

POLYSEMY WITHIN THE COGNITIVE LINGUISTIC FRAMEWORK:

THE CASE OF *LLEVAR*

by

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(Under the Direction of Sarah E. Blackwell)

ABSTRACT

This thesis investigates the polysemy of the Spanish verb *llevar* from a cognitive linguistic perspective. Two systematic accounts of polysemy, a Behavioral Profile analysis and the Economic Principled Polysemy Method, were utilized in order to identify the central senses and peripheral senses of *llevar*. Based on the two analyses, the central sense of *llevar* is TRANSPORTAR and its nine peripheral senses are QUITAR, MANEJAR, MANTENER, PASAR, REQUERIR, TENER VENTAJA, TENER PUESTO/TENER, CONTENER, and CAERLE + ADVERB (*llevarse bien/mal*). Included in this thesis are visualizations of the central sense and the semantic network of *llevar*. The findings from the analysis were incorporated into preliminary pedagogical materials and suggestions to aid in the teaching of the verb.

INDEX WORDS: cognitive linguistics, polysemy, corpus linguistics, L2 acquisition, L2 pedagogy

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CHAPTER 1

INTRODUCTION

1.1 Statement of problem and justification

This thesis investigates the polysemous network of the Spanish verb *llevar* using two approaches within the cognitive linguistic framework, the qualitative Economic Principled Polysemy Model and a quantitative Behavioral Profile Analysis. Polysemy is the semantic phenomenon in which instances of a single linguistic expression have multiple related senses (Carson 2021: 108). These senses are found to be associated with both literal and figurative/metaphoric uses (Waara 2004; Csábi 2004; Taraszka-Drozdz 2020). The examples of *llevar* in (1), from Moliner (2007: 1799-1800) *Diccionario del uso de español*, offer a handful of uses of this verb.

- (1) a. Yo le llevé un paquete a su hermano. [TAKE]
 ‘I took the packet to their brother.’
- b. Esto me lleva a pensar que no está descontento. [CAUSE]
 ‘This leads me to think that s/he is not discontent.’
- c. Su mujer lleva muy bien el negocio. [MANAGE]
 ‘His/her wife runs the business really well.’
- d. Llevaba un traje nuevo. [WEAR]
 ‘S/he was wearing a new suit.’
- e. La tarta lleva un poco de licor. [CONTAIN]
 ‘The cake has a little bit of liqueur in it.’

Although Moliner (2007) presents the examples in (1) as a long list of unrelated uses, this thesis argues that these senses of *llevar*, among others, are related to one another through underlying features and form a polysemous network of senses. The motivation for this thesis is to create an empirically-based network of senses for *llevar* in order to lay the groundwork for facilitating the learning/acquisition of polysemous and productive verbs in Spanish.

The cognitive linguistic approach to polysemy has its roots in Lakoff (1987), where he argues that words are structured as radial networks that are prone to prototypicality effects. Each word is comprised of a central sense, the sense most commonly associated with the word, and various peripheral senses, which are connected to and derived from the central sense (Lakoff 1987: 91). The polysemy of the English preposition *over* is exemplified by the sentences in (2) from Evans and Green (2006), to illustrate this connection between the senses.

- (2)
- a. The picture is over the sofa. [ABOVE (central sense)]
 - b. The clouds are over the sun. [COVERING]
 - c. Mary looked over the document quite carefully. [EXAMINING]
 - d. She has a strange power over me. [CONTROL]
 - e. After the false start, they started the race over. [REPETITION]

(Evans & Green 2006: 348)

According to Lakoff (1987), ABOVE is the prototypical sense of *over*, as shown in (2a). Though the peripheral senses of *over* in (2b-e) are similar to one another and the central sense, he proposes that each one highlights a unique feature that cannot be inferred from the prototype. Because of this, the cognitive linguistic framework argues that peripheral senses of polysemous words are stored separately in memory from the prototype and exist independently from the contexts in which they are found (Evans & Green 2006: 328). However, the generative approach

to polysemy assumes that words have one abstract meaning, and all other meaning is assumed through context (Vincente 2018). The benefit of analyzing *llevar* from the cognitive linguistic perspective of polysemy is that it attempts to distinguish between word meaning that can be inferred through context and that which is stored separately in memory.

The notion of polysemy is a well-known hurdle in the second language classroom. An example of a frequent polysemous verb that students might struggle with is *quedar* ‘to stay’. The multiple meanings of this verb were demonstrated by Gómez Vicente (2018: 30) with the following examples:

- (3) a. Quedan dos galletas. [EXISTENCE]
 ‘There are two cookies left.’
- b. El lunes Pedro se quedó todo el día en casa. [LOCATION]
 ‘Monday Pedro stayed at home all day long.’
- c. Quedamos mañana a las 9. [APPOINTMENT]
 ‘Let’s meet tomorrow at 9.’
- d. María se quedó con el coche porque era suyo. [POSSESSION]
 ‘Maria kept the car because it was hers.’
- e. Me quedé despierto. [STATE (PERMANENCE)]
 ‘I remained awake.’
- f. Me quedé dormido. [STATE (CHANGE OF STATE)]
 ‘I fell asleep.’
- g. Has quedado muy bien. [POINT OF VIEW]
 ‘You have made a good impression.’

As shown by Gomez Vicente (2018), *quedar* has a variety of meanings that are related but distinct. Due to its polysemy, students often have difficulty distinguishing the various meanings of this verb and producing them in a felicitous way (Taraszka-Drozd 2020; Gómez Vicente 2018, 2020).

When students are not offered any information on how verb meaning is connected in a polysemous way, they may create sentences that are semantically anomalous. When this happens, Gómez Vicente (2018) suggests that students are transferring the network of semantic meaning as well as various morphosyntactic properties for a given verb from their L1 to their L2. She demonstrates this in (4) with data from a production task completed by native French speakers who are L2 Spanish speakers, where *quedar* is understood to be the translation of *rester* in French.

- (4) a. *¿Quedamos a cenar?
 ‘Shall we meet for dinner?’
 b. Reste dîner?
 ‘Shall we stay for dinner?’

(adapted from Gomez Vicente 2018: 36-37)

A student erroneously produced a question with *quedar* in Spanish in (4a) but translated it to French using *rester* in (4b). Though *quedar* and *rester* share a similar sense, LOCATION, when used in certain contexts, their semantic networks are not equivalent due to having different semantic and syntactic features that influence their interpretations. In order to express the LOCATION sense of *quedar* (‘stay’) instead of the APPOINTMENT sense (‘meet’), one must include a reflexive pronoun, as in, ¿*Nos quedamos a cenar?* (‘Shall we stay for dinner?’), which is not employed with *rester*. The translation to *rester* by the student exhibits both a semantic and

morphosyntactic misunderstanding of *quedar* that seems rooted in negative L1 transfer or interference. A key justification for identifying the polysemous network of *llevar* is using it to help combat the negative interference that emerges from students' unawareness of a word's polysemous nature.

In their recent chapter, Zyzik and Marqués-Pascual (2023) emphasize that the Spanish verb *llevar* is also highly polysemous and under-explained in L2 Spanish textbooks. They mention that only two of its senses, 'to take (someone or something somewhere)' in (5a) and 'to wear (an item of clothing)' in (5b), are presented in textbooks in separate sections.

(5) a. Omar debe llevar el auto al mecánico. [TAKE]

'Omar should take the car to the mechanic.'

b. Omar siempre lleva una corbata cuando va a la oficina. [WEAR]

'Omar always wears a tie when he goes to the office.'

(Zyzik & Marqués-Pascual 2023: 322)

These authors point out that providing such limited information about *llevar* does not allow for students to actively engage with material that acknowledges and facilitates learning the multiple uses of this polysemous verb. To aid this, they suggest that teachers create vocabulary activities that use sentences similar to the examples above to allow students to practice disambiguating the various senses of the verb based on the context. Despite their brief examination of *llevar*, there are no previous analyses that attempt to tackle the entirety of the polysemy of *llevar*.

1.2 Research questions and hypothesis

In this thesis, two systematic accounts of polysemy, the Behavioral Profile Analysis and the Economic Principled Polysemy Model are implemented as a foundation for determining the semantic network of *llevar*. The general objective of the study is to provide empirical evidence

of the distinguishable senses of *llevar* in an effort to seek a better understanding of its polysemy. Instead of looking at long dictionary entries of its use, the findings from this study can later be applied to facilitate L2 Spanish teaching and learning of the uses of *llevar*. Following Lakoff's (1987) work on radial networks and cognitive lexical semantics, I sustain the polysemous Spanish verb *llevar* can be shown to have central (prototypical) senses and peripheral senses, and that the peripheral senses can be derived from the central senses via conceptual metaphor, metonymy, and other cognitive processes. Given these objectives, the research questions formulated for this thesis are:

- 1) Using a Behavioral Profile analysis, what are the central senses and what are the peripheral senses of *llevar*?
- 2) Using the Economic Principled Polysemy Model, what are the central senses and what are the peripheral senses of *llevar*?
- 3) Given the findings from this study, what are some preliminary pedagogical suggestions for the teaching of *llevar*?

By combining these two approaches, I offer empirical data that are both quantitative and qualitative in nature to support the existence of *llevar* as a polysemous verb with central senses and peripheral senses, which can serve as inspiration for developing preliminary pedagogical resources for the teaching of polysemous Spanish verbs. No previous studies have incorporated both of these approaches to polysemy, nor have either been used to analyze *llevar*.

1.3 Brief overview of methodology

Following a cognitive linguistic framework, polysemy has been analyzed via qualitative feature-based or intuition-based approaches and quantitative corpus-based approaches. For this holistic analysis of *llevar*, I analyzed the verb using both approaches with the goal of identifying

an informed network of senses for it. First, I used a Behavioral Profile analysis, which is a corpus-based approach to linguistics that has been implemented by Jansegers et al. (2015), Gries (2006, 2010) and Gries and Divjak (2009, 2010) to study polysemous verbs. The analysis for the present study utilized morphosyntactic, semantic, and pragmatic features or ID tags (Atkins 1987) for each instance of *llevar* in a corpus sample to cluster semantic senses together via statistical analysis. The data for the Behavioral Profile analysis were collected from the PRESEEA corpus, which is a searchable corpus of recordings and transcripts of interviews with native Spanish speakers. The purpose of the Behavioral Profile analysis in the investigation of polysemy is to identify a word's prototypical sense and to distinguish its other senses.

After carrying out the Behavioral Profile analysis of *llevar*, I incorporated the Economic Principled Polysemy Model, which was designed by Harbi and Abdulkareem (2023) as a modification of an earlier feature-based approach to polysemy referred to as the Principled Polysemy Approach (Tyler & Evans 2003). The Economic Principled Polysemy Model follows certain criteria to identify two central senses and other criteria to classify peripheral senses of a polysemous expression. With this approach, the context of each utterance is considered, as well as the incorporation of other cognitive linguistic principles, such as image schema configurations (Langacker 1987).

With the outcomes of the two polysemy approaches, I aimed to answer research questions 1 and 2. To attempt to answer research question 3, I consulted previous literature that relates cognitive linguistics and polysemy to issues surrounding L2 learning and pedagogy to offer suggestions for ways to present *llevar* using a cognitive linguistic-inspired instruction strategy.

1.4 Structure of thesis

This thesis is organized as follows. Chapter 2 explores previous research on polysemy carried out within the cognitive linguistic framework, discusses systematic accounts of polysemy, describes studies involving polysemy regarding L2 pedagogy and acquisition, and reviews previous work on the verb *llevar*, the ubiquitous polysemous Spanish verb of interest. Chapter 3 details the methodology behind the data collection for *llevar*, which includes a description of the two current cognitive/usage-based approaches to polysemy, the Behavioral Profile analysis, and the Economic Principled Polysemy Model. Chapter 4 presents and discusses the results of the Behavioral Profile analysis, which identified a prototypical sense and various clusters of senses. It also presents and discusses the results of the Economic Principled Polysemy Model, which offers a visual representation of the central sense of *llevar* and the semantic network that combines each of its peripheral senses and the central sense. Then, using the model of the semantic network of *llevar*, cognitive linguistic-inspired strategies for the teaching and learning of the various senses of this verb are suggested. Chapter 5 summarizes the current study on the polysemy of *llevar* according to the two polysemous approaches and its main findings, and suggests the use of such methodology for other frequent polysemous Spanish verbs such as *tocar* ‘to touch’, *salir* ‘to leave/go out’, *echar* ‘to throw’, *caer* ‘to fall’, and *quedar* ‘to stay’.

CHAPTER 2

LITERATURE REVIEW

In this chapter, I begin by describing polysemy as a general phenomenon, the methods used to analyze it, and its presence in L2 pedagogy and acquisition, before then elaborating on the relevance of the Spanish verb *llevar* in this discussion. In Section 2.1, I provide a brief overview of polysemy as it has been studied in both formal and cognitive lexical semantics. Then, in Section 2.2, I explain the systematic accounts of polysemy under the cognitive linguistic framework, which includes two types of analysis: qualitative feature-based and quantitative corpus-based analysis. Later, in Section 2.3, I summarize previous literature on polysemy in language learning and L2 acquisition, as well as its implementation in pedagogical resources and lessons. Finally, in Section 2.4, I present previous analyses of the Spanish verb of interest *llevar* and, by doing so, I justify the need for a holistic polysemous analysis of the verb.

2.1 Theoretical frameworks for polysemy

2.1.1 Polysemy versus Homonymy

According to Lee (2023) and Evans and Green (2006), polysemy refers to the semantic phenomenon where different senses of the same lexical item are closely related, as seen with *over* in example (2) from the previous chapter. Polysemy is differentiated from a similar semantic phenomenon called homonymy in that the latter represents the use of a singular phonological form for two or more unrelated meanings (Lee 2023). An example of homonymy is *bank* in (6).

- (6) a. The boat was moored to the bank.
 b. She works a teller in a bank.

(Lee 2023: 30)

Another characteristic of homonymy lies in the distinct etymology of the meanings. Whereas (6a) meaning ‘side of river’ comes from an Old Icelandic word for ‘hill’, (6b) meaning ‘financial institution’ is a borrowed word from Italian *banca* (Evans & Green 2006: 329). However, there is still an ongoing debate on how to truly distinguish between polysemy, homonymy, and vagueness between senses (Dunbar 2001; Geeraerts 1993; Tuggy 1993), which has given rise to the alternative notion of a sense continuum instead of clear boundaries between the concepts (Croft 1998).

2.1.2 Formal versus cognitive lexical semantics

Polysemy has been studied using various analytical approaches that diverge in regard to how meaning is stored in memory and how context influences lexical meaning (Vincente 2018, as cited in Lee 2023). According to Vincente (2018), generative linguistics follows an under-specification approach to polysemy where it is considered to emerge from monosemy via context. From this perspective, words have a singular abstract core meaning that then can be interpreted differently depending on neighboring words or sentential context. Only the core meaning is stored in memory with extended meanings becoming active during online processing (Evans & Green 2006). Evans and Green (2006) provide an example of the under-specification approach as it would apply to the English preposition *over*, in which all its uses are accounted for in terms of a single abstract spatial sense. However, these authors, as well as other cognitive linguists, believe that the under-specification approach is insufficient for explaining the existence of various conventionalized senses for *over* and polysemous words in general (Lakoff 1987;

Tyler & Evans 2003; Evans & Green 2006). This is exemplified with *over* in that it can also exhibit non-spatial senses, and these non-spatial senses cannot always be inferred from the context (Evans & Green 2006).

In contrast to the generative approach, Evans and Green (2006) describe the cognitive linguistic approach to polysemy as a response to psychological research on family resemblance (Wittgenstein 1958, as cited by Evans & Green 2006) and categorization (Rosch 1978, as cited by Evans & Green 2006). According to this approach, human conceptualization is organized via prototypicality, and mental categories are driven by family resemblance instead of involving strict categorical boundaries. Using the theory of categorization as a basis, the full-specification approach to polysemy theorized that each sense of a word is a part of the total meaning, and the full meaning is a collection of the senses (Lakoff 1987; Brugman & Lakoff 1988; Evans & Green 2006). The benefit of taking the cognitive lexical semantic approach to polysemy is that it takes into account the fact that context cannot fully account for polysemy (Lakoff 1987; Evans & Green 2006). There are utterances where context does not give the information needed to understand which sense of the verb is intended, which means that various senses of the verb must be conventionalized and stored in memory (Evans & Green 2006). For instance, in Tyler and Evans (2003), it is argued that the examples in (7) do not represent separate senses of the English preposition *over* but instead can be explained via sentential context.

- (7) a. The bird flew over the wall.
 b. Sam climbed over the wall.

(Evans & Green 2006: 341)

According to Evans and Green (2006), although one specifies contact and the other specifies lack of contact with the wall, this interpretation is derived from our encyclopedic knowledge of the

world and not from *over*. Knowing that birds can fly and humans cannot means that we understand the contact or absence of contact between the two entities through their properties, and not through the properties of the spatial preposition *over* (Evans & Green 2006). On the other hand, the examples in (8) count as distinct senses because there is a unique feature present in (8b) that is not present in (8a).

- (8) a. The hummingbird is hovering over the flower. [ABOVE]
 b. Joan nailed a board over the hole in the ceiling. [COVERING]

(Evans & Green 2006: 343)

While the examples in (7) and (8a) demonstrate *over* as having its prototypical ABOVE meaning, the example in (8b) does not represent the same meaning. In (8a), the hummingbird is above the flower, but in (8b) the board is not above the hole in the ceiling. In fact, *over* in (8b) conveys the opposite configuration. Instead of using *over* to as the ABOVE sense in (8b), it is used for the COVERING sense (Evans & Green 2006).

2.1.3 Lakoff's prototype approach and the case of *over*

According to Evans and Green (2006), Lakoff (1987) pioneered the cognitive lexical semantic approach to words by proposing that all words are radial categories in that they are guided by prototypicality effects. He proposed that each word has a central sense, or the most prototypical sense associated with it, as well as peripheral senses that are extensions from the central sense. Evans and Green (2006) mention that Geeraerts (1994) also developed a model of prototype semantics, but it was developed to account for historical semantic change instead of polysemy, so it is not discussed further in this thesis. As a basis for his prototype approach, Lakoff (1987) incorporated his previously developed Conceptual Metaphor Theory (Lakoff & Johnson 1980), which is considered one of the earliest theoretical frameworks in cognitive

semantics that aimed to explain how language extends from the concrete to the abstract (Evans & Green 2006). The Conceptual Metaphor Theory argues that metaphorical language is not stylistic in nature, but rather the main vehicle by which humans communicate (Lakoff & Johnson 1980). According to the theory, conceptualization involves correspondences between two conceptual domains, called the source domain and the target domain (Lakoff & Johnson 1999). These conceptual domains interact with human embodied experiences such as elevation or containment. Lakoff and Johnson (1980) argue that while source domains are typically concrete like the human body, animal, food etc., target domains tend to be more abstract and include concepts like time, emotions, war, etc., which explains why it is difficult to talk about them in their own terms. An example of a general metaphor is TIME IS MOTION, which manifests in a sentence like ‘Christmas is coming’ (Evans & Green 2006: 298), where motion is the source domain and time is the target domain.

The Conceptual Metaphor Theory is used as an explanation for ‘motivated’ extensions from the central sense of a word to the peripheral senses in Lakoff’s 1987 book. Lakoff (1987) argues that the peripheral senses are not randomly generated but instead are connected to the central sense via both conceptual metaphor (CONCEPT A IS CONCEPT B, e.g., LOVE IS A JOURNEY) and conceptual metonymy (CONCEPT A FOR CONCEPT B, e.g., PART FOR WHOLE) among other cognitive mechanisms. By using the Conceptual Metaphor Theory as a way to explain how we conceptualize word meaning, a systematic relationship can be drawn between the various senses of a word instead of either assuming that all uses are derived from context or that certain uses of the same word are random (Evans & Green 2006).

In his book *Women, Fire and Dangerous Things*, Lakoff (1987) famously analyzed the English preposition *over* with the prototype approach to demonstrate its potential. The examples

in (9) illustrate the extension of the meaning of *over*, from a concrete use to an abstract one via metaphor.

- (9) a. The painting is over the mantel. [ABOVE]
 b. Jane has a strange power over him. [CONTROL]

(Lakoff 1987: 418-435)

In (9), both a spatial sense (9a) and non-spatial sense (9b) are associated with *over*. Example (9b) exhibits the metaphor CONTROL IS UP.

“The Master Metaphor List” is a publication created by Lakoff and his colleagues, Lakoff et al. (1991), which is a compilation of their research on examples of metaphors in contemporary American English that connect source domains to target domains. An example of a metaphor from Lakoff et al. (1991) is PROPERTIES ARE POSSESSIONS. Some example sentences from Lakoff et al. that illustrate this conceptual metaphor are “She has a nice sense of humor” and “He got his red hair from his mother” (1991: 11). This publication can be used to identify potential metaphors between two domains. Previous researchers including Lee (2001) have utilized this source in order to evaluate the reasoning of several conceptual metaphors. Though specific conceptual metaphors between the senses of *llevar* were not identified in the analysis of this paper, their exploration is urged and preliminarily sought in the future studies section of Chapter 5.

A key element of the prototype approach is to create a visual representation of the central sense of a word using a special image schema called a proto-scene (Evans & Green 2006). According to Evans and Green (2006), image schemas were originally introduced into cognitive linguistics by Johnson (1987) as abstract conceptual representations that emerge from our sensory and perceptual (embodied) experiences of the world around us. Because image schemas

are considered pre-conceptual in origin, they are diagrammed not with rich or detailed concepts, but with simple, abstract ones. Following Langacker (1987), image schemas incorporate the notions of figure and ground, and trajector and, landmark, respectively, to model the most fundamental aspects of the spatio-physical world. Both Langacker (1987) and Mandler (2004) argued that there are benefits to using image schemas in the development of conceptual structure and organization within linguistics. For instance, Evans and Green (2006) describe the proto-scene as incorporating properties that are shared by all instances of a word. By using a proto-scene to represent the central sense of a word in relation to the spatio-physical world, the distinction between senses is clearer, as is the derivation from the central sense to the peripheral senses (Evans & Green 2006). Lakoff (1987) utilizes TR (*trajector*) and LM (*landmark*) to represent the proto-scene of the central sense of *over*, shown in Figure 1.

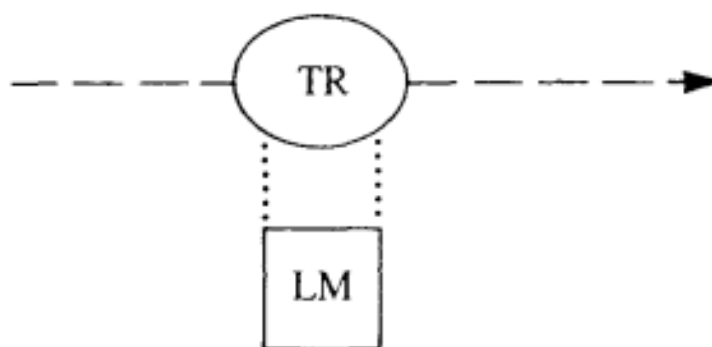


Figure 1: The proto-scene of the central sense of *over* (adapted from Lakoff 1987: 419)

In this representation, the TR is positioned *over* or above the LM, like in the example sentence *The plane flew over*, where the plane is the TR, the arrow is the path that the TR moves along,

and the LM is what the plane is flying over. To clarify, image schemas are not created with the intent of claiming that they are accurate mental representations of such concepts, but instead to provide an abstract representation of how the spatio-physical elements are related. Later, Brugman and Lakoff (1988) developed a radial network model for *over* that visually represented the relationship between the central sense and the motivated peripheral senses, which was then elaborated on by Tyler and Evans (2003).

Lakoff's (1987) proposal has received criticism for his use of the full-specification approach due to its lack of objective methodology in deciding which sense is the central sense and what is considered a distinct sense. For instance, according to Evans and Green (2006) and Lee (2023), too many senses were identified per word, making it an inefficient system for understanding polysemous networks. The concept of considering all context-bound usages of a certain lexical item as separate senses of a word is referred to by many as the *polysemy fallacy* (Sandra and Rice 1995; Sandra 1998).

2.2 Systematic accounts of polysemy

2.2.1 Featured-based approaches

Because of the critiques of the full-specification approach, Tyler and Evans (2003) developed the Principled Polysemy Approach to create an objective methodology for polysemy using a cognitive linguistic framework. The Principled Polysemy Approach offers criteria to distinguish the central sense of a word as well as criteria to decide whether a sense is truly a distinct sense or whether it can be implied by another sense or through context. This approach attempts to avoid the polysemy fallacy. To identify the central sense, Tyler and Evans (2003) offer four main criteria for singling out such a sense: 1) the earliest attested meaning, 2) predominance of a given meaning within the network of senses, 3) relations to other words of the

same class (in their study, prepositions), and 4) ease in prediction of sense extensions. Figure 2 demonstrates their representation of the proto-scene for the English preposition *over*.

