

**The Interplay of
Synonymy and Polysemy:**
The case of arrojar, echar, lanzar and tirar

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List of Abbreviations for Glosses

CL	Clitic
1 st	First person
2 nd	Second person
3 rd	Third person
sg	Singular
pl	Plural
inf	(verb in the) Infinitive
nonrf	Non-reflexive (cannot be co-referential with the subject)

Abstract

The knowledge associated with lexical items can be seen as including relations of meaning across words and relations of meaning within a single word. Words that share a similarity of meaning are said to be synonyms. A word that has multiple meanings is termed polysemous. This study focuses on a set of Spanish verbs that exhibit both these features: *arrojar*, *echar*, *lanzar* and *tirar* (all can be glossed as ‘to throw’). The words are considered synonyms (in thesauri and by speakers), yet the verbs are also capable of expressing many different meanings; they are polysemous. I investigated the characteristics of the four verbs in use by exploring data from corpora (in two studies) and from an experimental test. The data were annotated for semantic traits and subjected to various statistical tests to determine whether there was any significantly distinct behavior between the verbs. The focus of the tests was on the characteristics of the most important participant roles or arguments of the verb. The central concept shared by all four verbs is the notion of ‘throwing’, which involves three participants (a thrower, an object thrown and a trajectory of motion). Taking this meaning (‘throwing’) as central or prototypical, the tests explored variations in the expression and characteristics of these core participant roles. The tests are followed by a semantic analysis. The results show that each meaning that a verb can express tends to be associated with specific types of participant roles. Yet all the meaning extensions are shown to be semantically connected to the central throwing schema; in the overall semantics of the phrase and at the level of the participant roles. Therefore, even though the verbs are polysemous their meaning extensions are motivated, despite not being predictable. The results from the study also show that the verbs can in fact be seen as synonymous. Though the meanings of the verbs may not be identical (especially concerning pragmatics) they do have the ability to express similar meanings. This synonymy includes the central ‘throwing’ sense and a few other meaning extensions. Synonymy is only partial, though, since there are many meanings which the verbs do not share. Overall, the behavior of each verb can be characterized by noting its high occurrence in a handful of schemas and its infrequent occurrence in other constructions. A speaker’s knowledge of these four verbs includes the many meanings each verb can express (including common collocates), the participant roles associated with each and the semantic links that connect the uses to the central ‘throwing’ meaning. Speakers also have knowledge of overlap between the verbs: uses where verbs are used interchangeably and cases where one verb is the (only) preferred choice.

Chapter 1. Introduction

Spanish has four verbs (*arrojar*, *echar*, *lanzar* and *tirar*) that can be roughly described as meaning ‘to throw’. They are listed as synonyms in thesauri (DPA, DSA), and many speakers would recognize them as such since they can appear in the same sentences expressing similar notions, as exemplified in (1).

- (1) *Arrojé el papel a la basura.* ‘I threw the paper in the trash.’
Eché el papel a la basura.
Lancé el papel a la basura.
Tiré el papel a la basura.

These verbs are also polysemous; that is, they not only mean ‘to throw’ but can express other meanings. For example, *tirar* can express the shooting of a firearm and *arrojar* in my dialect (of Honduras) is mostly used to mean ‘to vomit’. The purpose of this study is to explore how the issues of polysemy and synonymy affect the structure of language.

The study uses corpus material and data from a questionnaire to explore the types of uses that each verb can adopt. Understanding the meaning of a word can be achieved, at least in part, by analyzing its use by native speakers as, for example, in a corpus and in psycholinguistic experiments. Both corpus and psycholinguistic data on the *throw*-verbs in Spanish were collected and subjected to statistical testing. The tests help to determine whether the apparent differences between the verbs were in fact statistically significant and not due to chance. Statistical tests also measure the extent to which we can state that the results of our studies are applicable to the language as a whole (Tummers et al. 2005:242).

The data and the statistical tests are a starting point for analyzing the characteristics of how these verbs are used. Previous researchers have proposed refined views on what classifies as synonymy and provided descriptions of different types of synonymic relations. One of the goals of this study is to discover whether these verbs can be described as synonymous, and the exact nature of that synonymy. In other words, what does it mean when a speaker accepts these words as synonymous?

The study also explores the many meaning extensions that each verb can adopt. The data shows that each verb can express several distinct notions. The study focuses heavily on trying to make sense of all these meaning extensions. Though the uses that a verb will or can adopt are not entirely predictable, I will try to show that the uses can be semantically

motivated. A community of speakers can derive new and extended meanings from a central meaning for a verb.

