokens of Spanish reflect data extracted from learners of 20 different nationalities: Spain, Mexico, Costa Rica, El Salvador, Puerto Rico, Guatemala, Dominican Republic, Panama, Honduras, Cuba, Nicaragua, Colombia, Peru, Argentina, Venezuela, Chile, Ecuador, Paraguay, Bolivia and Uruguay.

### 4.3.1 Search syntax

As discussed in Chapter 3, caused-motion constructions are linguistically characterized as follows:

- (115) a. Form: [subj [v obj obl]]  
b. Function: X CAUSES Y TO MOVE Z

In this syntactic pattern, the verbal gap must be filled by non-static verbs and the oblique argument takes the form of a PP that indicates the DIRECTION towards which the dislocated THEME will be caused to move. The non-adjacent relationship between the non-static verb and the directional PP, though, poses a problem for the search syntax in corpora that are not semantically tagged, given that the sheer syntactic sequence [subj [v obj obl]] can license a number of regular transitive constructions with normal adjunction, be it nominal (116) or verbal (117).

(115) I'm not crazy. I [VP saw [NP a man [PP with a knife]]]. (COCA/Movie/2016)

(117) I like to cook dinner with him and [VP [v watch [NP TV]] [PP at home]].

(COCA/Magazine/2006)



In (118) we spell out the search syntax used. In it, we opted for the lemmatized form of the verb so as to capture all morphological instances of the verbs occurring in such a pattern. The lemmatized verb is followed by [] {1,3}, which allows for the corpus to bring any sequence containing from 1 to 3 word forms occurring between the lemmatized verb and the preposition/particle. A first search was tried with the syntactic tag [dg-rel="dobj"], a dependency tag for direct objects. Although the results with this dependency relation did bring some instances of caused motions, simply allowing for the corpus to bring up any element ranging from 1 to 3 elements covered both the instances captured by the syntactic tag [dg-rel="dobj"] and also some other instances left aside. In light of this comparison, we decided for the gap {1,3}. Lastly, in place of using specific prepositions/particles in the search, the first tested search specified the introducer of the last argument with a PoS tag provided in the corpus, [pos="IN"] (= *prepositions*). After some eyeballing inspection of the resulting concordance lines and a comparison with the final search, we opted to define each of the prepositional items, since this search gave more accurate data than the general one with the tag for prepositions. Separate searches were conducted for each of the following prepositions/particles: *off, out, into, onto, across, through, inside, outside, down the, up the*. With *down* and *up*, the definite article *the* was included so as to coerce a prepositional use, rather than an

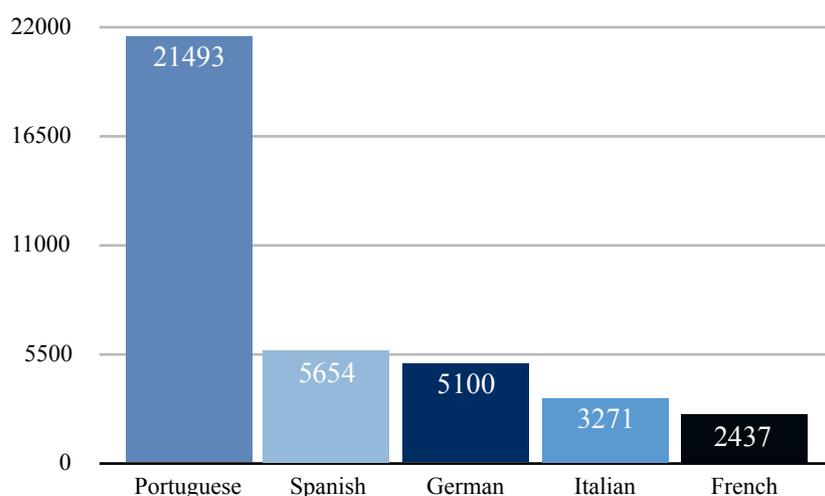


Chart 3 - Results for the search [pos="VB.\*"] [] {1,3} [word="prep"]

adverbial one, and also to avoid phrasal verbs. This final search generated the following figures for the pattern [lemmatized verb + {1,3} + preposition/particle]:

The figures above represent the absolute numbers of sequences the corpus search showed by different L1s. As was expected, given the different sizes of data and learners, Portuguese displayed almost four times more sequences than the second largest set of data, that is, Spanish and almost ten times more than French, the language with less data and the lowest number of learners. Below is Table 14, which brings the absolute values of sequences divided by levels of proficiency, according to the CEFR.

Table 14 - Results for the search [pos="VB.\*"] [] {1,3} [word="prep"] by proficiency levels

	Brazilians	Spanish	Germans	Italians	French
A1	5637	1216	592	473	352
A2	5592	1322	967	747	566
B1	5427	1573	1059	774	531
B2	3767	1201	1703	933	806
C1	914	342	660	344	182
C2	156	46	119	84	0
Total	21493	5654	5100	3271	2437

The results in Table 14 were all compiled and fed into a spreadsheet of *Numbers*, Apple's data organization app, for subsequent analysis. A sample of some resulting concordance lines by Brazilian and Spanish-speaking learners are provided below.

Portuguese

- (119) a. It 's very easy and fast , I **don't need go out** of my home. (BR/A1)<sup>39</sup>  
 b. There's **an Italian restaurant across** the street. (BR/A1)

<sup>39</sup> The codes at the end of learner samples refer to the learner profile classification we have attributed to the data. BR refers to *Brazilian* and *A1* refers to the CEFR level. The codes used for the other languages are SP, ITA, FR and GER, respectively, for Spanish, Italian, French and German.

- c. I do the shopping , **watch cinema and eat out** once a week with my girlfriend.(BR/A2)
- d. Now , I can respond quickly to professional emails and easily **access our database through** application. (BR/B1)

Spanish

- (120) a. I don't usually **surf the internet through** the night. (SP4/A2)
- b. Fortunately we **did manage to pay off** our mortgage. (SP10/B2)
- c. I'm planning to **create a fund into** which the economically better-off students can pay in order to finance educational trips. (SP13/C1)
- d. Apparently, thief **intended<sup>40</sup> to get into** the real state according with the neighbors who heard the sound of someone breaking a window (SP15/C1)

The data generated by the search syntax and exemplified above illustrate the first challenge of looking for caused-motion relations in the corpus. All the sequences in bold are formal instantiations of the sequence [pos="VB.\*"] [] {1,3} [word="prep"], but none of them represents the structure we were looking for. Some of them (120d, for example) did bring cases of movement, but not of the caused-motion kind. (120d) is an example of an *intransitive motion construction* and should, then, be removed from the data that would compose our dataset. So, after computing all the sequences listed by the search syntax, the next step was to classify the resulting concordance lines and separate them into real instances of caused-motion constructions and random patterns. In other words, the "raw" data had to be semantically annotated so we could have a clear quantitative picture of the production of caused-motion constructions by the selected groups of learners.

The next section brings the process of semantic annotation we have subjected the data to.

#### 4.3.2 The semantic annotation

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<sup>40</sup> All the learner data here analyzed will be kept in their original forms. Therefore, no grammatical inaccuracies, misspelled words, etc. will be corrected.

After extracting the data from EFCamDAT, the next step was to find, among all the given concordances containing the sequence [subj [v obj obl]], those whose meanings would instantiate the semantic reading of caused motion, that is, X CAUSES Y TO MOVE Z. Another important aspect of the analysis and which was also meant to help us decide on the constructional semantic reading was to isolate the verbs of each sentence. The criteria adopted for the analysis of occurrences were defined in different columns, as Fig.18 presents.

20 nationalities: Spain, Mexico, Costa Rica, El Salvador, Porto Rico, Guatemala, Republic Dominican, Panama, Cuba, Nicaragua, Colombia, Peru, Argentina, Venezuela, Chile, Equator, Paraguay, Bolivia, Uruguay  
 The current selection contains 9832 scripts (±417229 words) from: 1229 learners  
 Search syntax: [pos="VB.\*"] [] {1,3} [word="off"] / out / into / onto / across / through / inside / outside / down the / up the

L1 + EF teaching level	CEFR	Verb	Inst/ Mod	Construct ion	Phraseologism	Concordances
SP_1	A1	divide	1	1	*be divided into	01 Did you know that KPMG has offices in 135 countries around 1 three sections .
SP_1	A1	take	1	2	Take X into cons/account	41 We can <b>see that clearly taken into</b> account the fact that the I wings of the country .
SP_10	B2	talk	2	2	Talk X out of Y	47 Roland wanted us to reduce the minimum number of items de
SP_1	A1	throw	1	1	NA	26 I used to have a black shirt too , but I <b>threw it out</b> beacuse it v
SP_1	A1	throw	1	1	NA	42 The mood of the song <b>throw your into</b> the small farmers towr
SP_1	A1	welcome	2	2	NA	09 Hi Jane , welcome to Sound and vision TV. We are very excite
SP_10	B2	change	1	2	NA	81 You must be careful with your money , because it' 's possible t disaster , where it is imposible managing our money .
SP_10	B2	deposit	1	1	*deposit X into	02 In addition , I <b>deposit \$ 300 into</b> a high interest savings accou
SP_10	B2	deposit	1	1	*deposit X into	05 in addition , I <b>deposit \$ 350 into</b> a high interest saving accour
SP_10	B2	deposit	1	1	*deposit X into	06 I will also <b>deposit \$ 400 USD into</b> a high interest savings acc
SP_10	B2	deposit	1	1	*deposit X into	09 I am currently paying \$ 800 rent per month and my others exp

Figure 18 – Spreadsheet with the data

In column one (from left to right), we included the teaching level according to how they were categorized in the structure of *Englishtown*. This was used to group levels in terms of their correspondence with the CEFR (cf. Table 10), which features in column two. The third column isolates the verbs used in the sentences. This column is followed by other columns relevant to the analysis of the data, namely *verb categorization (instantiating vs. modifying verbs)*, *constructional reading (literal vs. figurative)* and, lastly, whether or not the

sentences produced represented some attested *phraseologisms*<sup>41</sup>. These points will be discussed in more detail in the analysis.

After data tabulation, an extensive eyeballing inspection was carried out with all the 37956 in order to separate the data into two subgroups, that is, those that represented real caused-motion instances and those representing any other random pattern<sup>42</sup>. For matters related to how that was coded in the spreadsheet, we adopted the tag NA (= not applicable) for the sentences that did not contain caused-motion occurrences (Fig.19).

:20 nationalities: Spain, Mexico, Costa Rica, El Salvador, Porto Rico, Guatemala, Republic Dominican, Panama,  
 :Cuba, Nicaragua, Colombia, Peru, Argentina, Venezuela, Chile, Equator, Paraguay, Bolivia, Uruguay  
 \*The current selection contains 9832 scripts (±417229 words) from: 1229 learners  
 :Search syntax: [pos="VB.\*"] [] {1,3} [word="off"] / out / into / onto / across / through / inside / outside / down the / up the

L1 + EF teaching level	CEFR	Verb	Inst/Mod	Construction	Phraseologism	Concordances
SP_2	A1	NA	NA	NA	NA	58 You can <b>watch movie or eat out</b> .
SP_2	A1	NA	NA	NA	NA	59 i <b>like to eat out</b> in autumn .
SP_2	A1	NA	NA	NA	NA	60 We usually eat spicy food , and at the Saturday we <b>like eating out</b> .
SP_2	A1	NA	NA	NA	NA	61 In cool weather , I <b>goes eat out</b> .
SP_2	A1	NA	NA	NA	NA	62 always is cold , in winter <b>goes eat out</b> or goes watch movie .
SP_2	A1	NA	NA	NA	NA	63 You can go to the park or <b>go to eat out</b> .
SP_2	A1	NA	NA	NA	NA	64 We <b>like eating out</b> on saturday .
SP_2	A1	NA	NA	NA	NA	65 I can cook but I <b>love eat out</b> .
SP_2	A1	NA	NA	NA	NA	66 On my birthday , I <b>like to have dinner out</b> and eat cake .
SP_2	A1	NA	NA	NA	NA	67 We go to he beach and <b>go to eat out</b> .

Figure 19 – Spreadsheet with random data

The first segmentation into *caused motions* and *random patterns* reduced the entire data (37956 occurrences) to 5807 occurrences of caused motions distributed amongst five

<sup>41</sup> This column, though, was not used as a definitional criterion in the analysis of the data. This column was added a posteriori as a result of the observation of the behavior of some types of caused motions, especially the figurative ones with verbs of modification.

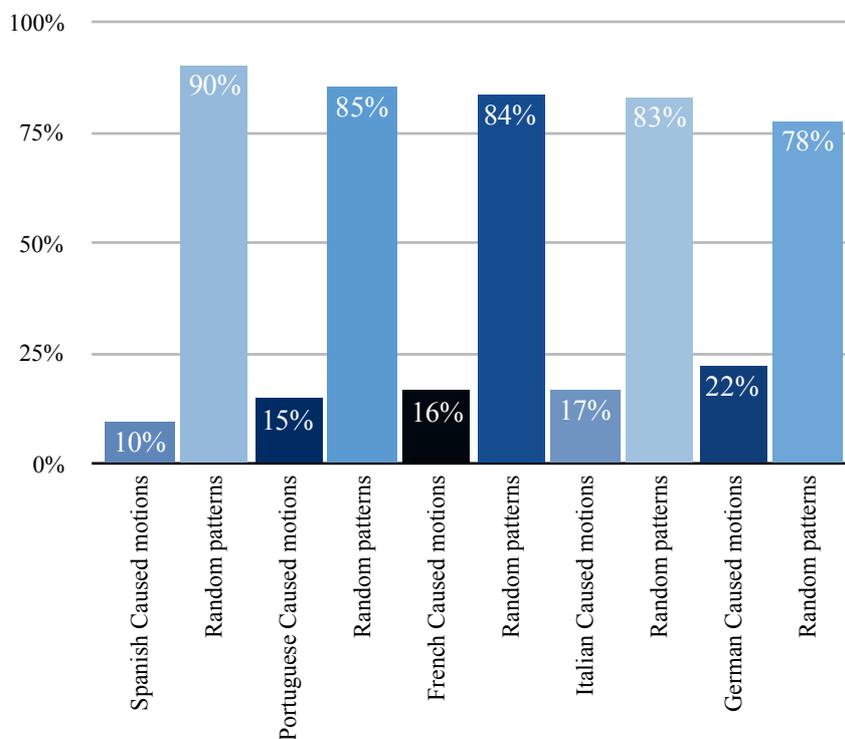
<sup>42</sup> Ideally, the annotation of caused-motion constructions should be done computationally. However, to our knowledge, no existing framework has reached an ideal level of accuracy for such cases. To make up for the subjectivity of the semantic annotation, we have conducted an informal double-checking test by selecting a random sample of 50 concordance lines, spread along the five annotated languages, and asked three PhD candidates in linguistics (one native speaker of English and two other proficient speakers) to annotate them segmenting the data into caused motions and random patterns. The test resulted in 95% of convergence between their answers and our annotation of the data.

groups of learners. This corresponds to 15,29% of all the dataset. The absolute values are provided below.

Table 15 - Semantic annotation of caused motions and random patterns

Construction	Spanish	Portuguese	French	Italian	German
Caused motion	552	3165	402	559	1129
Random pattern	5102	18328	2035	2712	3971
Total	5654	21493	2437	3271	5100

A first look at the absolute values already presents a significant reduction in the number of occurrences for caused motions across the board, but the figures also hint at the productivity of the X CAUSES Y TO MOVE Z reading for the pattern [pos="VB.\*"] [] {1,3} [word="prep"] in our group of languages, since the contrast with our control group (German), in spite of being significant, is not huge. A more visual distribution in percentages is given below.



An observation of the percentage of caused motions through languages seem to endorse, at a first tentative glance, the idea that typological differences (German is also a satellite-framed language, like English) play a role in L2 production. However, the data must receive a more qualitative treatment so as to determine whether German learners' production of caused motions is significantly higher than that of Romance language speakers. It is important, though, to point out that the observed distribution above seems to be stable across levels of proficiency.

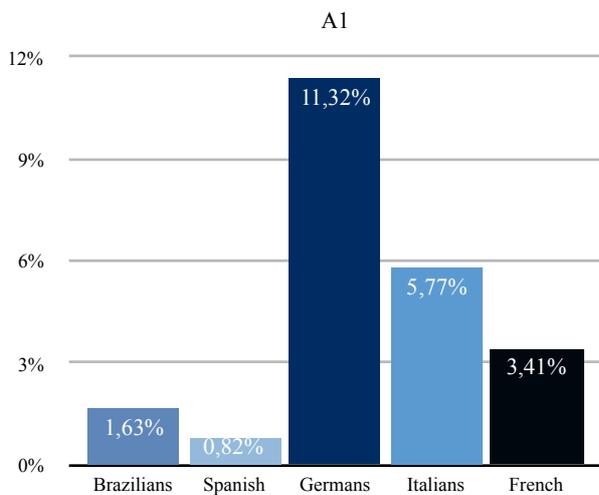


Chart 5 - Caused motions out of general patterns: A1

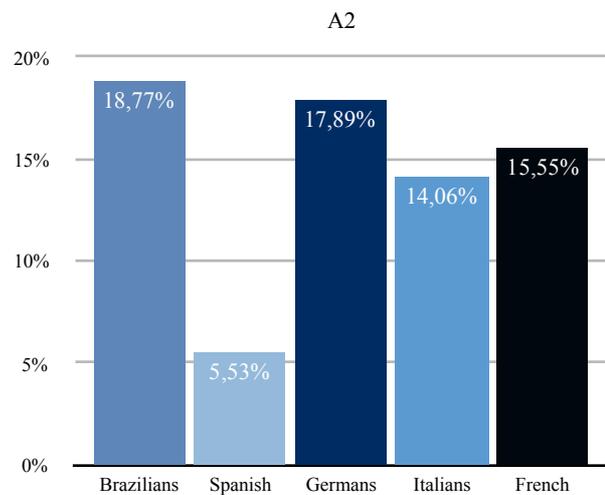


Chart 6 - Caused motions out of general patterns: A2

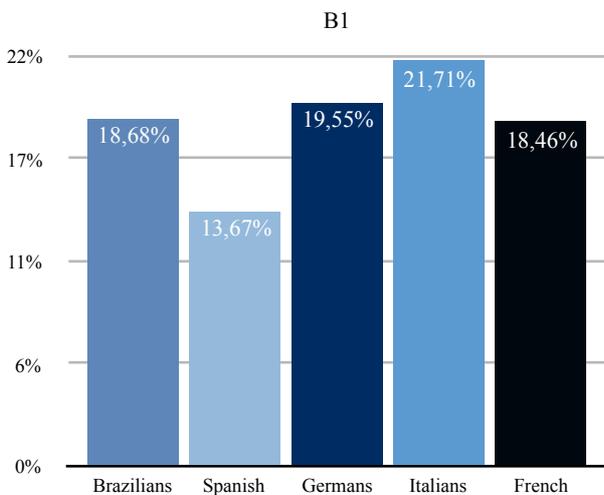


Chart 7 - Caused motions out of general patterns: B1

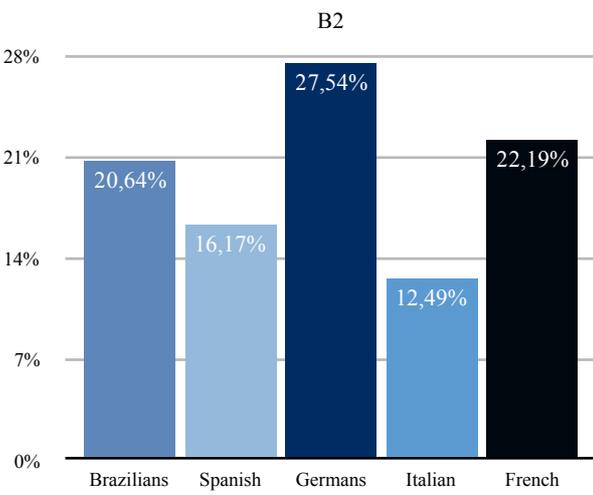


Chart 8 - Caused motions out of general patterns: B2

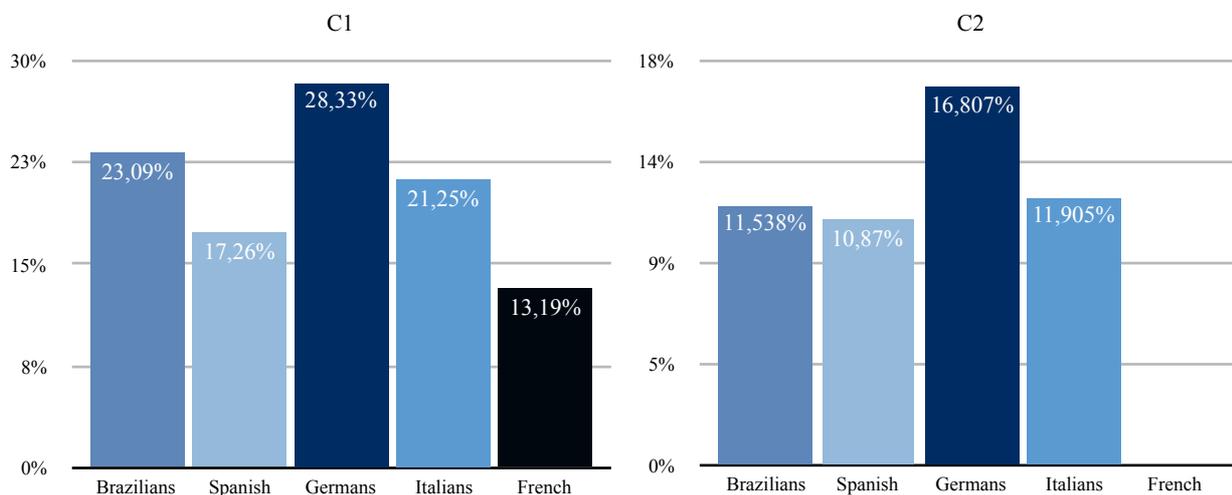


Chart 9 - Caused motions out of general patterns: C1

Chart 10 - Caused motions out of general patterns: C2

The absolute values of caused motions per level of proficiency are provided below.

Table 16 - Caused motions out of random patterns per levels of proficiency

CEFR levels	Brazilians	Spanish	Germans	Italian	French
A1	92 / 5637	10 / 1216	67 / 592	25 / 433	12 / 352
A2	1050 / 5593	72 / 1302	173 / 967	105 / 747	88 / 566
B1	1014 / 5427	215 / 1573	207 / 1059	168 / 774	98 / 531
B2	777 / 3764	191 / 1181	460 / 1703	114 / 913	178 / 802
C1	211 / 914	58 / 336	187 / 660	68 / 320	24 / 182
C2	18 / 156	05 / 46	20 / 119	10 / 84	0

The charts above, as well as the figures in Table 16, clearly show that there is relative development in the use of the structure as the levels of proficiency increase. However, an observation of the absolute values of the proficiency levels raises an issue that should not be ignored. The low levels of occurrence of A1 and C2 levels might compromise the capacity of our analysis to generalize about these groups of learners. Spanish A1, for example, counts a total of 10 occurrences of caused motions. The statistical significance of these concordance lines, vis-à-vis other languages and other levels, might take the analyses to draw inaccurate conclusions. Given the small size this and other A1 and C2 datasets, the analyst decided to remove it from the main database in order not to jeopardize our results.

Section 4 brings the analysis of the data as for *verb categorization* (*instantiating* vs. *modifying* verbs) and the *constructional reading* (literal vs. figurative) over learner data. These are meant to show whether the hypotheses raised in this dissertation can be validated by the learner corpus research.