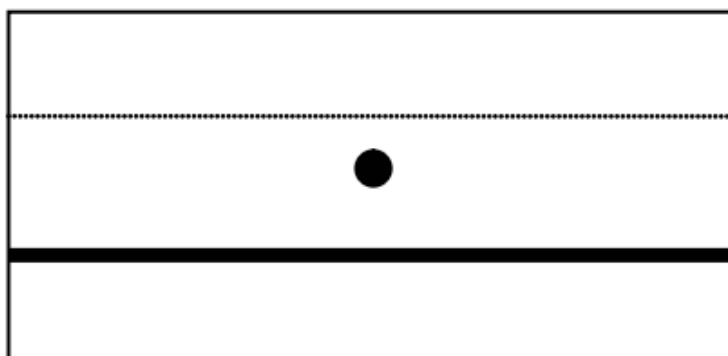


Figure 2: The proto-scene for *over* (Tyler & Evans 2003: 66)

Here, the black dot represents the TR and the bolded line represents the LM. The dashed line restricts the distance between the TR and the LM such that the TR must be within a region proximal to the LM. In contrast to the previous proto-scene for *over* proposed by Lakoff (1987), the updated proto-scene from Tyler and Evans (2003) does not include a dotted arrow because not all senses of *over* include a sense of movement. Therefore, they provide a more simplistic proto-scene that represents an image schema that is more capable of being applied to a wider range of *over* senses.

For a sense to count as a distinct sense, Tyler and Evans (2003) maintain that it must 1) incorporate a meaning that is not just spatial in nature and/or a relation between the TR and LM that is distinct from the other senses, and 2) have instances that are context-independent in that they could not be inferred from another sense. In Figure 3, the semantic network for *over* is

depicted according to the analysis done by Tyler and Evans (2003) utilizing the previously described criteria.

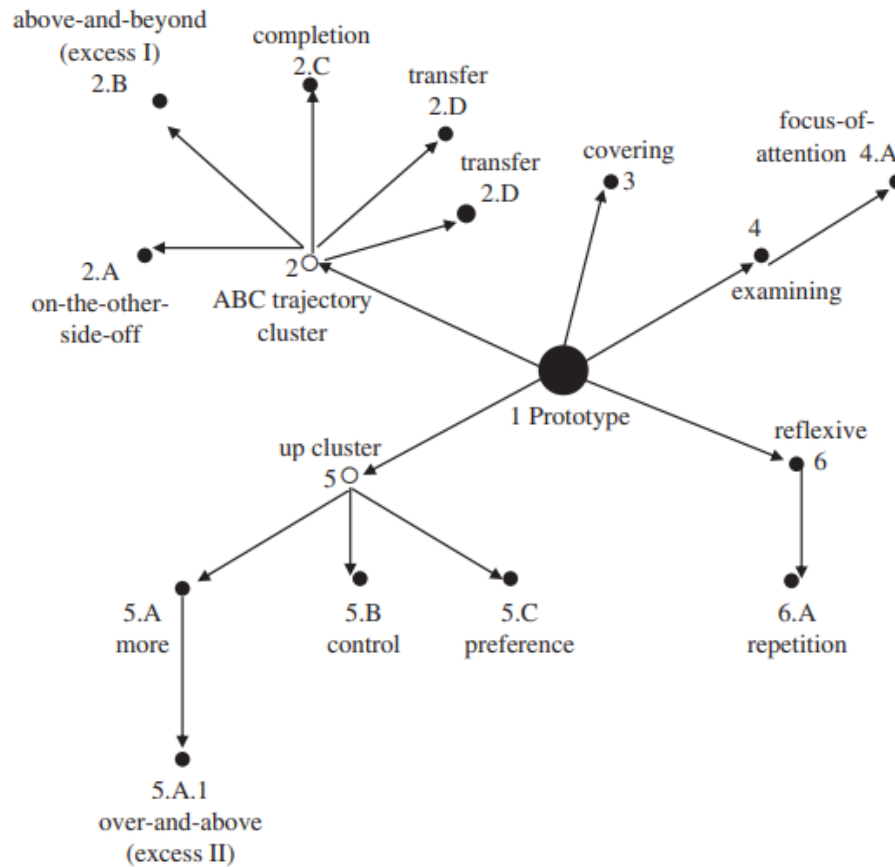


Figure 3: The semantic network for *over* (Evans & Green 2006: 347)

Though the Principled Polysemy Approach was initially designed to handle prepositions such as *over*, it is also considered to be compatible with nouns and verbs. The only difference would be that the proto-scene would be analyzed in terms of the relationship between the TR and

the LM over time (Langacker 1987). To date, the Principled Polysemy Approach serves as one of the main cognitive linguistic approaches to polysemy.

In 2023, an updated version of the Principled Polysemy Approach was provided by Harbi and Abdulkareem (2023) called the Economic Principled Polysemy Model, in which they modified the criteria for both methodologies in order to be clearer and more effective in sense identification and semantic network modeling. Harbi and Abdulkareem subsequently applied their improved model to the Arabic spatial preposition *alla* ('on'). They begin by summarizing the methodology from Tyler and Evans (2003) and explaining the shortcomings. To identify which senses should be counted as distinct senses, Tyler and Evans (2003) state that the sense must have instances that are context-independent, meaning contexts where the sense could not be inferred by its association with other senses. However, Harbi and Abdulkareem (2023) point out that determining what constitutes the context is left up to the interpretation of the investigator, which does not offer an objective way to measure the influence of context on sense interpretation. To address this issue, they offer four criteria for distinguishing senses: 1) the sense refers to a different configuration of the TR and LM or to a non-spatial or metaphorical use of the physical configuration of the TR and LM of the word; 2) the relationship between the distinct sense and that which is conventionally associated with the word must be clear to some extent; 3) the sense must be supported by some instances to make clear that it is context-independent and must not be derived from other senses in context; and 4) the sense must be inherited from the word itself, not from encyclopedic knowledge associated with other words or senses present in the context of use (i.e., the meanings of neighboring words).

For example, for the English preposition *over*, the instance "America has a great power over the world" requires another example, "He cannot oppose those who are over him", to

demonstrate that the CONTROL sense can be interpreted without the need of the word *power* (Harbi & Abdulkareem 2023: 1957-1958). However, just one example is not enough to prove context independence. The authors argue that the sense must be derived from the word itself and not encyclopedic knowledge associated with other words or senses. Despite there being movement in the examples “My horse jumped over the highest fence” and “The boy climbed over the wall”, this movement is deduced from our general understanding of the actions of climbing and jumping as they relate to fences and walls and is not part of the semantics of the preposition itself (Harbi & Abdulkareem 2023: 1958).

Regarding the criteria for identifying a central sense, Harbi and Abdulkareem (2023) explain the weakness of the first and third criteria from the original Principled Polysemy Approach. The first criterion states that by tracing back the etymology of the word, the central sense can be derived from its most original meaning. However, Harbi and Abdulkareem (2023) point out that it is often difficult to claim with sufficient accuracy that the original sense is the central one. Furthermore, because language is constantly changing and evolving, it is possible that the original sense has been changed by new ones. The third criterion explains the relationship between the studied word and other similar ones, in that a contrast set should exist between the features. For instance, in the case of *over*, it is in a contrast set with *below*, *under*, and *above* because each one interacts with a subspace of the vertical dimension as seen in Figure 4.

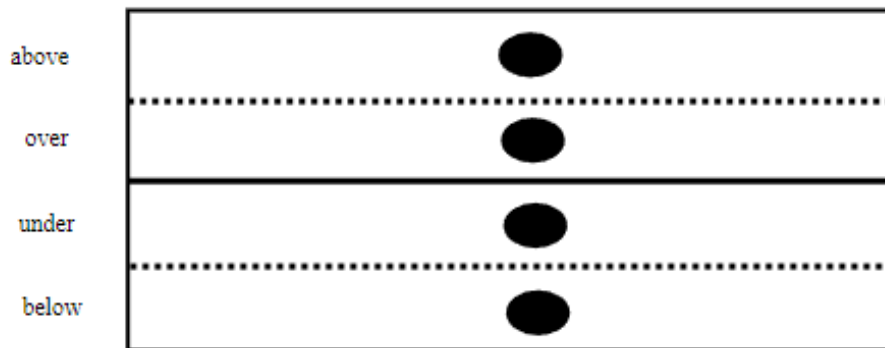


Figure 4: Division of the vertical axis into subspaces by prepositions (Evans & Green 2006: 344-345)

According to Tyler and Evans (2003), the sense that distinguishes *over* from *below*, *under*, and *above* is the central sense. However, Harbi and Abdulkareem (2023) note that this criterion is problematic due to the interchangeable nature of *over* and *above* in English. At times, they can both be used to refer to the same region of the vertical dimension. Because two senses are involved in the contrast set, it is difficult to pick one as the central sense (Harbi & Abdulkareem 2023).

In order to modify the criteria for establishing a central sense, Harbi and Abdulkareem (2023) offer an alternative methodology, which includes a second central sense. They argue that there are two similar central senses, one surface sense and one deeper sense, which are highly related to one another. According to Harbi and Abdulkareem, the Deep Central Sense (DCS) only includes the minimal features of the word that are found in all senses of the network for that word. The purpose of the DCS is to identify the feature that the word has in common with other words of the same class. In other words, it makes the distinction between hypernymy and polysemy, which can explain the overlap of certain uses. The DCS of *alla* was identified to be

“TR is higher than LM”, as shown in Figure 5 (Harbi & Abdulkareem 1967). This is a feature that *alla* shares with another Arabic spatial preposition, *fawq*, which accounts for their overlap.

The Surface Central Sense (SCS) is connected to most of the senses and is what metaphorical senses derive from. The SCS is a modified version of the singular central sense from Tyler and Evans (2003), whereas the DCS is the added central sense. Harbi and Abdulkareem further explain that the SCS is a concrete sense that is related to the physical environment, and it encodes a contrastive relationship with other related words. Additionally, they note that because the SCS is representative of the most prominent configuration of the word in our sensory and perceptual experience, it is also the most predictable and default sense. To illustrate the process of identifying a SCS with the Arabic preposition *alla*, Harbi and Abdulkareem (2023) started with the fact that 12 of the 16 identified senses of this preposition have the same spatial configuration where the TR, the foreground, is higher than and located in contact with the top of the LM, the background. Therefore, they propose that it is the concrete and physical sense of *alla*. It is also the sense with the spatial configuration that has the most prominence in our daily lives when compared to other configurations that *alla* can represent. The proto-scene for the SCS of *alla* is presented in Figure 5 alongside the proto-scene for the SCS of *fawq* for comparison. The SCS of *alla* has the TR as an oval that is on top of and in contact with the LM, which is represented as a box. The semantic network for the Arabic spatial preposition *alla* from Harbi and Abdulkareem (2023) is also shown in Figure 5.

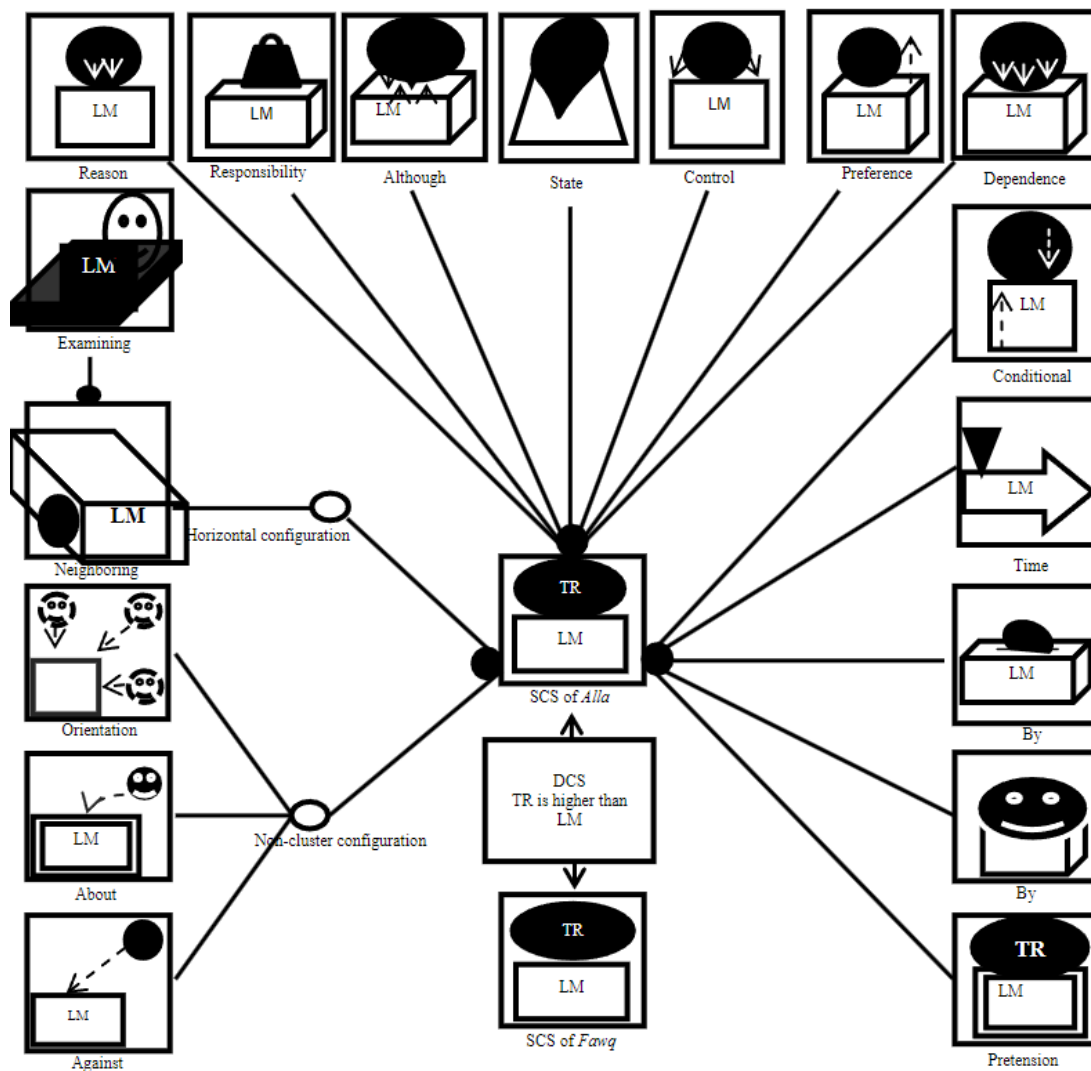


Figure 5: The semantic network of *alla* (Harbi & Abdulkareem 2023: 1967)

Though each peripheral sense in Figure 5 is represented with a distinct proto-scene that contrasts with that of the SCS, each one still includes the feature identified in the DCS. The semantic network is made to demonstrate that, although *alla* has a central sense associated with it, its other senses are by no means random. Harbi and Abdulkareem (2023) argue that the Economic Principled Polysemy Model is an improvement on the original Principled Polysemy Approach in

that it provides more objective and clear criteria in an effort to model a more accurate polysemous network.

Though Harbi and Abdulkareem (2023) cited a considerable amount of previous literature on the polysemy of spatial particles from a cognitive linguistic perspective, there exists very little on verbal polysemy aside from quantitative corpus-based analyses, which are explored in the following subsection. According to Rumshisky and Batiukova (2008), this is because it is particularly difficult to identify the various senses of polysemous verbs due to their dependence on arguments and context.

2.2.2 Quantitative corpus-based analysis

Another method for analyzing polysemous words is via quantitative means using corpus-based analyses. Gries (2006) and Gries and Stefanowitsch (2005) argue for the use of corpus linguistic techniques within cognitive linguistics to address issues relating to intuition-based polysemy analyses. According to Evans and Green (2006), Gries (2006) carried out one of the earlier corpus-based studies of polysemy and was the first to use a Behavioral Profile analysis as a quantitative approach to polysemy. Since then, many usage-based linguistic analyses have implemented this methodology in an attempt to achieve more objective results than those obtained using intuition-based approaches (Berez & Gries 2009; Divjak 2006; Divjak & Gries 2006, 2008, 2009; Gries & Divjak 2009, 2010; Jansegers et al. 2015; Jansegers & Gries 2017; Gries *et al.* 2020). Of these studies, only Jansegers et al. (2015) and Jansegers and Gries (2017) involved a polysemous Spanish verb, which was *sentir* ‘to feel’. According to Jansegers et al. (2015), in a Behavioral Profile analysis, a word is examined using Atkins’ (1987) ID tags to classify each instance of its use in a corpus in terms of various properties of the verb, such as tense, and the sentence or clause, such as presence of a direct object. There are four main steps to

carrying out a Behavioral Profile analysis: 1) collecting all instances of the verb using concordance and taking a representative random sample of the total data; 2) analyzing the ID tags that deal with morphological, syntactic, semantic, and other properties of the verb; 3) converting that data into a cooccurrence table to demonstrate the relative frequency of each sense of the verb; and 4) using statistical techniques such as a hierarchical agglomerative cluster (HCA) analysis to evaluate the data further (Jansegers et al. 2015). The theory is that if senses cluster together in an HCA due their formal patterns, then they will also exhibit semantic similarity. Table 1 shows examples of ID tags that were used to annotate *sentir* in Jansegers et al. (2015).

Table 1: Examples of ID tags and their levels for *sentir* (from Jansegers et al. 2015: 393)

General level	Type of ID tag	ID tag	ID tag levels
Verb	Morphosyntax	tense	present, past, future, infinite form
		person	1, 2, 3
		number	singular, plural
	Semantics	general semantic category	general physical P, specific physical P, emotional P, cognitive P, ambiguous
		specific sense	experience physical perception, experience emotional perception, auditory perception, consi
Argument structure	Subject	lexical S	with S, without S
	Direct Object	form	nominal phrase, pronoun, gerund, infinitive, proper noun, etc.
		referent semantics	person, concrete, abstract, situation, ambiguous
Adjuncts	Adverbial adj. properties	presence	with adverbial ad., without adverbial adj.
		form	adverb, prepositional phrase, nominal phrase, etc.
Discourse	Scope	predicational autonomy	no, yes

Note: An example of an infinitival DO is illustrated in sentences of the type: *Sentimos despedirnos de este gran hombre* ('We regret to say goodbye to this great man').

After Jansegers et al. (2015) manually annotated the data in accordance with the ID tags, the data were converted into a cooccurrence table that compares the relative frequency of each sense for each ID tag level. The frequencies sum to 1 for each ID tag for all the identified senses. In other words, this procedure produced a table that represented how often certain senses were

found with the specified morphosyntactic, semantic or pragmatic features. In Table 2, an example of such a cooccurrence table from Jansegers et al. (2015) demonstrates the type of data being collected at this step.

Table 2: Examples of cooccurrence vectors of ID tags for senses of *sentir*
(from Jansegers et al. 2015: 393)

ID tag	ID tag level	experience physical perception	experience emotional perception	auditory perception
tense	present	0.30	0.36	0.29
	past	0.35	0.4	0.53
	future	0.01	0.01	0
	infinite	0.34	0.23	0.18
lexical S	with	0.18	0.41	0.24
	without	0.82	0.59	0.76
...

To give an example of how the cooccurrence table works, we can look at the EXPERIENCE PHYSICAL PERCEPTION sense of *sentir* from Jansegers et al. (2015) in Table 2., where we can see that .30 of the instances were in the present tense, while .35 were in the past tense, .34 were in the infinitive form, and .01 were in the future tense. These are the type of formal patterns that were generated via the statistical analysis carried out for the present study, which were subsequently used to cluster the senses of *llevar* together.

Jansegers et al. (2015) used the cooccurrence table data to perform a hierarchical agglomerative cluster analysis (HCA) to examine the similarity and dissimilarity relation between the different senses of *sentir*. This process transforms the relative frequency values in the cooccurrence table into distances for each sense. Then, the distance values for each sense are compared to each other. The senses with the most similar values are clustered together and

separated from the senses that have distinct values. A dendrogram functions to visualize the clustering of senses that are most similar and their distinction from dissimilar groupings and senses. For more information on clustering analysis in linguistics see Gries (2009: Chapter 5, Section 5). The statistical procedure of converting the cooccurrence table into the dendrogram via an HCA was performed utilizing Gries's (2010) BehavioralProfiles 1.01, which uses the R statistical software package. The dendrogram that was produced after Jansegers et al. (2015) did an HCA for the uses and senses of the polysemous Spanish verb *sentir* is shown in Figure 6.

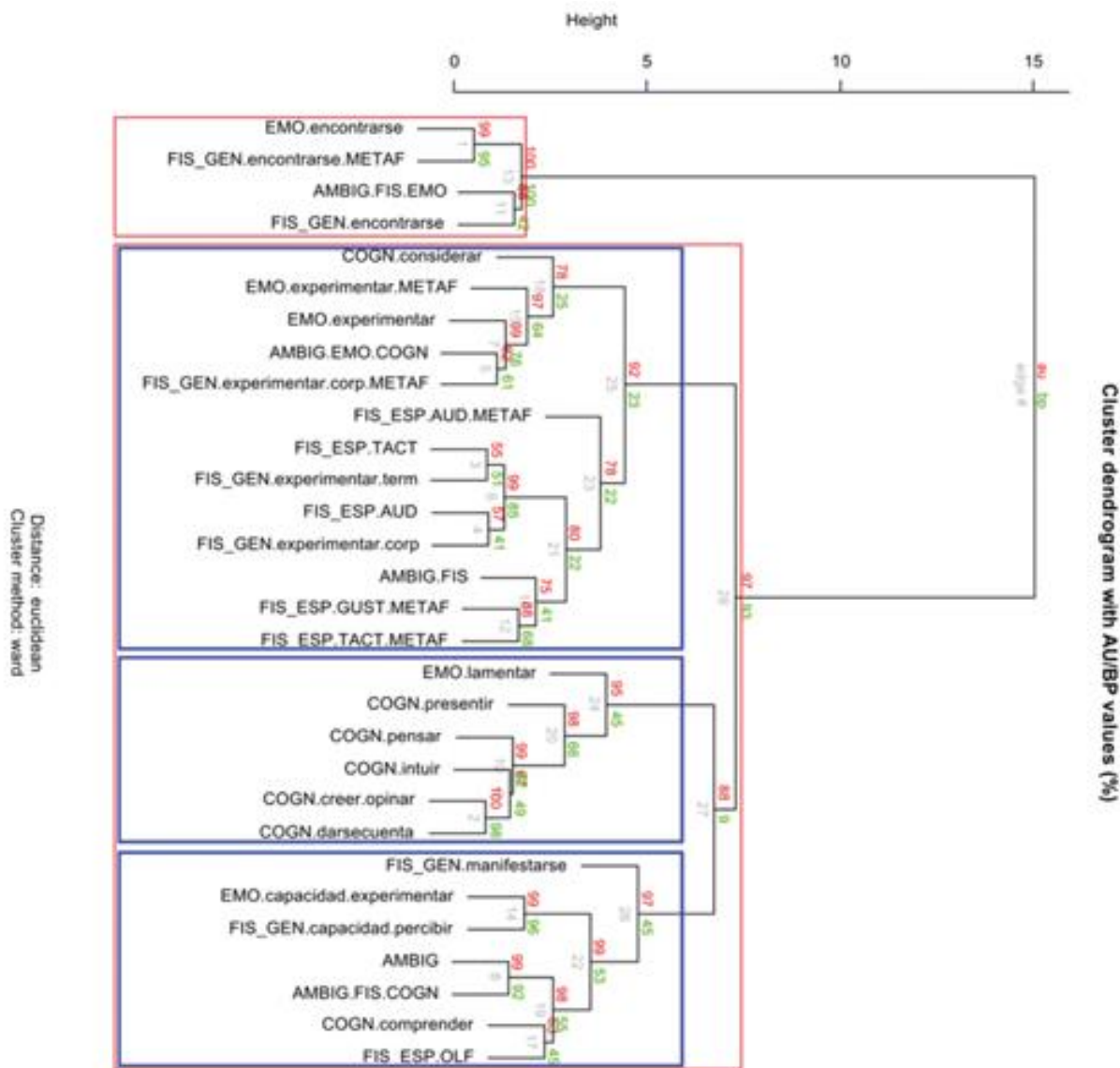


Figure 6: HCA dendrogram for the senses of *sentir* (from Jansegers et al. 2015: 395)

Jansegers et al. (2015) explain that the dendrogram in Figure 6 demonstrates a statistically significant relationship between 26 senses of *sentir*, while also showing a semantic distinction from four senses of *sentirse* (including ambiguous cases). The *sentir* uses and the *sentirse* uses are distinguished by the two large boxes. Furthermore, within the larger *sentir*

cluster, three subclusters of senses emerged. Distinguishing the two larger clusters was supported by the very high Approximately Unbiased (AU) values (in red) in the dendrogram for these clusters (100% and 97% respectively). These are p-values between 0 and 1, calculated through 1,000 multiscale bootstrap resamplings with the R package *pv-clust* (Jansegers et al. 2015), which statistically validate the analysis. This package draws boxes around clusters that have 95% or higher statistical significance.

Though Jansegers et al. (2015) do not conclude by offering a concrete list of senses of *sentir*, they argue that the mere emergence of clusters indicates that *sentir* has more than one distinct sense. However, the presence of both metaphorical and ambiguous cases leads them to believe that the senses are not discrete, but instead vague and fuzzy. They note that some clustering was unpredictable due to the verb's syntactic distribution, which lends further support to the idea of a sense continuum instead of concrete senses (Croft 1998). However, because there are no systematic accounts of polysemy that incorporate sense continuums, this thesis utilizes two approaches to attempt to identify concrete senses of *llevar*. With that said, the distance of each peripheral sense from the central sense may vary, but it is not something that is investigated further within the contents of this thesis.