The goal is not only to show the behavior of each verb and the semantic relations that exist between them, but at the same time describe the type of information that a speaker must know in order to use the language. As we will see, a speaker will know the meanings of each verb and the participant roles that are normally associated with each. And she will also be aware of the semantic connections that exist between all the various uses of each verb. The speaker will derive knowledge about the meaning of verbs, but also how it is used and how these different uses/meanings are interconnected and motivated. I choose to explore these specific Spanish verbs because they provide a good source of data to explore both the nature of synonymy and of polysemy, and the way in which speakers structure lexical knowledge.

I begin in chapter 2 by giving a general overview of previous theoretical work focusing on the issues of synonymy and polysemy. I also describe three general perspectives on lexical semantics and the structure that governs the knowledge of words. I end this chapter by describing the views I have adopted and attempt to justify those views with example analyses. Chapter 3 provides a detailed description of the methodology of this study. I performed three studies: two corpus studies and one questionnaire. In this chapter, I describe the data collection process and the statistical tools that were used to analyze the data.

The major portion of this study is concentrated in Chapter 4. Here I give a full description of the results of the statistical tests. The statistical tests evaluate and measure the effects found in the data. The focus then is on determining what these effects mean for the analysis of the *throw*-verbs. By exploring the types of sentences that are associated with a verb, and noticing the semantics of each usage event, we can give a detailed description of a verb in use. Knowing a verb is knowing when and how it is used. A large part of this chapter also focuses on motivating the many uses of each verb. Instead of conceiving of the many meanings of a verb as a set of unconnected definitions, we can give structure to a verb's lexical entry by describing the semantic connections that exist between all the uses.

In chapter 5 I describe certain types of constructions that help to explain the behavior of two of the verbs, namely *lanzar* and *echar*. These verbs have more figurative uses, compared to *arrojar* and *tirar*, and these figurative uses can be motivated by describing the constructions that help build light verb constructions and a type of idiom I have labeled semantically-schematic idioms. These two constructions account for some of the behavior of *lanzar* and *echar* respectively. By describing these constructions, I wish to show a level of systematicity in the use of each verb.

Chapter 2. Theoretical Background

Synonymy and polysemy are the two main topics of this thesis. Both synonymy (and other semantic relations between words) and polysemy have been the object of study of many researchers coming from a variety of theoretical viewpoints. On the topic of synonymy, linguists have described parameters and tests for determining whether two words classify as synonyms and also worked on categorizing synonyms. An overview of previous theoretical discussions on synonymy is given in §2.1. The topic of polysemy has also been discussed in depth in the literature. Researchers have attempted to pinpoint and describe the major characteristics of polysemy and the problems associated with distinguishing separate senses. The topic of polysemy is discussed in §2.2.

This study also deals with the structure of language. Synonymy focuses on relations and connections that exist between separate lexical items, while polysemy concerns the information associated with a single lexical item. The theoretical tools we choose to adopt are important since they necessarily affect the type of analysis we can make. In §2.3 I describe three theories on lexical semantics. Each theory has its own conception of how meaning is structured, how it relates to syntactic expression and how to treat synonymy and polysemy. Then (§2.4) I detail the theoretical tools that are used throughout this thesis and provide justification for the choices based on the data under study.

2.1 Synonymy

The verbs under study share a similarity in meaning. When words share the same or a similar meaning they are called synonyms. Most speakers can recognize and name synonymous words. Thesauri provide lists of words that share semantic similarity. Synonymy has been the object of linguistic research too, where some have described the characteristics of synonyms and made distinctions between kinds of synonymic relations.

In linguistic research, primarily two factors have been used to test for synonymy: semantic similarity and substitutability in syntactic structure. The former is the main factor in determining synonymy. Though there may be several factors at play in deciding whether words are synonymous, semantic similarity is the most important (Murphy 2003:137).

The second major factor for synonymy is substitutability; one synonym should be able to replace another within a sentence. For example, Cruse (1986:88) uses a definition whereby

if a word X can replace Y in a declarative sentence and still maintains equivalent **truth-conditions**, then the words are synonyms. The following pair of sentences exemplify.

- (1) a) He is my father.
b) He is my daddy.

Assume that sentence (1a) is true of the world. If we replace *father* for *daddy*, as in (1b), the result is a sentence which is also true. The sentences are said to have the same truth-conditions. If we determine that two words have the same truth-conditions in the same sentence, as in (1), then Cruse (1986) considers them synonyms.