#### 4.4 Data analysis

As was discussed in Chapter 3, caused-motion constructions are, among other things, characterized by the types of events that can be integrated with the constructional scheme, that is, whether the constructions are fused with *instantiating* and *modifying verbs* (CABRERA; ZUBIZARRETA, 2004; ZUBIZARRETA; OH, 2007). However, the existence of caused-motion structures in the constructional repertoire of speakers (i.e., in the *construct-i-con*) is better attested when we are confronted with expressions like Goldberg's classic '*she sneezed the foam off the cappuccino*' in which the directional argument (the oblique PP '*off the cappuccino*') is not predicted by the argument structure of the verb. In other words, since *modifying verbs* such as *talk*, *sneeze*, *laugh*, etc. do not subcategorize for complements (neither direct nor indirect objects), the directional PP is said to be provided by the construction. Expressions with *instantiating* verbs like *put*, *send*, *throw*, on the other hand, do not seem to reinforce the existence of the construction, since the argument structure of this class of verbs mirrors the number of arguments predicted in the schematic caused motion (cf. Chapter 2 for a more detailed discussion).

As was also discussed in Chapter 3, although caused motions centrally denote a scenario in which X CAUSES Y TO MOVE Z, that is, a situation in which a THEME is being physically dislocated towards or from a place, some expressions instantiating this construction may denote a figurative movement in which the directional PP is interpreted figuratively as a *change of state*, rather than as a *change of place*. According to Hampe's (2010) corpus investigation, such an interpretation is licensed by lower-level constructions (eg. '*put X in order*'), lexically conventionalized units that denote figurative movement. To Dancygier and Sweetser (2014), however, even completely schematic constructions like '*she laughed him out*

*of his depression*' can denote a figurative interpretation and this is due to the fact that primitive metaphors like STATES ARE LOCATIONS make it possible for physical dislocation to acquire a new, figurative meaning. To put it differently, in the case of '*she laughed him out of his depression*', '*depression*' is construed as a LOCATION out of which the event of *laughing* caused him to move. In light of these two linguistic constraints, in real communication, learners would have to deal with four domains of caused-motion constructions (discussed in Chapter 3), which are summarized as follows:

- Domain A: Caused motions with *instantiating* verbs denoting *literal* movement.  
eg. If the wingers **get the ball into the box** for him in the right areas, he will score goals (COCA/Blog/2012)
- Domain B: Caused motions with *instantiating* verbs denoting *figurative* movement.  
eg. **Get your child into the habit** of keeping his hands away from his cold sore (COCA/Magazine/2000)
- Domain C: Caused motions with *modifying* verbs denoting *literal* movement.  
eg. Eventually he **laughed me right out of the office**. (COCA/Spoken/2014)
- Domain D: Caused motions with *modifying* verbs denoting *figurative* movement.  
eg. They branded him a cowardly bureaucrat and **laughed the project out of existence**. (COCA/TV/1998)

Therefore, taking into account these four constructional aspects of the caused motion, the extracted learner data was analyzed in terms of the four criteria presented above. In fact, as Fig.18 shows, the data was subjected to the analysis from the perspective of two variables (type of verb and constructional interpretation) both of which had two values: 1) *instantiation* and *modification* for the type of verbs and 2) *literal* and *figurative* readings for the constructional interpretation. The analysis of these two variables is meant to give us the conditions to check the validity of the research questions presented in the Introduction of this dissertation and which we reproduce once again below in the form of hypotheses to be verified in the data analysis. These are:

- 1) Learner (L1 Romance/L2 English) production of caused motions is affected by the role of the verb, that is, *instantiating* verbs are expected to be more frequent than *modifying* verbs, irrespective of learners' proficiency level. Also, proportionally, *modifying* verbs are expected to occur more frequently in B2 and C1 levels;
- 2) Learner (L1 Romance/L2 English) production of caused motions is affected by the semantic reading of the directional PP, that is, whether they denote *literal* or *figurative* movement. As is the case for types of verbs, it is expected that the reading of *literal* movement will be more frequently used across levels of proficiency, and, proportionally, *figurative* motion (= change of state) is expected to occur more frequently in B2 and C1 levels.

All in all, both hypotheses can be condensed in the following statement: learners production of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D.

The next section tackles the first variable, that is, the types of verbs and lexical variability used by learners in our data.

#### **4.4.1 Lexical variability: constructions and verbs**

A first look at the grammatical properties of caused-motion constructions produced by learners aimed at probing into the lexical variability in the verbal slot. Considering the number of caused motions as absolute values (Table 15), learners of the five groups under examination used a variety of verbs, as is shown in Table 17.

Table 17 - Variability of verbs by groups of learners

Brazilians	Spanish	Italian	French	Germans
add, allow, arrest, bring, carry, cast, change, commit, convert, crash, cut, dislocate, direct, distribute, divide, download, drive, drop, eat, engage, enter, force, get, head, help, hit, hurtle, implant, include, incorporate, insert, integrate, introduce, invite, jump, keep, kick, launch, lead, leave, let, loan, lock, make, move, place, play, plug, promote, publish, pull, push, put, receive, rewrite, save, scare, send, separate, serve, shoot, sign, slam, soak, split, spread, squeeze, store, take, talk, throw, toss, transform, translate, turn, upload, use, vote, walk, welcome	divide, take, talk, throw, welcome, change, deposit, drag, get, guide, let, make, push, put, turn, type, bring, incorporate, load, pull, split, translate, lead, separate, set, transform, convert, export, process, vote, force, introduce, move, download, toss, enter, walk, disperse, help, involve, roll, add, hit, keep, kick, place, score, send, pour, rub, cross, express, include, launch, merger*	bring, launch, put, split, take, deposit, divide, help, keep, point, pull, push, type, add, allow, enter, get, immerse, make, plunge, transform, translate, compound, convert, cut, incorporate, lead, throw, turn, elect, include, organize, vote, haul, lock, move, set, tuck, change, squeeze, thrust, assist, breathe, guide, load, talk, integrate, send, sting, crash, draw, drive, fill, hit, kick, pour, shoot, download, introduce, ravish, conduct, drop, find, follow, search, sweep	bring, disclose, take, chase, deposit, divide, get, grab, integrate, push, put, save, stick, transfer, turn, watch, adapt, annoy, dive, log, make, slip, split, translate, call, involve, publish, transform, vote, welcome, find, move, project, charge, thrust, convert, talk, introduce, send, walk, decelerate, drive, develop, enter, fill, hit, let, lose, place, pull, share, show, throw, download, drop, mix, see	bring, disclose, divide, guide, introduce, invest, lead, let, plug, show, take, chase, convert, deposit, dip, drag, fasten, get, grab, help, involve, keep, loan, make, place, press, pump, push, put, save, send, spend, splash, split, transform, transport, turn, accompany, acquire, add, change, cut, load, pack, pull, spread, translate, type, bury, carry, draw, drive, incorporate, invite, leave, project, scare, separate, sink, slap, stab, stuff, integrate, elect, fill, find, fly, follow, remodel, transform, vote, accept, combine, laugh, lure, manoeuver*, move, ride, throw, trigger, tug, welcome, call, crack, implement, prevent, shock, thrust, elevate, order, set, squeeze, stress, talk, walk, compress, enter, sell, force, fling, have, kick, shoot, stretch, tuck, break, choose, create, flick, hit, line, play, rescue, roll, sort, write, download, soak
Total: 80 verbs	Total: 55 verbs	Total: 66 verbs	Total: 57 verbs	Total: 118 verbs

A simple eyeballing inspection of the verbs in Table 17 shows that there is a clear difference in the range and variability of verbs used amongst the four target groups. Germans,

our control group, used twice as many verbs as the Spanish-speaking learners, the group with the lowest lexical variability among the Romance language speakers. However, the range and number of verbs used is especially significant when compared proportionally with the number of caused motions used by different L1 speakers and in different levels of proficiency. Table 18 shows the ratios of verbs to caused-motion constructions.

Table 18 - Ratio of verbs and caused-motion constructions

CEFR levels	Brazilians	Spanish	Italian	French	Germans
A2	0.043 (46/1050)	0.236 (17/72)	0.076 (8/105)	0.136 (12/88)	0.160 (27/168)
B1	0.052 (55/1014)	0.120 (26/215)	0.184 (31/168)	0.204 (20/98)	0.183 (38/207)
B2	0.052 (41/777)	0.125 (24/191)	0.159 (29/182)	0.134 (24/178)	0.132 (62/469)
C1	0.199 (42/211)	0.327 (19/58)	0.338 (23/68)	0.583 (14/24)	0.283 (53/187)

As was discussed in Chapter 2, Ellis and Ferreira-Junior's (2009) study sought to determine learners' level of reliance on the argument structure of verbs when learners produce specific argument structure constructions. The study showed that learners tend to be conservative in that they either opt for verbs that are semantically compatible with constructions (eg. *give* in the ditransitive construction) or they make use of semantically generic verbs (eg. *go* in the locative construction). In view of this, the ratio between constructions and the verbal variability may be an inferential cue to the level of entrenchment of caused motions, since the more lexically varied learners' production is, the less likely it is that they are relying on the argument structure of specific verbs when producing caused motions. In other words, in scenarios where the relationship between constructions and verbs is closer to a one-to-one correspondence, the use of caused motions is less likely to be due to chance or to the mastery of specific verb semantics.

Such an observation seems to be plausible if we analyze the data in Table 17 vertically so as to verify developmental factors. Brazilian A2 learners, for example, show a ratio of 0.043 showing that there are 4 verbs to each 100 caused motions (4:100). This is a somewhat stable scenario for the other languages, which also show a varied increase towards C1.

Nevertheless, at first glance, Spanish A2 level learner production seems to refute the analysis, given the high level of proportion between verbs and constructions at this stage (>0.2). Having said that, a closer look at the data as a whole suggests that the high ratio of Spanish A2 is likely to reflect a lack of instances of caused motions in the data in absolute terms. To put it differently, the fewer occurrences of caused motions we have, the higher the proportion between verbs and constructions will naturally be. This would also account for Spanish B1 0.120 featuring half the ratio of A2 (0.236), since Spanish B1 has three times as many occurrences as A2; thus, this dataset is, contrastively, more susceptible to statistical dispersion. All the same, the low absolute numbers in Spanish A2 are in line with the expectation one would have for low-level learners; in other words, when they are used, caused motions seem to be marginal and likely to be a by-product of the lexical knowledge of certain verbs, as Ellis and Ferreira-Junior's (2009) findings pointed out.

#### 4.4.2 Instantiating and modifying verbs in learner data

Verb and construction ratios can shed some light on the matter of learner production of caused motions, but as the first of our two hypotheses predicts, the type of verb used (*instantiating* or *modifying*) can be an insightful linguistic heuristic to determine whether or not caused motions are productive in learner language. This is due to the fact that, with verbs of modification, the constructional status of caused motions is evident, given that the directional PP is not predicted by the argument structure of the verb, hence being provided by the semantics of the construction (GOLDBERG, 1995, 2003, 2006, 2013). The sentences below, occurrences of caused motions produced by learners, exemplify both types of verbs.

- (121) a. My career may be described with a headline: **turning ideas into highly effective operations.** (BR/B2)  
b. You'll cut the lemons and **squeeze them into the cup** (BR/B1)

- (122) a. Its not easy to buy green product because they are more expensive that others, but we should sacrifice some luxuries to buy and **incorporate them into our everyday lives** in order to produce a positive impact on the environment (SP/C1)
- b. Any way, we have to follow rules and laws to **keep us out of problems.** (SP/B1)
- (123) a. Don't **take the document out of the office** for respect the confidential information (ITA/A2)
- b. ...and **plunged the knife into his chest**, then he fell to the ground and she looked horrified. (ITA/C1)
- (124) a. **Do not bring out a PC of the office.** - Do not have a lunch in a meeting room. (FR/ A2)
- b. The father took fingerprints of Tom few days before the murder then he **called him into the room.** (FR/B2)
- (125) a. Each monthly payment would be like **putting money into a high interest account.**(GER/B2)
- b. Other stories are depicting mermaid **squeezing the life out of drowning men** while these tried to rescue them. (GER/C2)

(121) to (125) represent the five groups of learners under scrutiny and they contain the two types of verbs discussed in Chapter 3. After being isolated in one column (cf. Fig.17), verbs were categorized as verbs of *instantiation* or *modification*. For such categorization, we used a test proposed by Goldberg (1995, pp. 43-44) to determine verbal meaning as well as the number and type of participant roles. The idea is to insert the verb into the gerundial structure “No \_\_\_\_\_-ing occurred” so as to interpret the roles implicitly thought to be involved in the frame. In (121a), for example, the simple “No turning occurred” can only have a “two-participant [change of direction] interpretation”. However, with this interpretation, the THEME argument of (121a) would have to be left out of the structure in that *turn* would not select for this argument. The verb would, ultimately, have to be classified as a *modifying* verb, since it does not reflect the argument structure of caused motions. This is certainly not the case of (121a) in which *turn* means *cause to become*. For these cases, Goldberg (1995) claims that complements must be included so as to accurately portray the intended scene. Thus, in this case, the gerundial structure would be “No turning of ideas into

*operations occurred*” and the “three-participant interpretation” could be inferred. Below is the test applied to the verbs of sentences (121) to (125).

- (121a) - No turning of something into something occurred (three-participant [cause to become] interpretation)
- (121b) - No squeezing occurred (two-participant interpretation)
- (122a) - No incorporating of something into something occurred (three-participant interpretation)
- (122b) - No keeping occurred (two-participant [stay in position] interpretation)
- (123a) - No taking something out of something occurred (three-participant [cause to move] interpretation)
- (123b) - No plunging occurred (one-participant interpretation)
- (124a) - No bringing something out of something occurred (three-participant [cause to move] interpretation)
- (124b) - No calling occurred (one-participant interpretation)
- (125a) - No putting something into something occurred (three-participant [cause to move] interpretation)

The verbs in (a) were all classified as *instantiating verbs*, since their conceptual structures predict the realization of all the participant roles present in the sentences. In other words, the semantic requirements of these verbs are a perfect match for the constructional scheme X CAUSES Y TO MOVE Z (cf. Fig.9). However, the same cannot be said about the verbs in (b), which were, in our analysis, classified as *modifying verbs*. *Squeeze*, *keep*, *plunge* and *call* do not contain any sort of motion feature in their conceptual structure. ‘*Squeezing something into the cup*’ cannot be analyzed as a more specific type of ‘*squeezing*’ like ‘*taking something out of something*’ can be a more specific kind of ‘*taking*’. In ‘*You’ll cut the lemons and squeeze them into the cup*’, then, the PP ‘*into the cup*’ is provided by the semantics of the construction that licenses the expression and with which the verb *squeeze* is satisfactorily fused.

All the 5807 verb tokens, represented by 184 verb types, were isolated and analyzed as for their numbers of participant roles. A second verification for participant roles was carried out for predicates about which the gerundial test was not accurate. The second verification of verbal valency was done on *FrameNet*<sup>43</sup> by checking the *core* and the *peripheral* FEs (frame elements). Below is an example of one of the verbs analyzed.

Frame element	Core type	Verb: divide
Agent	Core	“ <b>We</b> can DIVIDE the chores between us ,” said Dr Maingay with enthusiasm
Cause	Core	<b>the social alienation</b> that often DIVIDES cancer patients from
Parts	Core	Rats were DIVIDED <b>into a control group</b> ( group A )
Place	Peripheral	DIVIDE richer <b>from poorer peasants</b>
Recipients	Extra-thematic	“We can DIVIDE the chores <b>between us</b> ,” said Dr Maingay with enthusiasm

Figure 20 – FrameNet entry for *divide*

Therefore, the criteria to define items as *instantiating* or *modifying* verbs was whether or not verbs specified the same number and types of participant roles as the caused-motion constructions. Verbs with one-participant interpretation like *talk*, *walk*, *laugh* and two-participant interpretation like *kick*, *scare*, *let* and *type* were classified as *modifying* verbs. Verbs of three-participant interpretation like *bring*, *place*, *get*, *send*, etc. were all classified as *instantiating* verbs. The complete list of verbs and their absolute values by levels of proficiency and by language is available in Appendix B.

Back to the role of verb types on learners’ performance, the analysis sought to verify how representative both types of verbs were in each group of language and at each proficiency level. According to our working hypothesis (1), instantiating verbs are expected to be more frequent than modifying verbs across the board, but, conversely, the use of modifying verbs are expected to increase as the levels of proficiency advance; this, in association with the idea that the more modifying verbs are used, the more entrenched caused motions seem to become. Table 19 presents the distribution of both types of verbs.

<sup>43</sup> <https://framenet.icsi.berkeley.edu/fndrupal/luIndex>

Table 19 - Instantiating and modifying verbs per language and level of proficiency

CEFR levels		Brazilians	Spanish	Italian	French	Germans
A2	Instantiating	97%	91%	99%	98%	88%
	Modifying	3%	9%	1%	2%	12%
B1	Instantiating	94%	95%	94%	91%	74%
	Modifying	6%	5%	6%	9%	26%
B2	Instantiating	91%	95%	90%	91%	44%
	Modifying	9%	5%	10%	9%	56%
C1	Instantiating	73%	64%	75%	71%	66%
	Modifying	27%	36%	25%	29%	34%

A similar scenario to that seen in Table 16 seems to be replicated in the number of modifying verbs in Table 19 . This reinforces the thesis that the absolute values of A2 may be skewing the data. An observation of the data from a horizontal perspective once again shows that the control group outperforms the target group of learners (speakers of Romance languages) in the use of modifying verbs, with B2 German caused motions with verbs of modification being ten times as frequent as the Spanish B2 group, for example. However, a vertical inspection of the figures will show a rather steady increase in the number of caused motions with modifying verbs, with Spanish learners reaching 36% at C1 level.

All things considered, the descriptive statistical data discussed thus far seems to mildly endorse the validity of the hypothesis, that is

Learner (L1 Romance/L2 English) production of caused motions is affected by the role of the verb, that is, *instantiating* verbs are expected to be more frequent than *modifying* verbs, irrespective of learners' proficiency level. Also, proportionally, *modifying* verbs are expected to occur more frequently at B2 and C1 levels.

Instantiating verbs are demonstrably more frequently used across the board and modifying verbs do seem to cluster around the end of the proficiency scale with figures reaching a solid 36% (Spanish C1) and 29% (French C1).

The next section deals with the interpretation of PP argument, the aspect covered by our second corpus analysis hypothesis.

#### 4.4.3 Literal and figurative caused motions in learner data

As discussed in Chapter 3, caused-motion constructions with directional PPs denoting figurative movement (126) are, in some studies (GOLDBERG, 1995; GOLDBERG; JACKENDOFF, 2004), analyzed as metaphorical extensions of the more central X CAUSES Y TO MOVE Z in that the oblique argument, despite its form of typical caused motions, is functionally associated with resultatives (X CAUSES Y TO BECOME Z), given their *change-of-state* denotation.

(126) The professor talked the whole class [PP into a stupor].

Although the construal for the interpretation of *into a stupor* is also spatial (GOLDBERG, 1995; DANCYGIER; SWEETSER, 2014), it involves a second layer of analysis on the part of speakers, which we believe might affect both the production and interpretation of these kinds of constructions by learners of English as a foreign language. In other words, as our second working hypothesis states:

Learner (L1 Romance/L2 English) production of caused motions is affected by the semantic reading of the directional PP, that is, whether they denote *literal* or *figurative* movement. As is the case for types of verbs, it is expected that the reading of *literal* movement will be more frequently used across levels of proficiency, and, proportionally, *figurative* motion (= change of state) is expected to occur more frequently at B2 and C1 levels.

So, before addressing the data to test our hypothesis, let us first look at a selected set of learner data containing both readings. Below are some of the examples of learner production of *literal* and *figurative* caused motions.

- (127) a. A body was found in a suitcase and **had been thrown into the river**, but the bag reappeared on the beach (BR/A2)  
b. All I need is a career path to **put all my efforts into action** and grow up inside the company. (BR/A2)
- (128) a. **Putting supplies into boxes** for the victims will be huge help for us (SP/B1)  
b. My job is so much stressful, but I've learned to enjoy it and to **turn the pressure into positive energy**. (SP/B1)
- (129) a. So, with that information in mind, today's presentation **will be split into 3 parts**. (ITA/B2)  
b. For all these reasons I urge you to **take into account this job ad** seriously. (ITA/B2)
- (130) a. I'm **sending out invitations on E-space to 30 of my friends**. (FR/A2)  
b. So, together with all of you I will achieve the necessary conditions for **pushing our school into the fine cycle of leading institutes in our country**. (FR/C1)
- (131) a. When you arrive I'll **guide you through the company** and I'll show you your office too. (GER/A1)  
b. Yes, you did make a blunder but you're able to **put things into perspective** if you're ready to go to school again. (GER/C1)

The sentences above all alternate between caused motions denoting literal movement (a) and figurative movement (b). As was said before, the figurative PPs rely on a spatial construal for their interpretation, but such 'spaces' are not physical locations out of which the event of the structure causes the THEME to move. Instead, these denote *states of action* (127b), *psychological status* (128b and 129b) and *general states of mind* (131b). With those denoting literal movement, on the other hand, movement is predicted by the conceptual structure of the verb. Thus, to learners, it seems plausible to posit that figurative readings can be more challenging language constructions, given their added level of semantic and, at times,

pragmatic complexity<sup>44</sup>. The idea of an incremental level of difficulty from literal to figurative interpretations lie in what the literature on figurative language (CHARTERIS-BLACK, 2002; DANCYGIER; SWEETSER, 2014; GLUCKSBURG, 2011; LANGLOTZ, 2006) claims about the intertwined relationship between both types of interpretations; in order to access figurative meanings, speakers, be they native or nonnative speakers, must first access the conceptual basis of the literal meaning. That said, if the figuratively extended meaning is not conventional itself, or *phraseological* as Hampe's (2010) corpus study suggests, this extension might pose an extra layer of difficulty on learners' interpretation, especially at lower levels<sup>45</sup>.

With that in mind, our analysis also aimed at looking at learners' interpretation by segmenting their production of caused motions into *literal* and *figurative* caused motions. However, before presenting the data, it is of utmost importance to spell out the criteria adopted for categorizing learners' production as *literal* or *figurative*. Once again, we show Dancygier and Sweetser's (2014, p. 4) definition of the terms.

At first approximation, then, we might say that **figurative** means that usage is motivated by metaphoric or metonymic relationship to some other usage, a usage which might be labelled *literal*. And literal does not mean 'everyday, normal usage' but 'a meaning which is not dependent on a figurative extension from another meaning.'

Thus, in our learner data, we attributed *figurative reading* to any of the occurring PPs that did not strictly denote a *physical space* from or to which the object THEME was being

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<sup>44</sup> Fillmore's (1979) pioneering work addresses the issue of speakers' capacity to interpret language expressions by identifying different levels of *innocence*. While objecting to Chomsky's (1965) idea of a homogenous and unique *speaker/hearer idealization*, Fillmore (1979) draws attention to the fact that speakers' performances also vary in terms of their capacity to deal semantically and pragmatically with conventional language patterns. Thus, native speakers of a language may also be rather innocent while dealing with language with which they are not familiarized. Tagnin (2002) uses Fillmore's (1979) concept of *innocence* to characterize novice translators and suggests that the use of language corpora may help these professionals become more aware of language conventions, like collocations, while translating texts.