Gries (2006) argues in favor of the corpus-based approach over the Principled Polysemy Approach because of its potential complications such as inability to identify the earliest attested meaning of a word. The Behavioral Profile analysis minimizes subjectivity and introspective knowledge related to meaning and focuses on analyzing instances according to a predetermined set of variables. Jansegers et al. (2015) used Gries's (2006) approach as a basis for their corpus-based analysis of the Spanish verb *sentir*. Using the Behavioral Profile analysis, the central sense was determined via the sense with the highest frequency as well as the sense with the least

syntactic restriction (Gilquin 2008). To determine what could be considered a distinct sense, the corpus data offered formal patterns, such as similarity or dissimilarity of the morphosyntactic, semantic, and pragmatic elements. They also ran a correlation analysis between the senses to quantify similarity and dissimilarity through more simplistic means. Further details regarding the execution of a Behavioral Profile Analysis are offered in Chapter 3.

In this thesis, both the Behavioral Profile analysis and the Economic Principled Polysemy Model are utilized to analyze *llevar* in order to create a proto-scene for the SCS and a visualization of the semantic network that connects the central senses to the peripheral senses. By doing this, the action or movement that the verb *llevar* represents and the interrelatedness between its different senses can be better understood by linguists and language learners alike.

2.3 Polysemy and language learning

Within the cognitive linguistic framework, polysemy has been explored on two fronts in terms of language learning: L2 acquisition and L2 pedagogy. Regarding L2 acquisition, the question remains as to whether students need explicit instruction of polysemous words (Gómez Vicente 2018, 2020) or if they can intuitively acquire their distinct senses through their own processing of input (Alkhelaiwi 2023). In terms of language pedagogy, vocabulary instruction that is influenced by cognitive linguistic research has proven to demonstrate better results for student understanding of polysemy than more traditional teaching methods (Csábi 2004; Makni 2014). However, there are arguments to support the need for more implementation of the notion of polysemy in instructional materials and more input incorporating polysemous expressions in the language learning classroom, particularly due to evidence showing the use and understanding of polysemous words to be a difficult topic for L2 students to grasp (Tyler & Evans 2004).

2.3.1 Polysemy and L2 acquisition

In both Gómez Vicente (2018) and Gómez Vicente (2020), L2 Spanish/L1 French participants were given sentence elicitation and narration tasks to test their usage of Spanish verbs in comparison to that of native speakers (both children and adults). Gómez Vicente (2018) tested the polysemous Spanish verb *quedar*, while Gómez Vicente (2020) examined the polysemous Spanish verbs *poner* and *volver*. In both studies, the L2 Spanish speakers, who were all native French speakers, used the Spanish verbs in a semantically anomalous way that did not line up with the conventional manner in which the native speakers used the verbs. For instance, the L2 speakers spoke in a way that sounded strange when using these verbs, compared to the native Spanish speakers' use of them because they were experiencing negative transference from their L1 French (Gómez Vicente 2018, 2020). This negative transference caused them to unconsciously apply the semantic network of the 'semantic equivalent' of *quedar* in French (*rester*), resulting in their using *quedar* in the same contexts in which they would use *rester*, despite their meaning not being equivalent. Similarly, in Gómez Vicente (2020), native French speakers, who were L2 Spanish learners, used *poner* (e.g., 'put') and *volver* (e.g., 'return') in varying anomalous contexts that lined up with the semantic network of the translated word in the learners' L1 (French) but not with the network of Spanish *poner* and *volver*. The two studies by Gómez Vicente (2018, 2020) demonstrated the need to incorporate explicit instruction about the use of these and other polysemous verbs in Spanish, because it is not always clear to L2 Spanish learners when certain senses of a polysemous verb are restricted to certain syntactic and semantic environments.

In contrast to the results reported by Gómez Vicente (2018, 2020), a study done by Alkhelaiwi (2023) reported the opposite outcome. He surveyed L2 English/L1 Arabic students

from Saudi Arabia to see if they were aware of the polysemous networks of certain verbs in English, including *break*, *run*, and *draw*. He tested them using questionnaires that asked students to rank example sentences in terms of their usefulness in explaining a verb's meaning to an individual who does not understand English very well. For instance, for *break*, a student would have to choose between the sentence "The dish fell to the floor and broke", which exemplifies the sense 'to separate into pieces', and the sentence "His voice broke when he was 13", which demonstrates the sense 'to become deeper (a young man's voice)', among other example sentences, to decide which ones best described the meaning of *break* (Alkhelaiwi 2023: 742). The ranking system had a range of *excellent*, *good*, *not so good*, and *poor*. The results demonstrated that the students did in fact know that the verbs were polysemous, and furthermore, that there were central senses as well as peripheral senses of those verbs. Alkhelaiwi's study provides evidence that students may have at least some awareness of the polysemous networks of certain words in their second language and that they do not necessarily need to be exposed to polysemy in explicit instruction. Despite coming to this conclusion, he mentions that, due to the simplicity of the testing format, it is possible that students simply marked that a certain example sentence was a representation of a peripheral sense of the verb because they had not encountered it before instead of being genuinely aware that it was a peripheral sense. Given Alkhelaiwi's findings, further studies are warranted to corroborate his conclusions versus those reached by Gómez Vicente (2018, 2020), whose results offered counter evidence supporting explicit instruction of polysemy.

2.3.2 Polysemy and pedagogy

In terms of language pedagogy involving polysemous verbs, previous studies have tested the difference in effectiveness of traditional methods compared to cognitive linguistic (CL) based

instruction. CL-based instruction involves the incorporation of concepts from cognitive grammar and cognitive semantics into pedagogical resources. Some studies focused on teaching polysemous spatial prepositions (Tyler & Evans 2004, Kissing et al. 2018; Falck 2018), whereas others focused on polysemous verbs (Kovecses & Szabó 1996; Csábi 2004; Makni 2014; Zhao et al. 2018).

Csábi (2004) did a study on L2 English/L1 Hungarian students to compare the traditional vocabulary learning method (translation) to CL-inspired instruction designed to teach and facilitate the learning of vocabulary via polysemy. Polysemy was taught through explanations of the motivations behind the peripheral senses of English verbs and idiomatic verb phrases. The verbs *hold* and *keep* were the focus of the study. While the translation method only offered students direct translations from English to Hungarian of the verbs as well as idioms using those verbs, the CL method taught the students about the metaphors and metonyms that motivated the peripheral senses. Overall, results from Csábi's study showed that a CL approach to teaching polysemy via conceptual mechanisms proved to be more "fruitful and permanent" than that of pure memorization (Csábi 2004: 250).

Tyler and Evans (2004), the cognitive linguists who created the Principled Polysemy Approach, not only review their findings on the polysemy of *over* but also offer implications for teaching. They start by pointing out how, when it comes to prepositions in language learning textbooks, learners are oftentimes presented with long unorganized lists of unrelated meanings as opposed to a polysemous network of interrelated senses surrounding a central sense. By only giving students unsystematic lists of meanings, they are given the impression that the related senses of a given word are arbitrary and are only connected by coincidence (Tyler & Evans 2004). In an attempt to remedy this, Tyler and Evans (2004) argue that the proto-scene and

semantic network from the Principled Polysemy Approach can be beneficial to the second language learner. Their model reduces arbitrariness between the senses by specifying their motivations, which in turn could potentially eliminate the need for rote learning of prepositions. The authors maintain that if the senses are related, then it is more beneficial to highlight their similarities instead of acting as though their similarities are random. Furthermore, because the proto-scene is a visual representation of the verb that arises from the spatio-physical world, it captures what the learner experiences in the world instead of just utilizing memorization strategies. To demonstrate the benefit of this perspective on pedagogy, they developed teaching activities for the English preposition *over* based in their polysemy model. Given the promising benefits that Tyler and Evans (2004) report, similar teaching activities should be developed for *llevar* based on analysis of its polysemy in order to help students connect with the meaning of the verb in a way that interacts more symbiotically with human cognition.

Makni (2014) compared an image schema-based method (ISBM) instruction style to a traditional translation method instruction. The ISBM is another style of CL instruction that is centered around helping students understand polysemous words via image schemas or proto-scenes. He conducted an experiment using eight highly frequent English words: *hand*, *break*, *head*, *over*, *burn*, *push*, *beyond*, and *root* with L2 learners of English. Makni (2014) demonstrated that the ISBM, which teaches polysemous word using proto-scenes, was more efficient than the translation-based vocabulary instruction method. Students were able to conceptualize better what movement/action the verb captured from the proto-scene than from more traditional vocabulary lessons and were therefore able to perform better on post-lesson tests. Figure 7 shows the proto-scene that Makni (2014) used for *break* during the study.

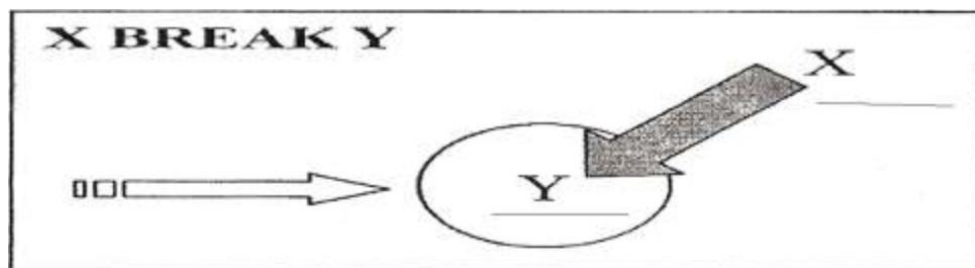


Figure 7: The proto-scene of *break* (Makni 2014: 9)

From there, the abstract elements of the proto-scene can be specified to concrete meanings of *break* such as ‘to destroy the shape or function of something’ as in Figure 8, or the metaphorical meanings like those shown in Figure 9.

Example 1: Who broke this radio?

Meaning: *destroy the shape or function of something*

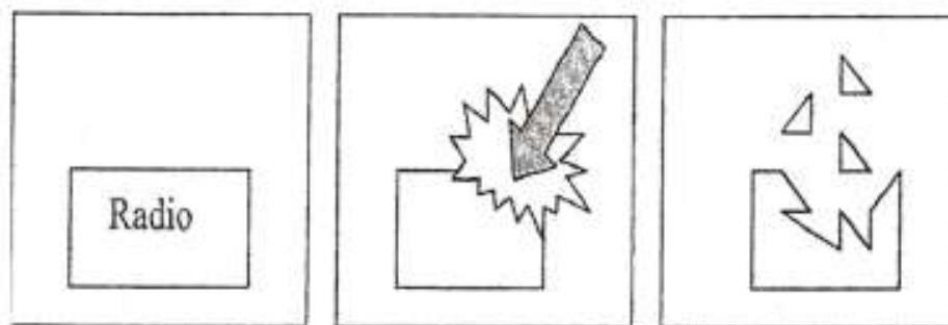


Figure 8: Image schema of literal meaning of *break* (Makni 2014: 9)

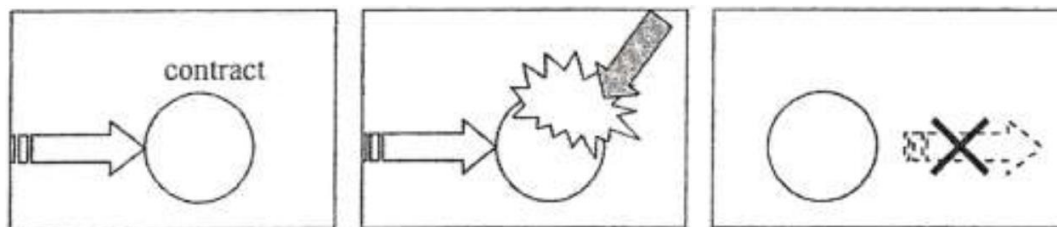


Figure 9: Image schema of metaphorical sense of *break* (Makni 2014: 10)

Example 2: You cannot **break** your contract now.

Meaning: to not do what is agreed upon/put an end to

In Figure 8 and 9, Y has been selected as specific entities so that the action of breaking something can be better understood on both a literal and metaphorical level. Though it may seem simple to a native English speaker to comprehend the extension of the meaning of literal breaking (e.g., of a glass or radio), to metaphorical breaking (e.g., of a contract or a record), for L2 learners, abstract actions do not have intuitive metaphorical extensions. For this reason, it is beneficial to create visual representations of polysemous words in order to help L2 students understand their literal and metaphorical meanings through conceptualization.

Zhao et al. (2018) carried out a similar study that incorporated ideas from the study by Csábi (2004), as well as the concepts of image-schemas used by Makni (2014). This was done to further test the efficiency of CL-inspired instruction over traditional vocabulary methods, specifically in an English as second language context. Zhao et al. (2015) used the same two verbs as Csábi (2004) did, *hold* and *keep*, as a control factor and because the polysemous networks' descriptions had already been developed for those verbs. Their results confirmed that CL-

inspired approaches to teaching polysemous verbs achieve better outcomes for students than traditional instructional practices for the same verbs.

As demonstrated by results from CL instruction studies, research involving the modeling of polysemous words and semantic networks is useful not only from a linguistic standpoint, but from a pedagogical standpoint as well. Despite there being some recent development of CL instruction style for L2 Spanish pedagogy (see Ibarretxe-Antuñano & Castro 2019), there is still a lack of materials for teaching polysemous Spanish verbs and guidelines for how CL instruction can be beneficial for teaching them.

2.4 Previous analyses of *llevar*

Llevar is the polysemous Spanish verb analyzed in this study with the goal of capturing its central sense and peripheral senses. Justification for analyzing *llevar* was based initially on the Frequency Dictionary of Spanish: Core Vocabulary for Learners, where *llevar* is considered highly frequent at number 101 (Davies 2006), and also on the fact that it shows up in L2 Spanish classes very early on. Furthermore, as briefly mentioned in Chapter 1, Zyzik and Marqués-Pascual (2023) argue that *llevar* is both a frequent and polysemous word and that it is poorly reflected in Spanish language textbooks.

According to María Moliner's (2007) *Diccionario del uso de español*, the word originates from the Latin verb *levāre*. There are 29 uses or senses of *llevar* and 12 conventionalized phrases that use it. For most uses, she provides an example sentence. The first entry for *llevar* defines it as, "tomar alguien consigo una cosa y hacerla llegar a cierto destino" ('to take something with you and make it arrive at a certain destination') (Moliner 2007: 1799). Table 3 presents the list of the entries of *llevar*, and Table 4 shows the examples for almost all the uses provided by Moliner

(2007). Conventionalized phrases with *llevar* that were identified by Moliner (2007) are presented in Table 5.

Table 3: List of uses of *llevar* (Moliner 2007: 1799-1800)

Entries of <i>llevar</i> from María Moliner (2007) <i>Diccionario del uso de español</i>	
#	Entry/Definition
1	Tomar alguien consigo una cosa y hacerla llegar a cierto destino
1	Conducir o transportar; mover una cosa de un sitio a otro
1	Se puede tratar de cosas inmateriales que se tienen en el pensamiento
1	Comunicar o transmitir a alguien ciertas cosas, como una enfermedad o una herencia biológica
1	Contribuir en una asociación con alguien, con cierta cosa, para que sea tenida por esa asociación
2	Ser alguien o algo causa de cierta cosa en un sitio a donde va o en que ocurre
3	Con palabras como berrinche, disgusto, sofocón, o mal rato, recibir o pasar lo que esas palabras expresan
	Dejarse llevar
4	Ser causa de que alguien llegue a cierto sitio o situación
5	Impulsar o inducir a hacer cierta cosa
6	Ir un camino a determinado sitio
	Conducir
7	Al hacer una operación aritmética, resultar en la operación parcial hecha con un orden de cifras alguna unidad del orden siguiente, que se añade a las de éste al operar con ellas
8	Manejar una montura o un vehículo
	Conducir; guiar
9	Acompañar a alguien o servirle de guía para ir a cierto sitio
	Con un complemento de modo, dirigir o mandar a alguien de la manera que se expresa
10	Dirigir, administrar, manejar, o tener alguien a su cargo un negocio, asunto o actividad
	El complemento puede ser dirección o expresión semejante
11	Cultivar una finca como colono
12	Acomodarse al carácter genio, etc. de alguien y tratarle con habilidad
13	Estar haciendo una cosa de cierta manera, expresada con un adverbio
	Tener en cierto estado un trabajo que se realiza
	(con) Estar haciendo la cosa de que se trata de cierta manera que se expresa con un nombre
14	Quitar una cosa del sitio donde está
	(con un pronombre reflexivo) Tomar una cosa consigo o para sí, generalmente apartándola con brusquedad o violencia del sitio donde está o quitándosela a alguien

15	(con pronombre reflex.) Conseguir o recibir algo, particularmente un premio, entre varios que podían también haberlo tenido
	(con pronombre reflex.) Por extensión, recibir un premio o castigo
	(con pronombre reflex.) Tomar alguien para sí una cosa entre otras
16	(de, por) Hacer pagar determinada cantidad por cierta cosa
17	Ser necesario o haber sido necesario invertir cierto trabajo o tiempo en la cosa que se expresa
18	Tener alguien una cosa que constituye una cualidad o un estado
	Tener cierto cosa sobre sí
	Particularmente, tener puesto un vestido u otra cosa de uso personal o usarlos habitualmente
	Tener de cierta manera algo que uno tiene sobre sí
	Contener
	Con la expresión por nombre o el nombre de, tener el que se expresa
19	(en forma pronominal pasiva o impersonal con se) Estar una cosa de moda
	En lenguaje corriente, se aplica, incluso, a cosas que no son de uso personal
20	Soportar de cierta manera que se expresa una pesadumbre, molestia o carga
21	Producir fruto los árboles
22	Con idea, tenerla
23	Formando parte de las expresiones llevar adelantado, llevar por delante, llevar ganado, llevar de ganancia, llevar de ventaja, equivale a tener
	A veces, se suprime el participio o complemento
24	En ciertos juegos de baraja, ir a robar teniendo cierta número de puntos o cartas
25	Con compás o palabras semejantes, seguir o tener las cosas que expresan o acomodarse a ellas
26	Con camino, dirección, tendencia o palabras equivalentes tomadas en sentido material o figurado, seguir las cosas que expresan
	Junto con trazas, parecer que va a ocurrir o se va a hacer la cosa que se expresa
27	Con un complemento de tiempo, haberlo pasado hasta el momento en que se habla o de que se habla de la manera que se expresa o haciendo la cosa que se expresa
28	Con un participio, expresa repetición de la acción expresada por el participio o insistencia en ella; lo cual lleva consigo experiencia o cansancio
29	Tener una cantidad de cierta cosa que se expresa más que otra person u otra cosa determinada
	Tener cierta ventaja sobre otro en una carrera o en una competición cualquiera
	Frecuentemente, lleva como complemento de ventaja
	Haber entre dos o más cosas o personas cierta diferencia de edad o en un aspecto que se expresa

Table 4: Examples sentences of *llevar* for each use (Moliner 2007: 1799-1800)

Example sentences of <i>llevar</i> from María Moliner (2007) <i>Diccionario del uso de español</i>	
#	Use/Example
1	'Yo le llevé un paquete a su hermano'
1	'Este barco lleva carga y pasajeros' 'El viento lleva las hojas de un lado para otro'
1	'Llevar un mensaje [o un saludo]'
1	'Le llevó [o llevó al matrimonio] en dote seiscientos mil euros'
2	'Llevó la intranquilidad a aquella casa' 'La inundación ha llevado la ruina a muchas familias'
3	'Llevarse de una pasión'
4	'Llevar a alguien a la ruina [a la desesperación], a la victoria'
	'Su vocación le llevó al mar'
5	'Eso les llevó a sublevarse' 'Esto me lleva a pensar que no está descontento'
6	'Esta calle lleva al río'
7	'Cinco por tres quince. Escribo cinco y llevo una'
8	'Lleva con facilidad el caballo' 'Lleva el coche con mucha seguridad'
9	'Tengo que llevar a mi mujer al cine' 'Yo os llevaré por el camino más corto'
	'Lleva a sus empleados a patadas'
10	'Como no está su madre, lleva ella la casa' 'Su mujer lleva muy bien el negocio'
	'Llevar la voz cantante'
11	'Me lleva las tierras desde hace muchos años'
12	'Sabe llevarla el genio. Ella es la única que sabe llevar al abuelo'
13	'Lleva muy bien sus estudios'
	'Llevo muy atrasado el libro'
	'Llevan lo de la boda con mucho misterio'
14	'El viento me llevó el sombrero' 'La bala le llevó el brazo'
	'Alguien se ha llevado por equivocación mi sombrero' 'La riada se ha llevado el puente'
	'Los ladrones se me llevaron el reloj'
15	'Se ha llevado el premio el que menos lo merecía' 'Se ha llevado el mejor mozo del pueblo'
	'Yo me llevo siempre las culpas' 'Él se ha llevado la peor parte'
	'Se ha llevado el castigo que merece'

16	'Solo me ha llevado veinte euros por arreglarme el reloj'
17	'Es una operación que lleva mucho tiempo' 'Este bordado lleva mucho trabajo'
18	'Esa muchacha lleva mucha alegría' 'Lleva encima una enfermedad incurable'
	'El perro lleva muchas pulgas'
	'Llevaba un traje nuevo' 'Un señor que lleva gafas'
	'Lleva el pelo largo' 'Lleva los bolsillos llenos de cosas' 'Lleva las manos sucias' 'Lleva el traje roto' 'Llevas mal puesto el sombrero'
	'La tarta lleva un poco de licor'
	'La nave llevaba por nombre la Santa María'
19	'El color verde es el que más se lleva este año'
	'Ahora no se llevan los noviazgos largos'
20	'Ella lleva con mucha paciencia las rarezas del enfermo' 'Lleva más la soltería' 'Tu padre lleva muy bien los años'
21	
22	'Lleva idea de pasar el verano en Alemania'
23	'Si pasas unas buenas vacaciones, todo eso llevas adelantado'
	'Si ha tenido una juventud feliz, todo eso lleva'
24	
25	'Los soldados llevan el paso' 'Llevamos un ritmo acelerado' 'El coche lleva buena marcha'
26	'Lleva camino de no acabar nunca' 'Por la dirección que llevaba, creo que no iba a su casa'
	'Llevan trazas de no marcharse en toda la tarde'
27	'Lleva tres semanas sin venir por aquí' 'Llevo una semana en Madrid'
28	'Lleva hechos muchos trajes en su vida' 'Llevo dicho esto mismo docenas de veces'
29	'Tu hermano le lleva al mío dos años' 'Mi hijo me lleva dos centímetros'
	'Te llevo seis tantos'
	'Hacia la mitad de la carrera me llevaba de ventaja cincuenta metros'
	'Mi hermano y yo nos llevamos dos años' 'Las dos telas se llevan poco de caras' 'Los dos se llevan poco de torpes'

Table 5: List of conventionalized phrases with *llevar* (Moliner 2007: 1799-1800)

Phrase	Conventionalized phrases with <i>llevar</i>
Dejarse llevar	Definition Ser dócil, aceptar la opinión de otro u otros y hacer lo que ellos disponen que se haga (de [o por] algo) Obrar influido o guiado por ello (de [o por] alguien) Dejarse influir por la persona de que se trata
Llevar de áca para álla	Zarandear o entretener a alguien haciéndole ir a distintos sitios sin resolver lo que pretende
Llevar adelante una cosa	Realizarla con buen éxito; hacerla prosperar
Llevar aparejado	Llevar consigo
Llevar una cosa consigo a otra	Ser la segunda consecuencia o compañera inevitable de la primera
Llevar encima	dinero u objetos de valor llevarlos consigo
Lleva una cosa envuelto a otra	Estar la segunda comprendida sin necesidad de especificarlo en la primera
Llevar alguien a mal una cosa	Sentirse ofendido por ella
Llevar una cosa en si a otra	Ser esta consecuencia de la otra o estar implícita en ella
Llevarse bien [o mal] con alguien o dos o más personas en sí	Avenirse o vivir en desavenencia
Llevarse por delante	Atropellar, destruir o hacer desaparecer cualquier cosa que se interpone en el camino También, en sentido figurado
Tú la llevas	Juego de chicos en que uno de ellos, el que paga, procura tocar con la mano o dar un pequeño golpe a alguno de los otros, que le esquivan; cuando lo consigue, paga el tocado

Despite being so frequent, most of the previous literature on *llevar* only focuses on certain functions of it, including its use as a causative verb (Soler & Enghels 2023) illustrated in (10a), and as a light verb in temporal constructions (Whitley & González 2007; Fernández-Soriano & Rigau 2009) as shown in (10b) and (10c).

- (10) a. No será este un método que lleve simplemente a resolver los problemas que las cosas plantean.

‘This will not be a method that leads simply to solving the problems that things pose.’

(Soler & Enghels 2023: 12)

- b. Llevo cinco años viviendo aquí.

‘I’ve been living here for five years’

(Fernandez-Soriano & Rigau 2009: 136)

c. El proyecto llevó cuatro horas.

‘The project took four hours.’