These two factors, closeness in meaning and ability to be replaced in a given structure, form the general basis for characterizing types of synonyms. At least three types of synonymic relations have been described in the literature. A first kind is termed **full** (Murphy 2003) or **absolute synonymy** (Cruse 1986). These are words that are identical in meaning and can be interchanged in all syntactic contexts. An example would be *groundhog* and *woodchuck*. It has often been pointed out that absolute synonyms are extremely rare and possibly non-existent. Words will tend to differ in at least some respects or become specialized to specific contexts. See Murphy (2003:161-165) for a discussion of the reasons languages disprefer full synonyms.

One reason that full synonymy is less common is the fact that many words have multiple senses; that is, words are often polysemous. Full synonyms would need to be the same across all senses. A second type of synonyms arises when two words have one sense where they are the same, but differ in all the other senses that they express. This is called **sense synonymy** (Murphy 2003) or **cognitive synonymy** (Cruse 1986). An example is *father* and *daddy* (Cruse 1986:276). Both refer to a biological father. But *father* has another sense where it refers to a religious figure; *daddy* does not refer to a religious figure. For cognitive synonyms, there will be semantic similarity and substitutability in one of its senses, but the other senses of the words will differ.

A third type of synonymous relationship is called **near-synonymy** or **plesionymy** (Murphy 2003, Cruse 1986, Hirst 1995). Near-synonyms have no senses which are exactly the same, but the senses are very similar. Murphy (2003) gives the example of *mob* and *crowd*. Both words refer to groups of people, but *mob* usually refers to a crowd that is disorderly or potentially breaking the law. Cruse (1986:285) argues that plesionyms produce sentences with different truth-conditions. One can deny one word of a plesionym pair, while declaring the other: *That wasn't a mob, just a crowd*.

These three types of synonyms are not always adopted by linguists. Some conceive of synonymy as one end of a continuum of semantic similarity (Miller & Fellbaum 1991:202). Under this view, words lying on one end of the continuum would be more synonymous than words lying at the other end; potentially capturing the fact that some words are better synonyms than others (Murphy 2003:22). Note that the concept of a scale is not incompatible with the previous classification of synonym types. Full synonyms can be seen as lying at the far end of semantic similarity. Near-synonyms lie further down the scale, with a fuzzy line dividing near synonyms from words which are not synonymous (Cruse 1986:268). Still some authors adopt the concept of a scale, without using any of the three categories of synonyms.

Adopting a scale of semantic similarity avoids problems that can occur when categorizing synonyms into the three types. Placing words into one or another category is not always clear-cut. The choice often times depends on several theoretical assumptions that the authors adopt. Broadly speaking, these can be divided into two opposing views. In one view, there is a strict division between linguistic and extralinguistic elements, meaning is judged using truth-conditions and elements such as collocational differences are idiosyncratic and irrelevant. Under another view, this strict division does not exist and pragmatic elements exist alongside semantic elements to define meaning, truth conditions do not adequately represent meaning and collocations signal meaning differences.

Cruse (1986) can be used to exemplify this first position. He relies on truth-conditions to decide on synonymy. This was shown with example (1). Using truth-conditions, *father* and *daddy* are synonyms. Researchers (Bosque 2004, Goldberg 1995) have noted, though, that truth-conditions do not entirely capture meaning as it is intuitively understood. Tuggy (1985a) argues that one can define “meaning” in different ways. Cruse (1986) employs what Tuggy terms **truth-functional meaning**. But Tuggy argues that the most relevant type of meaning is **imagic meaning**. He would argue that even though *father* and *daddy* refer to the same person, they do not really mean (exactly) the same thing and that speakers are aware of this difference. Since truth conditions do not capture meaning in its entirety, it is not clear why truth-conditions should be at the center of defining synonymy (Goldberg 1995:103).

The sentences in (1) above illustrate different stances on so-called extra-linguistic factors. Cruse (1986) states that connotation differences, including formality, register, and style, are peripheral and irrelevant to truth-conditions. Even though *father* and *daddy* can be said to differ in formality, they are still cognitive synonyms (Cruse 1986:207). Researchers who see no reason to limit meaning to only denotational aspects would disagree. For example, Goldberg (1995) invokes the Principle of No Synonymy. This states that if two

constructions are syntactically different then they must also be semantically or pragmatically different (1995:67). To authors such as Goldberg, differences in pragmatics are just as relevant as semantic differences in accounting for language.