<sup>45</sup> The incremental level of interpretation complexity for figurative caused motions we refer to here results from the constructional divide between prototypical caused motions and resultative constructions (GOLDBERG, 1995). According to such a perspective, resultatives are analyzed as metaphorical extensions of caused motions, the former being licensed by a conceptual metaphor that equates change of (*psychological*) *state as a change of place*. In other words, what our analysis aims at demonstrating is the extent to which this interpretation extension is held responsible for adding a layer of complexity while interpreting caused motions in which the PP argument does not denote a physical space, but rather, a state of mind.

dislocated by the causing event. Consequently, figurative caused motions in our data contain an array of ‘sub-figurative’ images and readings. Above, we have exemplified some of them (*states of action, psychological status, general states of mind*), but the data also gave expressions related to *reasoning* (eg. ‘*take this into consideration/account*’), *body parts as containers* (eg. ‘*get this out of my mind*’) and *general changes of state* (eg. ‘*translate X into Y*’). That is, our criterion for figurativeness was an objectively excluding one: *figurative* will be any expression that is not strictly *literal*<sup>46</sup>. Table 20 shows the distribution of learner caused motions with two interpretations.

Table 20 - Distribution of literal and figurative caused motions in learner data

CEFR levels		Brazilians	Spanish	Italian	French	Germans
A2	Literal	95%	85%	92%	95%	96%
	Figurative	5%	25%	8%	5%	4%
B1	Literal	60%	42%	53%	44%	62%
	Figurative	40%	58%	47%	56%	38%
B2	Literal	65%	48%	65%	70%	63%
	Figurative	35%	52%	35%	30%	37%
C1	Literal	30%	25%	30%	40%	27%
	Figurative	70%	75%	70%	60%	73%

The data above seems to be in line with the results for the differences in use between verbs of instantiation and modification in Table 19. Although literal readings are generally the preferred interpretation for caused motions in our learner data, as proficiency levels advance, we can see a significant increase in the use of figurative caused motions. At C1, for example, the numbers of figurative caused motions outnumber the literal use of the construction, reaching 75% of uses among Spanish speakers. On a horizontal analysis of the data, that is, from a cross-linguistic perspective, this aspect does not show a noteworthy performance of our control group (Germans) over the group of Romance language speakers. The numbers

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<sup>46</sup> In the literature on figurative language, it is rather consensual that figurative expressions are derivations or extensions from the literal meaning of expressions. On this issue, Gluksburg (2011, p. 8) state that “[f]igurative meaning is derived from the literal and can be discovered by discovering the nature of the substitution of the metaphorical for the literal.”

can, then, be indicative that figurative interpretation is, indeed, more sensitive to language proficiency than to different typological differences, at least, in our dataset.

Therefore, should we go back to our second working hypothesis, the prediction seems to have been partially confirmed. That is, literal movement is, indeed, the preferred reading by learners across different levels of proficiency. This may be suggestive of how dependent learners are on the lexical content of verbs, which was also shown to be the case in the learner data segmentation into verbs of instantiation and modification. The second prediction, that figurative readings would be more frequently used at B2 and C1 levels, has been partially confirmed with C1 levels making productive use of figurative readings and B2 underperforming in this interpretation in comparison with its preceding level of proficiency, B1. The interrelatedness between learners' performance as for types of verbs (instantiation or modification) and the interpretation of the directional PPs calls for a cross-tabulation of the results of these two variables. In other words, the data presented and discussed thus far seems to indicate that there is a correlation between the types of verbs used in learners' caused-motion constructions and the interpretation assigned to them. The next section rounds off the analysis by comparing these figures.

#### 4.4.4 Constructional domains in learner data

As was briefly stated in the previous section, the interrelatedness between types of verbs and the interpretation of the directional PP seems to have mutually affected the results in our learner data. Below, we show again the four constructional domains mentioned earlier in this chapter.

- Domain A: Caused motions with *instantiating* verbs denoting *literal* movement.  
eg. If the wingers **get the ball into the box** for him in the right areas, he will score goals (COCA/Blog/2012)
- Domain B: Caused motions with *instantiating* verbs denoting *figurative* movement.

eg. **Get your child into the habit** of keeping his hands away from his cold sore  
(COCA/Magazine/2000)

- Domain C: Caused motions with *modifying* verbs denoting *literal* movement.

eg. He **showed me out of my room** and explained how the cafeteria works.  
(COCA/Fiction/2013)

- Domain D: Caused motions with *modifying* verbs denoting *figurative* movement.

eg. They branded him a cowardly bureaucrat and **laughed the project out of existence**. (COCA/TV/1998)

As the predictions conveyed in both hypotheses suggest, we would expect learners to have a descending level of performance as they advance into the four constructional domains. In other words, learners' performance is expected to be lower in domain B in relation to domain A, lower in C in relation to B and, finally, lower in D in relation to C. Thus, learners' performance is expected to be inversely proportional to the incremental constructional complexity inherent to domains A through D. Below, we present the percentage distribution in the four constructional domains.

Table 21 - Distribution of the four constructional domains in the learner data

Constructional domains	Brazilians	Spanish	Italian	French	Germans
CMILM	71%	49%	63%	69%	62%
CMIFM	29%	51%	37%	31%	38%
CMMLM	62%	38%	37%	45%	57%
CMMFM	38%	62%	63%	55%	43%

CMILM (caused motion with instantiating verbs denoting literal movement) CMIFM (caused motion with instantiating verbs denoting figurative movement) CMMLM (caused motion with modifying verbs denoting literal movement) CMMFM (caused motion with modifying verbs denoting figurative movement)

The constructional domains above can be compared and analyzed as the scheme below exemplifies.

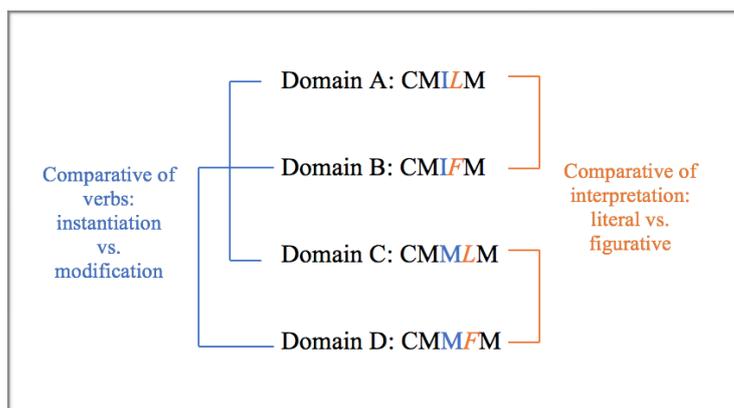


Figure 21 – Comparative analysis of constructional domains

By observing the distribution and drawing a comparative analysis of verbs between domains A and C, we can see a steady decrease at the performance of learners, as expected. This reinforces the idea that learners' use of caused motions is sensitive to non-prototypical verbs (133) as opposed to prototypical verbs (132), as Ellis and Ferreira-Junior's (2009) and Hampe's (2010) studies confirmed about L2 learners of English and Goldberg (2003), Israel (2004) and Tomasello (2003) pointed out about children acquiring English argument structure constructions.

#### Domain A: CMILM

- (132) a. **Put water into the pins** to make them heavier. (BR/B1)  
 b. **Take the trash out** at night on tuesday. (SP/A2)  
 c. Then, **put the food into the microwave**. (ITA/B1)  
 d. They were arguing one more time when Surina **thrust a knife into Dave's chest**. (FR/C1)

#### Domain C: CMMLM

- (133) a. Dear Aunt Jane, It will be a pleasure to **welcome her into my house**. (BR/A2)  
 b. The winner will be the team **scoring the most goals into a net**. (SP/B1)  
 c. Furthermore it caused the tsunami which crashed over the streets and **swept houses out to the sea**. (ITA/B1)  
 d. a CIA expert of exfiltration was sent to rescue them with a risky plan in order to **slip them out of Iran**. (FR/B2)

The same observation goes for literal and figurative interpretations from domains A to B. With the exception of Spanish, which showed a modest increase, the remaining languages have all presented a considerable decrease in the number of figurative caused motions. This result is not affected by the type of verb, since both domains contain verbs of instantiation. So, the effect is evidently one related to the interpretation of the sentence and not the use of specific verb types.

Now, the analysis of the last two layers, between domains B and D for verbs and C and D for the interpretation of PPs, raises interesting issues concerning the nature of the learner data analyzed. Contrary to what has just been said about literal caused motions being more productive than their figurative counterparts (A to B), all languages, with the exception of Portuguese, show an increase in the number of caused motions with figurative readings. The same scenario was attested for the use of modifying verbs while comparing domains B and D. At first glance, this seems to refute our working hypotheses without any further explanation. Neither variables, type of verb and type of explanation, can be used to account for the unexpected increase in learner production in domain D, which is thought to be the most complex of the four domains.

A closer look at the data in an attempt to account for this discrepancy, in relation to the posited hypotheses, showed that many of the concordance lines containing figurative caused motions with verbs of modification did, in fact, indicate instances of conventional and/or idiomatic expressions. Below are a few examples of domain D.

Domain D: CMMFM

- (134) a. **It knocked my socks off** when he talked about the 275 % increase in the number of injured employees. (BR/A2)
- b. Roland wanted us to reduce the minimum number of items delivered but I **managed to talk him out of it**. (SP/B1)
- c. Today I tell you about Judith Wight 's book “How to **make a career out of courage**”. (ITA/B1)
- d. a I am here to urge you to **vote me into presidential office** tomorrow. (FR/C1)

As was discussed in Chapter 2 (cf. Fig.6 for a discussion about *'kick the bucket'*) and Chapter 3 (BOAS, 2013; HAMPE, 2010; XIA, 2017), corpus studies about L1 adult language, first and second language acquisition of English have all pointed to the importance that low-level constructions have in language use. To briefly recap Hampe's (2010) findings, the study objected to Goldberg and Jackendoff's (2004) proposals of unifying metaphorical caused motions and resultatives constructions. Supported by data of adult language use and first language acquisition of English, she proposed that the metaphorical meanings of certain caused motions are not motivated by metaphorical links in the most constructional understanding of the term. Instead, she views that such metaphoric uses (which we are calling *'figurative'* here) are derived from low-level constructions which are lexically specified. In other words, such figurative interpretations are thought to have been conventionalized in the form of fixed expressions or phraseologisms<sup>47</sup>. In her own words (HAMPE, 2010, p. 197):

I hypothesize that, within constructional networks, metaphorical extensions are strictly local, i.e. lexically determined and operate on the low-level generalizations provided by (the strongest representatives of) the collexeme classes identified, rather than on entirely schematic ASCs.

A great many number of the instances of figurative caused motions with verbs of modification in our learner data are clear cases of fixed phraseologisms and idioms, as the examples in (134) show. Cases such as *'knock one's socks off'* and *'talk someone out of something'* are conventional expressions which learners were possibly exposed to in the form of chunks of languages. Therefore, these cannot necessarily be used as evidence of knowledge of schematic constructions, since learners may simply have retained the chunks as whole strings of words. Some other instances, such as *'make a career out of courage'* and *'vote me into presidential office'* were repeatedly used across different groups of languages. This suggests

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<sup>47</sup> Gries (2008, p. 6) defines a phraseologism "as the co-occurrence of a form or a lemma of a lexical item and one or more additional linguistic elements of various kinds which functions as one semantic unit in a clause or sentence and whose frequency of co-occurrence is larger than expected on the basis of chance." Gries's definition of phraseologisms is perfectly compatible with Goldberg's (2006) idea of constructions, given that, even fully lexicalized expressions may have constructional status in speakers' cognition when these are sufficiently frequent. In the terminology of CCG, though, phraseologisms are usually called low-level constructions.

that these expressions might be the result of task effect on learners' production and could, possibly, have been lifted from the writing task instructions learners had to read to write their compositions.

This last observation of the data leaves one of the aspects raised in the central claim of this chapter unanswered. That is, earlier in the chapter, we have said that both working hypotheses could be amalgamated in the following prediction: learner production of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D. As we showed, both hypotheses seem to be valid and have not found robust counterfactual evidence capable of refuting them; nevertheless, differently from what was expected, learners did not underperform with figurative caused motions containing verbs of modification. Although this may be derived from extralinguistic factors (task effect) or knowledge of low-level generalizations (learned phraseologisms), more probing into this aspect needs to be done, since the incremental level of complexity from domains A to D seems to be reasonably plausible and theoretically viable. However, these results raise an even more general question related to the roles played by entrenchment and conventionalization as far as L2 knowledge is concerned, since variables such as explicit exposure to L2 teaching materials, pragmatic forces imposed by specific communication tasks or conventionalization/lexicalization of specific caused motion instances might alter the results, both in learner production and processing.

The next chapter aims at bringing evidence from language comprehension to shed some light on this matter. We discuss an experiment (an acceptability judgement task) we have conducted with four groups of Brazilian Portuguese-speaking learners of English. This is meant both to bring some more robust evidence for our proposal of a descending performance of learners as they go through the four constructional domains, but also tap into aspects of processing of caused-motion constructions by speakers of Romance languages.

## 4.5 Summary

In this chapter, we have analyzed the uses of caused-motion constructions by learners of four different Romance languages, namely Brazilian Portuguese, Spanish, Italian and French. The proposed analysis aimed at showing cross-linguistic variability in the use of caused motions and, to that end, we have used German (a satellite-framed language) as a control group. The second general purpose was to show whether learners' use of caused motions was affected by developmental factors and different levels of proficiency. Both general aims were analyzed in terms of two variables: types of verbs used (*instantiation* and *modification*) and semantic readings of the directional PP (*literal* and *figurative*). The analysis of both variables was carried out in light of two working hypotheses:

- 1) Learner (L1 Romance/L2 English) production of caused motions is affected by the role of the verb, that is, *instantiating* verbs are expected to be more frequent than *modifying* verbs, irrespective of learners' proficiency level. Also, proportionally, *modifying* verbs are expected to occur more frequently in B2 and C1 levels;
- 2) Learner (L1 Romance/L2 English) production of caused motions is affected by the semantic reading of the directional PP, that is, whether they denote *literal* or *figurative* movement. As is the case for types of verbs, it is expected that the reading of *literal* movement will be more frequently used across levels of proficiency, and, proportionally, *figurative* motion (= change of state) is expected to occur more frequently in B2 and C1 levels.

The data seem to confirm both hypotheses since:

- i. *Instantiating* verbs are generally more frequently used than *modifying* verbs (Table 19);
- ii. *Modifying* verbs are used more frequently in more advanced levels (at C1);
- iii. *Literal* caused motions outnumber *figurative* caused motions across levels of proficiency;

- iv. *Figurative* caused motions are more salient towards the end of the proficiency scale (especially C1).

In spite of the validation for the hypotheses above, the cross-tabulation of the two variables, against the four domains of complexity discussed in Chapters 3 and recapped here, could not be confirmed in their entirety. As a result of that, in the coming chapter we investigate such issue from the perspective of language comprehension, so we can equate the coming results on comprehension with the ones obtained here about learner language production.

## Chapter 5

### Learner language: from observation to experimentation

#### 5.1 Introduction

Chapter 4 dealt with the observation of learner data by investigating the use of caused motions by learners of four L1 Romance languages, namely Brazilian Portuguese, Spanish, Italian and French. The analysis aimed at showing developmental factors in the use of caused motion events as well as cross-linguistic comparisons amongst the four targeted groups of learners. From a developmental perspective, the data showed that learners' use of the constructions is affected by the types of verbs used (*instantiation* vs. *modification*) and constructional reading (*literal* vs. *figurative*), but they tend to get more salient towards the end of the proficiency continuum, as was expected, both generally and by the hypotheses of the study. From a cross-linguistic perspective, the analysis showed that the four languages behaved quite similarly, since no Romance language stood out from the remaining ones in the two variables analyzed. Although the analysis was quite straightforward vis-à-vis its objectives and results, one of the four constructional domains discussed (domain D), composed of figurative caused motions containing verbs of modification, did not behave as expected in spite of the theoretically viable predications for the domain. That said, this chapter is devoted to the processing of caused-motion constructions while discussing an acceptability judgment task (IONIN; ZYKIK, 2014; SCHÜTZE; SPROUSE, 2014; SUZUKI et al., 2016) applied to four groups of Brazilian Portuguese-speaking EFL learners. The aim of the experiment is to shed some extra light on the data results of Chapter 4, by confirming, refuting or extending the results therein obtained, but also further the discussion into learners' ability to process this kind of causative construction. To this end, this chapter deals with the experimental design of the task by describing its general objectives and hypotheses, the

participants recruited, the material and experimental stimuli, procedures and results obtained. In order to do that and to contextualize the experimental approach in the dissertation as a whole, the chapter also briefly discusses the main aspects of language experimentation studies.

## **5.2 The integration of corpus studies and experimental research**

As stated in Chapter 4, corpus linguistics integrates a family of language theories and methods that sees usage events as the parameters against which theories should be tested and developed. In view of this, corpus-based studies adopt an empirical perspective, which, by and large, opposes the idea of using introspection in the judgment of linguistic expressions as starting points of observation (McENERY, HARDIE, 2012). This general refutation to subjective introspection is justified in that corpus studies are a lot more centered on what is *probable* and a lot less on what is *possible* in the structure of languages (BERBER SARDINHA, 2004).

Nevertheless, within the broader area of corpus studies, research is commonly classified into two subareas depending on how corpora data are faced; that is, studies using corpora as the only reliable source for the analysis and explanation of language behavior are commonly referred to as *corpus-driven*. For corpus-driven studies, then, the adoption of independent linguistic theories is not the usual practice, as this is believed to jeopardize the reality of facts given the usual adoption of pre-corpus concepts and principles. Such concepts and principles are said to affect, influence and, ultimately, bias the analysis. In a different group are studies that view corpus linguistics as an empirical methodology in which researchers can find the empirical support for theoretical explanations and generalizations about the structure of languages, language varieties, language change, etc. These are usually categorized as *corpus-based* studies. For corpus-based linguistics, corpora analyses can greatly assist the language analyst to investigate and understand facts about language while providing them with quantitative data that serve as the empirical basis upon which theories can be refined, reformulated or even refuted. For many of the linguists who subscribe to this

perspective in corpus studies, corpus linguistics can be defined as a methodology and not a theory. Lindquist (2009, p. 1) claims that “corpus linguistics is thus a methodology, comprising a large number of related methods which can be used by scholars of many different theoretical leanings”.

According to McEnery and Hardie (2012), most recently, the dialogue between corpus studies and other linguistic approaches, initiated by those categorized under the corpus-based umbrella term, gained traction and favored the collaboration between corpus-based studies and certain areas of psycholinguistics, especially those of an experimental nature. Such a dialogue became feasible as both language approaches are based on very similar linguistic-philosophical principles, that is, corpus linguistics and experimental studies both rely on empirically quantified data for their language generalizations and explanations. In practical terms, the main differences between the approaches in question boil down to the types of research conducted in each area (GILQUIN, GRIES, 2009). While many of the studies in corpus linguistics are concerned with the occurrence of linguistic expressions in specific genres of discourse, terminological analyses, lexicographic and translation studies, experimental research is mainly concerned with areas related to language learning, L1 and L2 acquisition and language processing. Having said that, for some corpus-based linguists (GILQUIN; GRIES, 2009; GRIES; WULFF, 2009; McENERY; HARDIE, 2012), both approaches can complement each other in interesting ways, generating more comprehensive and reliable explanations for certain linguistic phenomena. This happens, according to these studies, because the main limitations of one approach can be complementarily tackled with the aid of the other.

It is well known that electronic corpora analyses and tools have provided researchers with unmatched quantitative approaches and techniques, thus enriching the investigation of all sorts of linguistic phenomena. However, certain aspects of language processing, such as cognitive processes underlying online language production, for example, will hardly ever be captured in corpora, even if exhaustive verifications of millions of texts are done with that purpose. It is in this context that experimental research is an interesting and complementary alternative for corpus studies. In an opposite scenario, where corpus studies can aid experimentation, McEvery and Hardie (2012) point out that corpora analyses can be used to verify what is more or less salient in discourse so that stimuli used in experiments are taken

from attested linguistic constructions, thus reflecting the reality of language in actual use. In other words, the advantage would be not to expose participants to experiments with infrequent or unconventional language, since this might compromise the end result of the analysis. Gilquin and Gries (2009) use the term *stimulus composition* to name this kind of use for corpora; that is, when corpus data are used as a source from which language samples are taken for the creation of experimental stimuli. At first, this may seem like an ad hoc attempt to use the corpus just to avoid sentences created by the researcher, but this is not exactly the case. As Ellis (2013), Gilquin and Gries (2009) and Goldberg (2016) point out, speakers are naturally sensitive to frequency effects, priming and salience in discourse. Such characteristics can only be met via thorough consultations of attested uses taken from naturally occurring data. This example, then, illustrates ways in which corpus linguistics can help experimental research by removing the inherent unnaturalness of made-up stimuli, thus guaranteeing that frequency does not become an extraneous variable capable of jeopardizing the results of the experiment.

All things considered, researchers of different theoretical and methodological persuasions seem to have recently set dichotomous aspects aside as a way to develop better practices for language description and analysis. As far as the seemingly contentious divide between *observational* (corpus studies) and *experimental* approaches (eg. psycholinguistics) is concerned, Cook (1986, para. 33) claims that

An observational method may, then, fit within an experimental approach-provided that the researcher makes clear the elicitation techniques involved and is aware of the ways they may have shaped his data; provided that he quantifies the data in some way and shows what proportion of it he is accounting for; provided that his techniques of recording the data are objective and yield the same results whoever applies them; then he is clearly providing objective data within a controlled situation.

For theoretical and practical reasons, the research reported in this dissertation shares the perspective adopted above by proposing an analysis of caused-motion events both from an *observational* perspective (via learner corpus analysis) and an *experimental* viewpoint. Thus,

in order to justify our choice of experiment and its *raison d'être*, the next section briefly taps into the main experimental approaches usually applied in L2 research.

### 5.2.1 Types of experiments

Data elicitation methods are usually categorized vis-à-vis the theoretical paradigms they adhere to. Therefore, research concerned with human learning principles and mechanisms make extensive use of psycholinguistic methods aimed at understanding the processing of stimuli, the general learning and comprehension strategies applied by speakers and the testing of underlying cognitive processes. Among the widely used methods in psycholinguistics are the following types (KAISER, 2013):

- Reaction-time methods: they measure either the time taken by participants to react to specific linguistic stimuli in language recognition tests, or the time it takes to produce certain structures in tests focused on the production of structures. The central hypothesis of this kind of test lies in the idea that the longer the participant takes to respond to the stimulus, the greater the cognitive effort is while processing the structure. These tests can also be used as evidence to measure different levels of linguistic complexity. The most popular kinds of reaction-time methods are: *lexical decision tasks* and *self-paced reading tasks*, which aim at measuring the time participants take while processing written words, strings, sentences or even longer stretches of discourse. Reaction-time tasks can also be used in association with visual attention methods to both check the time of processing as well as participants' physical responses, with eye-tracking devices being used to record eye movement in reading tasks.
- Visual attention methods: visual attention methods combine auditory comprehension tests with visual interpretation by demanding that participants execute tasks based on instructions given to them. It is theoretically understood that eye movement and processing maintain a

close connection in that eye movement can indicate, in real time, how auditory stimuli are interpreted (ALTMANN; MIRKOVIĆ, 2009 apud KAISER, 2013).

Differently from the psycholinguistic methods exemplified above, which are generally concerned with how people process, store and, ultimately, learn linguistic information, language-focused methods are traditionally associated with specific theories of language and are usually applied as a way to endorse or test theoretical assumptions and principles (MACKEY; GASS, 2005). That is the case of *grammaticality judgement tasks*, in which participants are normally asked to judge sentences containing structures of language thought to reflect universal principles of UG (= Universal Grammar). In this paradigm, a clearly theoretical one, languages are assumed to be constrained by a set of abstract principles (UG) and L2 research committed with this view aims to show whether or not L2 learners have access to universal grammar. This way, participants are asked to judge sentences that violate or comply with these principles, so their degree of access to UG can be measured as a result of their responses.