(Whitley & Gonzalez 2007: 205)

In (10a), *llevar* is used to describe that the subject, *un método* (‘a method’) in this case does not cause the action described in the prepositional phrase, *a resolver los problemas* (‘to solving the problems’). The example illustrated in (10b) uses *llevar* alongside a temporal adverbial complement, *cinco años* (‘five years’) to indicate the amount of time that the speaker has done an action or spent time somewhere, which is expressed through the gerund phrase, *viviendo aquí* (‘living here’). Whitley and Gonzalez (2007) explain that *llevar* here functions as an alternative to the Spanish *hace...que* and *desde que* time constructions that express how long a continued action has been going on. In (10c), *llevar* is part of a construction that expresses the amount of time that a task will take where the subject, *el proyecto* (‘the project’), is the task and the temporal adverbial complement, *cuatro horas* (‘four hours’), is the amount of time. *Tomar* ‘to take’ can also be used to form similar constructions (Whitley & Gonzalez 2007: 205). Though analyses of *llevar* as a causative and as a light verb are beneficial in understanding different possible constructions with *llevar*, they may not give any insight into the possible structure of the semantic network of *llevar*.

The study by Bonk Massarollo (2020) is the only existing research to date related to the polysemous nature of *llevar*. The study highlighted the various metaphorical uses of *llevar* using the theoretical assumption about polysemy and semantics from Moura (2006), which poses that polysemy cannot be bounded, as well as the notions of metaphor and metonymy from Lakoff and Johnson (1980). Bonk Massarollo (2020) adopts Moura’s perspective that it is impossible to restrict all the potential meanings of *llevar* because there are infinitely new contexts. This

framework differs from the cognitive semantic perspective on polysemy, which posits that various polysemous senses of words are conventionalized or stored in memory and are context independent. Despite these contrasting views, the two perspectives concur that context can come into play to allow for richer interpretations that go further than the lexicalized and conventionalized meanings associated with the verb (Evans & Green 2006). To demonstrate the importance of culturally shared knowledge in the understanding of metaphor, Bonk Massarollo (2020) analyzed data on *llevar* using Spanish-language website headlines. The following six headlines analyzed by this author highlight various metaphorical uses of *llevar*.

- (11) Spanish website headlines highlighting *llevar* (Bonk Massarollo 2020: 314-319, my English translations)

Headline 1: *España lleva bigote y conduce un 60. Catalunya lleva minifalda y se siente bien*

‘Spain has a mustache and drives a 60. Catalonia wears a miniskirt and feels good’

Headline 2: *El hombre que lleva 46 años sin afeitarse el bigote*

‘The man that has gone 46 years without shaving his mustache’

Headline 3: *Cómo llevar una minifalda con estilo*

‘How to wear a miniskirt with style’

Headline 4: *Por qué Luis Enrique lleva gafas de sol en los entrenamientos*

‘Why Luis Enrique wears sunglasses during his trainings’

Headline 5: *La hermana de Cristiano Ronaldo lleva dos años sin pagar la comunidad*

‘Cristiano Ronaldo’s sister has gone two years without paying the community’

Headline 6: *Se burlan de él por ver joyas siendo barrendero... Se lleva una sorpresa*

‘They make fun of him for seeing jewels as a street cleaner...you’d be surprised’

Bonk Massarollo (2020) demonstrates through her headline analysis that *llevar* has a variety of metaphoric uses that cannot be pinned down or accounted for through a single conceptual meaning, but instead must be understood as having multiple meanings. She concluded that *llevar* is polysemous and often metaphorical in nature in accordance with the metaphorical semantic categories identified in Lakoff and Johnson (1980).

Because there is limited work that addresses the polysemous nature of *llevar*, this thesis aims to fill this gap using two holistic and systematic approaches to analyzing polysemy: A Behavioral Profile analysis and the Economic Principled Polysemy Model. The methods used to identify and select the data for the current study, which are comprised of instances of the use of *llevar* found in the PRESEEA corpus, as well as the steps describing the process of applying these two accounts to *llevar*, are explained in Chapter 3.

CHAPTER 3

METHODOLOGY

The methodology laid out in this chapter was designed to identify the central and peripheral senses of the polysemous Spanish verb *llevar* utilizing both a quantitative corpus-based analysis and a qualitative feature-based analysis of a corpus of informal interviews in Spanish. In doing so, the present study aims to fill the gap in the literature on *llevar* as a polysemous verb using a cognitive linguistic approach. In Section 3.1, I explain how the different senses of *llevar* were established based on the entries in the *Diccionario de uso del español* by María Moliner (2007). Subsequently, I indicate how the original senses used in the Behavioral Profile analysis were identified and how the data were collected. In Section 3.2, I describe how I carried out the Behavioral Profile analysis for *llevar*. In Section 3.3, I explain the process that I used to apply the Economic Principled Polysemy Model criteria to the extracted senses from the Behavioral Profile analysis.

3.1 Sense identification and data collection

As a starting point, I copied down the 29 entries of *llevar* from Moliner's (2007) *Diccionario de uso del español* that were listed in Chapter 2. These senses were then further analyzed and reduced to 21 identifiable senses. This process was done by combining certain entries that appeared to reflect the same sense despite being used in different contexts.

To give an example of the process undergone to reduce the number of senses found in Moliner's dictionary, let's look at sense 1 of *llevar* from Table 6, which is paraphrased as 'transport something or someone'. This sense is a combination of use 1 like in *Yo le llevé un*

paquete a su hermano ‘I took the packet to their brother’ and use 9 as in *Tengo que llevar a mi mujer al cine* ‘I have to take my wife to the movies’, identified by Moliner (2007). Another example of a reduced sense is sense 7, ‘handle or deal with something’, which resulted from combining use 8 as in *Lleva el coche con mucha seguridad* ‘S/he drives the car very safely’, use 10 as in *Su mujer lleva muy bien el negocio* ‘His wife runs the business really well’, use 11 as in *Me lleva las tierras desde hace muchos años* ‘He has handled the fields for me for many years’, use 12 as in *Ella es la única que sabe llevar al abuelo* ‘She is the only one who knows how to handle grandfather’, use 13 as in *Lleva muy bien sus estudios* ‘S/he is handling their studies very well’, and use 20 as in *Ella lleva con mucha paciencia las rarezas del enfermo* ‘She handles the peculiarities of the sick with great patience’.

Following Jansegers et al. (2015), these 21 senses were then classified into four general senses for *llevar*, which were created by identifying underlying features present in each sense. These four general senses are: ‘physical movement towards a place’, which was coded as MOV_FIS_HA for senses 1, 2, 4, 5, 6, and 17; ‘physical movement away from a place’, which was coded as MOV_FIS_LEJ for senses 8, 9, and 10; ‘temporal movement’, which was coded as MOV_TEMP for senses 7, 11, 15, 16, 18, 19, and 20; and ‘stative’, which was coded as ESTAD for senses 3, 12, 13, 14, and 21. The ‘temporal movement’ group refers to senses that focus on movement through time instead of movement through physical space, which can be thought of as duration like in the example of sense 11 ‘require a certain amount of time to do something’ *Es una operación que lleva mucho tiempo* ‘It’s an operation that takes a lot of time’. The ‘stative’ group combines senses that also incorporate time but refer to it in a bounded way, which adds a feature of stativeness or non-movement. An example from this group is sense 12 ‘contain something’, as in *El pastel lleva fruta* ‘The cake has fruit in it’. Table 6 presents the 21 senses of

llevar and their English paraphrases, whereas Table 7 presents those same senses with an example sentence for reference.

Table 6: Senses of *llevar* and their English paraphrases

Spanish label in dendrogram	English paraphrase
1. MOV_FIS_HA.transportar	transport something or someone
2. MOV_FIS_HA.transportar.METAF	bring to a psychological state
3. ESTAD.tenerpuesto.tener	animate subject has a certain feature or item (of clothing) on themselves
4. MOV_FIS_HA.causar	cause someone or something to do something
5. MOV_FIS_HA.dirigir	is path to a destination
6. MOV_FIS_HA.aritmetica	as it relates to arithmetic
7. MOV_TEMP.manejar	handle or deal with something
8. MOV_FIS_LEJ.quitar	take something away from a location
9. MOV_FIS_LEJ.recibir	receive something
10. MOV_FIS_LEJ.cobrar	charge someone an amount for something
11. MOV_TEMP.requerir	require a certain amount of time/effort to do something
12. ESTAD.contener	contain something
13. ESTAD.contener.METAF	have a certain quality
14. ESTAD.estardemoda	is in style
15. MOV_TEMP.dar.producir	produce fruit
16. MOV_TEMP.mantener	(as it relates to time) maintain
17. MOV_FIS_HA.estarenproceso	is in the process of doing something
18. MOV_TEMP.pasar	have been doing something/been somewhere for a certain amount of time
19. MOV_TEMP.realizar	have completed something
20. MOV_TEMP.tenerventaja	have an advantage over someone
21. ESTAD.caerle(adv)	get along with another person

Table 7: Senses of *llevar* and an example sentence

Spanish label in dendrogram	Example sentence
1. MOV_FIS_HA.transportar	Yo le llevé un paquete a su hermano. 'I took the package to their brother.'
2. MOV_FIS_HA.transportar.METAF	Llevó la intranquilidad a aquella casa. 'S/he brought unease to that house.'
3. ESTAD.tenerpuesto.tener	Lleva el pelo largo. 'S/he wears their hair long.' El señor lleva gafas. 'The man wears glasses.'
4. MOV_FIS_HA.causar	Esto me lleva a pensar que no está descontento. 'This leads me to think that he/she is not discontent.'
5. MOV_FIS_HA.dirigir	Esta calle lleva al río. 'This street leads to the river.'
6. MOV_FIS_HA.aritmetica	Escribo cinco y llevo una. 'I write five and carry one.'
7. MOV_TEMP.manejar	Su mujer lleva muy bien el negocio. 'His wife runs the business really well.' Lleva el coche con mucha seguridad. 'S/he drives the car very safely' Ella es la única que sabe llevar al abuelo. 'She's the only one that knows how to handle grandfather.'
8. MOV_FIS_LEJ.quitar	Los ladrones se me llevaron el reloj. 'The thieves took my watch from me.'
9. MOV_FIS_LEJ.recibir	Se ha llevado el castigo que merece. 'S/he got the punishment he deserved.'
10. MOV_FIS_LEJ.cobrar	Solo me ha llevado veinte euros por arreglarme el reloj. 'S/he only charged me twenty euros to fix my watch.'
11. MOV_TEMP.requerir	Es una operación que lleva mucho tiempo. 'It's an operation that takes a lot of time.'

12. ESTAD.contener	El pastel lleva fruta. 'The cake has fruit in it.'
13. ESTAD.contener.METAF	Esa muchacha lleva mucha alegría. 'That girl has a lot of joy.'
14. ESTAD.estardemoda	Ahora no se llevan los noviazgos largos. 'Nowadays, people don't have long engagements.'
15. MOV_TEMP.dar.producir	Porque de suyo lleva fruto la tierra. 'Because from Him, the Earth bears fruit.'
16. MOV_TEMP.mantener	Los soldados llevan el paso. 'The soldiers keep the pace.'
17. MOV_FIS_HA.estarenproceso	Lleva camino de no acabar nunca. 'It's in the process of never stopping.'
18. MOV_TEMP.pasar	Llevo una semana en Madrid. 'I've been in Madrid for a week.'
19. MOV_TEMP.realizar	Llevo dicho esto mismo docenas de veces. 'I've said this same thing dozens of times.'
20. MOV_TEMP.tenerventaja	Mi hijo me lleva dos centímetros. 'My son has two centimeters on me.' Mi hermana me lleva dos años. 'My sister is two years older than me.'
21. ESTAD.caerle(adv)	Me llevo bien con ella. 'I get along well with her.'

For this thesis, the *Corpus del Proyecto para el estudio sociolingüístico del español de España y América* (henceforth, PRESEEA) was the sole corpus used for data collection. PRESEEA was collected rather recently (2014) when compared to other available oral corpora and includes transcriptions and audio recordings of interviews that were held with participants from a wide range of Spanish-speaking countries including Spain, Colombia, Argentina, Mexico, the United States, Chile, Peru, Venezuela, Ecuador, Guatemala, Paraguay, Uruguay, Cuba, Bolivia, and Puerto Rico. It also includes transcribed recordings of participants from several regions of these countries. The present study included oral data from all the countries that

PRESEEA has collected from (excluding Lima, Peru due to erroneous data input) to create a corpus of instances of *llevar* that is representative of Spanish as a whole. Initially, 5151 instances of *llevar* were collected. Following Jansegers et al. (2015), a 25% representative random sample was taken of the total instances to have a more manageable corpus for this study, which left 1287 instances. Initially, 163 instances were removed from the sample due to their being repetitions, incomplete uses, the interviewer's instead of participant's (interviewee's) use, or truncated words (i.e., the speaker left the end of the projected word unuttered). The final *llevar* sample contained 1124 instances.

3.2 Behavioral Profile Analysis

Part 1 of the analytical approach adopted in this study was designed similarly to that of Jansegers et al. (2015) by utilizing a Behavioral Profile analysis for *llevar*. After creating a base of senses to carry out the Behavioral Profile analysis, ID tags that were used in Jansegers et al. (2015) were incorporated into the present study to manually annotate or code each sense according to its various morphological, syntactic, semantic, and pragmatic properties. Additional ID tags were created to incorporate the fact that *llevar* can take an indirect object beneficiary/recipient as an argument, whereas the verb *sentir*, analyzed by Jansegers et al. (2015), cannot. Table 8 shows the ID tags and ID tag levels that were used to annotate *llevar*. There were 40 ID tags and 167 ID tag levels in total used for the manual annotations. Note that preceptor is used for agent and determinant is used for determiner.

Table 8: ID tags and their levels for *llevar*

ID Tag	ID Tag Level
tense	present vs. past vs. past perfect vs. future vs. infinitival form
mood	indicative vs subjunctive vs conditional vs. imperative vs. N/A
infinitival form	infinitive vs. gerund vs. N/A
person	1 vs 2 vs. 3 vs. N/A
number	singular vs. plural vs. N/A
voice	active vs. passive vs. impersonal vs. middle
grammatical aspect	perfective vs. imperfective
presence of causative V	yes vs. no
infinitive	<i>llevar</i> , <i>llevarse</i>
general sense	physical movement towards a place vs. physical movement away from a place
	vs. temporal movement vs. stative
specific sense	21 levels of ID tags (cf. Tables above)
ID Tag	ID Tag Level
lexical presence S	with vs. without lexical subject
form S	NP vs. proper name vs. pronoun vs. relative pronoun vs. clause vs. N/A
semantic role S	preceptor vs. experiencer vs. stimulus vs. ambiguous vs. N/A
semantic type S [nature +/- animate; +/-concrete]	animate_human vs. animate_human_collective vs. animate_animal vs. animate_collective vs. inanimate_concrete vs. inanimate abstract vs. inanimate_body part vs. clause_event vs. clause_state vs. N/A
presence DO	with vs. without DO
form DO	NP vs. pronoun vs. relative pronoun clitic vs. clause vs. gerund vs. infinitive vs. N/A
NP +/- determinant	NP with determinant vs. NP without determinant vs. N/A
referent DO	person vs. concrete entity vs. abstract entity vs. situation/event vs. ambiguous vs. N/A
type of clitic DO	clitic of the reflexive passive vs. impersonal clitic vs. reflexive clitic vs. non-reflexive clitic vs. N/A
type of non-reflexive clitic	referential clitic vs. non-referential clitic vs. N/A
presence IDO	with vs. without IDO
form IDO	NP vs. pronoun vs. N/A
NP +/- determinant	NP with determinant vs. NP without determinant vs. N/A
referent IDO	referential clitic vs. non-referential clitic vs. reflexive pronoun vs. N/A
presence predicative complement of DO	with vs. without predicative complement of DO
predicative complement of DO: form	adjective vs. adverb vs. clause introduced by como vs. NP vs. personal pronoun vs. N/A
presence predicative complement of S	with vs. without predicative complement of S
predicative complement of S: form	adjective vs. adverb vs. clause introduced by como vs. NP vs. person pronoun vs. clause with gerund vs. clause with infinitive vs. prepositional NP vs. N/A
presence AC	with vs. without adverbial complement
type of AC: form	adverb vs. clause vs. PP vs. NP vs. N/A
semantic role AC	space vs. goal vs. action vs. place vs. cause time vs. manner vs. quality vs. agent vs. person vs. N/A
presence (PO)	with vs. without PO
referent (PO)	person vs. action vs. concrete place vs. abstract place vs. time vs. abstract vs. concrete vs. N/A
ID Tag	ID Tag Level
presence of adverbial adjunct	with vs. without adverbial adjunct
type of adverbial adjunct: form	adverb vs. PP vs. NP vs. N/A
semantic role adverbial adjunct	space vs. goal vs. action vs. cause time vs. manner vs. quantity vs. agent vs. person vs. N/A
predicational autonomy	yes vs. no
presence adversative/negative conjunction	yes vs. no
presence vocative	yes vs. no

To manually annotate each instance of *llevar*, I utilized the ID tag levels from Table 8, which enabled me to organize the data based on the variables in order to yield a statistical analysis that demonstrated the similarities and differences between the 21 identified senses of *llevar*. For example, in the utterance *Mi papá siempre nos llevó a los desfiles* ‘My dad always took us to the parades’, the verb *llevó* was coded as past, indicative, third person singular, active voice, and perfective. The lexical subject, *Mi papá* (‘My dad’), was coded as a noun phrase (NP) with the semantic role of preceptor (agent), defined as a person who does an action, and the semantic type *animate_human*. The direct object, *nos* (‘us’), was coded as a referential clitic that is used for people. The prepositional object in the phrase *a los desfiles* (‘to the parades’) was coded semantically as a concrete place and the adverbial adjunct, *siempre* (‘always’) was coded semantically to represent the quantity of time or frequency at which the action was done. The utterance was coded as sense 1 (MOV_FIS_HA.transportar) ‘to transport something or someone’ because *llevar* is used to indicate that the dad had ‘us’ within his dominion, then transported ‘us’ to the parades. After that, the data were converted to a cooccurrence table (Table 9) with respect to each ID tag level by using the BehavioralProfiles1.01 software in RStudio. This table compares the distribution of ID tag levels within each ID tag for each sense.

Table 9: Examples of cooccurrence vectors of ID tags for senses of *llevar*

IDTAG	IDTAG-LEVEL	ESTAD.caerleadv	ESTAD.contener
tense	fut	0	0
tense	inf	0.041666667	0.090909091
tense	pas	0.21875	0.318181818
tense	pas perf	0	0
tense	pres	0.739583333	0.590909091
mood	cond	0	0
mood	imp	0	0
mood	ind	0.9375	0.909090909
mood	sub	0.020833333	0
mood	NA	0.041666667	0.090909091
infinitival.form	ger	0.020833333	0
infinitival.form	inf	0.020833333	0.090909091
infinitival.form	par	0	0
infinitival.form	NA	0.958333333	0.909090909
person	1	0.729166667	0.045454545
person	2	0.052083333	0
person	3	0.177083333	0.863636364
person	NA	0.041666667	0.090909091
number	plur	0.510416667	0.5

If we look at the cooccurrence data in Table 9, for instances coded as the sense ESTAD.caerleadv ‘get along with another person’ and the ID tag level ‘person’, we see that .729 of the instances are in first person, .052 are in second person, .177 are in third person, and .041 are N/A. Although morphosyntactic variables such as ‘tense’ and ‘person’ might intuitively seem to be less significant in distinguishing the senses of *llevar* from one another than a variable like ‘presence of adverbial complement’, they were included in the Behavioral Profile analysis to keep their use consistent with the study from Jansegers et al. (2015).

Finally, a hierarchical cluster analysis (HCA) was performed on the Behavioral Profile cooccurrence vector data of *llevar*, which creates a dendrogram of the various senses to visualize the data. Like the Jansegers et al. (2015) analysis, the relative frequencies from the cooccurrence table were converted into distances using the Euclidean distance metric. The distances between those values for each sense were compared and clustered by similarity and dissimilarity. The HCA for *llevar* is presented in Figure 10. As in Jansegers et al. (2015), an HCA was the method of statistical analysis chosen for this study because it can cluster data together based on similarities and dissimilarities in formal linguistic patterns. In this study, the formal patterns were the ID tags and ID tags levels in Table 8. The analysis and discussion of the HCA dendrogram for *llevar* are presented in Chapter 4. In Figure 10, the senses of *llevar* are presented according to the Behavioral Profile analysis. The boxes in the figure indicate where the HCA clustered senses together based on their similarities.

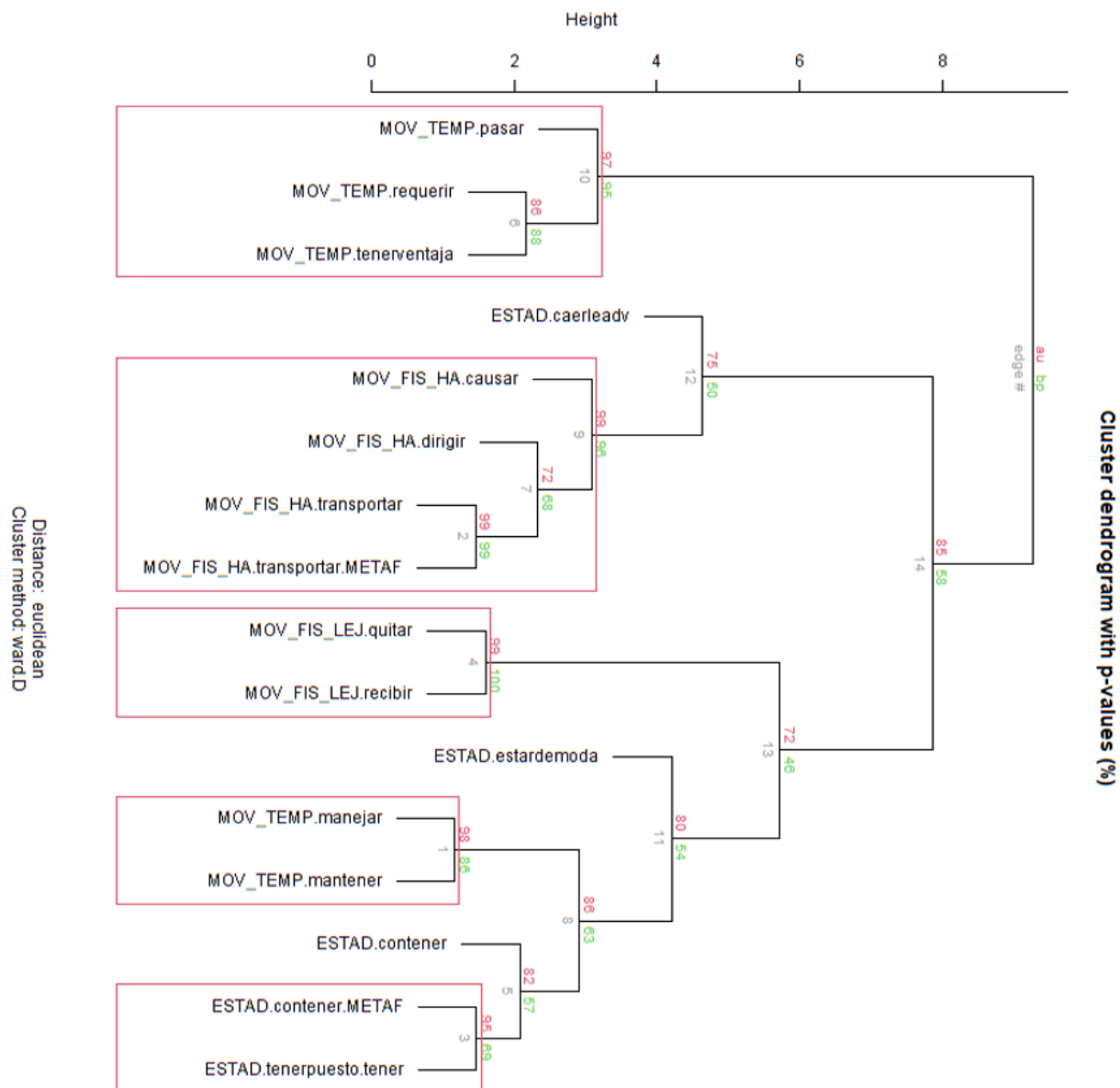


Figure 10: HCA dendrogram for the senses of *llevar*

Senses that did not cluster due to dissimilarity were left out of the boxes. Distinguishing the five clusters seen in Figure 10 is supported by the very high Approximately Unbiased (AU) values (in red) in the dendrogram for these clusters (97%, 100%, 100%, 98% and 95%,

respectfully). These are p-values between 0 and 1, calculated through 1,000 multiscale bootstrap resamplings with the R package *pv-clust* (also implemented in Jansegers et al. 2015). The R package drew boxes around the groups of senses that resulted in a p-value of 95% or above. In other words, the five clusters visualized in the dendrogram are confirmed to be statistically significant. Senses within these clusters that had statistically significant p-values between them were not further clustered by the R software.

Another statistical component of the quantitative analysis, which was calculated separately from the Behavioral Profile analysis, was the examination of the pairwise correlations between senses to further measure sense similarity and dissimilarity, following Jansegers et al. (2015). For this thesis, 326 pairwise correlations were calculated between each sense, which yielded correlation coefficients between .42 and .96. The highest values indicate which senses are the most similar, and the lowest values indicate which senses are the least similar. These results from the Behavioral Profile analysis and the pairwise correlations were used as a starting point to then inspect each sense according to the criteria outlined in the Economic Principled Polysemy Model.