A final issue affecting decisions on synonymy is the fact that words tend to have specific collocational and selectional restrictions. Often these differences in collocations are not meaning-based, but seem to be arbitrary. This poses a problem for the substitutability test: words that express similar meanings sometimes cannot be interchanged without making the sentence ungrammatical (Miller & Fellbaum 1991:202). Again, there are two ways to deal with this phenomenon. Cruse (1986:279) states that collocational restrictions are “co-occurrence restrictions which are irrelevant to truth-conditions”, and therefore words may have different collocations and still be considered synonyms. Another option is to highlight collocational patterns as differences in synonyms. Dąbrowska (2009:10) begins with a set of synonyms and uses collocational patterns to elucidate the contrasts that exist between them.

Synonymy is a semantic relation that exists between separate lexical items. Classifications of synonymy depend in large part on the assumptions made regarding the elements that are relevant to meaning. Some authors have posited three types of synonymy. Others have described synonymy as existing on a scale of similarity. Syntactic context plays an important role, since synonyms often appear in the same types of sentences, though there are also cases of collocational restrictions that limit the possibilities of substitutability. Even though there are issues that come into play when trying to assess the semantic similarity and syntactic substitutability of words, both factors are consistently used in studies on synonyms.

2.2 Polysemy

Another important aspect of the four verbs under study is that each can express various meanings or senses. A lexical item that expresses multiple senses is said to be **polysemous**. With verbs, it has been recognized that meaning can differ depending on the complement it combines with (Goldberg 1995:2, Pustejovsky 1991, 1995). Even though we use the same verb in saying *begin a book*, *begin a meeting*, and *begin a speech*, a different action is being performed in each.

Acknowledging that a lexical item means something (slightly) different when used in two separate sentences is only a first step. Some researchers separate polysemy from cases of vagueness or homonymy. Even within cases that could be argued to be synonymy,

researchers disagree on what constitutes a new meaning that is part of the lexical entry, versus a sense that is derived from context and need not be part of the knowledge of a word.

Some authors distinguish polysemy from **vagueness** (or generality) (Kilgarriff 1997, Lewandowska-Tomaszczyk 2007, Cruse 1986). Lewandowska-Tomaszczyk (2007:141) exemplifies with the noun *student*. It can be used equally well to describe a man or a woman. That does not necessarily mean that *student* has two senses, one for ‘male student’ and another for ‘female student’. Instead, this verb is vague regarding gender; it is unmarked for this characteristic. In that spirit, many different types of linguistic tests have been proposed in order to distinguish cases of polysemy from vagueness (see Lewandowska-Tomaszczyk 2007:141-143 for an overview).

Another division is also made between polysemy and **homonymy** (Lewandowska-Tomaszczyk 2007, Gries 2006). In the case of polysemy, the senses are (historically) related. In homonymy, the lexical items happen to be pronounced (and spelled) identically but their meanings are not related (Lewandowska-Tomaszczyk 2007:142). The two senses of *light*, ‘not heavy’ and ‘not dark’ are unrelated; it is an example of homonymy (Lewandowska-Tomaszczyk 2007:141). The noun *ring* which can refer to a piece of jewelry and a sports arena is an example of polysemy; the senses are related because both derive from the meaning of a circular object (Langacker 2008: 17).

Within Cognitive Linguistics especially, a scale has been posited ranging from homonymy to vagueness. Homonymous senses lie on one end of the scale, while cases of vagueness would lie on the opposite. Polysemy, then, is located in between these two extremes (Gries 2006:58). This means that there would be areas of uncertainty; there is no strict division between homonymy and polysemy or polysemy and vagueness.

Pustejovsky (1995) proposes a classification of polysemy, distinguishing two types. The first type is what he terms **complementary polysemy**. This involves cases where the senses of a word are overlapping, dependent or shared (1995:28). An example of complementary polysemy can be seen with the word *hammer*. It can refer to a physical object and to an action. The sense difference is accompanied with a change in category, the first sense associated with usage as a noun, and the second as a verb (1995:28).

A more specific type of complementary polysemy is **logical polysemy** which is constrained to cases where there is no change in lexical category. The noun *door* can refer to an opening and to a physical object (1995:31). The senses are related since one can refer to both senses within a single sentence without any problem: *He walked through the red door.*

The phrase *walked through* evokes the opening sense, while the adjective *red* evokes the physical object sense.