Although these tests have historically been associated with formal theories of language, as was said before, judgement data derived from various sources of elicitation techniques have recently been incorporated into other usage-based research paradigms, such as construction grammar (GRIES; WULFF, 2009) and corpus-based studies focused on L2 use of collocations (WOLTER; GYLLSTAD, 2013; WOLTER; YAMASHIDA, 2018). For reasons already discussed (cf. section 2), the integration between data elicitation of this sort and observational language investigations is capable of giving the researcher a better picture of the phenomena under examination, in that findings that equate both language production and comprehension are certainly more likely to result in more comprehensive conclusions. As well as judgement tasks, other language-focused tasks include:

- Elicited imitation: sentences are presented in recorded audios and participants are asked to repeat them. The easier and faster participants are able to repeat these, the stronger the entrenchment of the structure under analysis is.

- Magnitude estimation: as the name suggests, this task aims at showing participants' judgment on a scalar mode. The difference between regular judgment tasks, which can also be scale-based, and magnitude estimation tasks is that, in the latter kind, participants will rank the subsequent stimulus based on the value they attributed to the previous stimulus. For example, if 30 is given to sentence A and the participant thinks sentence B is twice as good as A, participants should rate it with a 60. This is valid both for positive and negative ratings.
- Truth-value judgment: participants are given contextualized stories and are asked to spot certain linguistic aspects in them. Truth-value judgment is usually used for the judgment of learners' interpretation of language forms.
- Sentence matching: participants view a sentence (grammatical or ungrammatical) on a computer screen. After some time, a second sentence appears and participants are asked to indicate, as fast as they can, whether the new sentence is similar or different from the first one. This technique has been used with native speakers and results showed response time is faster when two grammatical sentences match, as opposed to when there is matching of two ungrammatical sentences.

Above we have listed some of the main tasks used by language-focused investigations of L2 knowledge. However, a more thorough characterization of judgment tasks, discussing the main objectives, advantages, disadvantages and uses must be done in order to justify our choice of experiment while researching learners' comprehension of caused-motion constructions. Section 2.2 below brings such a discussion.

### **5.2.2 Acceptability judgment tasks**

In spite of being traditionally referred to as *grammaticality judgement tasks*, the term is somewhat misleading even in formal linguistics, claim Schütze and Sprouse (2014), since *grammaticality* is believed to be an internal property of language knowledge, which tests are

meant to skillfully capture and take snapshots of. In other words, one cannot reply to something that is internal and unconscious, which is what grammar is thought to be like in formal linguistics. The most appropriate term to use, then, would be *acceptability judgment task*, inasmuch as the fact that reaction of this nature has to do with *agreeing, endorsing* or, as the specialized literature calls it, *accepting* if something is *natural, possible, correct, appropriate*, etc. However, *acceptability* is itself a *percept* much like *brightness, loudness, temperature* and *pain* are (SCHÜTZE; SPROUSE, 2014, p. 28). So, the linguist's job is to indirectly assess such a percept by asking them to judge how acceptable language patterns are. So, acceptability judgement tasks are, in fact, a *reported perception of acceptability* (SPROUSE; ALMEIDA, 2013), thus, a deductive method for observing speakers' knowledge of language. In other words, these aim to measure what speakers think of what they tacitly know about and of language. This observation is the center of concern and criticism that judgement data receive.

Some critics of acceptability judgement tasks state that they cannot account for human language knowledge unless they are validated by other experimental tests. Also, criticisms claim that in order to perform them, participants need metalinguistic awareness (attention and evaluation) to assess what they consider to be a valid, albeit unaccessible, cognitive system, that is, *intuition*. Schütze and Sprouse (2014) refute the critics and observe that acceptability judgement is itself a kind of human behavior that must be explained. In that sense it is equated with reaction time measures. As for participants' need of metalinguistic awareness to perform the proposed task, the authors say this is an issue of a number of data elicitation tasks and can be minimized by careful task design. On the last issue raised, data derived from acceptability judgment tasks, as stated before, are not introspections, but reported perceptions. This criticism lies in old assumptions of traditional experimental psychology that subjects had direct access to cognitive systems. Neither modern psychology nor modern linguistics believes in this any longer (SCHÜTZE; SPROUSE, 2014). To counterbalance the discussions, the authors list some of the practical advantages of using acceptability judgments and these are:

- i. They provide evidence for phenomena that rarely occurs in spontaneous speech;
- ii. They do not contain normal speech production errors;

iii. The researcher does not need some highly technological apparatus for that.

As was said above, one of the main concerns of the researcher working from an experimental paradigm must be the careful design of the experiment in order to minimize the natural extraneous variables that might interfere in the result. That said, things related to the *type* of test, the *instructions* given, the *materials* used, the *experimental items* and the *sample size*, are of extreme relevance since these will guarantee the validity of the results obtained. Below we briefly discuss each of these aspects.

#### **5.2.2.1 Task types: qualitative or quantitative**

In qualitative or forced-choice tasks, participants are presented with two or more sentences and must choose the one they (dis)prefer. The advantage to this kind of task is that each cycle is per se an experiment. Also, the statistical difference between the options is given, considering that this is the only kind of test in which you can compare two or more conditions in the same experiment. Thus, this is a perfect test to ascertain the difference in acceptability between two or more phenomena. Yes-no tasks are also considered qualitative (not numerical) in that they make it possible for the experimenter to diagnose different phenomena in a rather straightforward manner, but they cannot be used in experiments that aim to quantify data in which two or more explanatory variables are used to account for language behavior. Quantitative tests usually use numerical scales, like *Likert scale* (a rating task which usually contains an even number of choices) in which the extremes will be judged as 'acceptable' and 'unacceptable'. Likert scale tasks are both *numerical*, as they tackle great statistical differences in conditions and groups, and *intuitive*, as they do not have the yes/no task problem of giving the participant only 2 possibilities).

#### **5.2.2.2 Experimental design**

In experimental tests, like acceptability judgement tasks, *instructions* must be carefully planned so as to remove any lack of understating on the part of participants, but also to avoid off-target responses that are due to misleading guidance. The experimenter, then, must precisely state what the objective is so as to direct participants' attention from irrelevant aspects in the items, such as violations of prescriptive grammar, whether they personally agree with the content of the sentences or whether they believe the information contained in the items is plausible in real life. Since this kind of test generally lacks carry-over effects<sup>48</sup> and does not demand any specific kind of learning to execute the task, no practice session is needed; however, providing an **anchor item** (an example of a sentence with one rating) is a conventional practice used to minimize problems related to the format of the test itself.

As for the *items*, researchers conducting formal studies must control for the effects of specific wording in the experiments so as to avoid a situation in which participants' responses vary in relation to the lexical content of the stimuli. For that reason, multiple lexicalizations are usually recommended as a solution to this problem. The last, but certainly not least of all things the experimenter must concern him/herself with relates to whether the proposed experiment will be a formal or an informal one. This is also directly connected with the number of experimental items and the size of the sample to be collected. The statistical significance is also affected by the sample size.

In linguistics, informal acceptability judgement collection is the norm, with studies containing fewer than 10 participants, sometimes linguists themselves participating as subjects and only a few sentence stimuli (SCHÜTZE; SPROUSE, 2014). Formal data collection, on the other hand, establish strict statistical criteria for the selection of the number of participants and experimental items. This concern is usually present in multi-factorial studies that aim to show the effect of 2 or more factors on the outcome response of participants, which is the case of our experimental intervention. However, although formal data collection seems to be the correct path to follow, Sprouse and Almeida (2011) conducted a survey with 148 informal acceptability judgment tasks published in *Linguistic Enquiry*

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<sup>48</sup> In experimental psychology, '*carry-over effects*' are the effects subjects carry over from one condition (A) of the experiment to the next one (B) in ways that the results of (B) are affected by the fact that (A) had been encountered first.

between the years of 2001 and 2010. The aim of the paper was to find empirical support to either confirm or refute criticisms towards informal acceptability judgement tasks on the grounds that the lack of experimental rigor compromised the results and led to a high number of false results. The authors subjected the data from these informal studies to statistically robust methods of investigation (formal data collection and analysis) and found that in 95% of cases were similar. In other words, no significant difference was found between results arrived at from either formal or informal data collection techniques. As for the 5% error rate, this is the conventional acceptance error rate in psychological studies (MAHOWALD et al., 2016); thus, Sprouse and Almeida's (2011) study endorses the effectiveness of informal data collection techniques vis-à-vis formal approaches.

Having discussed the main characteristics of the experimental approach as well as one specific task, the acceptability judgement task, the next section discusses the experimental design and treatment we have applied to the study reported in this chapter.

### **5.3 The need for experimental intervention**

In section 2 above, we have discussed the limitations both observational and experimental approaches face on practical grounds. However, despite the numerous practical limitations on both sides of the continuum between *observation* (corpus studies) and *experimentation* (i.e. psycholinguistic studies) which could be mentioned, two constraints of corpus studies, especially those with learner corpora, highlighted by Gilquin and Gries (2009) are of special significance to our study. These limitations are:

- i. not always can corpus studies reveal which language constructions are more or less easily processed by speakers (native or nonnative), since language production entails language processing, but the opposite is not necessarily true. That is, it is not plausible to claim that only because X is processed, X will necessarily be produced, especially in L2 settings;
- ii. not always are language corpora the best sources of data, especially if one is interested in studying language patterns with low discursive salience (low frequency of occurrence).

In order to illustrate, but also reinforce the second point raised above, we evoke a maxim in experimental studies when these are compared to observational data. Nevertheless, in place of declaring it ourselves, let a corpus linguist do that.

[...] unless the corpus represents the whole population, **the absence of evidence is not the evidence of absence**. In other words, if an expression does not appear in a corpus, this doesn't mean that this expression is non-existent. (BREZINA, 2018)

Especially for those concerned with the acquisition and the teaching of foreign languages, the points raised above are of great relevance. The first one deals with a *sine qua non* condition for language production, since learners will only be able to produce constructions if they are first able to process them. On this issue, Ionin and Zyzik (2014, p. 37) state that

“[t]he fact that a learner has not produced a particular expression, or has made a production error, does not necessarily reflect a lack of linguistic knowledge: Other factors, such as avoidance, phonological complexity, or difficulty with retrieval from memory (to name but a few) may be responsible. Conversely, the production of certain frequent formulaic expressions may reflect rote memorization rather than linguistic knowledge. For these reasons (among others), SLA researchers may use other data collection tools to study learners' linguistic knowledge.”

As for the second point, analyzing constructions with low discursive salience in learner corpora might not bring about the expected results. As was discussed in Chapter 2, L2 learners are especially sensitive to aspects of the target language in ways that L1 acquisition is not. Ellis (2013) mentions the importance of *input frequency*, *discursive salience* and its relation to *perception* as key ingredients for the entrenchment of L2 constructions (cf. Chapter 2, sections 4.1 and 4.2 for a more detailed discussion). That said, the points in (i) and (ii) above are intertwined in that constructions with low discursive salience, like cause-motions

constructions, will have low frequency. This factor, in turn, may compromise learners' perception of the item when it occurs, thus making the learning of these constructions harder to take place.

The reasons outlined thus far, as well as the general low frequency of caused motions in EFCamDAT, made it necessary to investigate caused-motion constructions from an experimental perspective as we anticipated at the end of Chapter 4. For that matter, we opted for an acceptability judgement task with Brazilian EFL learners at two levels of language proficiency, B2 and C1. The experimental design and data collection are explained in the following sections.

### 5.3.1 Experimental design: aims and objectives

The analysis of EFCamDAT corpus (cf. Chapter 4) aimed at probing into learners' **production** of caused-motion constructions as for general frequencies of occurrence (thus investigating productivity), as well as from a more qualitative point of view; that is, we also looked at the types of verbs occurring in the verbal slots of constructions (*instantiation* vs. *modification*) and the constructional reading of learners' production (*literal* vs. *figurative*). The data analyzed showed that:

- i. *Instantiating* verbs are generally more frequently used than *modifying* verbs (Table 19);
- ii. *Modifying* verbs are used more frequently in more advanced levels (at C1);
- iii. *Literal* caused motions outnumber *figurative* caused motions across levels of proficiency;
- iv. *Figurative* caused motions are more salient towards the end of the proficiency scale (especially C1).

Although the results above did confirm our two hypotheses for learner production, the analysis correlating both variables, which generated four constructional domains (repeated below), did not confirm our unified hypotheses that “learner production of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D”.

Domain A: Caused motions with *instantiating* verbs denoting *literal* movement.

eg. If the wingers **get the ball into the box** for him in the right areas, he will score goals (COCA/Blog/2012)

Domain B: Caused motions with *instantiating* verbs denoting *figurative* movement.

eg. **Get your child into the habit** of keeping his hands away from his cold sore (COCA Magazine/2000)

Domain C: Caused motions with *modifying* verbs denoting *literal* movement.

eg. Eventually he **laughed me right out of the office**. (COCA/Spoken/2014)

Domain D: Caused motions with *modifying* verbs denoting *figurative* movement.

eg. They branded him a cowardly bureaucrat and **laughed the project out of existence**. (COCA/TV/1998)

As the data analysis showed, learners’ performance in constructional domain D was not as low as we expected, in comparison with the other domains (63% at Italian C1 level, for example). A qualitative look at the data containing figurative caused motions with verbs of modification suggested a possible explanation for the quantitative discrepancy with the expected outcome: the role of conventional phrases (memorized phraseologisms and/or fixed expressions lifted from the writing tasks).

All things considered, the results for our four constructional domains, especially domain D, called for an experimental intervention given that we believe a correlation between learners’ descending performance and the ascending constructional complexity from domains A to D can be attested from the perspective of language comprehension. Therefore, in this experimental part of the research, the acceptability judgment task applied to learners was designed to test the following hypothesis:

Learner comprehension of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D. Thus, B2 and C1 level learners are expected to have a descending level of recognition that is proportional with the ascending level of constructional complexity of each domain.

To empirically test our hypothesis, we have devised an acceptability judgement task which was administered to 120 Brazilian EFL learners distributed in four groups (2 groups of 30 B2 level learners and 2 groups of 30 C1 level learners). The sections below describe the participants' profiles, experimental items, procedures and results of the experiment.

### 5.3.2 Participants

The corpus analysis of EFCamDAT was designed to check learners' production of the target constructions, but also served to define the profile of the experiment participants.

In view of the fact that no significant cross-linguistic differences were felt among the four targeted groups of Romance languages (Brazilian Portuguese, Spanish, Italian and French), we did not feel compelled to apply the experimental task to all four language groups. For that reason, our experiment was restricted to the group of learners most widely represented in our corpus analysis, Brazilian EFL learners. We believe the results on comprehension from this group could be extended to how speakers of other Romance languages would react to the stimuli for two main reasons: 1) performance in the use of caused motions by speakers of Romance languages among the four constructional domains followed, *by and large*, very similar routes of descending performance; but 2) Brazilian Portuguese speakers were the only group who behaved in accord with the expected outcome for constructional domain D. Thus, whatever the experimental results for Brazilian learners are, it seems to be plausible to expect, based on the observational data analyzed, that the remaining speakers would perform similarly to or better than our experimental group.

As for participants' proficiency levels, we decided to restrict our experimental groups to the highest levels of analysis in our corpus investigation: B2 and C1 levels. This way, the

experiment could both shed some light on learners' comprehension of the constructions, but the comparison across both levels could also reveal features of development and the extent to which proficiency affects the comprehension of the constructions under investigation. Since we aimed at carrying out the experiment on an online platform for surveys and experiments<sup>49</sup>, we established 70 learners per language and proficiency level so as to anticipate and minimize data that, in the end, could not be used in the analysis. We managed to collect the responses of 162 participants (81 of each level) and, after eliminating incomplete responses and some outliers<sup>50</sup>, the experimental group came down to a total of 120 participants, 2 groups of 30 B2 and 2 groups of 30 C1 level participants.

The participant recruitment was done with students from a language institute (Associação Culture Inglesa SP) and, for the selection of participants' proficiency levels, we used the leveling criterion of the institute. For B2 learners, we recruited participants doing an upper-intermediate course and for C1 level, advanced-level learners were invited to take part in the experiment<sup>51</sup>. The task was applied to participants from 7 units of the language institute (Higienópolis, Pinheiros, Tatuapé, Santana, Guarulhos, Saúde and Vila Mariana).

In the next section, we present the experimental items and discuss their composition.

### 5.3.3 Experimental items

The items were created and divided into two types vis-à-vis our hypothesis: type of verb (*instantiation* or *modification*) and interpretation (*literal* or *figurative* motion). No syntactically ungrammatical/unacceptable sentence containing the target language was included, since the aim of the experiment was to show how close to “natural” participants

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<sup>49</sup> [www.qualtrics.com](http://www.qualtrics.com)

<sup>50</sup> We have considered an outlier any response that systematically chose 1 or 5 across all the questions in our survey.

<sup>51</sup> In order for participants to be prototypical representatives of the CEFR bands B2 and C1, we have selected only participants who were respectively doing an upper-intermediate 2 level (out of three stages) and an advanced 2 level (out of three stages). Our intention with this was to avoid having either participants entering the targeted CEFR level (which could characterize real knowledge of the previous band) or exiting the targeted CEFR (which could characterize knowledge of the following band).

would rate the items and the extent to which these would be affected by the sentences' grammatical properties.

The instantiation verbs used in the sentences were extracted from Hampe's (2010) corpus study on the most frequent verbs used in caused-motion constructions in the ICE corpus. The researcher's data showed similar results to a previous informal analysis we conducted on verbs used in caused-motion constructions in the COCA corpus (cf. Appendix C for the informal search). The modification verbs used in the stimuli were also validated on COCA, but most of them were taken from publications on caused-motion constructions (GOLDBERG, 1995; GOLDBERG; JACKENDOFF, 2004; CABRERA; ZUBIZARRETA, 2004; RAPPAPORT HOVAV; LEVIN, 1995).

In the item composition process, sentences were controlled for: 1) number of words (each item has 15 words); 2) number of syllables (Mean= 20.3); and 3) frequency of the verb on COCA (among the first 500 most frequent verbal lemmas). The critical elements in the sentences (i.e., Verb + Object + Oblique Argument) were also controlled for and the vast majority is composed of 7 words, ranging between 6 and 10 words. The acceptability of the target items and the different interpretations (*literal* or *figurative*) of the sentences were validated with 5 native speakers of English and the critical elements were all checked for occurrence in the COCA corpus.

The experiment is composed of 48 target items (12 sentences per domain) and 30 distractor sentences. According to Keating & Jegerski (2015), a rule of thumb on the number of distractors is to include 75% of fillers in relation to the target stimuli. In this case, 30 sentences account for 75%. Fillers with off-target language were included to remove bias and to stop participants from discovering the main focus of the experiment. The fillers show 4 types of constructions: 1) Relative Clauses; 2) Passives; 3) Caused motions with unaccusative verbs (=unacceptable); and 4) Intransitive motion constructions. 70% of the fillers (21 sentences) are unacceptable. These were included in order to stop learners from generalizing that all sentences were acceptable (cf. Appendix D for all items and fillers).

Below we present the fillers divided into the four constructional domains.

### **Domain A: caused motions with instantiation verbs denoting literal movement**

1. You need to put the mixture directly into the milk while it is still hot.
2. Sam wants to bring more young people into our discussion group before it gets full.
3. We have to get the wine out of the fridge before it gets too cold.
4. She will take those silver rings out of her nose because her dad hates them.
5. They plan to return all the policemen to the streets to reduce the crime rates.
6. You have to send this pack out of the country using a special delivery service.
7. I can't carry these kinds of metal objects into the airport without declaring them first.
8. The coach will lead the winning team onto the field to have the celebration party.
9. You should not throw the sliced vegetables into the pan after the soup is hot.
10. You need to drop the keys in the blue box before you leave the room.
11. You need to pull these plants out of the ground before they destroy the vegetables.
12. They will push the chairs out of the way for us to use this space.

### **Domain B: caused motions with instantiation verbs denoting figurative movement**

13. We need to put this political crisis to an end before it is too late.
14. You should always bring the issues to my attention before you go and make decisions.
15. The results of this investigation can get the president in trouble in the near future.
16. This government can take the country into another economic depression in less than a year.
17. Peter and Liz want to turn their plans and ideas into reality with our help.
18. This project will send all the team into despair because of its size and complexity.
19. We really need to carry the new plans into effect in time for the holidays.
20. Education can always lead people out of the darkness of ignorance no matter the age.
21. These actions can throw the population into confusion because they aren't clear or well defined.
22. We should drop the problems out of our consciousness if we want to solve them.
23. The policeman could pull the girl out of danger before the animal could reach her.
24. These bad decisions can push many small businesses into financial trouble in the near future.

### **Domain C: caused motions with modifying verbs denoting literal movement**

25. They will laugh me and my team out of the office if we present this.
26. This new policy may run many good professionals out of the country in a month.
27. You should work the butter and the milk into the eggs by using a fork.
28. You must play the ball off your right foot to reduce the number of mistakes.
29. They only need to speak some words into the microphone and the spectators go crazy.
30. The magician says he can talk the hat off your head with his magic tricks.
31. You must breathe lots of air into the lungs of the patient to save him.
32. Patients cry themselves into the emergency room when they are in a lot of pain.

33. This circus artist can sneeze spaghetti out of his nose in front of the audience.
34. One parent can't drive the kids out of the country without the other parent's permission.
35. I had to scream the kids back into their homes because of the heavy rain.
36. She was able to walk all the horses into the stables before it started raining.

**Domain D: caused motions with modifying verbs denoting figurative movement**

37. My kids always laugh themselves into exhaustion when they see puppets and clowns on TV.
38. These decisions can run the healthcare system into the ground in one month or two.
39. Scientists can work themselves into severe mental breakdowns if they do not get enough rest.
40. After football matches some guys drink themselves into madness on the streets around the stadium.
41. You can speak your problems into existence when you talk about them all the time.
42. The doctors need to talk some sense into her mind before she makes more mistakes.
43. This method teaches you to breathe yourself out of fear and anxiety in 8 minutes.
44. At night some kids cry themselves into exhaustion before they finally stop and fall asleep.
45. I literally sneeze myself into a terrible headache when I eat anything with black pepper.
46. Paul always drives his parents to desperation when he behaves the way he did yesterday.
47. You cannot scream yourself out of trouble if you have a difficult problem to solve.
48. Doctors say people can walk themselves out of their bad mood if they walk regularly.

**5.3.4 Procedure**

The experimental items above were divided into two tasks of 24 target items each, with 6 items per domain (Test A and B), plus the number of distractors (=18). The division into two tests was meant to reduce the total number of items per experiment, but also served as a way of relexicalizing the items, thus isolating effects of vocabulary knowledge on learners' response. Table 22 shows the distribution.

Table 22 - Distribution of participants by tasks

	B2	C1	Total
Test A	30	30	60
Test B	30	30	60
Total			<b>120</b>

The test was conducted online with the platform Qualtrics. First, participants were provided with some information about the test and the context of its application (Fig.22). Then, a page to collect their authorization to use the data appeared (Fig.23). If participants did not agree to have their responses used in the research, the system would automatically direct them to another page thanking them for participating. Next, language proficiency level was required (Fig.24) before the first question appeared.