The Behavioral Profile analysis was also used to identify a preliminary prototype of *llevar* via basic statistical procedures like frequency and variance of the senses in the data. As mentioned in Chapter 2, Gilquin (2008) points out that frequency is not the only factor that determines a prototypical sense, and that low syntactic restriction is another important one. By analyzing both frequency and variance, a statistically significant and syntactically unrestricted prototype for *llevar* was identified, which is elaborated on in Chapter 4. The prototype results were also used to inform Part 2 of this study to give it a statistical backing.

3.3 Economic Principled Polysemy Model

Part 2 of this study implemented the Economic Principled Polysemy Model for *llevar* using the collected corpus data comprised of the 1124 instances of *llevar* extracted from PRESEEA and the already identified senses of the verb from the Behavioral Profile analysis. The Economic Principled Polysemy Model criteria (discussed in Chapter 2) were employed to identify the central senses, including both the Surface Central Sense (SCS) and the Deep Central Sense (DCS), as well as the peripheral senses of *llevar*.

To determine the DCS of *llevar*, each sense from the Behavioral Profile analysis was examined to identify all potential features associated with the verb. It was concluded that the feature that exists within all the senses is the ‘X is within the dominion of the TR’. The dominion of the subject is defined as an area where the subject can exert control or power over other entities (X), which can manifest as changing their location or being responsible for them, for example. This feature overlaps with another Spanish verb, *tener* ‘to have’, which allows the DCS to serve its purpose of identifying a feature that the verb *llevar* shares with similar verbs while also distinguishing hypernymy from polysemy. Examples of uses of *llevar* from the data analyzed that lend support to the creation of the DCS are presented in Chapter 4. As mentioned in Section 3.2, the general senses of *llevar* include a variety of directionalities and types of movement which are not consistent across all senses of *llevar*.

In determining the SCS of *llevar*, the most prominent spatial configuration across the senses was identified to be a *trajector* (TR) that has an entity X within its dominion moving with forward directionality toward a *landmark* (LM). As mentioned with the DCS, the dominion is a zone of control that allows the TR to act on X. A visualization of this configuration is offered in Chapter 4. The analysis revealed that 18 of the 21 senses seem to incorporate this configuration.

It is associated with the prototypical sense identified in the Behavioral Profile analysis, MOV_FIS_HA.transportar ‘to transport something or someone’, which is a concrete sense that is related to the physical environment. Because it is concrete, this is the sense that, following Harbi and Abdulkareem (2023), would motivate the metaphorical senses. It also encodes a contrastive relationship with other related verbs such as *tener* ‘to have’, *traer* ‘to bring’, and *ir* ‘to go’. *Tener* does not include a feature of movement, whereas *llevar* does. *Traer* involves the movement of the listener toward the speaker contrasting with *llevar*, which involves movement of the speaker toward the listener. Finally, *ir* does not include an entity (X) that is within the dominion of the TR, whereas *llevar* does. Since this sense has the most prominent configuration among the senses of *llevar*, it is also considered to be the sense that is most common in our sensory and perceptual experience with relation to the verb.

The process of identifying the distinct senses of *llevar* involved determining each sense’s spatial configuration and singling out instances from the corpus sample where the sense cannot be inferred from the prototypical sense, or from any identified peripheral senses. Furthermore, the sentential context (i.e., neighboring words) cannot coerce the sense into existence, for the sense must be associated with the verb regardless of the effect of other words in the sentence. This is Harbi and Abdulkareem’s (2023) criteria for a sense to be considered ‘context-independent’. For example, sense 12, ESTAD.contener ‘contain something’ satisfied the criteria for being a distinct sense. It includes a metaphorical use of the spatial configuration identified for the SCS described in the previous paragraph. This use is one of stativeness, in which a subject has something within it, which is specified by the direct object. There is a clear connection between this sense and the one that is conventionally associated with *llevar*, that of transporting things. Because *llevar* entails that the subject has the direct object in its dominion, a notion of

that same entity being inside the subject emerges as well. Finally, there are instances to demonstrate that the *contener* sense exists independent of context. For example, the utterance *Después me dice, “Ay, ya no me acuerdo qué lleva”* ‘After s/he tells me, “Aw, now I don’t remember what it contains”’, is preceded by a clause that refers to *una receta*, (‘a recipe’), which implies that the present utterance is talking about a particular dish of food. The direct object, *qué* (‘what’), functions as a placeholder for the items that are contained within this food dish, which is conjugated as the third-person singular *lleva* (‘it carries/contains’). Because the sense of containment that *llevar* displays in this example from the data cannot be inferred from the prototypical sense of transporting something, nor the sentential context of the example utterance, I argue that the *contener* sense of *llevar* is a distinct sense from the prototype and exists as a separate node in the semantic network of *llevar*.

Afterward, visual representations of the proto-scene for the SCS and semantic network for *llevar* were designed, which were modeled similarly to those presented in Evans and Green (2006) and adapted from the Principled Polysemy Approach (Tyler & Evans 2003). The prototype sense is represented as a large dot in the center of the network. Senses that were recognized as distinct senses were represented as smaller nodes that are connected to the prototype. Senses that were did not emerge as distinct senses were clustered with other nodes. Furthermore, aside from the isolated nodes, several nodes are presented in a group to acknowledge their underlying shared features: the temporal movement (duration) cluster (MOV_TEMP) and the stative cluster (ESTAD), which are represented with empty circles. These two groups are rooted in the general sense groups that were made during the sense identification section.

Using both the Behavioral Profile analysis and the Economic Principled Polysemy Model to analyze *llevar* is beneficial as this allows for the comparison of the two approaches and demonstrates a more objective and thorough analysis of the verb. In Chapter 4, the statistical analysis from the Behavioral Profile analysis and the results of the Economic Principled Polysemy Model analysis are described and explained. Central senses and various peripheral senses are identified for *llevar*. The proto-scene for the central sense (SCS) of *llevar* and a visual representation of the semantic network of *llevar* are rendered and further analyzed in relation to previous research on *llevar* and polysemy in general. Then, the results from the two analyses were used to develop preliminary pedagogical ideas and materials with the goal of teaching *llevar* in more efficient fashion.

CHAPTER 4

ANALYSIS OF *LLEVAR*: RESULTS AND DISCUSSION

In this chapter, the results from both the Behavioral Profile analysis and the Economic Principled Polysemy Model for *llevar* are examined and its polysemy is discussed. In Section 4.1, the Behavioral Profile analysis results are broken down into general observations, prototype identification, and sense distinction. In Section 4.2, the senses extracted from the Behavioral Profile analysis are reanalyzed using the Economic Principled Polysemy Model to create a prototype for the Surface Central Sense (SCS), as well as a semantic network that includes all the senses using a radiating lattice diagram. In Section 4.3, possible ways to incorporate the results of the polysemous verb *llevar* into pedagogical resources are discussed in relation to cognitive linguistic-inspired instruction.

4.1 The Behavioral Profile analysis results

4.1.1 General observations

Figure 10 in Chapter 3 presented the different clusters of senses of *llevar* according to the Behavioral Profile analysis using the hierarchical agglomerative cluster analysis (HCA) statistical method that compared the senses' similarities and dissimilarities across a range of morphosyntactic, semantic, and pragmatic ID tags or variables. Figure 10 is repeated here for reference. The dendrogram is not meant to propose the mental conceptualization of these clusters, but instead to visualize the results from the HCA. Senses that demonstrated high similarities across the variables were clustered together in boxes, and those that demonstrated low similarities were excluded from the clusters.

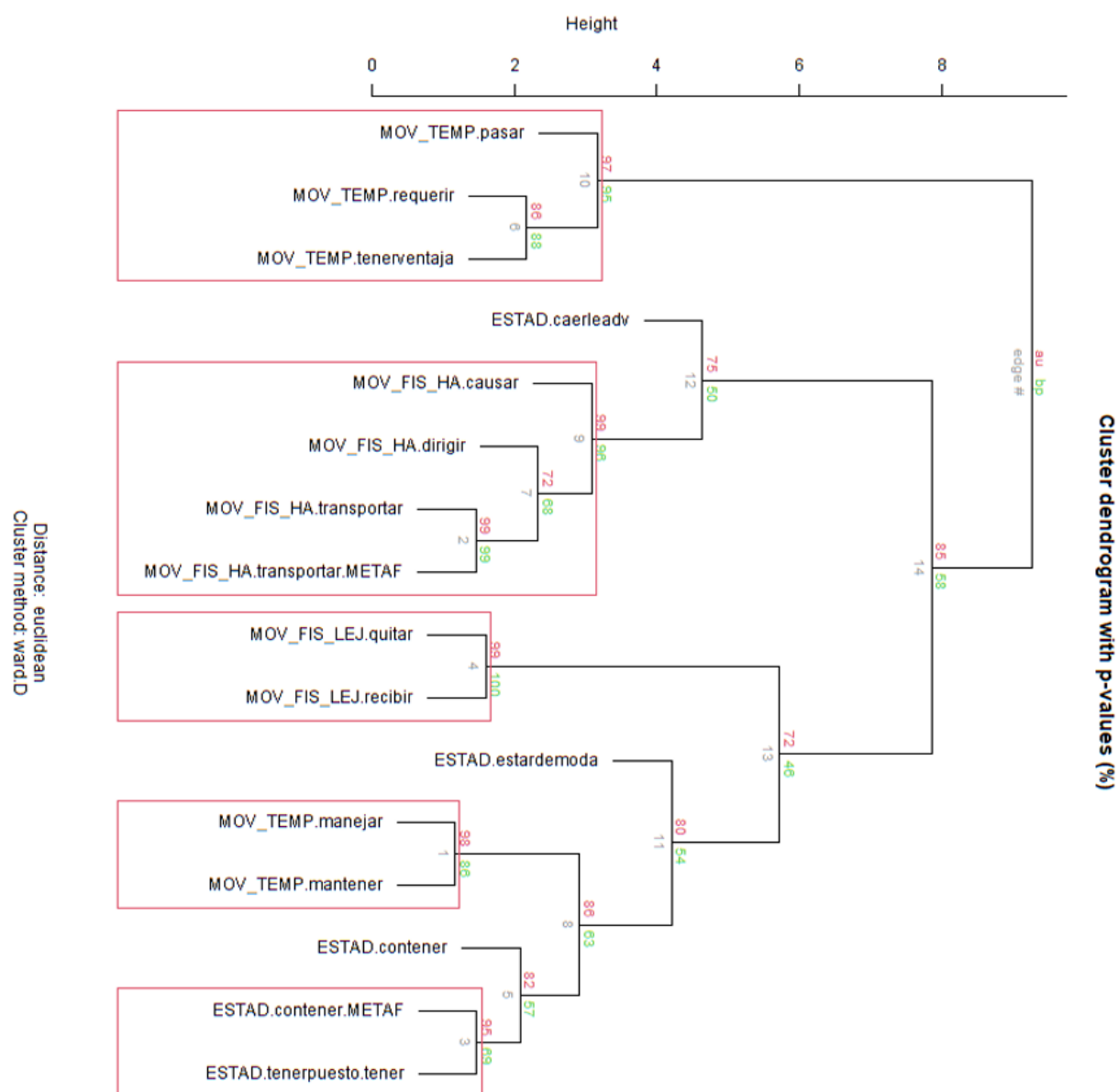


Figure 10: HCA dendrogram for the senses of *llevar*

As indicated by the boxes, five significant meaning clusters emerge from the HCA. The clusters were assigned by the R software for grouping of senses that had p-values of 95% or

higher, as mentioned in Chapter 3. These values were determined from the relative frequencies between the ID tag levels of each senses and were clustered based on patterns of similarity and dissimilarity. In an HCA dendrogram, senses that cluster together are considered semantically similar whereas clusters that group separately are considered to be distinct semantically as well. In contrast to the Jansegers et al. (2015) Behavioral Profile analysis of *sentir* ‘to feel’, the clusters that emerge from the analysis of *llevar* are not divided based on a single morphosyntactic feature (e.g., *sentir* vs. *sentirse*), but instead are related on a more fine-grained level. However, it is worth noting that while four of the clusters are non-*se*-marked forms of *llevar*, one of them involves a *se*-marked form, *llevarse*, to indicate movement away from the place corresponding to the deictic center, which is the position of the speaker, like in the example *Los ladrones se me llevaron el reloj* (‘The thieves took my watch from me’). This directionality of movement contrasts with that of the non-*se*-marked use, like in *Directamente me llevaron a San Pedro* (‘They took me directly to San Pedro’) where the movement is towards a place corresponding to the deictic center, which is the future position of the speaker.

Several senses of *llevar* that had been originally identified were not found within the corpus. These are assumed to be infrequently occurring senses of *llevar* that can be inferred from another sense. These include sense 6 (MOV_TEMP.aritmetica) ‘as it relates to arithmetic’ like in *Escribo cinco y llevo uno* (‘I write five and carry (the) one’), sense 10 (MOV_FIS_LEJ.cobrar) ‘charge someone an amount for something’ as in *Solo me ha llevado veinte euros por arreglarme el reloj* (‘He only has charged me 20 euros for fixing my watch’), sense 15 (MOV_TEMP.dar.producir) ‘produce fruit’ as in *Porque de suyo lleva fruto la tierra* (‘Because from Him, the Earth bears fruit’), sense 17 (MOV_TEMP.estarenproceso) ‘is in the process of doing something’ like in *Lleva camino de no acabar nunca* (‘It’s in the process of never

stopping’), and sense 19 (MOV_TEMP.realizar) ‘have completed something’ like in *Llevo dicho esto mismo docenas de veces* ‘I have said this same thing dozens of times’.

The first cluster rendered by the HCA is comprised of cases of sense 11 (MOV_TEMP.requerir) ‘require a certain amount of time/effort to do something’, as in (12a), sense 18 (MOV_TEMP.pasar) ‘have been doing something/been somewhere for a certain amount of time’, as in (12b) and (12c), and sense 20 (MOV_TEMP.tenerventaja) ‘have an advantage over someone’, as in (12d). All three of these senses in this cluster fall under the general sense label of temporal movement, meaning they involve a feature of duration.

- (12) a. Y luego, moverlo, moverlo, moverlo. Eso te puede **llevar** como una horita.
 ‘And later, to move it, to move it, to move it. That (moving it) can take you, like, an hour.’
- b. **Llevo** cuatro años viviendo aquí.
 ‘I’ve been living here for four years.’
- c. Ya quedé en ese trabajo. Y es el trabajo que tengo hasta ahora. **Llevo** cuatro años.
 ‘I stayed in that job. And it’s the job that I have still. I’ve been (there) four years.’
- d. En el mismo colegio estábamos los dos. **Me lleva** cuatro años y siempre he estado muy unido a ella.
 ‘The two of us were in the same school. She is four years older than me and I have always been very close to her.’

Cases like (12a) syntactically require an adverbial expression typically with a quantifier, *una horita* (‘an hour’), to indicate how long the task will take. However, the indirect object, *te* (‘you’) functions as a personal dative clitic of interest for this sense which is used to indicate whose time or effort is being taken. In (12b) *llevar* serves as an auxiliary or linking verb for the gerund,

viviendo ('living'), to connect it with the adverbial expression of time with a quantifier, *cuatro años* ('four years'), which is used to indicate the amount of time spent doing the activity specified by the gerund. However, like in (12c), context can allow certain utterances or constructions to omit the activity if it has been already stated or is implied. In this example, it is understood that the individual has spent four years working at the job that was mentioned or evoked in the preceding discourse.

Similar to (12a), cases like (12d) are seen with both an adverbial expression comprised of a quantifier, *cuatro años* ('four years'), and an indirect object, *me* ('me'), that refers to the other individual of comparison. This can also be a reciprocal pronoun that includes two or more individuals referred to, for instance, *nos*, as in *Nos llevamos cuatro años* ('We are four years apart'). Despite semantic differences between these two senses, the clustering appears to be related to argument structure because of the similarities in the presence of an adverbial complement with a quantifier as well as the presence of an indirect object.

The second cluster is related to cases of 'general physical movement towards a location with another entity within the sentence subject's dominion' or control, exemplified in (13). This sense of *llevar* combines four of the previously identified senses: sense 1 (MOV_FIS_HA.transportar) 'transport something or someone' as illustrated in (13a), sense 2 (MOV_FIS_HA.transportar.METAF) 'bring to a psychological state' as in (13b), sense 4 (MOV_FIS_HA.causar) 'cause someone or something to do something' as in (13c), and sense 5 (MOV_FIS_HA.dirigir) 'is path to a destination' as in (13d).

(13) a. Cuando la niña era pequeña, la tenía que **llevar** a la guardería y no dormía.

'When the girl was young, I had to take her to nursery school, and she wouldn't sleep.'

b. Todos los problemas que tenía, o sea, inconscientemente los **llevaba** al tema de la comida.

‘All the problems that s/he had, like, unconsciously led him/her to the issue of food.’

c. Es algo que me **llevó** a mí a pensar de que el estudio en ese momento era demasiado pésimo.

‘It’s something that led me to think that the study (of something) at the time was awful.’

d. Hay caminos que te **llevan** recto y hay caminos que te **llevan** también a direcciones de esa forma.

‘There are paths that take you straight and there are paths that also take you in directions like that.’

As shown by (13a), the typical syntactic structure for this cluster is a direct object, *la* (‘her’), and a prepositional object, *a la guardería* (‘to nursery school’). The direct object semantically represents the entity that moves with the subject and the prepositional object represents the destination toward which they move. We find the same argument structure for *llevar* in (13b), with a direct object, *los* (‘them’) referring to *los problemas* (‘the problems’), and a prepositional object, *al tema de la comida* (‘to the issue of food’). This makes sense because the coding of this metaphorical sense revolved around the referent location of the prepositional object being an abstract place (i.e., a problematic subject or area) instead of a concrete place. In (13c), *llevar* has the same argument structure as (13a) and (13b) with a direct object, *me* (‘me’), and a prepositional object, *a pensar* (‘to think’), but has an inanimate subject, *algo* (‘something’), instead of an animate one like the first two examples do. In (13d), the second use of *llevar* follows an argument structure that is almost equivalent to the first three examples, with a direct object, *te* (‘you’), and a prepositional phrase with an infinitival circumstantial complement, *a*

direcciones de esa forma ('in directions like that), while the second use pairs *llevar* with an adverbial complement, *recto* ('straight'), instead. The main feature that divides these senses is that (13c) and (13d) have non-animate subjects, *algo* ('something') and *caminos* ('paths'), while both (13a) and (13b) have animate ones in the sentential context.

The third cluster is related to cases of 'general physical movement away from a location with another entity within one's dominion' as seen in (14). This cluster combines two senses: sense 8 (MOV_FIS_LEJ.quitar) 'take something away from a location' like in (14a), and sense 9 (MOV_FIS_LEJ.recibir) 'receive something' as in (14b).

(14) a. Usted tiene que estar toda su vida ahí porque el dinero que usted **se llevó** es mío también.

'You have to be there your whole life because the money that you took is mine too.'

b. Como toda deportista siempre **me llevaba** mis golpecitos.

'Like any athlete I would always take my little hits.'

The senses found in this cluster are *se*-marked. The pronoun *se* serves to indicate the opposite direction of movement for this sense of *llevar*. Instead of moving an entity towards a location (forward movement), the subject moves the entity away from a location. *Ir* 'to go' and *irse* 'to leave' have a similar relationship when the *se* marker is added, which Whitley (2002: 176) calls "the meaning-changing *se*". In (14a), the direct object, *el dinero* ('the money'), is what the subject, *usted* ('you, formal'), took away from the speaker. Similarly, in (14b), the plural direct object, *mis golpecitos* ('my little hits'), are what the subject received. The subject in (14a) takes away something that was within the dominion of someone else, whereas in (14b), the subject receives something into their dominion from someone else.

The fourth cluster groups two other senses that were found to share the general sense of temporal movement or duration. It represents cases of sense 7 (MOV_TEMP.manejar) ‘handle or deal with something’ like in (15a), or sense 16 (MOV_TEMP.mantener) ‘(as it relates to time) maintain’ as in (15b).

(15) a. La persona que **llevaba** el noticiario es Fernando Alberto Crisanto.

‘The person who ran the news broadcast is Fernando Alberto Crisanto.’

b. **Llevan** otro ritmo en Madrid. Andan más acelerados, ¿no?

‘They go at a different pace in Madrid. They rush around more, don’t they?’

Both senses in this cluster only require a direct object. In (15a), the direct object, *el noticiario* (‘the news broadcast’), refers to the responsibility/task being handled by the subject, *Fernando Alberto Crisanto*. However, in (15b), the direct object, *otro ritmo* (‘a different pace’), refers to the speed in which a certain group of people (in this case, people in Madrid) move around. Even though the previous cluster was also made up of senses that fell within the broader sense of temporal movement, these four senses likely clustered separately based on syntactic differences. This is because, in terms of argument structure, the two senses in this cluster only require a subject and a direct object, whereas the other two typically included an indirect object.

The fifth cluster identified by the Behavioral Profile analysis was comprised of cases of sense 3 (ESTAD.tenerpuesto.tener) ‘animate subject has a certain feature or item (of clothing) on themselves’ as in (16a) and sense 13 (ESTAD.contener.METAF) ‘have a certain quality’ as in (16b). Both of these senses fall within the stative general sense meaning that they are used to describe the state of something instead of an action.

(16) a. En otros sitios que tienes que ir, no puedes **llevar** el pelo corto.

‘In other places that you have to go, you can’t wear your hair short.’

b. Él era el que **llevaba** la voz cantante.

‘He was the one that had the singing voice.’

The main syntactic similarity between these two senses is the requirement of a direct object. For (16a) this is *el pelo corto* (‘short hair’) and for (16b) this is *la voz cantante* (‘the singing voice’). Surprisingly, sense 12 (ESTAD.contener) ‘contain something’, as in the example *El pastel lleva fruta* (‘The cake has fruit in it’), is not included in this cluster. Both senses in the fifth cluster, sense 13 and sense 3, tend to have human subjects. This is the case in (16a) and (16b), *él* (‘he’), whereas sense 12 is more likely to have an inanimate subject like *el pastel* (‘the cake’).

Furthermore, because the subject of sense 12 ‘contain something’ (e.g., *el pastel*) is inanimate, it is not associated with any movement. This is distinct from senses 3 and 13, which are not strictly stative despite being part of the stative group because they are capable of movement on account of their animate subject, making them semistative cases. It is possible that because of this difference between animate and inanimate subjects, sense 12, the literal ‘contain’ sense of *llevar*, is not included in this cluster.

Various other senses were not clustered alongside others, including the cases of sense 21 (ESTAD.caerleadv) ‘get along with another person’ as in (17).

(17) En esto, nos entendíamos. Fue un gran amigo. **Nos llevamos** bien en nuestras relaciones.

‘In that, we understood each other. He was a great friend. We got along well in our relationships.’

The sense demonstrated in (17) was predictably distinct from the rest of the senses considering that it has a well-known syntactic structure that is *se*-marked, namely *llevarse bien (con alguien)* ‘to get along well (with someone)’ and almost always includes a manner-related adverb (*bien* (‘well’, *mal* ‘badly’, *mejor* ‘better’, etc.)). An example of this structure without an adverb from

the corpus analyzed is *Me tuve que aprender a llevar con ellos* ('I had to learn to get along with them'). Although Jansegers et al. (2015) had a strong argument for thinking that the middle voice (*sentirse* 'to feel') was connected to *sentir* ('to feel') through homonymy instead of polysemy, sense 21 is clearly related to the other active *llevar* senses and should be considered part of *llevar*'s polysemous semantic network. This is because the notion of getting along with someone inherently includes the movement element that is associated with most *llevar* senses as well as a state-like element in that it describes the state of the relationship between two individuals.

As mentioned previously, sense 12 (MOV_TEMP.contener) 'contain something' as in (18), was surprisingly not clustered alongside sense 13 (ESTAD.contener.METAF) 'have a certain quality', which is considered its metaphorical counterpart. We would expect these two senses to cluster like sense 1 (MOV_FIS_HA.transportar) and its metaphorical counterpart, sense 2 (MOV_FIS_HA.transportar), did since, hypothetically, the only distinction is the inclusion of an abstract element for the metaphorical sense as opposed to a concrete element for the literal sense.

(18) Le pongo las garbanzas y los que **lleva** el caldo.

'I put beans in it and the ones that the soup contains.'

In example (18), the subject, *el caldo* ('the soup'), is what contains the direct object, *los (que)* ('the ones (that)'), which refers to the ingredients that the soup contains. This sense is syntactically very similar to the senses in the fourth cluster, which encompasses features on or within something, except it does not group with them because it generally has an inanimate subject, here, *el caldo*, while sense 3 and 13 typically have animate subjects. Most examples for this sense involved food, but there were also examples referring to the contents of a house or a certain room.

The last ungrouped sense was sense 14 ESTAD.estardemoda ‘is in style’, which is shown in (19).

(19) A mí me encantan esos suelos y además ahora se **llevan** un montón.

‘I love those floors and also they’re very in style right now.’