Complementary polysemy contrasts with **contrastive polysemy**. The latter includes lexical items that carry distinct and unrelated meanings. Examples include: *plane* referring to an airplane and to the tool used by architects, and *bar* as in a metal object and an establishment that sells alcoholic beverages (1995:27). Pustejovsky argues that contrastive senses are contradictory and that one sense is available only if the other senses are not (1995:32). Note that what Pustejovsky (1995) terms contrastive polysemy lines up with what others describe as homonymy (1995:27). It is important to highlight, then, that there are differing positions on where polysemy ends, since Pustejovsky treats homonymy as a type of polysemy.

A further problem in studies on sense variation is normally termed the lumping versus splitting issue (Vaamonde et al. 2010, Gries 2006). It is particularly relevant in lexicography, where lexicographers must decide whether a sense is different enough, or even frequent enough, to merit its own numbered definition in an entry (Gries 2006:61). This is also problematic because it is not always easy to draw a sharp distinction between two senses of a word (Lewandowska-Tomaszczyk 2007:147). If we lump too much, we end up with a single general meaning that does not capture the variation. If we split too much, we could end up positing a different sense for every verb and object combination (Yarowsky 1993:266, Vaamonde et al. 2010:1906).

Context, which played a role in studies on synonymy, is also relevant in discussion on polysemy. Polysemous words can be understood as ambiguous, since they have the potential of referring to different things. But polysemous words are really only ambiguous in isolation. When used in language, they are rarely ambiguous (Miller 1999:12). Corpora studies have found that the context very often determines the sense that is being used. For example, Yarowsky (1993) found that polysemous items only exhibit one sense per collocation, with over 90% accuracy. The different senses of a word tend to appear in different syntactic environments and with different collocates (Gilquin 2010:197). The words surrounding a word can play an important role in determining the specific meaning that a word can adopt.

Previous theoretical works on polysemy have attempted to classify the types of relations that exist between the various senses and uses of words. Authors differ, though, on the distinction they make. It is a complex issue, since it is not always clear when two uses of an item are separate senses or the same sense with a different focus. It is also not clear where polysemy ends and vagueness or homonymy begins. An important element in the study of

polysemous words is the syntactic context. The words that co-occur with a polysemous word tend to choose or highlight one of the senses, constraining the ambiguity of the lexical item.

2.3 Representing Synonymy and Polysemy

A discussion of synonymy and polysemy must necessarily involve a discussion of different theories of meaning. The choices we make about the structure of language, the way lexical meaning is represented, how lexical items interact with complex expressions and the relations that exist between lexical items to a large extent determine how synonymy and polysemy will be described theoretically. The following discussion describes 3 views of language and how each accounts for polysemy within a single lexical item and relations of synonymy among several items.

I begin (§2.3.1) by describing the traditional view of language, where each word has a single meaning and words are combined as building blocks to form larger structures. Later versions, usually termed structuralist, adopt features in defining lexical items. Next, I describe (§2.3.2) decompositional theories where lexical items are internally structured, and have more stored information than in the traditional view. Pustejovsky (1995) and Jackendoff (1990) represent this decompositional view. Because synonymy is minimally discussed by these two authors, Murphy's (2003) account of semantic relations is treated. The final view (§2.3.3), represented by Goldberg (1995) and Langacker (2008), proposes the existence of structures larger than words which are able to carry meaning.

2.3.1 The Traditional and Structuralist View

The discussion in this subsection is based mostly on Pustejovsky (1995) and Langacker (2008), who provide a general overview and critique of the traditional theories. In the more traditional view of language every lexical item has a single meaning. An entry is composed of the necessary and sufficient conditions to differentiate it from others, making some lexical entries extremely short. Some theories, especially more recent structuralist views, adopt features. A lexical item such as *bachelor* could be defined as [male], [human], [adult] and [unmarried] (based on work by Katz in the 1960s). Sentences are formed by joining words, and their meanings, into certain configurations to derive a proposition. In other words, lexical items are conceived of as building blocks, discrete elements that are stacked together to form complex expressions (Langacker 2008:39). The meaning of the whole is made up of the sum of its parts, a characteristic called **compositionality**.

Synonymy is captured not by any connection between the words, but by virtue of having the same features. The word *bachelor* and the phrase *unmarried man*, for example, would be synonyms because they are both characterized by the same set of features (Lakoff 1987:136). Synonymy is not the type of information that is stored in the lexicon; instead it is derived by comparison of items in the lexicon. Recall (§2.1) that the traditional view on synonymy was that it was assessed by comparing the truth-conditions of sentences.