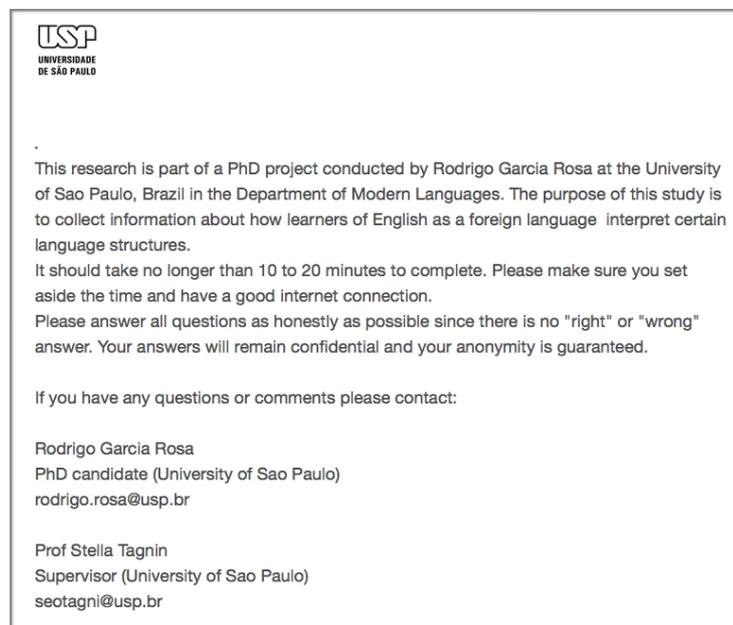


Figure 22 - Research context

**Consent**

I hereby give my permission to participate in a research study conducted by Rodrigo Garcia Rosa (PhD student at the University of Sao Paulo, Department of Modern Languages), where I will answer questions about my interpretation of certain English phrases.

Please read this information and provide your consent if you wish to participate in this study:

I have read and understood the above consent information. I am 18 years or older and can speak English. My participation is voluntary, and I am free to withdraw at any time, without giving any reason. The data collected from this study will be kept confidential, and will be used and stored anonymously. This data may be used in analyses, publications, and conference presentations by researchers at the University of Sao Paulo and their collaborators at other research institutions. No information that can be used to identify you will be shared with other researchers. I understand that personal information (such as language background, age, gender etc.) will be collected as part of this research. Full data will only be accessible to the research team.

I agree to the above and I consent to participate in this study.

→

Figure 23 - Consent of use of data

. My level of English is:

B2 (upper intermediate)

C1 (advanced)

→

Figure 24 - Experiment information on the proficiency level

Participants were asked to choose numbers (1-5) on a Likert scale going from “Not Natural (1)” to “Natural (5)”. An additional option “I don’t know” was included and these answers were disregarded in the analysis. The task design was based on Suzuki et al. (2016). The experimental items were randomly presented (target items of the four domains and distractors). Participants were not allowed to go back to previous responses, skip sentences or

choose more than one option per item. All of these presentation features were automatically programmed on Qualtrics.

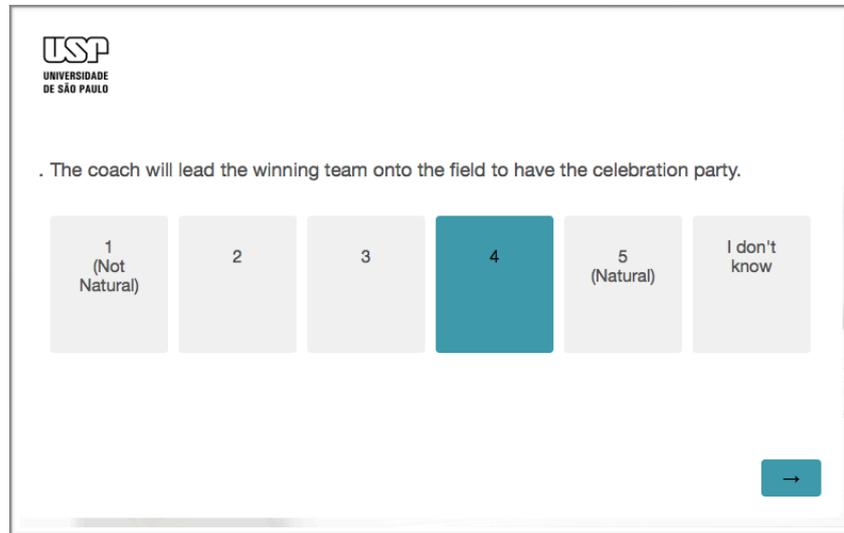


Figure 25 - Example of a target item on Qualtrics

The test was untimed and 50% of the participants did it in an unsupervised manner<sup>52</sup>, but instructions demanded they did not use any material for consultation during the execution of the task and they were asked not to take longer than 20 minutes to perform it<sup>53</sup>. The next section brings the results and the discussion.

#### 5.4 Results and discussion

The four constructional domains (A-D) were isolated and participants' given rates were computed into a spreadsheet (from 0 (=“I don't know”) to 5 (=“Natural)). The conventional parametric statistics treatment advise that, in Likert scale tasks, the analyst must calculate the

<sup>52</sup> This researcher supervised the execution of the task with 50% of participants. With the other 50%, instructions were given face-to-face, bur the test was sent by email.

<sup>53</sup> Qualtrics' estimate time to perform this task was 18 minutes. We included 2 extra minutes in the instructions given that this was a survey with learners.

*mean* of each participant, as well as its standard deviation. These two figures are meant to be computed so as to obtain participant's z-score for each response. The z-score represents a standardized response of participants as each one of them is expressed in standard deviation units from the participants' mean (SCHÜTZE; SPROUSE, 2013, p. 43). The z-score transformation is a standardization process that removes possible distortions within the data. However, parametric tests are only necessary for continuous data, not categorical data. In our case, each of the constructional domains was grouped and seen as an "island" for comparison between B2 and C1 levels. This way, the data is categorical, rather than continuous, and does not require a parametric treatment. Thus, our aim was basically to obtain a mean of each participant's response, from which we calculated another mean, the mean of each constructional domain. This figure would represent the level's response to the sum of experimental items contained in that particular domain. For example, in Task\_ B\_CMIL (literal caused motions with instantiating verbs), the mean of B2's response was 4,19 and C1 4,4. This shows, as expected, albeit modestly, the improved performance of C1 level learners over B2 participants.

In the next sections we compare both levels of proficiency and by constructional domain before crossing the variables and levels.

#### **5.4.1 Literal caused motions with instantiating verbs**

This constructional domain (A) was expected, according to our central hypothesis (cf. section 3.1), to be the least complex group for learners to process. As the experimental items below demonstrate, the argument structure of verbs reflect the construction's argument structure. Also, the high frequency of the verbs selected for these items reinforces the thesis that these are familiar lexical constructions, especially at B2 and C1 levels.

**Domain A: CMIL**

- You need to put the mixture directly into the milk while it is still hot.
- Sam wants to bring more young people into our discussion group before it gets full.

- We have to get the wine out of the fridge before it gets too cold.
- She will take those silver rings out of her nose because her dad hates them.
- They plan to return all the policemen to the streets to reduce the crime rates.
- You have to send this pack out of the country using a special delivery service.
- I can't carry these kinds of metal objects into the airport without declaring them first.
- The coach will lead the winning team onto the field to have the celebration party.
- You should not throw the sliced vegetables into the pan after the soup is hot.
- You need to drop the keys in the blue box before you leave the room.
- You need to pull these plants out of the ground before they destroy the vegetables.
- They will push the chairs out of the way for us to use this space.

This becomes evident, especially in Task A (lefthand side of the page) by an observation of the responses of B1 and C1 levels to these stimuli.

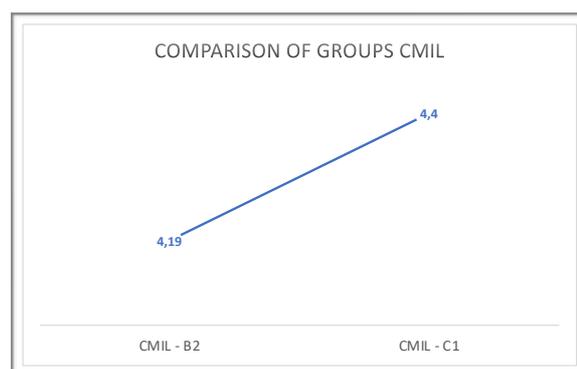
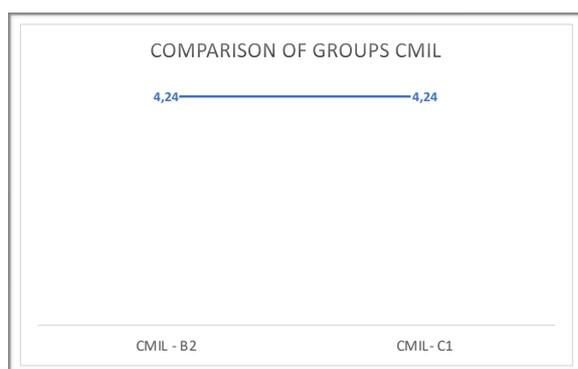


Chart 11 - Comparison of domain A at B2 and C1

Since Tasks A and B were composed of items alternately taken from the sum of items in domain A, the difference between responses may be the result of different levels of familiarity with the grammar of specific verbs composing the task in question. In the first chart above, no difference at all was observed between B2 and C1, whereas in the second, the chart shows C1 outperforming B2 as expected.

#### 5.4.2 Figurative caused motions with instantiating verbs

Differently from the results above, the second group involves the *figurative reading* variable, which as discussed in Chapter 4, adds an extra layer of complexity for learners to handle. The oblique argument is construed as a figurative space from or to which the events cause the THEME to dislocate. In the items below these arguments are respectively coded in *to and end*, *to my attention*, *in trouble*, *into another economic depression*, *into reality*, *into despair*, *into effect*, *out of the darkness of ignorance*, *into confusion*, *out of our consciousness* and *into financial trouble*.

**Domain B: CMIF**

- We need to put this political crisis to an end before it is too late.
- You should always bring the issues to my attention before you go and make decisions.
- The results of this investigation can get the president in trouble in the near future.
- This government can take the country into another economic depression in less than a year.
- Peter and Liz want to turn their plans and ideas into reality with our help.
- This project will send all the team into despair because of its size and complexity.
- We really need to carry the new plans into effect in time for the holidays.
- Education can always lead people out of the darkness of ignorance no matter the age.
- These actions can throw the population into confusion because they aren't clear or well defined.
- We should drop the problems out of our consciousness if we want to solve them.
- The policeman could pull the girl out of danger before the animal could reach her.
- These bad decisions can push many small businesses into financial trouble in the near future.

The observation of learners' responses to domain B (Chart 12) is in line with the expectation for B2 performance in comparison with C1 learners. In both tasks, C1 level learners outperform B2 in more than 0.10. It is important to state that 0.10 does not seem to be a significant difference at first glance, but one must consider the scale of granularity adopted. In the computation of the data, we decided to maintain the mean on the 0-5 scale and make the difference more visual with the aid of line graphs.



Chart 12 - Comparison of domain B at B2 and C1

As was discussed in Chapters 3 and 4, studies about L1 acquisition and use suggest that metaphorically extended caused motions are lexically licensed by low-level constructions (fixed phraseologisms) as a result of processes of conventionalization between the verb and the PP argument (BOAS, 2013; HAMPE, 2010). The second experimental item of domain B is an example. *Bring X to one's attention* has a 3.57 MI-score on COCA, which means that the words *bring* and *attention* maintain a mutual level of attraction that is statistically significant. In other words, they form a phraseologism. One could claim that the inability to process phraseologisms entails lack of lexical knowledge and, thus, cannot be used as evidence for the absence of constructional knowledge. That is certainly true for decoding idioms (FILLMORE et. al., 1988) like *kick the bucket*, whose opaque meanings cannot be decoded from their constitutive parts. *Bring X to one's attention* is an encoding idiom which can be inferentially understood, should the learner have conceptual domain of its constitutive parts. Moreover, knowledge of the phraseologism would certainly yield better and faster results in a timed lexical recognition task, for instance, but in untimed acceptability judgement tasks which contain encoding idioms like this, using the schematic knowledge of X CAUSES Y TO MOVE Z might lead to similar results.

All in all, domain B shows that the figurative variable does affect learners' reaction to caused motions and this effect is also differently felt by B2 and C1 levels, with C1 outperforming B2, as expected.

### 5.4.3 Literal caused motions with modifying verbs

This constructional domain isolates the effect that the type of verb has on learners' interpretation of the items. This variable is believed to put a strain on the learner in different ways to how the need for figurative interpretation does. In this particular case, learners must solely rely on the constructional meaning to apprehend both the argument structure of the expressions (some of the verbs are prototypically monoargumental: *laugh, work, talk, breathe, cry, sneeze, scream*) and also interpret the modification that these verbs provide the sentences. In other words, in order to interpret the sentences, learners must be able to apprehend that *'they will laugh me and my team out of the office if we present this'* means *'they will make me and my team leave the office **by laughing about us** if we present this'*.

#### Domain C: CMML

- They will laugh me and my team out of the office if we present this.
- This new policy may run many good professionals out of the country in a month.
- You should work the butter and the milk into the eggs by using a fork.
- You must play the ball off your right foot to reduce the number of mistakes.
- They only need to speak some words into the microphone and the spectators go crazy.
- The magician says he can talk the hat off your head with his magic tricks.
- You must breathe lots of air into the lungs of the patient to save him.
- Patients cry themselves into the emergency room when they are in a lot of pain.
- This circus artist can sneeze spaghetti out of his nose in front of the audience.
- One parent can't drive the kids out of the country without the other parent's permission.
- I had to scream the kids back into their homes because of the heavy rain.
- She was able to walk all the horses into the stables before it started raining.

As expected, learners' responses to this domain showed effects of proficiency with C1 outperforming B2 in both tests A and B. We will contrast figures across domains to isolate the effect of types of verbs and interpretation in section 4.5, but it is imperative to quickly contrast here the figures in domain B (CMIF) to this domain. The mean in the previous domains varied within band 4.0, whereas domain C, with the marked variable (i.e., verbs of *modification*), reduced the scale of variation to band 3.0. This reinforces the thesis that both

B2 and C1 level learners, albeit to different degrees, have a strong reliance on verb meaning for the interpretation of sentences. As the charts below demonstrate, within band 3.0, the difference in response between B2 and C1 is, respectively, 0.29 and 0.33 (M=0.31).



Chart 13 - Comparison of domain C at B2 and C1

#### 5.4.4 Figurative caused motions with modifying verbs

The last constructional domain, thought to be the most complex and the most laborious domain in processing terms, also shows variation within band 3.0 with C1 level learners performing better than B2, as expected. In this constructional group, both marked variables, type of verb (*modification*) and interpretation (*figurative*) characterize the items. With these, learners are faced with the interpretation task of assigning caused-motion meaning to sentences composed of verbs which do not reflect the argument structure of X CAUSES Y TO MOVE Z, like instantiation verbs do. Learners must also be able to apply the modification reading to such expressions (*'breathe yourself out of fear and anxiety' = 'move away from fear and anxiety by breathing'*), but differently from domain C, in CMMFs the PP argument is also a figuratively construed space from or to which the constructional causal event dislocates the THEME. The experimental items are repeated below.

**Domain D: CMMF**

- My kids always laugh themselves into exhaustion when they see puppets and clowns on TV.
- These decisions can run the healthcare system into the ground in one month or two.
- Scientists can work themselves into severe mental breakdowns if they do not get enough rest.
- After football matches some guys drink themselves into madness on the streets around the stadium.
- You can speak your problems into existence when you talk about them all the time.
- The doctors need to talk some sense into her mind before she makes more mistakes.
- This method teaches you to breathe yourself out of fear and anxiety in 8 minutes.
- At night some kids cry themselves into exhaustion before they finally stop and fall asleep.
- I literally sneeze myself into a terrible headache when I eat anything with black pepper.
- Paul always drives his parents to desperation when he behaves the way he did yesterday.
- You cannot scream yourself out of trouble if you have a difficult problem to solve.
- Doctors say people can walk themselves out of their bad mood if they walk regularly.

The incremental layers of complexity that characterize this domain seem to have had a perceived effect on learners' response, differently from the results obtained in the observational data discussed in Chapter 4. The lowest performance of this group in relation to the previous constructional domains confirms our experimental hypothesis of a descending level of performance at levels B2 and C1, but also shed some light on the unexpected results seen in Chapter 4 for this group. There, the analysis of some concordance lines suggested the 'good' performance of learners was due to lexical knowledge interference in the production of CMMFs. By contrast, here learners could not resort to memorized chunks of language for the interpretation of the expressions and had to rely on a schematic X CAUSES Y TO MOVE Z for the interpretation, since no experimental item above contains statistically significant phraseologisms<sup>54</sup>.

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<sup>54</sup> The only likely candidate for the status of phraseologism '*talk some sense into*' has a 0.61 MI-score on COCA, which is considerably far from the widely accepted 3.0 for statistical significance.



Chart 14 - Comparison of domain D at B2 and C1

Section 4.5 presents a consolidation of the figures comparing proficiency levels B2 and C1 across domains.

#### 5.4.5 Proficiency levels across all constructional domains

The data analyzed thus far seem to validate our experimental hypothesis (repeated below).

Learner comprehension of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D. Thus, B2 and C1 level learners are expected to have a descending level of recognition that is proportional with the ascending level of constructional complexity of each domain.

The consolidated charts below show that both proficiency levels did have a gradual impoverished performance as they advanced into the given constructional domains. That is, the level of linguistic complexity of structures did affect learners' comprehension of caused-motion constructions, but differently from the observational data in Chapter 4, the elicited data confirmed that variables *type of verb* and *construction interpretation* affect this performance with a difference in rating ranging between 0.85 to 1.06 from domains A to D.

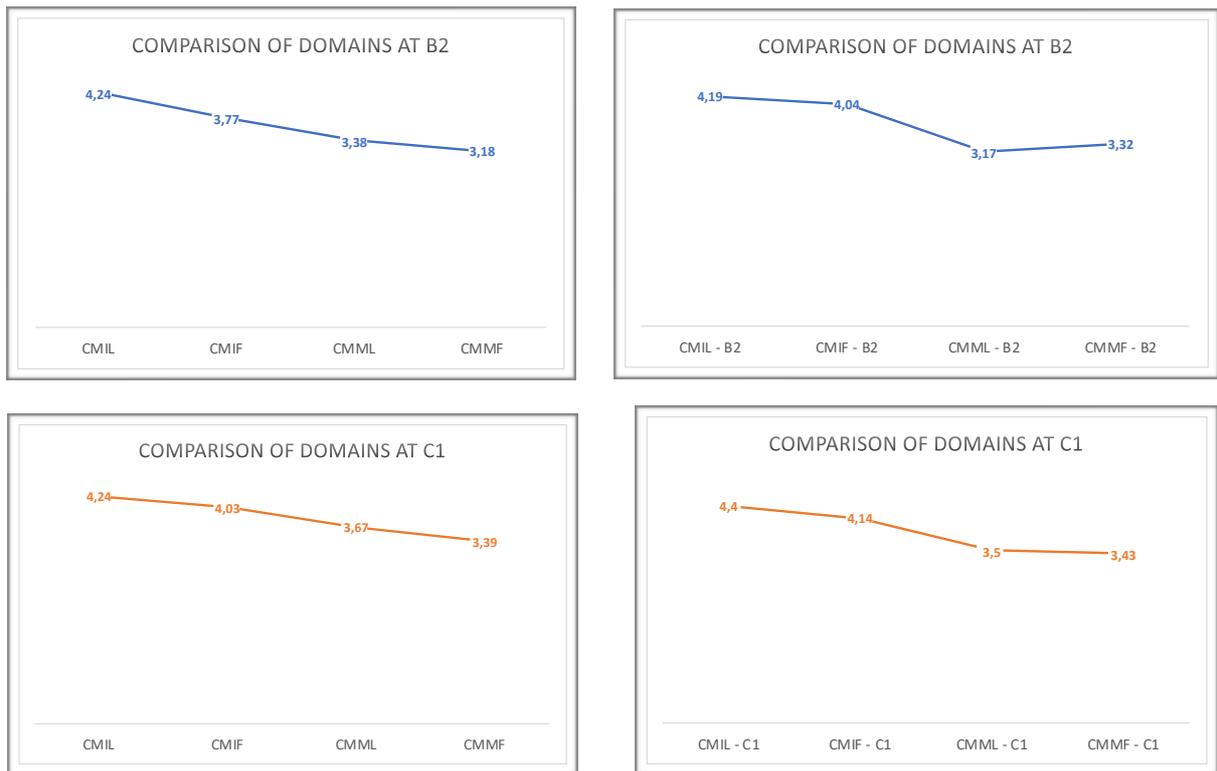


Chart 15 - Comparison across domains at B2 and C1

The difference in performance between domains A to D in both tasks A and B is presented in Table 23. For it, let delta ( $\Delta$ ) be the difference between the absolute values of CMIL and CMMF.

Table 23 - B2 and C1 performance from CMIL to CMMF

	B2	C1
Test A	$\Delta = 1.06$ (CMIL 4.24 > CMMF 3.18)	$\Delta = 0.85$ (CMIL 4.24 > CMMF 3.39)
Test B	$\Delta = 0.87$ (CMIL 4.19 > CMMF 3.32)	$\Delta = 0.97$ (CMIL 4.4 > CMMF 3.43)

A comparison in performance across all the domains with both B2 and C1 levels is presented below and, as expected, both levels descend in their level of comprehension, but to a lesser degree at C1.



Chart 16 - Comparison of B2 and C1 across domains

#### 5.4.6.1 Constructional interpretation across domains

As was done with the observational data, we have contrasted domains so as to isolate the effect of *types of verbs* and *constructional interpretation* as follows.

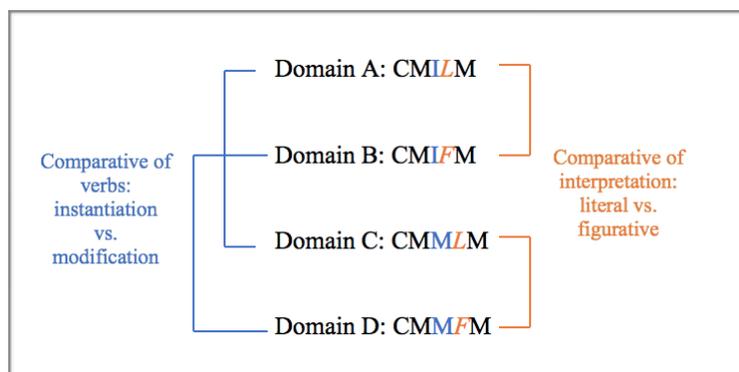


Figure 26 - Comparison of domains per types of variables

Let us first contrast the effect that the marked *figurative reading* had on the interpretation of the items in domains A and B, that is, constructions with instantiating verbs.