In (19), the thing that is in style (or ‘is currently often used in home décor’), *esos suelos* (‘those floors’), is in the previous clause and *llevar* is constructed using what is traditionally known as the passive *se* (‘se pasivo’ or ‘pasiva refleja’), *se llevan*. In such cases, *se*-marking converts the object of transitive verbs (here, *llevar*) to the subject (*esos suelos*) and the verb agrees in number with it. This use of *se* intransitivizes the verb while deemphasizing the role of the subject or agent of the transitive verb (Whitley 2002: Whitley & González 2007: 306), possibly indicating that the subjects of the otherwise transitive verb (e.g., apartments, houses, etc.) are ambiguous or understood as ‘whoever/whatever uses/has those floors’. Though these three senses did not cluster together with other senses in the current Behavioral Profile analysis, a larger data set or another corpus may result in different clusters. The three non-clustered senses are revisited in the second part of the analysis taking into consideration the central senses and the contexts in which they occur as well as the peripheral senses and whether or not their meanings can be inferred from the central prototypical sense.

In summary, the cluster analysis represented through the dendrogram in Figure 10 presented five statistically significant clusters of senses of *llevar*. Cluster 1 was comprised of three senses within the ‘temporal movement’ general sense: sense 11 (MOV_TEMP.requerir), sense 19 (MOV_TEMP.pasar), and sense 20 (MOV_TEMP.tenerventaja). Cluster 2 grouped senses of ‘general physical movement towards a location with another entity within the sentence subject’s dominion’. Cluster 3 combined senses of ‘general physical movement away from a

location with another entity within one's dominion'. Cluster 4 was made up of two other senses that were a part of the 'temporal movement' general sense: sense 7 (MOV_TEMP.manejar) and sense 16 (MOV_TEMP.mantener). The last identified cluster, cluster 5, combined two senses that were within the 'stative' general sense: sense 3 (ESTAD.tenerpuesto.tener) and sense 13 (ESTAD.contener.METAF). In the sections that follow, the Behavioral Profile output is used to identify a prototype sense using statistical analysis as well as to further distinguish the senses by analyzing their pairwise correlations. Due to time constraints, morphosyntactic correlates that are described in Jansegers et al. (2015) are not further explored within the contents of this thesis. I leave this for future research. The structure of the semantic network of *llevar* involving the senses extracted from the Behavioral Profile analysis is demonstrated in Section 4.2.2.

4.1.2 Prototype identification

As discussed in Chapter 2, the idea of defining a prototype for a word with a Behavioral Profile Analysis incorporates multiple statistical components. Firstly, the most intuitive approach to prototypicality is through frequency in that the most frequent sense in the corpora should be considered the prototypical sense (Schmid 2000). Table 10 shows the five most frequent senses for *llevar*. The most frequent sense found in the data, MOV_FIS_HA.transportar 'to transport something or someone', is unsurprising because it is the one that is conventionally associated with the verb *llevar* (Zyzik & Marqués-Pascual 2023). However, the other four most frequently occurring senses were somewhat surprising findings. For instance, the second most frequent sense in this data set, MOV_TEMP.pasar 'have been doing something/been somewhere for a certain amount of time', is not mentioned to students in textbooks, according to the study by Zyzik and Marqués-Pascual (2023), whereas they found that *llevarse bien/mal con* (tagged in the

study as ESTAD.caerleadv ‘get along with another person’) is mentioned in textbooks, but is not found to be as frequent in the corpus data.

Table 10: Prototypes of *llevar* by frequency, percentage, and variance

Prototype Identification from Behavioral Profile analysis			
Prototypes	Frequency	Percentage	Variance
MOV_FIS_HA.transportar	400	36.00%	0.096
MOV_TEMP.pasar	150	13.50%	0.114
ESTAD.caerleadv	96	8.64%	0.126
MOV_TEMP.manejar	96	8.64%	0.098
MOV_FIS_LEJ.quitar	95	8.55%	0.112

The most frequent sense for *llevar* is sense 1 (MOV_FIS_HA.transportar) ‘transport something or someone’ as in (20). There were 400 instances of this sense, comprising 36% of the data.

(20) Ellos se dedican a la cárcel. Los sábados **llevan** comida a la cárcel también.

‘They are involved with the prison. On Saturdays, they bring food to the prison also.’

In (20) (and as also shown with example 13 in the previous section), this sense’s argument structure contains a direct object, *comida* (‘food’), which indicates the item being transported, and a prepositional object, *a la cárcel* (‘to the prison’), to indicate where the subject and the transported item are headed.

The second most frequent sense is sense 18 (MOV_TEMP.pasar) ‘have been doing something/been somewhere for a certain amount of time’ as shown in (21). This sense had 150 instances in the data sample, comprising 13.5% of the total instances.

(21) Para eso tienes que tener espíritu porque yo **llevo** yendo a Atapuerca cinco años.

‘For that you have to have spirit because I’ve been going to Atapuerca for five years.’

The utterance in (21) uses *llevar* as an auxiliary verb, similar to *estar* ‘to be’, to link the gerund, *yendo* (‘going’), with a temporal adverbial expression with a quantifier, *cinco años* (‘five years’) to express how much time the subject has spent repeating the action or activity of ‘going to Atapuerca’. This is one of the temporal constructions that had been previously identified for *llevar* by Whitley and González (2007) and Fernandez-Soriano and Rigau (2009). Another way to word this same utterance using the *hace...que* construction would be *Hace cinco años que voy a Atapuerca* (‘I’ve been going to Atapuerca for five years’).

In third place comes the *se*-marked state sense form *llevarse*, sense 21 (ESTAD.caerleadv) ‘get along with another person’, with 96 instances making up 8.64% of the data. The utterance in (22) from the corpus data illustrates this sense.

(22) Con las demás, **me llevo** bien.

‘With the others, I get along well.’

The example in (22) has *llevar* paired with a *se*-marking, *me* (‘me’), an adverbial complement, *bien* (‘well’), to indicate the way the individual feels about the other people and a prepositional object, *con los demás* (‘with the others’), to refer to the group of people that the subject gets along with. This seems to be an example of what Whitley (2002: 176) refers to as the “meaning-change *se*” in that it is not a true reflexive (i.e., *el sujeto no se lleva a sí mismo*) but instead

creates a special shift in meaning, and it creates a minimal pair with nonreflexive versions of *llevar* (i.e., the presence of *se* creates a separate meaning from that version without *se*).

In fourth place is sense 7 (MOV_TEMP.manejar) ‘handle or deal with something’ which also had 96 instances or 8.64% of the data. This is exemplified in (23).

(23) Hay un político equis en la alcaldía que **llevó** un proyecto equis.

‘There’s a politician X in the mayor’s office that managed a project X.’

The example in (23) uses *llevar* in a way that indicates that the subject, *un político equis en la alcaldía* (‘a politician X in the mayor’s office’), was responsible for the direct object, *un proyecto equis* (‘a project X’).

Finally, the fifth most frequent is the other *se*-marked form *llevarse*, sense 8 (MOV_FIS_LEJ.quitar) ‘take something away from a location’ seen in (24), which comprised 95 instances or 8.55% of the data.

(24) Prácticamente nos han vaciado la casa. **Se han llevado** radios, garrafas, planchas, camas.

‘They practically emptied the house. They took radios, bottles, pans, beds.’

In (24), *llevarse* is being used to refer to the taking of the direct object, here, *radios* (‘radios’), *garrafas* (‘bottles’ or ‘jugs’) etc. out of the dominion of the speaker. This *se*-marked form also falls within the category of meaning-change *se* because it is not a true reflexive, it contrasts with the nonreflexive versions of *llevar*, and it creates a unique meaning for *llevar*, in this case, ‘stole’ or ‘took away’.

In sum, in looking solely at frequency, it appears that the MOV_TEMP.transportar sense of the verb is the most frequent one and can be considered the prototype. Despite frequency being a strong mark of prototypicality, it is not the only factor that should be considered in identifying a prototype (Gilquin 2008). Family resemblance of the prototype due to features

shared with other senses (i.e., the notion of a group having multiple similar traits, but not a single underlying one) should also be analyzed. In other words, we want to determine whether or not the linguistic contexts that we find our prototype in overlap significantly with the other senses of *llevar*. To that end, we want to avoid picking a prototype that is highly syntactically restricted because, in that case, it would not have much similarity with the other senses. In order to take this factor into account, the variance of each of the most frequent senses was calculated on the basis of the Behavioral Profile vectors. In this case, a large variance value for a sense demonstrates lower variability of contexts or high syntactic restriction, and a small variance value demonstrates high variability, which in turn indicates low syntactic restriction. The sense with the smallest variance value demonstrates prototypicality because it can be found in a wide range of contexts, which also indicates family resemblance to the other senses.

In looking at variance, the MOV_FIS_HA.transportar sense is still the least formally constrained (var = .096) making it the prototypical sense both in frequency and grammatical variability. This result contrasts with results for the MOV_TEMP.pasar sense (var = .114), the ESTAD.caerleadv sense (var = .126), and the MOV_FIS_LEJ.quitar sense (var = .112), all of which have significantly higher variability. The exception is the MOV_TEMP.manejar sense, with a similarly low variability (var = .098). The ESTAD.caerleadv sense (i.e., *llevarse bien/mal con*) has the highest variance, meaning it is the most syntactically restricted, a feature illustrated by the examples in (25).

(25) a. No he tenido ningún problema y **me llevo** muy bien con ellas.

‘I haven’t had any problem and I get along very well with them.’

b. Allí **nos llevábamos** bien los que habíamos de aquí de la parte de Andalucía.

‘There we got along well those of us who were from here from the part of Andalusia.’

Examination of the adverbs and prepositional phrases that cooccur with forms of *llevar* with this sense reveals that they are almost always paired with an adverb of manner and either a prepositional phrase using *con* ('with') that introduces a person or group as in (25a), or a reciprocal pronoun as in (25b). This is unsurprising given that this sense was previously labeled as a use of the meaning-change *se*, which restricts this form to always including the *se* pronoun to communicate this idiomatic sense.

4.1.3 Distinguishing senses

The pairwise correlations that were calculated between the senses of *llevar* yielded coefficient correlations that ranged from .42-.96. The higher the number, the higher the correlation between the senses. Starting with the central sense, sense 1 (MOV_FIS_HA.transportar) 'transport something or someone' and its metaphorical counterpart sense 2 (MOV_FIS_HA.transportar.METAF) 'bring to a psychological state' had a high correlation (.93), which was predictable given that the only real distinction between these two is whether literal transportation occurred or if the meaning refers to certain decisions leading to certain outcomes or situations. Similarly, sense 12 (ESTAD.contener) 'contain something' and its metaphorical counterpart sense 13 (ESTAD.contener.METAF) 'have a certain quality' also saw a relatively high correlation (.88). Interestingly, sense 13 had a slightly higher correlation with sense 3 (ESTAD.tenerpuesto.tener) 'animate subject has a certain feature or item (of clothing) on themselves' (.93) than sense 12 and sense 3 had with each other (.88). Sense 8 (MOV_FIS_LEJ.quitar) 'take something away from a location' and sense 9 (MOV_FIS_LEJ.recibir) 'receive something' also had a high correlation (.93). The highest correlation between the senses was found between sense 7 (MOV_TEMP.manejar) 'handle or deal with something' and sense 16 (MOV_TEMP.mantener) '(as it relates to time) maintain'

(.96), which was unexpected considering how distinct they are semantically. The examples in (26) demonstrate this distinction.

- (26) a. Saben cómo es, o sea, la vocación que yo **llevo** de conservación.
 ‘They know how it is, I mean, the vocation that I have for conservation.’
- b. **Llevo** un ritmo de vida diferente a la de mis amigos.
 ‘I go at a different pace in life than that of my friends.’

While (26a) uses *llevar* to indicate having a calling or sense of responsibility, *la vocación* (‘the vocation’), that the subject is handling, in (26b) *llevar* is used to refer to the speed or pace, *un ritmo* (‘a rhythm’) in which the subject lives their life. The subject is not responsible for the direct object, *un ritmo*, in (26b), but instead is describing a manner in which they do something, or, in this case, live their life. Table 11 displays the relevant correlation coefficients between senses from the Behavioral Profile analysis.

Table 11: Correlation coefficients between senses

Correlation coefficients between senses	
Senses	Correlation coefficient
MOV_FIS_HA.transportar x MOV_FIS_HA.transportar.METAF	0.93
MOV_FIS_LEJ.quitar x MOV_FIS_LEJ.recibir	0.93
MOV_TEMP.manejar x MOV_TEMP.mantener	0.96
ESTAD.contener x ESTAD.contener.METAF	0.88
ESTAD.contener x ESTAD.tenerpuesto.tener	0.93

Overall, the Behavioral Profile analysis was successful in taking the manually selected senses and comparing them on a fine-grained level in terms of their morphosyntactic, semantic, and pragmatic features. Sense 1 (MOV_FIS_HA.transportar) ‘transport something or someone’

has been identified as the central sense of *llevar* by the Behavioral Profile analysis. In general, 16 senses and five clusters emerged. Table 12 summarizes these clusters and the senses that comprise them. Table 13 lays out the senses of *llevar* that were identified within the Behavioral Profile analysis, omitting senses that were not found in the corpus.

Table 12: The five clusters identified by Behavioral Profile analysis

Clusters identified by Behavioral Profile Analysis	Senses within clusters
Cluster 1 'temporal movement'	Sense 11 (MOV_TEMP.requerir) 'require a certain amount of time/effort to do something' Sense 18 (MOV_TEMP.pasar) 'have been doing something/been somewhere for a certain amount of time'
Cluster 2 'general physical movement towards another entity within the sentence subjects' dominion'	Sense 20 (MOV_TEMP.tenerventaja) 'have a quantity of something over someone else' Sense 1 (MOV_FIS_HA.transportar) 'transport something or someone' Sense 2 (MOV_FIS_HA.transportar.METAF) 'bring to a psychological state' Sense 4 (MOV_FIS_HA.causar) 'cause someone or something to do something' Sense 5 (MOV_FIS_HA.dirigir) 'is path to a destination'
Cluster 3 'general physical movement away from a location with another entity within one's dominion'	Sense 8 (MOV_FIS_LEJ.quitar) 'take something away from a location'
Cluster 4 'temporal movement'	Sense 9 (MOV_FIS_LEJ.recibir) 'receive something' Sense 7 (MOV_TEMP.manejar) 'handle or deal with something'
Cluster 5 'stative'	Sense 16 (MOV_TEMP.mantener) '(as it relates to time) maintain' Sense 3 (ESTAD.tenerpuesto.tener) 'animate subject has a certain feature or item (of clothing) on themselves' Sense 13 (ESTAD.contener.METAF) 'have a certain quality'

Table 13: The 16 senses identified by Behavioral Profile analysis

Senses identified by Behavioral Profile Analysis	English paraphrases
Sense 1 (MOV_FIS_HA.transportar)	transport something or someone
Sense 2 (MOV_FIS_HA.transportar.METAF)	bring to a psychological state
Sense 3 (ESTAD.tenerpuesto.tener)	animate subject has a certain feature or item (of clothing) on themselves
Sense 4 (MOV_FIS_HA.causar)	cause someone or something to do something
Sense 5 (MOV_FIS_HA.dirigir)	is path to a destination
Sense 7 (MOV_TEMP.manejar)	handle or deal with something
Sense 8 (MOV_FIS_LEJ.quitar)	take something away from a location
Sense 9 (MOV_FIS_LEJ.recibir)	receive something
Sense 11 (MOV_TEMP.requerir)	require a certain amount of time/effort to do something
Sense 12 (ESTAD.contener)	contain something
Sense 13 (ESTAD.contener.METAF)	have a certain quality
Sense 14 (ESTAD.estardemoda)	is in style
Sense 16 (MOV_TEMP.mantener)	(as it relates to time) maintain
Sense 18 (MOV_TEMP.pasar)	have been doing something/been somewhere for a certain amount of time
Sense 20 (MOV_TEMP.tenerventaja)	have a quantity of something over someone else
Sense 21 (ESTAD.caerleadv)	get along with another person

4.2 The Economic Principled Polysemy Model results

After having completed the Behavioral Profile analysis and identifying a preliminary prototype and potential peripheral senses, the next step was to use the criteria outlined in the Economic Principled Polysemy Model to pinpoint a Deep Central Sense (DCS) and Surface Central Sense (SCS), as well as to distinguish the peripheral senses of *llevar*. The Economic Principled Polysemy Model started with sense 1 (MOV_FIS_HA.transportar) ‘transport something or someone’ as in *Mi madre me llevaba a ver museos* (‘My mother used to take me to see museums’) from the Behavioral Profile analysis as the foundation for a central sense. Then, the identified peripheral senses were combined with the central sense to create a semantic network using a radiating lattice diagram.

4.2.1 The DCS, the SCS, and the proto-scene

In following the Economic Principled Polysemy Model, two central senses of *llevar* emerged. Firstly, The Deep Central Sense or DCS was identified to be ‘X is within the dominion of the TR’. This is the feature that runs through all uses of *llevar* and is shared with the verb *tener* ‘to have’. In certain cases, these two verbs can be used seemingly interchangeably due to the overlapping of a shared minimal feature of an entity X being within the dominion of the *trajector* (TR). In this case, the dominion of the TR refers to the realm in which the TR (the grammatical subject) has control or dominance over X (the direct object) to either move it or affect it depending on the specific sense. The examples in (27) illustrate this relationship.

- (27) a. ¿Qué **llevas** puesto?
 ‘What do you have on?’
- b. ¿Qué **tienes** puesto?
 ‘What do you have on?’

Like in (27), certain constructions have a relatively similar meaning regardless of whether they are formed with *llevar* or *tener*. Another pair of examples is *Tengo corregidos veinte exámenes* ‘I have graded twenty exams’ and *Llevo corregidos veinte exámenes* ‘I have graded twenty exams’, of which the cause is the shared underlying feature identified as the DCS. All the 16 senses previously mentioned have this feature in some form, whether it be literal or metaphorical. X can manifest as being literally or metaphorically within the dominion of the TR as shown in the examples representing the four general senses in (28). The example in (28a) is from the ‘physical movement towards a location’ cluster, (28b) is from the ‘physical movement away from a location’ cluster, (28c) is from the ‘temporal movement’ cluster, and (28d) is from the ‘stative’ cluster.

(28) a. *Oriental* es la que nos **llevaba** a Acajete.

‘*Oriental* is the one that takes us to Acajete.’

b. A él lo montaron en un taxi y **se lo llevaron**.

‘They put HIM in a taxi and they took him away.’

c. Me parece absurdo que la universidad, por ejemplo, la **lleve** la comunidad de Madrid.

‘It seems absurd to me that the university, for example, [that] the Community of Madrid runs it.’

d. Yo **llevo** la comunidad y la gente en la sangre.

‘I carry the community and the people in my blood.’

In (28a), the street, *Oriental*, metaphorically carries people within its dominion to a location, *Acajete*. In (28b), a third-person plural impersonal null subject (English impersonal ‘they’) took the duplicated direct object, *a él lo* (‘him’), away from the place where he was prior to this action. This can be done because the duplicated direct object is under the dominion or the control

of the plural null subject corresponding to the verbs *montaron* ('put') and *se llevaron* ('carried off/took away'). Furthermore, in (28c), the subject, *la comunidad de Madrid* ('the Madrid community') handles or is responsible for the direct object, *la universidad* ('the university'), which could be considered metaphorically within their dominion because the governing body oversees it. Lastly, in (28d) the subject *yo* ('I') metaphorically contains the direct object, *la comunidad y la gente* ('the community and the people') within them, *en la sangre* ('in my blood'). These are just a few examples to demonstrate the DCS feature that characterizes each of the senses of *llevar* identified in this study. The identification of the DCS serves as an explanation for why there are a handful of construction in which *llevar* and *tener* can be used in a synonymous fashion in that the same feature runs through both verbs.

The previous sections regarding the Behavioral Profile analysis demonstrate that there are 16 distinct senses of *llevar*. Of those senses, 14 senses have the horizontal configuration in which the TR moves an entity X that is within its dominion through space towards the LM, which is represented in Figure 11. Because the majority of senses involve this configuration, according to the present analysis, it represents the Surface Central Sense or SCS of *llevar*. The literal concrete sense of these 14 senses, TRANSPORTAR 'transport someone or something', is considered the prototypical one. Keep in mind that the SCS serves as both the prototypical sense of a word and a spatio-physical configuration that is representative of the majority of the senses.

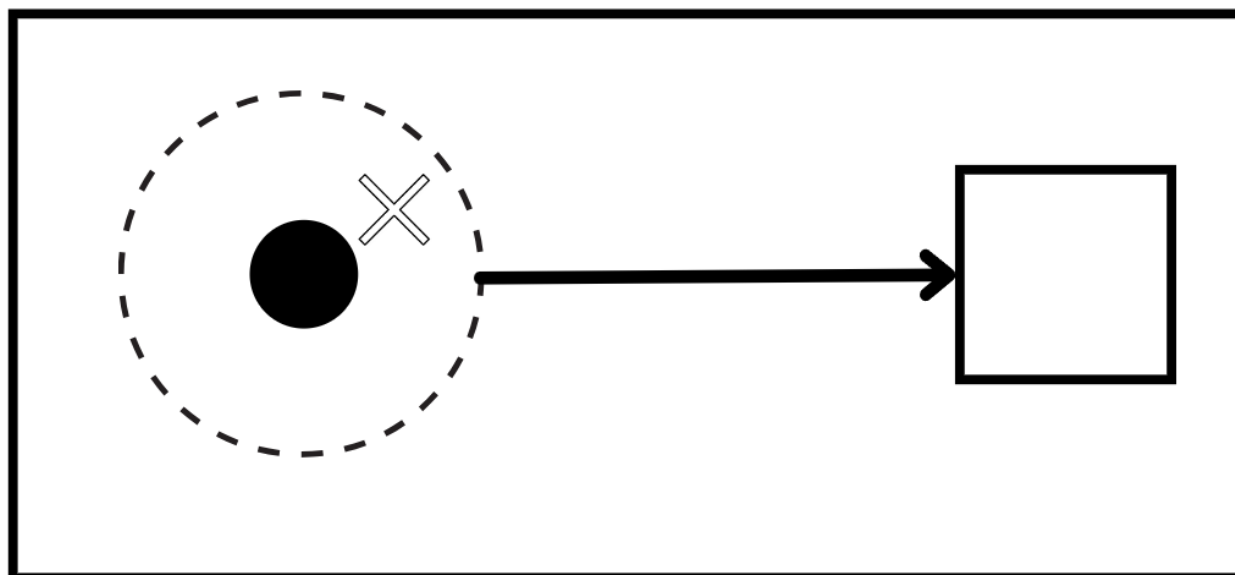


Figure 11: Surface Central Sense (SCS) of *llevar*

In Figure 11, the black dot represents the TR, the dotted circle represents the dominion of the TR, and X represents an entity, either animate or otherwise, that is within the dominion of the TR. The arrow forward demonstrates the path that the TR travels along with X. The LM is the box, which represents the location that the TR and X are headed toward. For the temporal movement and stative senses, the LM can be thought of as a later period in time or absent altogether. As seen in (29), many times there is a specific location, goal, or destination toward which the movement occurs, or else the ‘location’ is a recipient expressed by an indirect object; other times this location is left up to conversational implicature or inferred from other background information. For instance, in (29a) a location is specified, *a algún restaurante* (‘to some restaurant’), while in (29b) anaphoric reference is made to the recipient of the object, *sus cosas* (‘his/her things’), via an indirect object (*le*, ‘her/him’).

(29) a. También disfruta cuando la **llevo** a algún restaurante.

‘She also enjoys when I take her to a restaurant.’

b. Yo le **llevaba** sus cositas y trataba de darle sus gustos.

‘I brought her her things and tried to make it to her liking.’

This is the configuration from which metaphorical motivations emerge, such as the metaphorical connection between space and time that allows *llevar* to be used with a duration feature for the senses in the temporal movement cluster. As described in the methodology, this configuration encodes a contrastive relationship with other related verbs such as *tener* ‘to have’, *traer* ‘to bring’, and *ir* ‘to go’. While *tener* does not include a path feature, *llevar* does. On one hand, *traer* involves movement on behalf of the listener with a motionless speaker as in *Me trajeron la comida* (‘They brought me food’). On the other hand, *llevar* involves movement on behalf of the speaker with a motionless listener like in *Te llevé el paquete* (‘I brought you the package’). Finally, intransitive *ir* does not include an entity X that is within the dominion of the TR, whereas *llevar* does. Because the sense represented in Figure 11 has the most prominent configuration among the senses of *llevar*, it can also be considered the sense that is most common in our sensory and perceptual experience with relation to the verb.

4.2.2 Establishing the semantic network of *llevar*

In order to create the semantic network for *llevar*, the senses extracted from the Behavioral Profile analysis were reanalyzed following the Economic Principled Polysemy Model criteria for distinguishing senses. To reiterate, a sense was deemed distinct from the prototype if it involved a different TR and LM configuration, or the sense was metaphorical/non-spatial in nature, and had instances from the corpus that demonstrated its context-independence. Context-independence, in this case, indicates that the peripheral sense cannot be inferred from the

prototypical sense, from any other peripheral senses, or from the sentential context. The senses that held up under the criteria are the ones presented in Figure 12 with the prototype TRANSPORTAR in the center and the peripheral senses surrounding it.