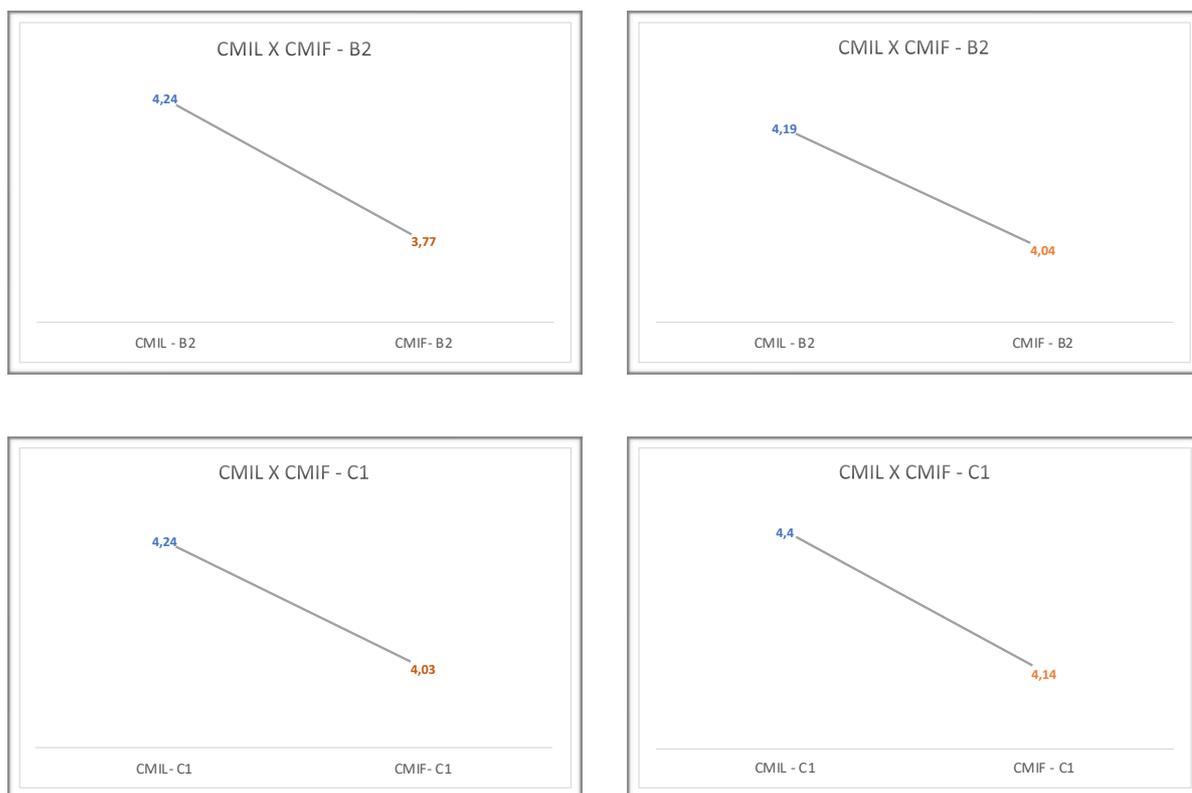


Chart 17 - CMIL vs. CMIF at B2 and C1

The charts on the lefthand side of the page represent the data of task A and on the righthand side, task B. In the four given scenarios, the presence of the variable *figurative meaning* had an effect on the processing of expressions at both levels of proficiency. Although both levels descended in performance, C1 showed a smaller difference (M=0.23) compared to B2 (M=0.31), in accordance with the anticipated outcome.

Below are the charts isolating the *figurative* variable in contexts with modifying verbs.

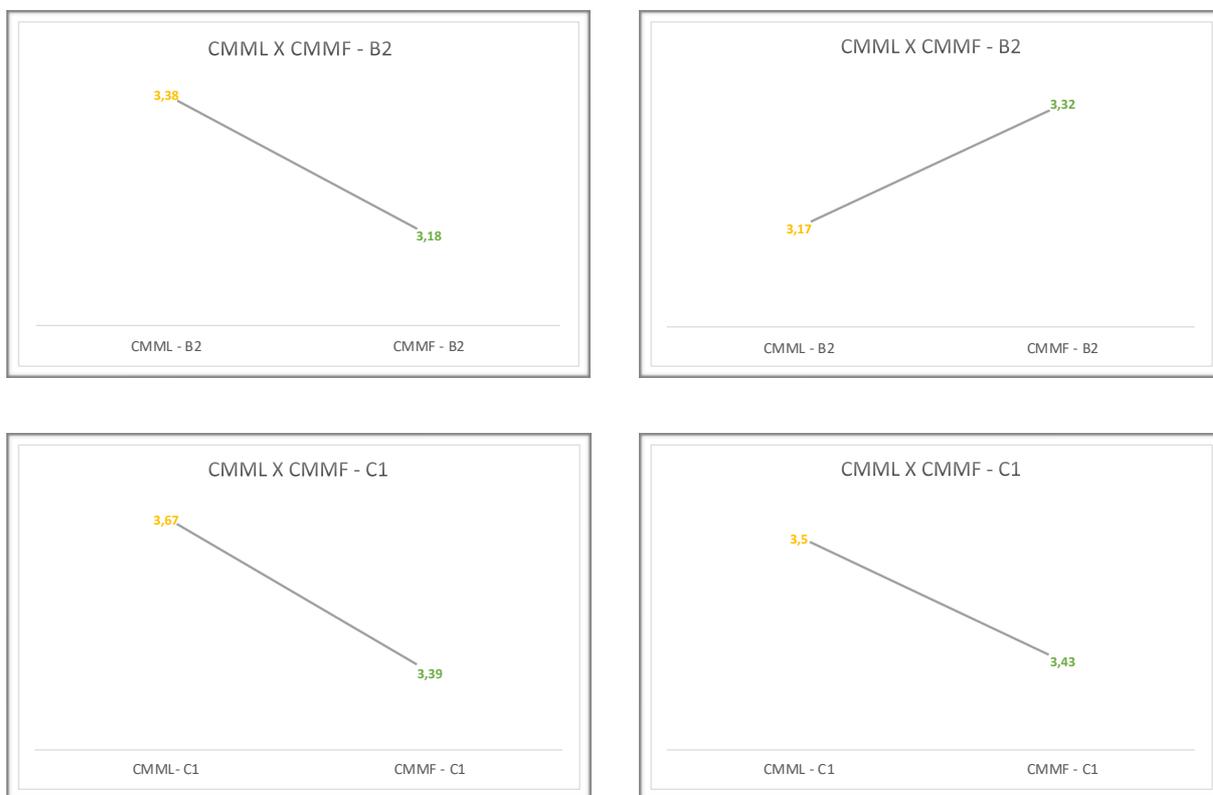


Chart 18 - CMIL vs. CMIF at B2 and C1

Participants of both levels of proficiency in task A performed according to the predictions made in our hypothesis, but B2 level learners in task B showed an expected improvement of 0.15 in CMMFs, as opposed to C1 learners who performed the same task and showed a decrease of 0.07. The data in task B, B2 may have been skewed by learners who took a guess while responding to some of the stimuli or by extralinguistic factors, such as consultation of materials or the Internet while performing the task<sup>55</sup>. In any case, while it is true that this comparison of domains slightly deviate from the expected outcome, it is important to foreground that the other groups all perform accordingly. Also, the varying levels in this contrast occur within band 3.0 and not 4.0 as the previous contrast between CMIL and CMIF. This shows, at least in 3 out of 4 groups, that the presence of modifying verbs in

<sup>55</sup> That could be the case of those learners who did the task in an unsupervised mode.

association with figurative readings does affect the data. This contrast is dealt with in the coming section.

### 5.4.6.2 Types of verbs across domains

This contrast of domains aims at isolating the effect of the marked modifying verbs in the contexts of literal and figurative interpretation. Given that this variable demands that learners operate both with the argument structure of schematic constructions and with the modification that specific verbs assign to X CAUSES Y TO MOVE Z, this variable is expected to result in lower performances when compared to the degree that figurative reading affects the responses to the stimuli. Below are the charts contrasting A and C.

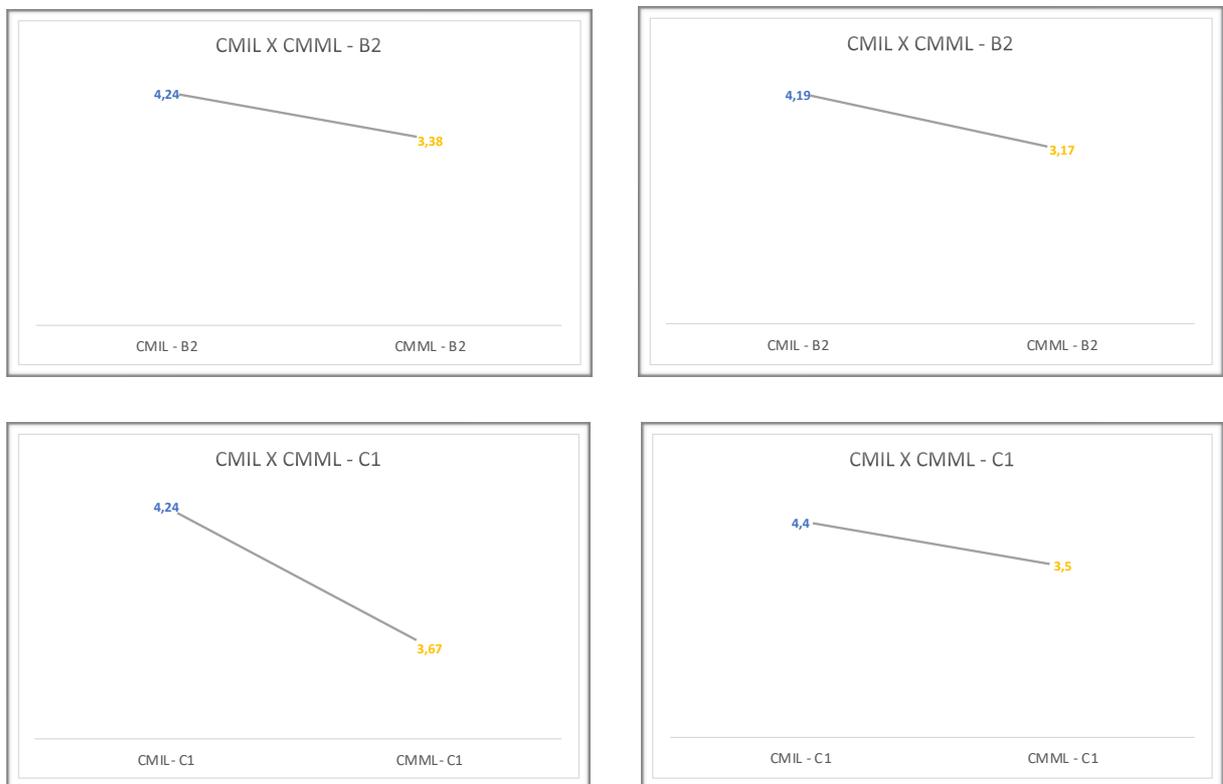


Chart 19 - CMIL vs. CMML at B2 and C1

The data in the charts above exhibit the expected results in all four constructional groups, thus foregrounding the effect that modifying verbs have on the interpretation of caused motions. B2 groups showed a decreased performance with CMMLs in both tasks (A and B) with a mean of almost 1.0 (M=0.94). To a lesser extent, C1 level learners also had their interpretation of CMMLs lowered (M=0.73), but as predicted, the type-of-verb variable was less detrimental to C1's interpretation than it was to B2.

The same observed distribution, with CMMFs being lower than CMIFs were verified in the contrast between domains B and D. However, although C1 perform slightly better than B2, the difference is smaller than the previous group: B2 (M=0.65) and C1 (M=0.67). Just like it happened to CMMF when contrasted with CMML, the data below surprises vis-à-vis the predictions for domain D.

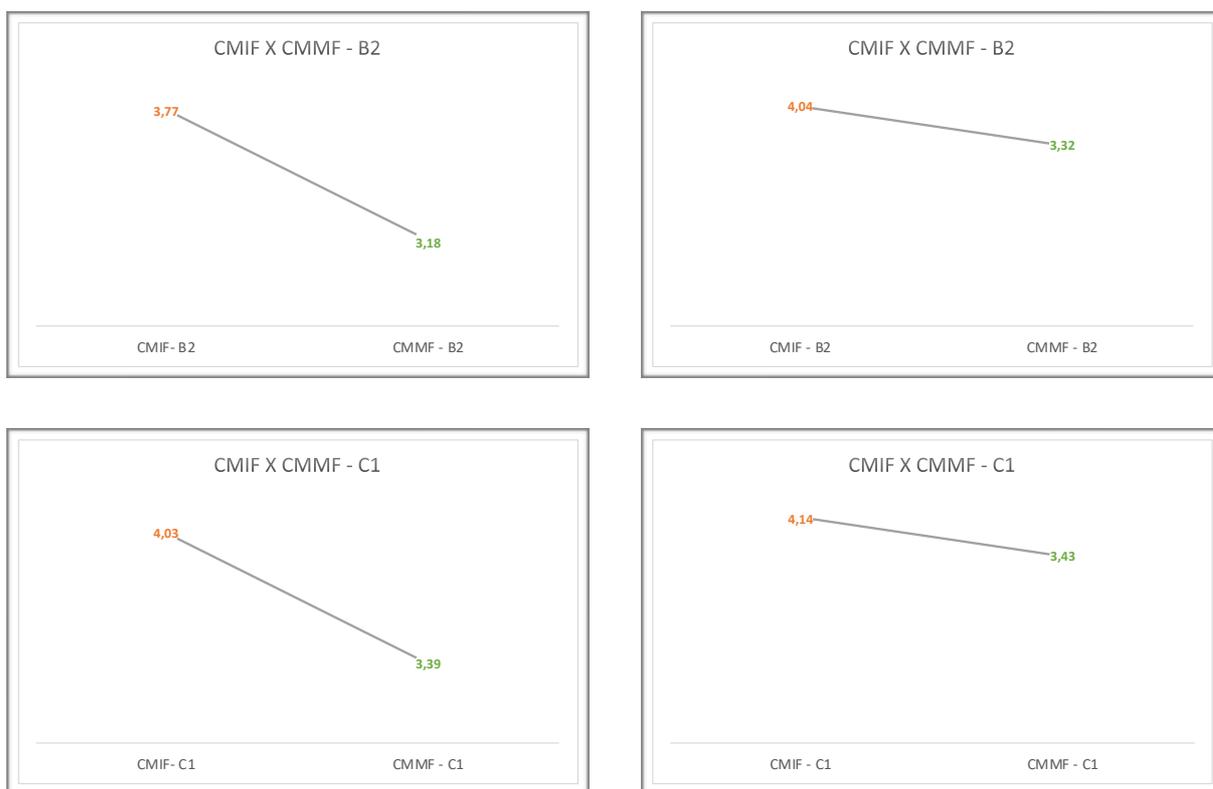


Chart 20 - CMIF vs. CMMF at B2 and C1

The experimental data analyzed here seem to confirm that the interaction between *figurative* readings and *modifying* verbs in caused-motion constructions somehow aid learners' interpretation as opposed to domain C (CMML). Although the observation of ratings attributed to CMMLs and CMMFs show a decreased performance in the latter group, proportionally, the prediction would be that the differences were bigger than they showed to be. CMMFs did not exhibit an improved performance of learners, as it occurred to the observation of learner language in Chapter 4, but more investigation is needed in this constructional domain to probe into the reasons why figurative caused motions with verbs of modification do not put a strain on learners' interpretation, as their complex linguistic structure would suggest.

## 5.5 Summary

This chapter dealt with the comprehension of caused-motion constructions with 4 groups of Brazilian EFL learners at two levels of proficiency: B2 and C1. We have applied an acceptability judgment task to 120 learners (60 B2-level learners/60 C1-level learners) in two tasks containing the four constructional domains described in Chapters 4 and here:

- Domain A: Caused motions with *instantiating* verbs denoting *literal* movement.
- Domain B: Caused motions with *instantiating* verbs denoting *figurative* movement.
- Domain C: Caused motions with *modifying* verbs denoting *literal* movement.
- Domain D: Caused motions with *modifying* verbs denoting *figurative* movement.

The data was compiled and described in light of the four domains above with the guidance of our central hypothesis, that is

Learner comprehension of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D. Thus, B2 and C1 level learners are expected to have a descending level of recognition that is proportional with the ascending level of constructional complexity of each domain.

As the analyses and discussions carried out throughout section 4 showed, our hypothesis was confirmed in that all learners demonstrated a decreased level of comprehension from domains A to D. The data also showed that proficiency level does affect the degree of interpretation of caused motions in these four domains in that C1 outperformed B2 learners across the constructional domains analyzed. We end this chapter with a consolidation of all the data. The responses of both tasks A and B were put together so as to visualize whether the expected descending line of performance could be observed.



Chart 21 - Performance of B2 and C1 with tasks A and B

The charts above represent the responses of B2 and C1 learners to the 48 experimental stimuli distributed across the four domains. As the lines show, the performance expected from learners in the hypothesis was met and, comparatively, C1 outperforms B2 even when the differences between groups of learners is neutralized (Chart 22).

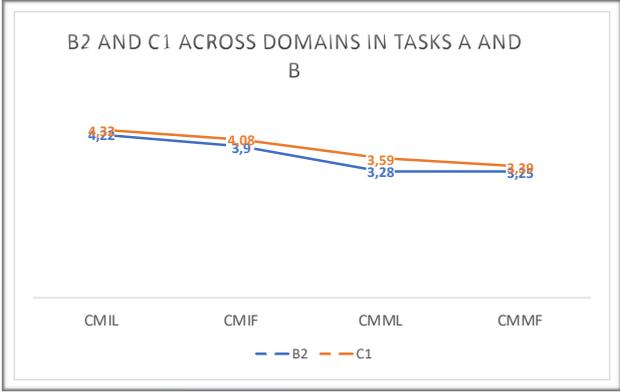


Chart 22 - Comparison of B2 and C1 performances with tasks A and B

## 6. Conclusion

As outlined in the Introduction of this dissertation, cognitive linguistics sees in the structure of languages the opportunity that language scientists have to access a tacit and highly complex system of thought, that is, the human conceptualization process (FILLMORE; 1982; GOLDBERG, 1995; LAKOFF; JOHNSON, 1980; LANGACKER, 2013). Therefore, by investigating the systematicity of language structure, one is able to take snapshots of speakers' realities, ways of life, cultural practices and commonly shared beliefs; that is, by studying languages, one can probe into different ways of seeing the world. In other words, we linguists are able to see through the eyes of those whose languages we study.

This fact is even more evident to those interested in the study of foreign languages because, if studying the underlying mechanisms of foreign language learning can definitely help learners learn faster and better, aid language instruction and facilitate the production of more assertive teaching materials, studying how the human mind takes in, stores and, ultimately, owns a foreign language can certainly say a lot about what the human mind is capable of. Thus, studying how learners learn a foreign language in a systematic and principled manner can certainly contribute to the understanding of us as human beings. On practical grounds, one can venture into this journey by investigating learners' production and/or processing of certain aspects of the target language and this was the decision we made in this dissertation. We aimed to study the production and comprehension of a highly marked English construction to EFL learners, the caused-motion construction, which we exemplify below:

(135) **Take your hands out of your pockets** now. (COCA/Spoken/2018)

(136) I wish I had **put more effort into mathematics** at an earlier age. (COCA/Web/2012)

(137) The last time we met you **screamed me out of your apartment** (COCA/Fiction/1995)

(138) He'd come to me smelling of sea salt and fish guts and **kissing me into silence**. (COCA/Fiction/1991)

As thoroughly discussed in Chapters 2 and 3, the caused-motion constructions above are, in general, syntactically characterized by the frame [Subj V Obj Obl] and semantically by a general scene in which X CAUSES Y TO MOVE Z. Nevertheless, although sentences (135) - (138) conform to these syntactic and semantic representations, they certainly do so in varying levels of complexity, both in their lexico-grammatical status and their semantic/pragmatic interpretation. As discussed throughout the dissertation, caused motions can host a great variety of nonstative verbs, some of which are prototypically associated with the construction ((135) - (136)), thus instantiating it, and some which modify the construction ((137) - (138)). Verbs of modification such as *scream*, *kiss*, *laugh*, *sneeze*, etc. make the necessity to postulate schematic caused motions more evident, because the object and oblique arguments of caused motions containing these verbs (*me*, *out of your apartment* and *into silence* in the examples above) are not provided by the argument structure of the verbs. They are given by the schematic X CAUSES Y TO MOVE Z with which *scream*, *kiss*, *laugh*, *sneeze*, etc. are, then, fused. Moreover, besides varying in relation to the verbs it can host, caused motions also vary as for the interpretation of the PP argument. The argument PPs *into mathematics* in (136) and *into silence* in (138) are interpreted as a *figurative place* or *an area of knowledge* the agent wishes he had spent more of his time and energy on. *Into silence*, although figuratively associated with a place towards which the theme was dislocated, in fact denotes a change of state or a result (=silent). In summary, caused motions can host instantiating and modifying verbs and the construction can denote either a literal or a figurative movement (domains A, B, C and D, Chapters 3, 4 and 5).

Thus, if dealing with a synthetically constructed pattern like this might be challenging enough to nonnative speakers of English in their most prototypical versions, (135) for example, how likely are learners to be able to produce and process more complex instances such as (136), (137) and (138)? In other words, from a constructionist perspective (GOLDBERG, 1995; 2006), the general question we asked ourselves in the Introduction of this dissertation was: do L1 Romance/L2 English learners have access to caused-motion constructions, i.e., can learners produce and process such constructions? In order to answer this general question while also addressing relevant aspects to L2 research (proficiency level and target language complexity), we broke this general query into the following:

- Does learner proficiency affect the *production* of caused-motion constructions? If so, to what extent?
- Is learner *production* of caused-motion constructions affected by the linguistic complexity of the structures in question? If so, to what extent?
- Does learner proficiency affect the *comprehension* of caused-motion constructions? If so, to what extent?
- Is learner *comprehension* of caused-motion constructions affected by the linguistic complexity of the structures in question? If so, to what extent?

Thus, we now provide answers to the questions posed above by summarizing our main research findings.

Does learner proficiency affect the *production* of caused-motion constructions? If so, to what extent?

Is learner *production* of caused-motion constructions affected by the linguistic complexity of the structures in question? If so, to what extent?

By adopting the methodological approach of corpus linguistics, the observational investigation looked at a dataset of learners representing four Romance languages (Brazilian Portuguese, Spanish, French and Italian) in four levels of language proficiency (A2 to C1 in CEFR). We also included a control group of German learners of English in order to neutralize typological factors in the analysis of the effect of proficiency on the production of caused motions. The data, taken from the EFCamDAT, a language databank of learner language from the University of Cambridge, was extracted, compiled and analyzed in light of two factors with two values each: 1) type of verb and 2) interpretation. So, in order to check the effect of proficiency on learners' production, the following hypotheses were posited:

1) Learner (L1 Romance/L2 English) *production* of caused motions is affected by the role of the verb, that is, *instantiating* verbs are expected to be more frequent than *modifying* verbs, irrespective of learners' proficiency level. Also, proportionally, *modifying* verbs are expected to occur more frequently in B2 and C1 levels;

2) Learner (L1 Romance/L2 English) *production* of caused motions is affected by the semantic reading of the directional PP, that is, whether they denote *literal* or *figurative* movement. As is the case for types of verbs, it is expected that the reading of *literal* movement will be more frequently used across levels of proficiency, and, proportionally, *figurative* motion (= change of state) is expected to occur more frequently in B2 and C1 levels.

The first hypothesis was validated by the data analysis. Instantiation verbs were more frequently used than modification verbs across levels of proficiency and no typological effect was perceived, since Romance language speakers behaved quite similarly to German learners with regard to the use of instantiation and modification verbs. Brazilian, Italian and French learners, in fact, outperformed Germans in the use of modifying verbs, which was taken as evidence of deeper entrenchment of knowledge of caused motions. The difference between Germans and Italians at C1 level, for instance, almost amounted to 10%, with Italian learners' share of modifying verbs reaching 75% and Germans 66% (cf. Table 18). As far as the literal vs. figurative readings are concerned, the second hypothesis was also partially validated. Although figures fluctuated at more intermediary levels (A2 to B1), the occurrence of figurative caused motions did show an increase that followed the proficiency scale. All four languages, as well as the control group did show an improved performance of figurative use from A2 to C1.

We also subjected the data to the analysis of both factors in interaction, with a focus placed on the marked value of each factor. Therefore, we looked at 1) the effect of modifying verbs in the context of literal and figurative movement readings and 2) the effect of figurative reading in the context of instantiating and modifying verbs. As expected, the data did show a decrease in performance both in the use of modifying verbs (eg. 69% (=CMILM) to 45% (=CMMLM) with French speakers) and in the figurative readings (eg. 71% (=CMILM) to

29% (=CMIFM)). However, the interaction between figurative interpretation and verbs of modification (domain D) generated unexpected results. The expected outcome was that domain D (=CMMFM) would have had the lowest salience, but that was not what the data showed. Thus, a more qualitative look at the data suggested that lower-level constructions (phraseologisms and/or task effect), as defended in Hampe (2010) and Xia (2017) were generating such results. These results served both to draw a scenario of learners' production of caused motions, but also informed and shaped our subsequent steps. That is, in light of the results we arrived at, we decided to apply an experimental intervention to check whether learners' interpretation would behave similarly or differently from their production in the corpus. This brings us to the next two questions.

Does learner proficiency affect the *comprehension* of caused-motion constructions? If so, to what extent?

Is learner *comprehension* of caused-motion constructions affected by the linguistic complexity of the structures in question? If so, to what extent?

In order to check learners' comprehension of caused motions, we devised an acceptability judgment task with Brazilian EFL learners with two levels of proficiency: B2 and C1. We recruited 120 participants (60 B2-level and 60 C1-level learners) and applied an acceptability judgment task containing 24 experimental items (6 items per constructional domain: CMILM, CMIFM, CMMLM and CMMFM) plus 18 distractors.

Just like with the observational data, we were interested in discovering whether learners responded differently to each constructional domain developmental perspective (hence the comparison between B2 and C1) and also how they behaved through constructional domains (from domains A to D). To that end, we postulated the following hypothesis to guide our analysis:

Learner comprehension of caused motions is affected by the different types of constructions (A, B, C and D) and this effect follows an ascending level of constructional complexity from A to D. Thus, B2 and C1 level learners are expected

to have a descending level of recognition that is proportional with the ascending level of constructional complexity of each domain.

Differently from the observational data, the experiment confirmed our hypothesis in all of its predictions. The contrast between B2 and C1 levels per constructional domain showed, by and large, clear effects of proficiency in the comprehension of all caused motions. C1 outperformed B2 learners in 7 out of the 8 tested scenarios, including domain D (cf. Chart 16). We also crossed the factors (types of verb and interpretation) to test whether what had been in the observational analysis would also be felt with the elicited data. As predicted, both proficiency levels showed a continuous decrease in the recognition of the constructional domains. In other words, the hypothesis that linguistic complexity would inhibit performance was confirmed in 15 out of 16 tested scenarios. Both proficiency levels underperformed as they progressed through constructional domains, but C1 performed better than B2 in relative terms.

The proposed analyses, both through observation and the elicitation, point to the fact that Romance L1/English L2 learners do have access to caused motion constructions, but the varying degrees of linguistic complexity of these structures do play a role in their production and processing. Although this study is not centered on the teaching of these structures to EFL learners, the results can be used by those interested in language pedagogy in order to provide learners with better and more assertive learning opportunities.

## REFERENCES

- ALEXOPOULOU, D.; MICHEL, M.; MURAKAMI, A.; MEURERS, D. Task Effects on Linguistic Complexity and Accuracy: A Large-Scale Learner Corpus Analysis Employing Natural Language Processing Techniques. **Language Learning**, 67 (S1), p. 180-208, 2017.
- ALLAW, E.; MCDONOUGH, K. The effect of task sequencing on second language written lexical complexity, accuracy, and fluency. **System**, 85, 2019.
- BAICCHI, A. **Construction Learning as a Complex Adaptive System - Psycholinguistic Evidence from L2 Learners of English**: London, Springer International Publishing, 2015.
- BARODAL, J. **Productivity: Evidence from Case and Argument Structure in Icelandic**. Constructional Approaches to Language. Amsterdam: John Benjamins, 2008.
- BENCINI, G.; GOLDBERG, A. The Contribution of Argument Structure Constructions to Sentence Meaning. **Journal of Memory and Language**, 43, p. 640-651, 2000.
- BERBER SARDINHA, T. **Linguística de Corpus**. Barueri: SP: Manole, 2004.
- BIBER, D. Using register-diversified corpora for general language studies. **Journal Computational Linguistics - Special issue on using large corpora: II** 19, n. 2, p. 219 - 241, 1993.
- BOAS, H. C. Cognitive Construction Grammar. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar**. New York: Oxford University Press, 2013, p. 233 - 252.

- BOHNEMEYER, J., N. J. ENFIELD, J. ESSEGBEY, I. IBARRETXE-ANTUÑANO, S. KITA, F. LÜPKE; F. K. AMEKA. Principles of event segmentation in language: The case of motion events. **Language** 83(3). p. 495–532, 2007.
- BOOIJ, G. **Construction Morphology**. Nova York: Oxford University Press, 2010.
- BREZINA, V. **Statistics in Corpus Linguistics - A Practical Guide**. Cambridge: Cambridge University Press, 2018.
- BYBEE, J. From usage to Grammar: The Mind's Response to Repetition. **Language**, n. 82, p. 711 - 733, 2006.
- BYBEE, J. L. Usage-based Theory and Exemplar Representations of constructions. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar**. New York: Oxford University Press, 2013, p. 49 - 69.
- BYBEE, J. **Language, Usage and Cognition**. New York: Cambridge University Press, 2010.
- CABRERA, M.; ZUBIZARRETA, M. L Constructional properties versus lexical specific transfer: overgeneralized causatives in L2 English and L2 Spanish. **BUCLD**, 28 Proceedings Supplement. 2004.
- CARTER, R., e M. McCARTHY. **Cambridge Grammar of English - a Comprehensive Guide**. Cambridge: Cambridge University Press, 2006.
- CELCE-MURCIA, M.; LARSEN-FREEMAN, D. **The Grammar Book - an ESL/EFL Teacher's Course**. Boston: Heinle Cengage Learning, 1999.
- CHARTERIS-BLACK, J. Second Language Figurative Proficiency: A Comparative Study of Malay and English. **Applied Linguistics**, Vol. 23 (1), p. 104–133, 2002.

- CHOMSKY, N. **Lectures on Government and Binding**. Dordrecht: Foris, 1981.
- CHOMSKY, N. **Syntactic Structures**. The Hague: Mouton, 1957.
- CINTRÓN, M.; ELLIS, N. Salience in Second Language Acquisition - Physical Form, Learner Attention, and Instructional Focus. **Frontiers in Psychology**, 7(10), 2016.
- COOK, G. **Applied Linguistics**. Oxford: Oxford University Press, 2003.
- COOK, V. Experimental Approaches to Second Language Learning. **Pergamon**, p. 3-21, 1986.
- COWIE, A. P. **Phraseology - Theory, Analysis, and Application**. New York: Oxford University Press, 1998.
- CROFT, W. **Radical Construction Grammar - Syntactic Theory in Typological Perspective**. Chicago: Chicago University Press, 2001.
- CROFT, W. Radical Construction Grammar. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar**. New York: Oxford University Press, 2013, p. 211 - 233.
- CROFT, W.; BARÐDAL, J.; HOLLMANN, W.; & SOTIROVA, V.; TAOKA, C. Revising Talmy's typological classification of complex event constructions. In H.C. Boas (Ed) **Contrastive Studies in Construction Grammar**. Amsterdam: John Benjamins, 2010, p. 201-235.
- CROFT, W.; CRUSE, D. A. **Cognitive Linguistics**. Cambridge Textbooks in Linguistics. Cambridge: Cambridge University Press, 2004.
- CRYSTAL, D. **Dictionary of Linguistics and Phonetics**. Oxford: Blackwell Publishing, 6th ed. 2008.

- CULICOVER, P. W. **Grammar and Complexity: language at the intersection of competence and performance.** Oxford: Oxford University Press, 2013.
- DANCYGIER, B.; SWEETSER, E. **Figurative Language.** Cambridge: Cambridge University Press, 2014.
- DAVIES, M. The **Corpus of Contemporary American English**: 450 million words, 1990-present. 2008-. <http://corpus.byu.edu/coca/>.
- DeKEYSER, R. M. Age effects in second language learning. In Gass, S., Mackey, A. (Eds.), **Handbook of second language acquisition.** London: Routledge, 2014, p. 442–460.
- DIESSEL, H. Construction Grammar and First Language Acquisition. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar.** New York: Oxford University Press, 2013, p. 347 - 364.
- ELLIS, N. C.; CADIerno, T. Constructing a second language. **Annual Review of Cognitive Linguistics**, Special section. 7, p. 111-290, 2009.
- ELLIS, N. Construction Grammar and Second Language Acquisition. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar.** New York: Oxford University Press, 2013, p. 365 - 378.
- ELLIS, N.; FERREIRA-JUNIOR, F. Constructions and their acquisition Islands and the distinctiveness of their occupancy. **Annual Review of Cognitive Linguistics.** 7, p. 187-220, 2009.
- EVANS, V.; M. GREEN. **Cognitive Linguistics - An Introduction.** Edinburgh: Edinburgh University Press, 2006.
- FERRARI, L. **Introdução à Linguística Cognitiva.** São Paulo: Editora Contexto, 2011.

- FILLMORE C. Innocence: a second idealization for linguistics. **Proceedings of the Fifth Berkeley Linguistics Society**. Berkeley: University of California, 1979.
- FILLMORE, C. Berkeley Construction Grammar. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar**. New York: Oxford University Press, 2013, p. 111 - 132.
- FILLMORE C. Corpus linguistics or Computer-aided armchair linguistics. In Svartvik, Jan (Ed.), **Directions in Corpus Linguistics, Proceedings of Nobel Symposium 82**, p. 35-60. Berlin/New York: Mouton de Gruyter, 1992.
- FILLMORE, C. Frame Semantics. **Linguistics in the morning calm**, p. 111 - 138, 1982.
- FILLMORE, C. Frames and the Semantics of Understanding. **Quaderni di Semantica**, p. 222 - 254, 1985.
- FILLMORE, C. Scenes-and-frames semantics. In A. ZAMPOLLI (Ed.), **Linguistics Structures Processing**, 55-81. Amsterdam: North Holland Publishing Company, 1977.
- FILLMORE, C. The case for case. In E. BACH; R. HARMS (Ed.), **Universals in Linguistic Theory**, 1 - 88. Nova York: Holt Rinehart and Winston, 1968.
- FILLMORE, C.; JOHNSON, C.; PETRUCK, M. Background to FrameNet. **International Journal of Lexicography**, 16(3), p. 235-250, 2003.
- FILLMORE, C.; KAY, P.; O'CONNOR, M. Regularity and idiomaticity in grammatical constructions: the case of let alone." **Language**, 64, p. 501–538, 1988.
- GAWRON, J.M. Situations and prepositions. **Linguist Philos** 9, p. 327–382, 1986.

- GEERAERTS, D. A Rough Guide to Cognitive Linguistics. In D. A. GEERAERTS (Ed.) **Cognitive Linguistics: basic readings**. Berlin: De Gruyter Mouton, 2006, p. 1 - 28.
- GILQUIN, G. **Corpus, cognition and causative constructions**. Amsterdam: John Benjamins, p. 2010.
- GILQUIN, G.; GRIES, S. Corpora and experimental methods: a state-of-the-art review. **Corpus Linguistics and Linguistic Theory**, 5(1), p. 1-26, 2009.
- GLUCKSBURG, S. **Understanding figurative language: From metaphor to idioms**. Oxford, UK: Oxford University Press, 2001
- GOLDBERG, A. E. **A constructionist approach to language**. Class notes. Federal University of Rio de Janeiro, July, 2016.
- GOLDBERG, A. E. **Construction Grammar Approach to Argument Structure**. Chicago: The University of Chicago Press, 1995.
- GOLDBERG, A. E. Constructionist approaches. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar**. New York: Oxford University Press, 2013, p. 15 - 32.
- GOLDBERG, A. E. **Constructions at Work: The Nature of Generalization in Language**. Oxford: Oxford University Press, 2006.
- GOLDBERG, A. E. **Explain me this: creativity, competition, and partial productivity of constructions**. Princeton: Princeton University Press, 2019.
- GOLDBERG, A. E.; CASENHISER, D. M.; SETHURAMAN, N. Learning argument structure generalizations. **Cognitive Linguistics**, 15(3), 289–316, 2004.

- GOLDBERG, A. E.; CASENHISER, D.; SETHURAMAN, N.. A lexically based proposal of argument structure meaning. In **Proceedings of Chicago Linguistic Society**, n. 2, 2003, p. 67-81.
- GOLDBERG, A. E.; JACKENDOFF, R. The resultative as a family of constructions. **Language**, 80, p. 532–68, 2004.
- GOLDBERG, A. E.. Constructions: a new theoretical approach to language. **Trends in Cognitive Sciences**, 7, 219-224, 2003.
- GRADY, J.E.. **Foundations of meaning: primary metaphors and primary scenes**. PhD Dissertation, University of California, Berkeley, 1997.
- GRANGER, S. Learner corpora. In Lüdeling, A.; Kytö, M. (Eds.) **Corpus Linguistics. An International Handbook**. Volume 1. Berlin & New York: Walter de Gruyter, 259-275, 2008.
- GRANGER, S. The computer learner corpus: A versatile new source of data for SLA research. In Granger S. (Ed.) **Learner English on Computer**. Edinburgh: Addison Wesley Longman Limited, p. 3–18, 1998.
- GRIES, S. Phraseology and linguistic theory: a brief survey. In GRANGER, S.; MEUNIER, F. (eds.) **Phraseology: an interdisciplinary perspective**. Amsterdam & Philadelphia: John Benjamins, p. 3 - 25. 2008.
- GRIES, S. T.; STEFANOWITSCH, A. Extending collocation analysis: A corpus-based perspective on “alternations”. **International Journal of Corpus Linguistics** 9(1), p. 97–129, 2004.
- GRIES, S. T.; WULFF, S. Do foreign language learners also have constructions? Evidence from priming, sorting, and corpora. **Annual Review of Cognitive Linguistics**, 3. p. 182-200, 2005.

- HAEGEMAN, L. **Introduction to Government and Binding Theory**. Oxford: Blackwell Publishing, 1994.
- HAMPE, B. Discovering constructions by means of collocation analysis: The English Denominative Construction. **Cognitive Linguistics**. 22, 2011.
- HAMPE, B. Metaphor, constructional ambiguity and the causative resultatives. In S. Handl, S.; Schmid, H.-J. (Eds.), **Windows to the mind: Metaphor, metonymy and conceptual blending**. Berlin & New York: Mouton de Gruyter, p. 185–215, 2010.
- HASPELMATH, M. Comparative concepts and descriptive categories in crosslinguistic studies. **Language**, v.86, p. 663-687, 2010.
- HEALY, A.; MILLER, G. The Verb as the Main Determinant of Sentence Meaning. **Psychonomic Science**, 20, 372, 1970.
- HILPERT, M. **Construction Grammar and its application to English**. Edinburgh: Edinburgh University Press, 2013.
- HOFFMANN, T.; BERGS, A. A Construction Grammar Approach to Genre. **CogniTextes**. 18. 10, 2018.
- HUANG, Y., MURAKAMI, A., ALEXOPOULOU, D.; KORHONEN, A. Dependency parsing of learner English. **International Journal of Corpus Linguistics**, 23 (1), 28-54, 2017.
- IONIN, T.; ZYZIK, E. Judgment and interpretation tasks. **Annual Review of Applied Linguistics**, 34, p. 37-64, 2014.
- ISRAEL, M. **How children get Constructions**. 2004. <http://terpconnect.umd.edu/~israel/Israel-GetConstructs.pdf> (October, 2019).

- JACKENDOFF, R. **Foundations of language: brain, meaning, grammar, evolution.** Oxford: Oxford University Press, 2002.
- JACKENDOFF, R. **Semantic Structures.** Cambridge MA: MIT Press, 1990.
- KAISER, E. Experimental Paradigms in Psycholinguistics. In Podesva, R. J.; Devyani S. **Research Methods in Linguistics**, p. 135–68. Cambridge: Cambridge University Press, 2014.
- KAY, P., FILLMORE, C. Grammatical Construction and Linguistic Generalizations: The What's X Doing Y? Construction. **Language**, n. 75, p. 1 - 34, 1999.
- KEATING, G. D.; JEGERSKI, J. Experimental designs in sentence processing research: A Methodological Review and User's Guide. **Studies in Second Language Acquisition** 37, no. 1, p. 1–32, 2015.
- KELLERMAN, E.; SMITH, S. **Crosslinguistic Influence in Second Language Acquisition.** New York: Pergamon Press.
- KEMMER, S.; VERHAGEN, A. The grammar of causatives and the conceptual structure of events.” **Cognitive Linguistics**, 5, p. 115-156, 1994.
- KRIEF-PLANQUE, A. **A noção de “fórmula” em análise do discurso.** São Paulo: Parábola Editorial, 2009.
- LAKOFF, G. **Woman, Fire, and Dangerous Things: what Categories Reveal about the Mind.** Chicago: The University of Chicago Press, 1987.
- LAKOFF, G.; JOHNSON, M. **Metaphors We Live By.** Chicago: Chicago University Press. 1980.
- LANGACKER, R. W. **Essentials of Cognitive Grammar.** New York: Oxford University Press, 2013.

- LANGACKER, R. W. **Foundations of Cognitive Grammar**, Volume I. Stanford, CA: Stanford University Press, 1987.
- LANGLOTZ, A. **Idiomatic Creativity**: a Cognitive Linguistic Model of Idiom-Representations and Idiom-Variation in English. Amsterdam and Philadelphia: John Benjamins, 2006.
- LEE, D. What Corpora are Available? In O'KEFFEE, A.; McCARHTY, M. (Ed.) **The Routledge Handbook of Corpus Linguistics**, p. 107 - 121. Nova York: Routledge, 2010.
- LEVIN, B. **English Verb Classes and Alternations**: a Preliminary Investigation. Chicago: The University of Chicago Press, 1993.
- LINDQUIST, H. **Corpus Linguistics and the Description of English**. Edinburgh: Edinburgh University Press, 2009.
- LYONS, J. **Introduction to Theoretical Linguistics**. Cambridge: Cambridge University Press, 1968.
- LYONS, J. **Semantics, Volume 1**. Cambridge: Cambridge University Press, 1977.
- MACKEY, A.; GASS, S. M. **Second language research: Methodology and design**. New Jersey Lawrence Erlbaum Associates Publishers.
- MAHOWALD, K.; GRAFF, P.; HARTMAN, J.; GIBSON, E. SNAP judgments: A small N acceptability paradigm (SNAP) for linguistic acceptability judgments. **Language**. 92. p. 619-635, 2016.
- MANZANAREZ, J. V.; LÓPEZ, A. M. What can language learners tell us about constructions? In De Knop, S. & De Rycker, T. (Eds.), **Cognitive approaches to pedagogical grammar**, p. 197–230. Berlin, Germany: Mouton de Gruyter, 2008.

- McENERY, T.; HARDIE, A. **Corpus Linguistics**. Cambridge: Cambridge University Press, 2012.
- McENERY, T.; WILSON, A. **Corpus Linguistics**. Edinburgh: Edinburgh University Press, 1996.
- NATTINGER, J. R.; DeCARRICO, J. S. **Lexical Phrases and Language Teaching**. Oxford: Oxford University Press, 1992.
- NEVEU, F. **Dicionário de Ciências da Linguagem**. Petrópolis, RJ: Editora Vozes, 2008.
- PAWLEY, A.; SYDER, F. H. Two puzzles for linguistic theory: Native-like selection and nativelike fluency. In Richards, J.; Schmidt. R. (Eds.), **Language and Communication**, p.191-225, 1983.
- PULVERMÜLLER, F.; CAPPELLE, B.; SHYROV, Y. Brain basis of meaning, words, constructions, and grammar. In T., TROUSDALE, G. HOFFMANN. (Ed.) **The Oxford Handbook of Construction Grammar**. New York: Oxford University Press, 2013, p. 397-416.
- PUSTEJOVSKY, J. The syntax of event structure. **Cognition**, 41(1-3), p. 47–81, 1991.
- QUIRK, R., S. GREENBAUM, G. LEECH, e J. SVARTVIK. **A Comprehensive Grammar of the English Language**. Edinburgh: Longman, 1985.
- RAPPAPORT HOVAV, M.; LEVIN, B. Unaccusativity: At the Syntax-Lexical Semantics Interface, **Linguistic Inquiry Monograph 26**, MIT Press, Cambridge, MA.
- REDDY, M. The conduit metaphor. In Ortony, A. (Ed.), **Metaphor and thought**. Cambridge: Cambridge University Press, 1979.

- ROSA, R. G. **Fraseologia do verbo get na língua inglesa: uma abordagem da Linguística de Corpus e da Gramática de Construções**. Dissertação de Mestrado. FFLCH/USP, 2014.
- ROSCH, E. Cognitive representations of semantic categories. **Journal of experimental Psychology: General**, v. 104, p. 192-233, 1975.
- SALOMÃO, M. Gramática das construções: a questão da integração entre sintaxe e léxico. **Veredas** 6, n. 1, p. 63 - 74, 2002.
- SAVILLE-TROIKE; M. **Introducing second language acquisition**. Cambridge: Cambridge University Press, 2005.
- SCHMID, H. Does frequency in text instantiate entrenchment in the cognitive system? In: GLYNN, D.; FISHER, K. (eds.) **Quantitative methods in cognitive semantics: Corpus-driven approaches**, p.101-135. Berlin: De Gruyter Mouton, 2010.
- SCHÜTZE, C. T.; SPROUSE, J. Judgement Data. In Podesva, R. J.; Devyani S. **Research Methods in Linguistics**, p. 135–68. Cambridge: Cambridge University Press, 2014.
- SEARLE, J. R. **Intentionality: An Essay in the Philosophy of Mind**. Cambridge: Cambridge University Press, 1983.
- SINCLAIR, J. **Corpus, Concordance, Collocation**. Oxford: Oxford University Press, 1991.
- SKEHAN, P. Language Aptitude. In Gass, S., Mackey, A. (Eds.), **Handbook of second language acquisition**. London: Routledge, 2014, p. 381 - 396.

- SPROUSE, J.; SCHÜTZE, C. T.; ALMEIDA, D. A comparison of informal and formal acceptability judgments using a random sample from Linguistic Inquiry 2001-2010. *Lingua*, 134, p. 219-248, 2013.
- SUZUKI, K.; SHIODA, K.; KIKUCHI, N.; MAETSU, M.; HIRAKAWA, M. Cross-linguistic Effects in L2 Acquisition of Causative Constructions (**BUCLD 4** Online Proceedings Supplement), 2016.
- SVARTVIK, J. Directions in Corpus Linguistics: Proceedings of Nobel Symposium 82 – Stockholm, 4-8 August. **Trends in Linguistics – Studies and Monographs: 65**. Berlin, New York: Mouton De Gruyter, 1992.
- TAGNIN, S. E. O. Disponibilização de corpora online: os avanços do projeto COMET. In: TAGNIN, S. E. O. & O. A. VALE (Eds.). **Avanços da Linguística de Corpus no Brasil**. São Paulo: Humanitas, p. 95-116, 2008.
- TAGNIN, S. E. O. Linguística de Corpus e Fraseologia: uma feita para a outra. In ALVAREZ, M. L. O.; UNTERNBAUMEN, E. H. (Orgs.) **Uma (Re)Visão da Teoria e da Pesquisa Fraseológicas**, p. 277 - 302. Campinas, SP: Pontes, 2011.
- TAGNIN, S. E. O. **O jeito que a gente diz**. São Paulo: Disal Editora, 2013.
- TALMY, L. **Semantic Structures in English and Atsugewi**. Berkeley, Ph.D. Dissertation - University of California. 1972.
- TALMY, L. **Toward a Cognitive Semantics Volume 1: Concept Structuring Systems**. & Volume 2: Typology and Process in Concept Structuring. Cambridge: MIT Press, 2000.
- TAYLOR, J. R. **The mental corpus: how language is represented in the mind**. Oxford: Oxford University Press, 2012.