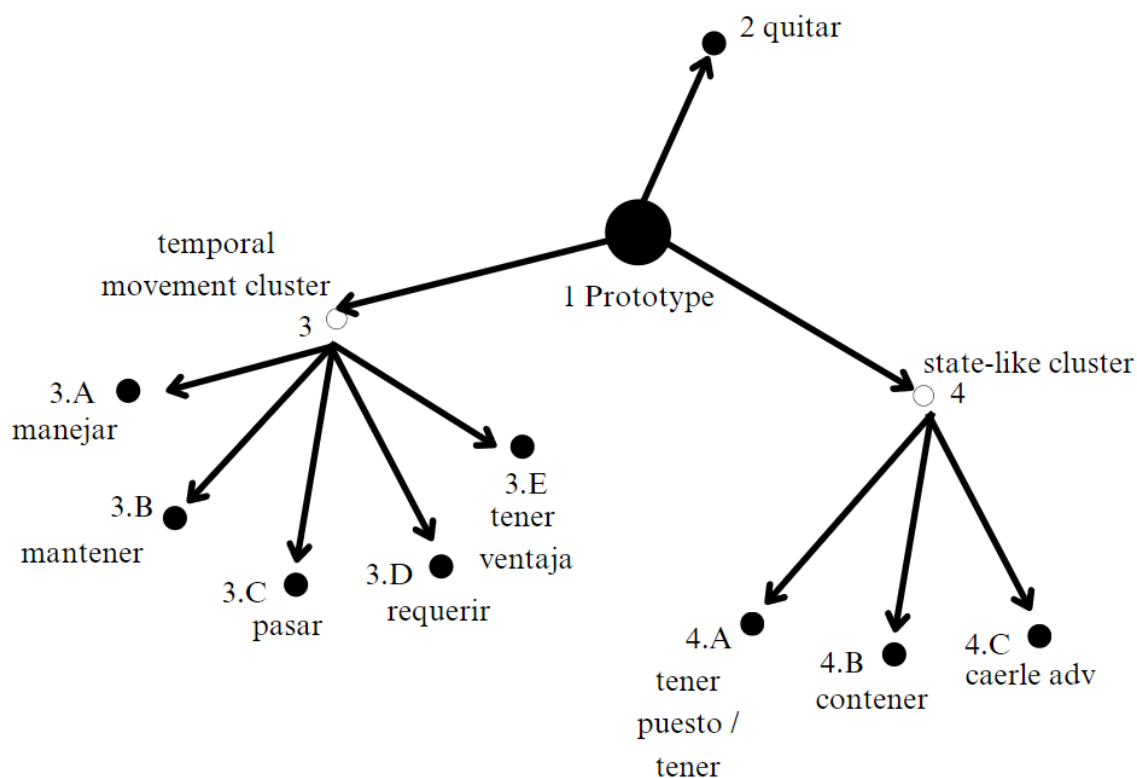


Figure 12: Proposed semantic network of *llevar*

Within the prototype sense, we find *llevar* used for transporting people and things to another location in both a literal and a metaphorical sense, demonstrated in (30a) and (30b), respectively. Inanimate things, like streets, can also metaphorically transport people as they lead them or take

them to a certain location, as in (30c). (30d) is the causative use which can metaphorically transport people to new beliefs or actions.

(30) a. Una vez me **llevaron** a la casa de ellos.

‘One time they took me to their house.’

b. [...] y luego cualquier papeleo cualquier cosa, para nada, para **llevar** al paro.

‘[...] and later any paperwork anything, for nothing, to end up unemployed.’

c. Hay caminos que te **llevan** recto y hay caminos que te **llevan** también a direcciones de esa forma.

‘There are paths that take you straight and there are also paths that take you in directions like that.’

d. Hay mucha hipocresía porque fue el mismo modelo de sociedad el que **llevó** a la gente a aguantar hambre para corresponder a una figura, a un modelo inventado.

‘There’s a lot of hypocrisy because it was the same model of society that caused people to starve themselves in order to align with a figure, an invented model.’

Though these four meanings began as four distinct senses in the manual annotations carried out for this study, both the Behavioral Profile analysis and the Economic Principled Polysemy Model indicated that sentential context allows them to be inferred from the prototype or coerced from neighboring words instead of needing to mentally store them as separate senses. In all four examples in (30), *llevar* is used to indicate movement through physical space, despite (30b) being metaphorical in nature and (30d) being non-spatial. The example in (30d) is the *causar* use of *llevar* noted by Soler and Enghels (2023). Because the other three senses did not have instances of context-independence, meaning that those instances did not present any unique feature of *llevar*, they were ultimately combined into one sense with the prototype. In other

words, sentential and discourse context were sufficient to coerce the utterance into being understood a certain way, but the notion was not interpreted from *llevar* alone.

The first peripheral sense that stems from the prototypical sense is QUITAR ‘take something away from a location’, which is exemplified in (31). For this sense, a distinct configuration between the TR and LM is needed to capture its meaning, due to having directionality that is opposite to that of the prototype. The entity X starts outside of the dominion of the TR and ends within it. The LM is now the location that the TR and X are moving away from. This sense is conventionally associated with the prototypical sense because it shares all the same features except for its directionality.

(31) a. Estaba abierta y cogíamos las botellas de Coca Cola y **nos las llevábamos**.

‘It was open, and we were getting the Coca Cola bottles and we were taking them.’

b. Lo que no me gusta es cuando el premio, pues, **se lo lleva** una persona que tiene dinero suficiente para vivir toda su vida.

‘What I don’t like is when the award, well, is won by a person who has enough money to live their entire life.’

c. Este fin de semana **me he llevado** la alegría más grande de mi vida.

‘This week, I experienced the greatest joy of my life.’

In (31a), the referent of the direct object, *las botellas de Coca Cola* (‘the Coca Cola bottles’), are the items that are taken away from their previous location by the subject. For this utterance, the TR is the subject, the bottles of Coca Cola are X, and LM is the Coca Cola truck that was left open. By contrast, in (31b), the referent of the direct object, *el premio* (‘the award’), conveys that it is being received and taken, which is captured by the English phrases ‘to win/get/take home an award’, instead of just being removed or taken away. The example in (31c) would roughly

translate to ‘experience’ instead of simply ‘receive’ or ‘get’, though it also conveys the sense of receiving something, albeit somewhat metaphorically. Nevertheless, the QUITAR sense of *llevar* has instances of context-independence as seen in (32), which is strong argumentation in favor of constituting it a distinct sense separate from the prototype. In (32) there is an example of the QUITAR sense (32a) along with a comparable instance of the prototype sense in (32b).

(32) a. Esta vez **me he llevado** cosas que la otra vez no me pude llevar.

‘This time I took things that the last time I couldn’t take.’

b. Por lo menos, la catedral es muy chévere. Ahí yo me **llevaba** a los hijos míos que les gustaba.

‘At least, the cathedral is really cool. I would take my kids there with me and they liked it.’

In (32a), *llevar* is *se*-marked (*me he llevado...*), which indicates ‘away from’ directionality. However, (32b) shows that the prototype sense can also be in a ‘*se*-marked’ construction (*me llevaba a los hijos míos*). The difference lies in the semantic role of the pronoun. In (32b), instead of marking opposite directionality or movement away from a location, it is the *se*-marking of involvement in that the reflexive pronoun is used to emphasize the involvement of the speaker in the situation (Whitley 2002: 176). In (32a) there is no discourse context suggesting the feature of opposite directionality associated with the *llevarse* meaning of ‘take/carry away’, so this *se*-marked QUITAR sense of *llevar* satisfies the Economic Principled Polysemy Model criteria. Because the ‘away from’ directionality feature could not be inferred from the presence of a *se*-marking in contexts such as (32a), I argue that it must be a separate sense stored in memory and, therefore, is a distinct sense of *llevar*. However, cases like (32b) would still be

considered part of the prototype sense because that *se*-marking does not change the sense of *llevar*. The QUITAR sense is the second node in the semantic network in Figure 12.

The next two nodes of the semantic network are labeled as clusters. Because the senses within these two clusters share an underlying feature, namely temporal movement and stativeness, the network visually represents this common feature. The first cluster is the temporal movement or duration cluster, which includes the following senses: MANEJAR ‘handle or deal with something’ like in *Hay un político equis en la alcaldía que llevó un proyecto equis* (‘There’s a politician X in the mayor’s office that managed a project X’); MANTENER ‘(as it relates to time) maintain’ as in *Llevan otro ritmo en Madrid. Andan más acelerados, ¿no?* (‘They go at a different pace in Madrid. They rush around more, don’t they?’); PASAR ‘have been doing something/been somewhere for a certain amount of time’ *Llevo cuatro años viviendo aquí* (‘I’ve been living here for four years’); REQUERIR ‘require a certain amount of time/effort to do something’ *Y luego, moverlo, moverlo, moverlo. Eso te puede llevar como una horita* (‘And later, to move it, to move it, to move it. That can take you, like, an hour’); and TENER VENTAJA ‘have an advantage over someone’ as in *En el mismo colegio estábamos los dos. Me lleva cuatro años y siempre he estado muy unido a ella* (‘The two of us were in the same school. She is four years older than me and I have always been very close to her’). They are grouped together because they involve a durative feature which is represented through metaphor. This metaphor converts the literal movement through space that is in coded into the prototype sense into temporal movement. This means that all of the senses satisfy the first Economic Principled Polysemy Model criterion by having a metaphorical use of the configuration associated with the prototype.

The first sense in this cluster is MANEJAR ‘handle or deal with something’, conveyed by the use of *llevar* in (33).

(33) El tema de contabilidad lo **lleva** otro compañero.

‘The topic of accounting is taken care of by another co-worker.’

In (33), *llevar* is used to indicate that the subject, *otro compañero* (‘another coworker’), does not literally ‘carry’ the direct object, *el tema de contabilidad* (‘the topic of accounting’), but instead it conveys that this is the subject’s responsibility or burden. This MANEJAR sense focuses on the weight or burden of metaphorically ‘carrying’ in the sense of managing and dealing with something, in that the subject is responsible for it. This sense is conventionally associated with the prototype because part of transporting something includes the weight of said item. Part of having it within one’s dominion is taking on the burden of the item as well, whether that be literal or metaphorical. Although the Behavioral Profile analysis clusters the MANEJAR and the MANTENER senses together, analyzing them via the Economic Principled Polysemy Model indicated that they should be considered separate senses. The example in (34) helps to demonstrate how the MANEJAR sense can stand as a distinct sense from both the prototype sense and the QUITAR sense.

(34) Yo creo que no lo **están llevando** nada bien.

‘I think that they aren’t handling it well at all.’

The utterance in (34), which illustrates the MANEJAR sense, is preceded by a clause in the corpus transcription that identifies the direct object, *lo* (‘it’) to be *un problema* (‘a problem’) that is being handled in a bad way, *nada bien* (‘not well at all’). Because the sense of being responsible for or handling something cannot be inferred from the prototype sense, nor the QUITAR sense, this suggests that it must be conventionally saved in memory. Furthermore, this

utterance indicates that there are no neighboring words that coerce *llevar* into this unique feature, but rather it is a feature of *llevar* itself. The MANEJAR sense is the first subnode within the temporal movement cluster of the semantic network, which is the third node of the overall network.

Another sense within the temporal movement cluster is the MANTENER ‘(as it relates to time) maintain’ sense, which is shown in example (35). In comparison to the MANEJAR sense, the MANTENER sense focuses more on the upkeep or continuance of some pace or speed.

(35) Yo creo que **lleva** un ritmo lento como si llevara una marcha más corta.

‘I think that it goes at slower pace as if it were in a lower gear.’

The null subject corresponding to *lleva* and *llevará* in (35) is some type of vehicle that maintains the direct object, *un ritmo lento* (‘a slow rhythm/pace’). Though this sense had significant morphosyntactic overlap with the MANEJAR sense as demonstrated by the results of both the Behavioral Profile analysis and the strong pairwise correlation between the two senses (.96), it does not contain the same burden feature as the MANEJAR sense does, but instead highlights a maintenance of speed/pace. The example in (36) is an instance of the MANTENER sense that is context-independent, which secures it as another peripheral sense of *llevar*.

(36) No estaba de acuerdo con la línea que **llevaba** el X en aquella época.

‘I didn’t agree with the approach that X was taking at the time.’

In (36), the speaker indicates that they did not agree with the direct object, *la línea* (‘the approach’), that another person, *el X*, took at the time. In other words, the speaker thinks that the way X did, addressed, or argued for something was wrong. This sense of maintenance or continuance (of the approach) is not inferred from the prototype sense, nor the QUITAR sense, nor the MANEJAR sense. The context and neighboring words do not coerce *llevar* into any

additional features, given that *la línea* ('the approach') is not something that can be physically carried, taken, or managed. Because the MANTENER sense of *llevar* cannot be inferred from any previous senses of the word, it must be a separate conventionalized sense that is stored in memory.

The Economic Principled Polysemy Model criteria was also satisfied by the PASAR 'have been doing something/been somewhere for a certain amount of time' sense of *llevar*, which is exemplified in (37).

(37) **Llevábamos** treinta y nueve años casados cuando murió él.

'We had been married 39 years when he died.'

In (37), the adverbial complement *treinta y nueve años* ('thirty-nine years') refers to the amount of time that the plural subjects ('we') have spent in the state specified by the predicative complement of the subject, *casados* ('married'). In (38), an example of the PASAR sense without including additional discourse context is shown to demonstrate that the sense is context independent.

(38) Yo tengo treinta y uno y **llevo** desde los quince.

'I am thirty-one and I've been [here] since [I was] 15.'

In (38) the speaker uses *llevo*, which is morphologically marked to indicate present tense and first-person singular subject reference in the absence of an overt subject, *yo* ('I'). This is followed by a temporal adverbial expression, *desde los quince* ('since 15 [years of age]'). This conventional construction, LLEVAR + TIEMPO ('time') + SITUACIÓN ('situation') expresses that the speaker has been in the same ongoing situation s/he is currently in 'since (the age of) 15', or in this case, living in the same place (Whitley & Gonzalez 2007: 205). This sense of continued time in a situation cannot be inferred from the prototype sense, nor the other peripheral

senses of *llevar*. The cooccurrence with a temporal expression, *desde los quince* ('since 15 [years of age]') does not coerce *llevar* into a distinct meaning either since it has already been established that *llevar* has various meanings when paired with a temporal construction. Since the PASAR sense has context-independent instances that demonstrate the sense connects a unique feature to *llevar* and is not inferable from neighboring words or discourse context, it counts as a distinct sense of *llevar* and is represented as subnode 3.C in the semantic network.

The REQUERIR 'require a certain amount of time/effort to do something' sense is exemplified in (39), making it another peripheral sense of *llevar* within the temporal movement cluster. Though the Behavioral Profile analysis clustered the REQUERIR sense and the TENER VENTAJA sense together, mostly based on syntactic similarities, I argue that they are distinct senses from one another because there exist instances from the corpus to indicate that they cannot otherwise be distinguished from one another.

(39) Eso te puede **llevar** pues a lo mejor veinte o treinta minutos haciéndolo.

'That'll take you probably 20 or 30 minutes to do it.'

In (39), the temporal adverbial expression with a quantifier, *veinte o treinta minutos* ('twenty or thirty minutes'), is the indicator of how much time the subject, *eso* ('that'), will take the indirect object, *te* ('you'). There is no physical movement present in this sense, but rather temporal movement or duration. Instead of having the indirect object, *te* ('you') being the receiver of a transported item, as is the case with the prototype sense, this sense represents an activity taking the indirect object involved an amount of time or effort to carry out. An example of a context-independent utterance with this sense is shown in (40).

(40) Eso me **lleva** por lo menos tres tardes a la semana dedicarme a ella.

'That takes me at least three afternoons a week to take care of her.'

In (40), the subject, *eso* ('that') is the task, the adverbial complement with a quantifier followed by a prepositional phrase, *tres tardes a la semana* ('three afternoons a week') is the amount of time it takes, and the indirect object, *me* ('me'), is the entity whose time or effort is spent.

Without having a separate stored sense relating to the requirement of a certain amount of time or effort, it would not be clear how the use of *llevar* in (40) contrasts in meaning with the other existing senses of *llevar*. This sense cannot be inferred from the prototype sense nor the other peripheral senses. The sentential context does not coerce *llevar* into the requirement sense because other senses of *llevar* pair with adverbial expressions of time, but they do not convey the requirement sense.

The last peripheral sense that was grouped within the temporal movement cluster is the TENER VENTAJA 'have an advantage over someone' sense, represented by the example in (41). This is considered its own sense, as opposed to being clustered with the REQUERIR sense, which were the results gleaned from the Behavioral Profile analysis. This sense can be used with an indirect object (41a) or in a reciprocal construction (41b).

(41) a. Yo le **llevaba** a mis hermanos cinco años de diferencia al segundo.

'I had a five-year age difference between me and the second oldest of my brothers.'

b. Ya cumplí veintitrés y mi hermano también ya cumplió veinticuatro o sea nos **llevamos** un año.

'I just turned 23 and my brother just turned 24, so we have one year between us.'

In the examples in (41), the TENER VENTAJA sense is used to express that one individual is older than the other, but this category accounts for any advantage that one has over another, like experience or height. The example in (42) demonstrates that the TENER VENTAJA sense holds strong as a unique sense even when presented without context.

(42) Me **llevaba** unos años.

‘S/he was a few years older than me.’

In (42), *llevar* is used as the TENER VENTAJA sense with a temporal adverbial complement and a quantifier, *unos años* (‘some/a few years’) to indicate the age advantage, and an indirect object, *me* (‘me’), that refers to the individual without the advantage. This sense could not be inferred from the prototype sense, nor any other identified peripheral senses, which is evidence to support it as another distinct sense of *llevar*. Like the REQUERIR sense, the TENER VENTAJA sense also cooccurs frequently with quantities of time as its adverbial argument, meaning that the neighboring words are also not enough to coerce *llevar* into this sense. In other words, the sense of having an advantage over another does not emerge purely from the syntactic elements that make up the construction, but instead has been conventionalized as a separate sense of *llevar*. The TENER VENTAJA sense is labeled as subnode 3.E within the temporal movement cluster in the semantic network of *llevar*.

The second cluster visualized in Figure 12 is comprised of uses of *llevar* with stative senses (i.e., meanings that express states or conditions). Within this cluster are the following senses: the CONTENER ‘contain something’ sense like in *Le pongo las garbanzas y los que lleva el caldo* (‘I put beans in it and everything else that the soup contains’); the CAERLE + ADVERB (*llevarse bien, mal*) ‘get along with another person’ sense like in *En esto, nos entendíamos. Fue un gran amigo. Nos llevamos bien en nuestras relaciones* (‘In that, we understood each other. He was a great friend. We got along well in our relationships’); and the TENER PUESTO/TENER sense ‘animate subject has a certain feature or item (of clothing) on themselves’ like in *En otros sitios que tienes que ir, no puedes llevar el pelo corto* (‘In other places that you have to go, you can’t wear your hair short’). These senses are clustered together because they all emphasize a

stative feature where they describe a state in which X is within the dominion of the TR, despite the verb *llevar* encoding an underlying sense of movement. Like the temporal movement cluster, this means that all the senses within the stative cluster satisfy the first Economic Principled Polysemy Model criterion by having a metaphorical use of the configuration associated with the prototype. Instead of *llevar* encoding literal movement through space or temporal movement (duration) for these senses, it encodes bounded time (stativity).

The first sense within this cluster is the TENER PUESTO/TENER ‘animate subject has a certain feature or item (of clothing) on themselves’ sense as in (43a). The sense used to discuss trending styles, as in (43b), was subsumed into the TENER PUESTO/TENER sense because it is inferable through context and neighboring words.

(43) a. Cuando tenía la edad de ellos, yo **llevaba** una camisita humildemente de barata.

‘When I was their age, I wore a plain little cheap blouse.’

b. Después, nos gustó el industrial, el electro... la música alternativa que se **llevaba** en ese tiempo.

‘Afterwards, we liked industrial, electro...alternative music that was in style at that time.’

In (43a), *llevar* is used to indicate that the subject has the direct object, *una camisita* (‘a little blouse’) on their body but are not transporting it to a specific location. Just by virtue of being animate, humans carry around the clothing that they wear. However, mannequins are also capable of doing this, indicating that the movement feature is more so related to the features of the subject and are not explicitly attributed to *llevar* for this sense. Similarly, in (43b), although it is impossible to literally ‘carry/wear music’ (*llevar música*), the verb functions metaphorically to refer to the music genre that was in style at the time. Despite the style sense seemingly having a feature that is not present in the TENER PUESTO/TENER sense, there are no instances of that

sense that are context independent. Neighboring words, particularly the direct object, coerce the TENER PUESTO/TENER sense to extend its meaning to allow anything to be in style, like music or floors (*esos suelos* ‘those floors’). This observation supports the proposal that the ‘is in style’ sense should be clustered with the TENER PUESTO/TENER sense because it is from that sense that it is inferred. The example in (44) illustrates the TENER PUESTO/TENER sense as context independent, meaning that the neighboring words used in the sentence do not necessarily suppose that the clothing is worn on the person instead of just being held or carried, which in turn supports it as a distinct sense.

(44) Hoy en día son mayores y aún **llevan** casco.

‘Nowadays they are older and they still wear a helmet.’

In (44), the direct object, *casco* (‘helmet’), is an item of clothing that ‘they wear’ on their heads. The notion that the subject has the helmet in contact with their body in some way is not inferable from the prototype sense, nor the QUITAR sense, nor any of the peripheral senses in the temporal movement cluster. Furthermore, the combination of *llevar* with an item of clothing does not coerce *llevar* into the TENER PUESTO/TENER sense because it is possible to transport an item of clothing to a location instead of wearing it on one’s body. Because the sense of *llevar* has the ability to switch between these two senses depending on broader context, it indicates that a Spanish speaker would have to be aware that *llevar* can be used as both ‘transport’ and ‘wear’. Since the TENER PUESTO/TENER sense (typically corresponding to English ‘wear’) has instances that are context independent and does not rely on encyclopedic knowledge of the world or sentential context within the utterance, the sense satisfies the Economic Principled Polysemy Model criteria to be considered a peripheral sense of *llevar*.

The next sense in the state-like cluster is the CONTENER ‘contain something’ sense as illustrated in the examples in (45).

(45) a. A lo mejor hay cosas que, pues, suele **llevar**...lo que **llevan** los mexicanos...el chile y todo esto.

‘Probably things that, well, it often contains...what the Mexican ones do...chile and all that.’

b. Una señora me hizo una encuesta de esas que **lleva** la tablet.

‘A woman did a survey for me, one of those that are on the tablet.’

In (45a), the subject, *los mexicanos* (‘the Mexican ones’), is referring to a type of burrito and *llevar* is used to describe what those burritos contain within, *el chile y todo esto* (‘the chile and all that’). In (45b), the CONTENER sense is being used metaphorically to indicate that the subject, *la tablet* (‘the tablet’), has the direct object, *una encuesta de esas* (‘one of those surveys’) within it. Though the CONTENER sense of *llevar* is stative in nature, the use of *llevar* in this manner adds a movement feature to the utterance, when compared with the verbs *contener* or *tener*, regardless of whether or not the subject is animate or not. In (46), an example of the CONTENER sense without context is presented.

(46) Después me dice, “Ay, ya no me acuerdo qué **lleva**.”

‘After s/he tells me, “Aw, now I don’t remember what it contains.”’

In (46), the direct object, *qué* (‘what’), functions as a placeholder for the items that are contained within something, which is conjugated as the third-person singular *lleva* (‘it carries/contains’). It is understood that the subject from the utterance just prior to the one displayed in (46), *una receta en internet* (‘a recipe on the internet’), is the antecedent of the null subject verb *lleva* in the present utterance to be a particular dish of food. It would be impossible to infer this sense of

containment from the prototype sense, the QUITAR sense, any of the senses in the temporal movement cluster, or from the TENER PUESTO/TENER sense. The utterance in (46) has no neighboring words to coerce *llevar* into the CONTENER sense, meaning it would have to be saved in memory to be understood. Just because *llevar* is paired with a subject related to food, this does not create the sense of CONTENER, as it would have to have already been associated with the verb to be understood this way. The context independent instance of the CONTENER sense confirms that it should be considered another peripheral sense of *llevar*.

The last identified sense in the state-like cluster and in the semantic network of *llevar* is the CAERLE + ADVERB ‘get along with another person’ sense illustrated in (47).

(47) Pues ahí se dio la relación y de ahí **nos hemos llevado** bien gracias a Dios.

‘The relationship started then and from there we have gotten along well thank God.’

The example in (47) expresses that the subject, ‘we’, have had a good relationship, *nos hemos llevado bien* (‘we’ve gotten along well’). This sense employs the idiomatic meaning-changing *se* mentioned by Whitley (2002), which is used to demonstrate a stative relationship between people. In (48), the CAERLE + ADVERB sense is shown in an utterance that displays its context independent.

(48) Siendo diferentes, **nos llevamos** bien.

‘Being different, we get along well.’