- TEUBERT, W. Corpus Linguistics: an alternative. **Semen**, 27, p. 130-152, 2009.
- TOGNINI BONELLI, E. Theoretical Overview of the Evolution of Corpus Linguistics. In O'KEFFEE, A.; McCARHTY, M. (Ed.) **The Routledge Handbook of Corpus Linguistics**, p.14 - 28. Nova York: Routledge, 2010.
- TOMASELLO, M. **Constructing a Language: a Usage-Based Theory of Language Acquisition**. Cambridge, MA: Harvard University Press, 2003.
- VÁZQUEZ, M. M. Constructions in learner language. **Círculo de Linguística a la comunicación (clac)** 36, 40-62. 2008.
- WIDDOWSON, H. G. On the limitations of linguistics applied. **Applied Linguistics - APPL LINGUIST**. 21, p. 3-25, 2000.
- WOLTER, B.; GYLLSTAD, H. Frequency of input and L2 collocational processing: A Comparison of Congruent and Incongruent Collocations. **Studies in Second Language Acquisition** 35, no. 3, p. 451–82, 2013.
- WOLTER, B.; YAMASHIDA, J. 2018. Word frequency, collocational frequency, L1 congruency, and proficiency in L2 collocational processing: what accounts for L2 performance? **Studies in Second Language Acquisition** 40, no. 2, p. 395–416, 2018.
- WRAY, A. **Formulaic Language and the Lexicon**. Cambridge: Cambridge University Press , 2002.
- WULFF, S. **Rethinking Idiomaticity: A Usage-based Approach** . London: Continuum , 2008.
- XIA, X. Verb Class-Specific Caused-Motion Constructions, **Chinese Semiotic Studies**, 13(3), p. 269-287, 2017.

ZUBIZARRETA, M. L; OH, E. **On the Syntactic Composition of Manner and Motion**. Massachusetts: The MIT Press, 2007.

## Appendix A

Language	Level	Learners	Scripts	Words	Language	Level	Learners	Scripts	Words
Portuguese	1	5280	42240	1775557	Spanish	1	1229	9832	417229
	2	2801	22408	1140090		2	672	5376	5376
	3	1792	14336	716677		3	464	3712	188634
	4	2004	16032	1330728		4	512	4096	355902
	5	948	7584	619731		5	262	2096	176323
	6	487	3896	315564		6	144	1152	96654
	7	654	5232	565261		7	170	1360	149378
	8	242	1936	200775		8	73	584	60630
	9	166	1328	152621		9	45	360	41523
	10	167	1336	200366		10	49	392	59897
	11	67	536	81014		11	19	152	23155
	12	30	240	36498		12	12	96	14147
	13	36	288	55687		13	9	72	13892
	14	25	200	38086		14	5	40	7377
	15	8	64	12924		15	3	24	4919
	16	8	64	12379		16	4	32	6382
Total		14715	117720	7253958	Total		3672	29376	1621418

Language	Level	Learners	Scripts	Words	Language	Level	Learners	Scripts	Words
French	1	317	2536	111220	Italian	1	243	1944	82101
	2	197	1576	81073		2	147	1176	61304
	3	130	1040	54928		3	118	944	48458
	4	229	1832	157697		4	268	2144	182722
	5	121	968	81144		5	121	968	80069
	6	72	576	46833		6	76	608	49273
	7	104	832	91934		7	126	1008	113100
	8	36	288	30749		8	46	368	39197
	9	33	264	30827		9	36	288	34005
	10	39	312	46253		10	42	336	51333
	11	14	112	17331		11	23	184	29324
	12	6	48	7286		12	13	104	17177
	13	7	56	10138		13	12	96	19970
	14	7	56	10548		14	11	88	17228
	15	2	16	3339		15	4	32	6746
	16	0	0	0		16	4	32	6335
Total		1314	10512	781300	Total		1290	10320	838342

## Appendix B

Levels		Spanish	Portuguese	French	Italian	German
A1	Inst.	take (6), throw (2), divide (1)	divide (14), drive (1), get (6), enter (1), guide (1), integrate (5), introduce (1), leave (1), loan (6), put (12), reintroduce (1), separate (1), split (2), take (21) throw (1), transform (1), translate (4), turn (2)	take (6), convert, bring (1)	integrate (9), put (2), split (2), take (7), bring, divide, launch, load (1)	bring (3), divide (2), integrate (12), invest (2), loan (8), take (21), turn, introduce, plug, put, split.
	Mod.	welcome (1)	keep (3), lose (2), make (1), talk (4), walk (1)	talk (3), disclose (1)	talk (1)	disclose (2), guide (3), lead (2), talk (2), walk, let, show (1)
A2	Inst.	bring (1), divide (3), enter (3), get (4), introduce (1), put (1), push (14), take (34), throw (4), translate (2), turn (2)	bring (2), carry (1), cast (1), change (1), commit (1), distribute (1), divide (17), drive (1), force (1), get (13), include (1), incorporate (1), integrate (1), introduce (1), launch (1), lock (2), move (1), place (4), play* (3), publish (1), pull (2), push (8), put (97), send (609), shoot (1), slam (1), split (3), store (1), take (180), throw (35), transform (5), translate (1), turn (15)	drive(3), push (2), put (4), send (49), take 23), convert, divide, get, introduce, move (1)	put (4), send (86), take (8), throw (2), transform (2), divide, get (1)	bring (10), change (2), get (2), integrate (2) , move, put (8), send (78), take (37), throw (6), translate, tuck, turn, enter, fill, fling, sell, drive (1)
	Mod.	walk (1), disperse (1), help (1), involve (1), lead (1), roll (1)	arrest (1), crash (2), cut (4), eat (1), hurtle (1), keep (2), kick (7), let (5), make (3), promote (1), receive (2), vote (1), welcome (3)	Walk, decelerate (1)	sting (1)	kick (2), make (2), walk (3), shoot, stretch, type, compress, cut, force, have (1)

B1	Inst.	add (2), divide (7), download (4), enter (2), get (106), hit (6), place (2), put (23), send (2), take (11), throw (27), turn (2), include, introduce, launch, merger*, move, rub, pour, transform (1)	change (2), divide (103), download (10), get (356), hit (75), insert (3), place (6), play* (4), plug (5), pull (2), push (2), put (187), send (4), separate (5), shoot (5), spread (2), take (15), throw (133), toss (2), transform (4), turn (6), upload, translate, convert, dislocate, direct, distribute, drop, enter, head, implant, implant, introduce, leave, lock, move, save (1)	divide (4), get (40), hit (7), put (10), take (13), throw (7), download, drop, enter, fill, integrate, introduce, pull, send (1)	divide (10), download (7), drive (2), get (66), guide (2), hit (8), introduce (2), pull (2), push (2), put (25), take (8), throw (12), transform, turn, conduct, draw, drop, fill, find, launch, pour, search, send, shoot (1)	bring (6), divide (5), download (5), fill (12), get (64), hit (17), pull (2), put (26), take (12), throw (17), transform, translate, turn, break, change, drive, flick, move, place, sell, sort, split (1)
	Mod.	keep (2), kick (4), score (2), type, help, cross (1)	allow (1), crash (1), cut (1), engage (1), help (1), hit (3), invite (1), jump (1), keep (7), kick (34), lead (1), let (2), rewrite (1), scare (1), serve (1), sign (1), soak (1), squeeze (1)	share (2), let, lose, show, mix, see (1)	kick (3), crash, follow, help, lead, ravish, sweep (1)	invite (4), kick (3), let (2), line (3), make (3), shoot (2), pack, press, pump, rescue, roll, soak, write, choose, create, lead (1)
B2	Inst.	bring (1), change (1), deposit (16), drag (1), get (7), guide (1), incorporate (1), load (1), pull (1), push (23), put (19), separate (1), set (1), split (26), take (14), throw (1), transform (1), translate (60), turn (5)	bring (5), carry (6), deposit (42), divide (4), get (11), integrate (3), place (2), point (3), push (99), put (34), save (2), settle (4), split (256), take (25), throw (5), transform (8), translate (170), turn (20), convert, grab, incorporate, launch, move, paste, pour, spread, transport (1)	deposit (7), divide (2), get (2), integrate (4), push (21), put (10), split (70), take (12), translate (28), turn (3), log, save, transfer (1)	deposit (3), get (2), help, keep (2), pull, push (32), put (5), split (52), take (10), throw, translate (30), turn (3), add, bring, convert, divide, immerse, incorporate, transform, point, (1)	bring (6), change (3), convert (2), deposit (24), divide (4), get (10), incorporate (2), make (2), pull (2), push (61), put (24), save (2), send (4), split (126), take (13), transform (2), translate (101), turn (3), add, bury, carry, dip, drag, draw, drive, introduce, leave, lead, loan, place, plug, separate, spend, splash, spread, stuff, transport (1)
	Mod.	talk (1), let (1), make (2), lead (1), type (5)	cut (2), grab (41), keep (4), knock (5), lead (8), make, see, type, attract, call, close, encourage, help, kick (1)	grab (4), make (3), adapt, annoy, call, chase, dive, involve, slip, stick, watch (1)	make (10), allow, compound, cut, enter, make, lead, plunge, type (1)	chase (2), grab (14), help (4), involve (2), keep (2), lead (3), make (12), pack (2), press, stab (2), type, accompany, acquire, convert, cut, fasten, guide, invest, invite, let, project, pump, scare, sink, slap (1)

C1	Inst.	bring (7), change (1), convert (3), download (1), export (1), force (1), get (1), introduce (2), move (2), put (4), push (1), take (8), toss (1), turn (4)	bring (29), change (2), convert (24), divide (5), get (7), incorporate (2), launch (2), move (4), put (18), split (3), take (16), throw (2), thrust (2), transform (15), turn (13), insert, introduce, invest, jam, leave, lock, pour, push, separate, translate (1)	bring (2), put (2), take (5), thrust(2), transform, turn, charge, integrate, move, push (1)	bring (4), convert (10), divide (2), move (2), put (2), take (9), transform (9), turn (6), change, get, include, set, split, thrust (1)	bring (8), change (5), convert (22), divide (2), get (6), incorporate (2), integrate (2), move (2), push (3), put (21), take (13), throw (15), thrust (3), transform (14), turn (4), carry, drive, fill, implement, invest, make, pull, separate, split, translate, tug (1)
	Mod.	incorporate (1), lead (6), make (1), progress (1), vote (12)	vote (27), help (2), keep (2), knock (6), lead (8), accept, categorize, cause, ensure, expand, land, laugh, organize, plop, remodel, run, sign (1)	make(2), vote, welcome, find (1)	vote (7), plunge (2), squeeze (2), elect, haul, keep, lead, lock, organize (1)	find (4), keep (2), laugh (2), lead (11), make (4), remodel (2), vote (17), welcome, accept, call, change, combine, crack, elect, fly, follow, guide, invite, let, lure, maneuver, prevent, ride, shock, stab, trigger, type (1)
C2	Inst.	divide (1), get (2), incorporate (1), put (1)	get (2), put (3), take (4), throw (3), transform (2), turn, leave (1)	————	take (2), divide, get, guide, transform (1)	put (2), take (2), throw (2), add, change, dip, transform (1)
	Mod.	————	bank, use (1)	————	assist, breathe, make, organize (1)	find (2), accompany, call, elevate, follow, order, set, squeeze, stress

## Appendix C

Rank in the corpus	Verb	Abs. Freq	Per Mil.	10%	TYPE	Rank in the corpus	Verb	Abs. Freq	Per Mil.	10%	TYPE
3	CUT	8261	14.62	826,1	MOD	1	GET	25210	44.62	2521	INST
5	FIND	7637	13.52	763,7	MOD	2	TAKE	10876	19.25	1087,6	INST
7	CHECK	6690	11.84	669	MOD	4	TURN	7779	13.77	777,9	INST
8	WALK	4801	8.50	480,1	MOD	6	PUT	6886	12.19	688,6	INST
12	RUN	3259	5.77	325,9	MOD	9	PULL	3770	6.67	377	INST
13	WORK	3210	5.68	321	MOD	10	SET	3679	6.51	367,9	INST
18	BREAK	1978	3.50	197,8	MOD	11	MOVE	3346	5.92	334,6	INST
20	ROLL	1741	3.08	174,1	MOD	14	POUR	3177	5.62	317,7	INST
23	HELP	1644	2.91	164,4	MOD	15	MAKE	2927	5.18	292,7	INST
26	DRIVE	1533	2.71	153,3	MOD	16	DROP	2175	3.85	217,5	INST
32	HOLD	1149	2.03	114,9	MOD	17	BRING	2040	3.61	204	INST
33	PLAY	1147	2.03	114,7	MOD	19	PASS	1817	3.22	181,7	INST
34	SLIP	1104	1.95	110,4	MOD	21	SPREAD	1740	3.08	174	INST
35	PAY	991	1.75	99,1	MOD	22	THROW	1653	2.93	165,3	INST
39	PRESS	899	1.59	89,9	MOD	24	HANG	1625	2.88	162,5	INST
40	SLIDE	885	1.57	88,5	MOD	25	SEND	1585	2.81	158,5	INST
41	STIR	849	1.50	84,9	MOD	27	HEAD	1465	2.59	146,5	INST
42	FLY	841	1.49	84,1	MOD	28	REACH	1444	2.56	144,4	INST
44	KNOCK	804	1.42	80,4	MOD	29	PUSH	1363	2.41	136,3	INST
48	GROW	726	1.28	72,6	MOD	30	FIT	1363	2.41	136,3	INST
50	POP	693	1.23	69,3	MOD	31	CARRY	1303	2.31	130,3	INST
51	BLOW	677	1.20	67,7	MOD	36	ENTER	966	1.71	96,6	INST
52	SLICE	672	1.19	67,2	MOD	37	PICK	926	1.64	92,6	INST
53	KICK	665	1.18	66,5	MOD	38	LEAVE	911	1.61	91,1	INST
55	SPLIT	659	1.17	65,9	MOD	43	FOLLOW	823	1.46	82,3	INST
57	READ	639	1.13	63,9	MOD	45	DIVIDE	779	1.38	77,9	INST
58	SPEAK	632	1.12	63,2	MOD	46	FILL	755	1.34	75,5	INST
59	SHUT	625	1.11	62,5	MOD	47	LIFT	748	1.32	74,8	INST

60	TALK	587	1.04	58,7	MOD	49	DIG	712	1.26	71,2	INST
61	WIPE	585	1.04	58,5	MOD	54	LEAD	662	1.17	66,2	INST
64	EAT	565	1.00	56,5	MOD	56	STICK	645	1.14	64,5	INST
65	STRETCH	559	0.99	55,9	MOD	62	DRAG	579	1.02	57,9	INST
66	BUY	556	0.98	55,6	MOD	63	TRANSFORM	574	1.02	57,4	INST
67	TRANSLATE	555	0.98	55,5	MOD	69	LAY	511	0.90	51,1	INST
68	SELL	522	0.92	52,2	MOD	73	SPILL	484	0.86	48,4	INST
70	SQUEEZE	488	0.86	48,8	MOD	76	CAST	472	0.84	47,2	INST
71	RIDE	487	0.86	48,7	MOD	77	DIP	459	0.81	45,9	INST
72	STRAIN	484	0.86	48,4	MOD	78	SCRAPE	459	0.81	45,9	INST
74	SHOOT	476	0.84	47,6	MOD	80	FORM	455	0.81	45,5	INST
75	FOLD	472	0.84	47,2	MOD	84	TOSS	444	0.79	44,4	INST
79	FEED	456	0.81	45,6	MOD	90	SETTLE	422	0.75	42,2	INST
81	PEEL	455	0.81	45,5	MOD	94	PLUNGE	380	0.67	38	INST
82	CLEAN	449	0.79	44,9	MOD	95	PLUG	375	0.66	37,5	INST
83	ACT	445	0.79	44,5	MOD	96	SORT	373	0.66	37,3	INST
85	BREATH E	441	0.78	44,1	MOD						
86	SCOOP	439	0.78	43,9	MOD						
87	SHAKE	431	0.76	43,1	MOD						
88	CRY	426	0.75	42,6	MOD						
89	BEAT	424	0.75	42,4	MOD						
91	TAP	417	0.74	41,7	MOD						
92	WRITE	417	0.74	41,7	MOD						
93	RUSH	414	0.73	41,4	MOD						
97	SINK	371	0.66	37,1	MOD						
98	SNAP	341	0.60	34,1	MOD						

## Appendix D

	# wo rds	# syll ab	Freq. (CO CA)
<b>1. Caused Motion (Instantiation verbs denoting literal movement)</b>	<b>15</b>	<b>16-2 4</b>	<b>Top 500</b>
1. You need to put the mixture directly into the milk while it is still hot.	15	19	22
2. Sam wants to bring more young people into our discussion group before it gets full.	15	20	51
	15	16	6
3. We have to get the wine out of the fridge before it gets too cold.	15	17	13
4. She will take those silver rings out of her nose because her dad hates them.	15	19	125
5. They plan to return all the policemen to the streets to reduce the crime rates.	15	22	98
6. You have to send this pack out of the country using a special delivery service.	15	23	122
7. I can't carry these kinds of metal objects into the airport without declaring them first.	15	21	123
	15	20	193
8. The coach will lead the winning team onto the field to have the celebration party.	15	16	184
9. You should not throw the sliced vegetables into the pan after the soup is hot.	15	20	128
10. You need to drop the keys in the blue box before you leave the room.	15	15	198
11. You need to pull these plants out of the ground before they destroy the vegetables.			
12. They will push the chairs out of the way for us to use this space.			

<b>2. Caused Motion (Instantiation verbs denoting figurative movement)</b>			
13. We need to put this political crisis to an end before it is too late.	15	20	22
14. You should always bring the issues to my attention before you go and make decisions.	15	22	51
	15	24	6
15. The results of this investigation can get the president in trouble in the near future.	15	26	13
16. This government can take the country into another economic depression in less than a year.	15	22	50
	15	26	98
17. Peter and Liz want to turn their plans and ideas into reality with our help.	15	22	122
18. This project will send all the team into despair because of its size and complexity.	15	24	123
19. We really need to carry the new plans into effect in time for the holidays.			
20. Education can always lead people out of the darkness of ignorance no matter the age.	15	24	193
	15	18	184
21. These actions can throw the population into confusion because they aren't clear or well defined.	15	21	128
	15	25	198
22. We should drop the problems out of our consciousness if we want to solve them.			
23. The policeman could pull the girl out of danger before the animal could reach her.			
24. These bad decisions can push many small businesses into financial trouble in the near future.			

<b>3. Caused Motion (Modifying verbs denoting literal movement)</b>			
25. They will laugh me and my team out of the office if we present this.	15	17	258
26. This new policy may run many good professionals out of the country in a month.	15	23	72
27. You should work the butter and the milk into the eggs by using a fork.	15	18	28
28. You must play the ball off your right foot to reduce the number of mistakes.	15	18	53
29. They only need to speak some words into the microphone and the spectators go crazy.	15	22	101
	15	18	39
30. The magician says he can talk the hat off your head with his magic tricks.	15	17	422
31. You must breathe lots of air into the lungs of the patient to save him.	15	21	450
32. Patients cry themselves into the emergency room when they are in a lot of pain.	15	21	*
33. This circus artist can sneeze spaghetti out of his nose in front of the audience.	15	22	120
34. One parent can't drive the kids out of the country without the other parent's permission.	15	18	721
	15	22	83
35. I had to scream the kids back into their homes because of the heavy rain.			
36. She was able to walk all the horses into the stables before it started raining.			

<b>4. Caused Motion (Modifying verbs denoting figurative movement)</b>			
37. My kids always laugh themselves into exhaustion when they see puppets and clowns on TV.	15	22	258
38. These decisions can run the healthcare system into the ground in one month or two.	15	20	72
39. Scientists can work themselves into severe mental breakdowns if they do not get enough rest.	15	23	28
40. After football matches some guys drink themselves into madness on the streets around the stadium.	15	24	53
	15	20	101
41. You can speak your problems into existence when you talk about them all the time.	15	19	39
	15	22	422
42. The doctors need to talk some sense into her mind before she makes more mistakes.	15	23	450
	15	21	*
43. This method teaches you to breathe yourself out of fear and anxiety in 8 minutes.	15	23	120
44. At night some kids cry themselves into exhaustion before they finally stop and fall asleep.	15	21	721
	15	21	83
45. I literally sneeze myself into a terrible headache when I eat anything with black pepper.			
46. Paul always drives his parents to desperation when he behaves the way he did yesterday.			
47. You cannot scream yourself out of trouble if you have a difficult problem to solve.			
48. Doctors say people can walk themselves out of their bad mood if they walk regularly.			

<b>Fillers (30 sentences = 75% of the target items)</b>		
<b>Three types of fillers:</b>		
a. Relative clauses		
b. Passives		
c. Caused motion with unaccusative verbs / intransitive motions		
<b>5. Relative Clauses</b>		
1. She wants to talk to the person <u>when</u> she thinks will solve her problems fast.	15	17
2. Kids who play with manual toys that learn to operate with objects faster than others.	15	22
	15	23
3. This is the room <u>when</u> managers and directors hold the business meetings every other month.	15	21
4. The products <u>who</u> we buy in this store come both from Asian and European countries.	15	20
	15	19
5. This is the time when most people like to celebrate with their families and friends.	15	20
6. Mary is the person <u>in which</u> you should talk to when you come to office.	15	22
7. I should read that mystery novel <u>in which</u> your friends do not stop talking about.	15	20
8. The building has two big areas which we can use for seminars, talks and conferences.	15	21
9. You can always find many great restaurants in cities <u>where</u> are close to the sea.	15	20
10. You have to download the new files into the folder where the other documents are.	15	17
	14	18
<b>6. Passives</b>		
11. They should consider the project that they approved by the team, not the other one.	15	21
	15	19
12. More and more sports cars are buying in this part of the country every year.	15	20
13. Computers are set to go off when they are not using for too long.	15	22
14. The new site should being created to help people find good and fast solutions online.	15	19
	15	17
15. New actions are now taking to make sure employees can keep their jobs and rights.	15	24
16. The plan is to prepare dishes that can be sharing by everyone in the party.	15	17
17. These two platforms are using by more than forty five thousand travelers every single day.	15	17
	15	20
18. The book is writing in a way that makes you want to continue reading it.	15	23
19. The book is so good and objective that it can be read in two days.	15	19
20. Special discounts gave to children under the age of seven and adults over sixty five.	15	21
	15	17
<b>7. Caused motion with unaccusative verbs / intransitive motion</b>		
21. You must fall the car keys in the box only after you park the car.	15	21
22. The birds all fly into that cave to try to scape from the big eagles.	15	21
23. My kids always disappear my car keys into their toy box when they are playing.		
24. Nick always slips into the room and quickly closes the door without anyone seeing him.		
25. You have to float the boat out of this ocean current before the coming storm.		
26. The police cannot survive you out of this situation if you do not help them.		
27. You need to jump quickly into the bus if you don't want to get late.		
28. Too much coffee can die a significant number of years out of your life span.		
29. I need to vanish these chocolate cookies from the cupboard before my kids see them.		
30. She needs to move into a new and bigger flat before the end of January.		

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