The example in (48) shows that the subject referents, ‘we’, get along in a positive manner, *bien* (‘well’). The notion of camaraderie is not inferable from the prototype sense of *llevar*, nor can it be inferred from the QUITAR sense, or from any of the senses in the temporal movement cluster, or the stative cluster. There is no significant sentential context in this particular utterance from which to draw the camaraderie feature of this idiomatic use of *llevar*, given that other senses of

llevar are also compatible with the reflexive pronoun, here, *nos* ('us'), as well as an adverbial complement, *bien* ('well'). I argue that the CAERLE + ADVERB sense is the last peripheral sense of *llevar*. It is represented as the subnode 4.C within the stative cluster in the semantic network.

As depicted in Figure 12, the completion of the Economic Principled Polysemy Model crystallizes the sense count of *llevar* to 10 specific senses including the central sense with one isolated node, the QUITAR sense, and two general clusters that combine the other eight senses. The clusters to some degree also reflect the similarities of senses displayed by the Behavioral Profile analysis, but also diverge, primarily for the senses within the temporal movement cluster. The reigning central sense of *llevar* is the TRANSPORTAR sense. The semantic network of *llevar* includes the QUITAR sense as the first peripheral sense and the second node. It also includes a temporal movement cluster that is comprised of the MANEJAR sense, the MANTENER sense, the PASAR sense, the REQUERIR sense and the TENER VENTAJA sense. The other cluster is a state-like cluster, which is made up of the TENER PUESTO/TENER sense, the CONTENER sense, and the CAERLE + ADVERB sense.

The results from the quantitative Behavioral Profile analysis and the qualitative Economic Principled Polysemy Model offer empirical evidence to support the hypothesis that *llevar* is a polysemous verb that is comprised of a central sense, TRANSPORTAR, and a number of peripheral senses that are extensions of the central sense. By presenting *llevar* as a semantic network of senses (see Figure 12), as opposed to a long unorganized list of uses, the verb is more accurately and more concisely represented. Such a representation is beneficial to native speakers and language learners that may come across this verb in that it can help explain the broad semantic categories that *llevar* is involved with as well as how the senses are associated with one another. As mentioned in Chapter 2, these peripheral senses are, according to Lakoff (1987) and

subsequent studies, motivated via conceptual metaphor and metonymy. In Chapter 5, I propose that such motivations are sought out for *llevar* in future studies and offer preliminary findings regarding this research. Overall, the cognitive approach to polysemy can provide a stronger account for how polysemous words are interpreted in that the senses can be clearly distinguished using objective criteria for establishing the prototypical sense and peripheral senses.

4.3 Preliminary pedagogical implications

Looking back at the recent textbook review of *llevar* done by Zyzik and Marqués-Pascual (2023), there is an observed underrepresentation of meanings and uses of *llevar*. ‘Transport’ and ‘wear’ do not begin to reflect the extent to which this polysemous Spanish verb is used in everyday Spanish. Both the Behavioral Profile analysis and the Economic Principled Polysemy Model of *llevar* provide sufficient inspiration and information for evidence in favor of providing more elaboration regarding *llevar* in L2 Spanish textbooks and class materials. Using the results from this thesis, pedagogical suggestions are shared in this section.

The main findings from the results of this thesis that are applicable to L2 Spanish pedagogy are the visualizations of the proto-scene and the semantic network of *llevar* as well as the identification of a prototypical sense and a condensed number of peripheral senses, compared to previously offered unorganized lists. *Llevar* should first be introduced to students as the TRANSPORTAR sense, since it is the most frequently used sense and is used in the widest variety of contexts. It is worth noting that, although this sense is typically associated with a prepositional object that represents the destination of the utterance, it is sometimes omitted if it has already been mentioned, which gives rise to utterances like *Me llevaban todos los días* (‘They would take me every day’).

From there, I propose that the PASAR sense is the next most important use of *llevar* for students to acquire, based on its high frequency in the data. Students should be made aware that, though *llevar*'s prototypical sense is associated with physical movement, the verb can also extend to temporal movement, which is seen in the PASAR sense. The formula offered by Whitley and González (2007: 205), LLEVAR + TIEMPO (time) + SITUACIÓN (situation), as in *Eso llevaba todo el día en la mesa* ('That was on the table all day long') is one that would be beneficial to use in the explanation of this sense. However, students should also be shown cases where the situation is omitted due to already having been mentioned in a previous phrase, like in *Llevo ya cincuenta y seis años* ('I have [lived here] now fifty-six years').

Though the PASAR sense is the most frequent sense to cooccur with a temporal adverbial complement, the REQUERIR sense and the TENER VENTAJA sense have a similar construction and could be presented to students alongside the PASAR sense for that reason. These two senses are typically found with a temporal adverbial complement as well as an indirect object. Students can be guided to distinguish between the REQUERIR sense and the TENER VENTAJA sense via the semantic type of the subject, in this case, whether or not the subject is a task or a person. The example *Eso te puede llevar como una horita* ('That can take you, like, an hour') contrasts with *Ella me lleva cuatro años* ('She is four years older than me') because the former has a task as the subject, whereas the latter has a person as the subject.

There are two more senses that are considered part of the temporal movement cluster, the MANEJAR sense and the MANTENER sense, but they are notably different in structure from those described in the previous paragraph. For that reason, they should be introduced to students separately. These two senses typically cooccur with direct objects that represent either responsibilities or possessions (MANEJAR), or the pace or rhythm of something (MANTENER).

I propose that the two forms of meaning-changing *se* should be presented to students together so that they become familiar with the notion that the *se*-marking is associated with multiple distinct meanings of *llevar*. The one that should be introduced first is the QUITAR sense because its key distinct feature from the prototype is opposite directionality. A good comparison to make for the students between *llevar* and *llevarse* is to *ir* and *irse*, where the main difference is the relative location that is set. For *ir* and *llevar*, that location is the location that one is going towards, while for *irse* and *llevarse*, the location is the location that one is going away from. The other meaning-changing *se* form of *llevar* is the CAERLE + ADVERB (*llevarse bien/mal*) sense, which expresses a notion of camaraderie between individuals, instead of opposite directionality. This construction of *llevar* is distinct by its *se*-marking and its cooccurrence with adverbs of manner.

The last two senses from the semantic network of *llevar* that should be introduced to students are the less syntactically restricted senses that make up the stative cluster, the TENER PUESTO/TENER sense and the CONTENER sense. Both of these senses have a similar syntactic structure to each other in that they are usually paired with just a direct object, but they contrast in how they describe the interaction between the subject and the direct object. For the TENER PUESTO/TENER sense, this is a surface level or two-dimensional interaction, where the direct object is on the subject. This can also manifest as over the subject for hats and clothes, or just on the surface of the subject's dominion, like a gun or keys. The CONTENER sense is distinct in that it is a three-dimensional interaction, where the direct object is able to pierce the surface and enter the subject or is already within the subject. There are utterances where it is unclear without further context whether or not *llevar* is being used to express the two-dimensional sense or the three-dimensional one, which students should be made aware of.

To further aid in the teaching of *llevar*, I have created preliminary materials that are inspired by those made in Makni (2014). Figure 13 gives an example of a proto-scene image of *llevar* that could be shared with students along with contextualized examples of natural utterances of *llevar*. Though previously the description of the proto-scene was that “the TR moves an entity X that is within its dominion through space to an LM”, it seems beneficial to simplify these variables for students to X and Y with X being the TR or the subject and Y being the entity X, which can manifest as a direct object or a temporal adverbial expression, depending on the sense. This simplification is to help students make the connection between the action encoded by the verb and its typical syntactic structure. Because some senses of *llevar* do not include a tangible LM, it is removed from the pedagogical proto-scene.

X LLEVA Y

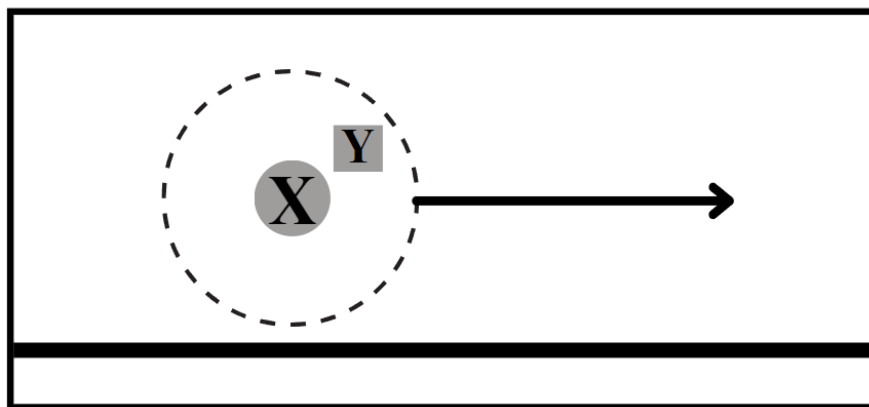


Figure 13: The proto-scene of *llevar* for pedagogy

Students can use Figure 13 as a general basis for *llevar*. Although not all senses of *llevar* are represented by this proto-scene, it could potentially help students understand novel senses of *llevar* that they have not yet come across. When X and Y are specified, as was done by Makni (2014) (see Figures 8 and 9 from Makni (2014) in Chapter 2), then both literal and metaphorical senses of *llevar* can be understood in more concrete contexts. Figure 14 and Figure 15 demonstrate example image schemas of *llevar* for both literal and metaphorical senses that could be used as pedagogical resources.

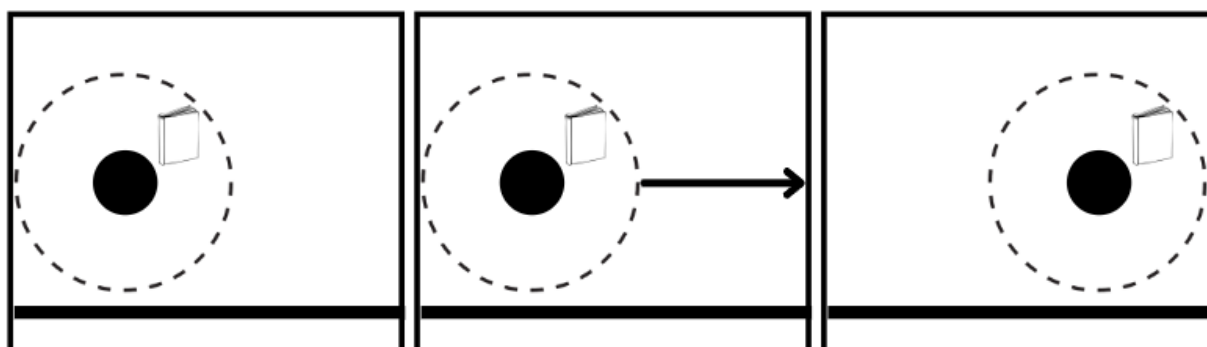


Figure 14: Image schema of the literal meaning of *llevar*

Example 1: **Llevo** mi libro cuando voy a la biblioteca.

‘I take my book when I go to the library.’

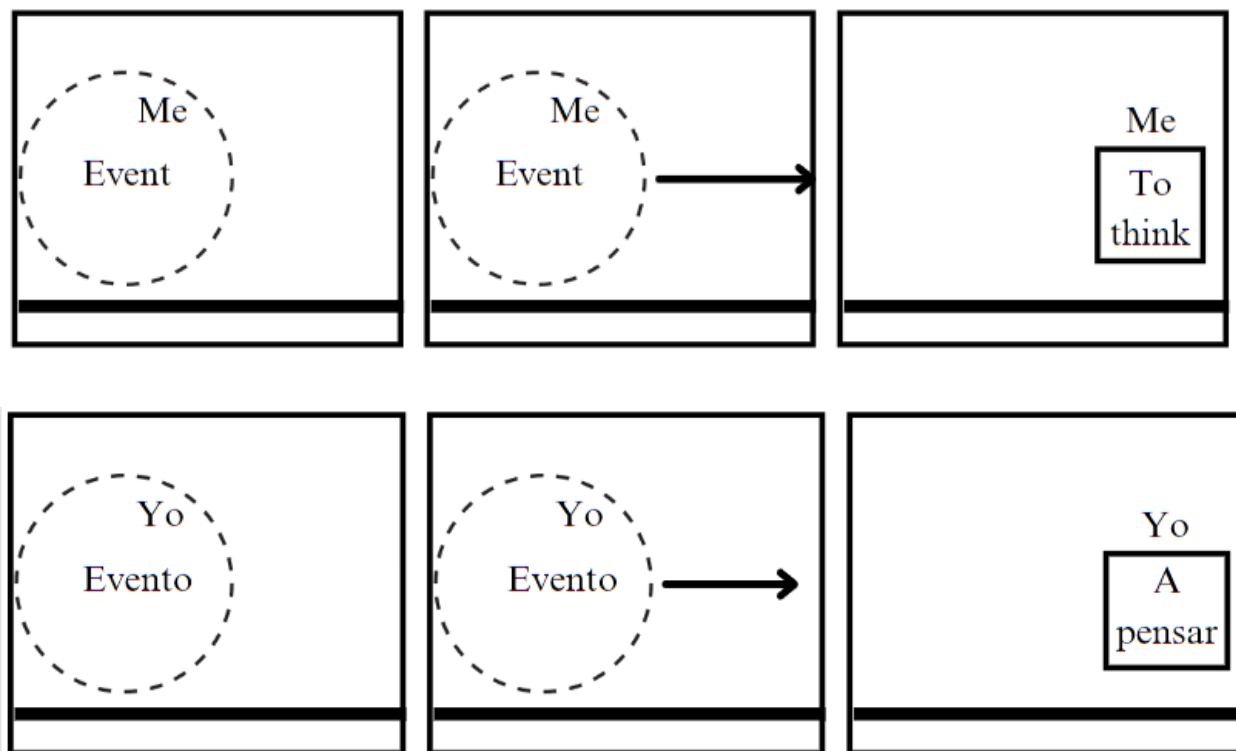


Figure 15: Image schema of a metaphorical meaning of *llevar*

Example 2: El evento me **llevó** a pensar en mi futuro.

‘The event caused me to think about my future.’

In Figure 14, instead of putting a word for the literal object, a clipart image works better in its place to help students with visualization instead of thinking about vocabulary. However, for Figure 15, a word functions better to describe the image schema because it is metaphorical in nature and does not interact with items in the spatio-physical world like the literal sense does. The idea is that by teaching students the central sense of *llevar* and then giving examples of how the proto-scene demonstrates real uses, they may better understand on a deeper level what type of movement the verb encodes with regard to its arguments as well as how to use and comprehend it in real time.

To summarize Chapter 4, the uses of *llevar* in the corpus data extracted from PRESEEA were examined via a quantitative corpus-based analysis as well as a qualitative feature-based analysis to identify its central senses, including the SCS and the DCS, and its peripheral senses. A proto-scene of the central sense and semantic network of the 10 senses of *llevar* were created to offer a visual representation of the abstract concepts related to the verb and the connections between the various senses. Finally, preliminary pedagogical materials and explanations regarding the polysemy of *llevar* were developed in alignment with previous cognitive linguistic inspired instruction strategies.

CHAPTER 5

CONCLUSIONS

This final chapter provides an overview of the analysis carried out on the polysemous Spanish verb *llevar* and summarizes its most significant findings. In Section 5.1, the present study's motivation and aims are briefly restated. In Section 5.2, the key findings of the study are summarized and used to address my research questions and hypothesis stated in Chapter 1. In Section 5.3, I outline the limitations of the present study and suggestions for future research on *llevar* and other polysemous Spanish verbs.

5.1 Motivation and aim of the present study

Though the analysis of polysemy within the cognitive linguistic framework has been developing since the late 70s, *llevar* has only been sparsely investigated. This thesis examined the polysemous network of *llevar* using two approaches in an effort to identify the verb's central sense and peripheral senses. The first was a quantitative corpus-based approach called the Behavioral Profile analysis (Gries 2006; Jansegers et al. 2015). The second was a qualitative feature-based approach called the Economic Principled Polysemy Model developed by Harbi and Abdulkareem (2023), which was an updated version of the Principled Polysemy Approach (Tyler & Evans 2003). No previous study has analyzed *llevar* in a polysemous manner nor combined these two approaches for the analysis. The results of these two approaches led to the identification of *llevar*'s central sense TRANSPORTAR 'to transport something or someone' and its nine motivated peripheral senses, which were then used to create preliminary pedagogical materials and suggestions. The research questions that I attempted to answer in this thesis are:

- 1) Using a Behavioral Profile analysis, what are the central senses and what are the peripheral senses of *llevar*?
- 2) Using the Economic Principled Polysemy Model, what are the central senses and what are the peripheral senses of *llevar*?
- 3) Given the findings from this study, what are some preliminary pedagogical suggestions for the teaching of *llevar*?

5.2 Outcomes

5.2.1 Research Question 1

The results of the Behavioral Profile analysis identified five significant meaning clusters and the MOV_TEMP.transportar ‘transport something or someone’ sense as the central sense. The clusters of senses that were grouped by the R software had p-values of 95% and higher. The first cluster included three senses found within the temporal movement cluster: MOV_TEMP.pasar ‘have been doing something/been somewhere for a certain amount of time’, MOV_TEMP.requerir ‘require a certain amount of time/effort to do something’, and MOV_TEMP.tenerventaja ‘have an advantage over someone’. The second cluster was comprised of four senses that involved movement towards a location: MOV_TEMP.transportar ‘transport something or someone’, MOV_TEMP.transportar.METAF ‘bring to a psychological state’, MOV_TEMP.causar ‘cause someone or something to do something’, and MOV_TEMP.dirigir ‘is path to a destination’. The third cluster grouped two senses together that incorporated movement away from a location: MOV_TEMP.quitar ‘take something away from a location’ and MOV_TEMP.recibir ‘receive something’. The fourth cluster was also comprised of senses that made up the temporal movement cluster: MOV_TEMP.manejar ‘handle or deal with something’ and MOV_TEMP.mantener ‘(as it relates to time) maintain’. Finally, the fifth cluster included

two of the state-like senses: ESTAD.tenerpuesto.tener ‘animate subject has a certain feature or item (of clothing) on themselves’ and ESTAD.contener ‘contain something’. Three senses, ESTAD.caerleadv ‘get along with another person’, ESTAD.estardemoda ‘is in style’, and ESTAD.contener.METAF ‘have a certain quality’ were not clustered in the HCA, but were revisited in the second part of the analysis. The central sense, MOV_TEMP.transportar, was identified to be the most frequent sense in the data as well as the least syntactically restricted based on variance. The central sense and the five clusters identified by the Behavioral Profile analysis were then used as a basis to carry out the Economic Principled Polysemy Model. This study is a confirmation that a Behavioral Profile analysis can be beneficial in statistically analyzing the similarities and differences between senses of a polysemous word found in instances of a data sample.

5.2.2 Research Question 2

Based on the Economic Principled Polysemy Model criteria, I constructed an empirically-based semantic network comprised of 10 senses of *llevar* including a prototype and nine peripheral senses. Additionally, a visual representation of the proto-scene representing the Surface Central Sense (SCS) of *llevar* was designed. The creation of these visualizations allows *llevar* to be analyzed and understood on a conceptual level, instead of purely through long unorganized entries of its uses. According to the criteria, TRANSPORTAR ‘to transport something or someone’ was found to be the prototypical sense of *llevar*. This sense involves the movement of the TR to another location, the LM, with an entity X within its dominion. This was also considered the Surface Central Sense (SCS), which is the most prominent configuration found within the semantic network of *llevar*. The Deep Central Sense (DCS) of *llevar*, which is a feature present in all senses of the verb and is shared by the verb *tener*, is ‘X is within the

dominion of the TR'. The nine peripheral senses identified in the study are QUITAR 'take something away from a location', MANEJAR 'handle or deal with something', MANTENER '(as it relates to time) maintain', PASAR 'have been doing something/been somewhere for a certain amount of time', REQUERIR 'require a certain amount of time/effort to do something', TENER VENTAJA 'have an advantage over someone', TENER PUESTO/TENER 'animate subject has a certain feature or item (of clothing) on themselves', CONTENER 'contain something', and CAERLE + ADVERB (*llevarse bien/mal*) 'get along with another person'.

As mentioned in Chapter 2, some previously investigated senses of *llevar* were expected to appear in the corpus such as the prototype, the 'wear' sense, and the temporal constructions. However, other senses have never been mentioned in the literature on this verb such as the CAERLE + ADVERB, QUITAR, TENER VENTAJA, MANEJAR, MANTENER, CONTENER, and TENER PUESTO/TENER. These results demonstrate that *llevar* is a polysemous verb, containing a central sense and peripheral senses, with senses relating to physical movement towards a location, away from a location, temporal movement or duration, and stativeness. The Economic Principled Polysemy Model has proven to be a useful tool in examining the polysemy of *llevar* within the cognitive linguistic framework in identifying its central sense and the nine peripheral senses that are proposed to be stored separately in memory.

5.2.3 Research Question 3

Once the proto-scene and semantic network for *llevar* were identified, suggestions for L2 pedagogical resources were offered. I used the studies on teaching polysemy through prototypes and motivation (Csábi 2004; Boers, Eychmans & Stengers 2007; Boers *et al.* 2009; Zhao *et al.* 2018) to inspire more pedagogical suggestions. I propose that students are first taught the prototype of *llevar* (TRANSPORTAR) through its most prominent features: forward movement

and an item(s) being within the dominion or sphere of the TR or the subject. Then, I suggest that the peripheral senses are introduced based on their relation to the prototype and their cluster. Furthermore, with the Makni (2014) study as a basis, I created a simplified version of the SCS proto-scene and applied it to both a literal use of the verb and a metaphorical/peripheral use. The visuals are meant to help students understand the relationship of the verb to the involved elements and how the proto-scene is manifested both literally and metaphorically.

5.3 Limitations and suggestions for future research

One of the main limitations of the present study was the time factor. Though Behavioral Profile analyses in the past have yielded accurate results with fewer instances of the word of interest, it would be possible to analyze more instances of *llevar* with more time. There were several senses of *llevar* that were not present in the sample which could have turned up with more data. Furthermore, because of time restrictions, I was the only individual that was able to review all of the instances of *llevar* and classify them according to ID tag labels. Perhaps with more time, the manual annotations could have been reviewed by another, but because of the sheer number, that was not possible.

Another limitation to the present study was the size of the data sample. For the scope of this thesis, it was necessary to reduce the corpus to 25% of its original size, but it is possible that this had an impact on the findings. Although Gries (2006) and Jansegers et al. (2015) sustain that 25% of the data is a representative sample size for carrying out a Behavioral Profile analysis, the incorporation of the other 75% of the instances of *llevar* could result in certain senses appearing that did not previously as well as the emergence of different clusters.

Regarding *llevar* as a polysemous verb, future research should orient toward confirming the results from the present study. Primarily, the use of another corpus or another type of corpus

could demonstrate whether the data analyzed in the previous study had an influence on the way that the polysemy was represented in the Behavioral Profile analysis through the HCA or not. The procedure used in this thesis should also be utilized to test other polysemous Spanish verbs such as *tocar* ‘to touch’, *salir* ‘to leave/go out’, *echar* ‘to throw’, *caer* ‘to fall’, and *quedar* ‘to stay’. Both *quedar* and *tocar* have been examined previously regarding their polysemy, but they have yet to be analyzed using the two cognitive approaches that were implemented in the present study with *llevar*. Furthermore, the results of those studies could then be used to inspire pedagogical resources, as was done for *llevar* in this thesis.

Another suggestion is to identify the metaphorical and metonymic motivations from which the peripheral senses of *llevar* emerge from its central sense, which could be gleaned from the Master Metaphor List (Lakoff et al. 1991). The source domains would align with the central sense and the target domains with the peripheral sense. For example, the MANEJAR sense could potentially be motivated through the metaphor OBLIGATIONS ARE BURDENS (on shoulder or back), where burdens are related to the weight of transporting something. An example of this type of metaphor in American English is *He’s carrying a heavy load at work* and *He bears the responsibility of success of this mission* (Lakoff et al. 1991: 204). In (49) a similar example is shown for the use of *llevar*.

(49) **Llevamos** un proyecto fotográfico adelante también muy interesante.

‘We’re responsible for a really interesting photography project later on, also.’

In (49), the direct object, *un proyecto fotográfico* (‘a photography project’), is the obligation. The verb *llevar*, on its most basic level, is associated with literally holding something and moving with it. This is the connection from the source domain, *obligations, duties, and responsibilities*, to the target domain, *possessions and burdens*.

A final suggestion for future research into the polysemy and pedagogy of *llevar* is to investigate which cognitive-based instruction method is most effective in teaching the polysemy of Spanish verbs. Using *llevar* as an example, the experimental groups would include the image-schema based instruction and the metaphorical motivation-based instruction, whereas the control group would be the traditional vocabulary instruction method. By doing a study that mimics those of Makni (2014) and Csábi (2004), but specifically with a polysemous Spanish verb, the results would demonstrate the more effective way for pedagogy to approach polysemy in the L2 Spanish classroom. Furthermore, perhaps a look into Construction Grammar could provide another perspective into how to teach *llevar* and how to present the conventionalized constructions of the verb.

The findings from this thesis contribute to the field of linguistics in a variety of ways. The principal contribution is to the understanding of the polysemous nature of the Spanish verb *llevar*. It serves as a repertoire of its various senses and the cognitive mechanisms that motivate the connections between them. It also demonstrates the benefit of using both a Behavioral Profile analysis and the Economic Principled Polysemy Model in an effort to carry out both a quantitative and qualitative analysis.

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