The traditional view on polysemy is more fleshed out, though it has been heavily criticized. There are two ways to handle polysemy: the homonymy approach and the monosemy approach (Lewandowska-Tomaszczyk 2007:152, Langacker 2008:38). In the first, the lexicon contains multiple listings of the same word, each with a different definition (Pustejovsky 1995:34). The typical example is *bank*. There is one entry, call it *bank*₁, which refers to the financial institution and a second entry *bank*₂ meaning the edge of a river.

The major problem with this approach is that it cannot account for cases where the senses are clearly related. With the word *bank* this model is acceptable, since most speakers do not view the senses as related. But often, the two meanings are in fact connected. Pustejovsky (1995) exemplifies this with the adjective *noisy*. A *noisy car* is an object that makes noise, while a *noisy cafeteria* is a location that is characterized by noise. If we represent these two senses of *noisy* as distinct lexical items we do not capture the fact that they are clearly related (1995:50). The model with multiple listings does not represent any connections between lexical items and therefore cannot capture cases where there is a semantic association (1995:37).

The monosemy view avoids multiple entries. Instead a lexical item has a single abstract meaning. The specific meaning required in a context will be determined by pragmatics and the meanings of the other elements in the sentence (Pustejovsky 1995:43). For example, the verb *begin* could have a very abstract definition, such as ‘start an action’. The meaning of *begin a book* will be derived by world knowledge that one usually reads or writes books.

The problem with the monosemy view of language is that it does not account for how speakers put lexical items to use (Pustejovsky 1995:43). That is, if a speaker wants to state that he began looking for a word in a dictionary, given this abstract meaning of *begin*, a speaker could say *she began the dictionary*; yet this phrase is not acceptable. A meaning that is too abstract does not capture the limitations in the use of a word. Speakers must have this type of information in order to produce language.

To summarize, synonymy is captured by lexical items having the same features. The lexicon does not contain any explicit connection between synonymous words. Synonymy is instead a relation that must be derived by comparison. The traditional view includes two representations of polysemy. In a homonymy version, two or more separate entries are required, one for each sense. There are no connections between related senses. A monosemy approach uses abstract definitions, but it cannot explain language in use.

2.3.2 Lexical Decomposition

The traditional view of lexical meaning cannot account for many basic aspects of language and its use. Many criticisms have surrounded its account of polysemy. Criticisms have also surrounded its view on compositionality. Many theories have grown out of a desire to provide a more satisfactory portrayal of polysemy and compositionality.

The views exemplified in this section are Pustejovsky (1995) and Jackendoff (1990). Though there are major differences between them, they share some basic similarities. The meaning of lexical items is built up of smaller elements, whether they be primitives or generative elements. Pustejovsky and Jackendoff accept that the meaning of words affects syntax. Even so, they hold that syntax is a separate entity from the lexicon. They follow the traditional model of language where the lexicon stores information and syntax is a separate process that builds up phrases and sentences.

Both posit meaning which is minimalist: only certain aspects of meaning are encoded within a word's meaning. They differ though in what type of information is encoded and the system used for encoding it. They also have different strategies for treating polysemy. This is partly due to a difference in focus: each author only discusses certain types of meaning extensions. Pustejovsky (1995) accounts for polysemy by including various types of information within a lexical entry, and then specific aspects of meaning are highlighted in context. Jackendoff (1990) proposes the use of principles that apply to all lexical items; covering variations in meaning that are widespread.

Their account of synonymy, though, is not drastically different from the traditional view. Jackendoff (1990) does not discuss synonymy in depth; Pustejovsky (1995) discusses it initially but later does not clearly discuss how his view of lexical structure better accounts for this type of semantic relation. Even with this limited discussion, synonymy seems to be judged based on similarity of the structure. That is, if two items have the same structure, they will be synonymous. Synonymy is not captured as any connection within the lexicon. Due to

this limited exploration of synonymy, I also describe the approach to synonymy detailed in Murphy (2003). Her explanation of synonymy in the lexicon can be applied to the lexical decompositional model of Pustejovsky (1995) and Jackendoff (1990), giving a better description of this phenomenon.

Pustejovsky (1995)

Pustejovsky (1995) proposes that lexical items are made up of four structures, which contain their own specific kinds of semantic information. The first, called **Argument Structure**, specifies the amount and types of arguments for a word. It contains information about how the item's meaning maps onto syntactic structure. The second is **Event Structure** which characterizes items as events, processes or transitions. The most important element in this discussion is the **Qualia Structure**. It includes information about the relation between an object and its parts, the purpose and function of an element, and the factors involved in its origin. Finally, the **Inheritance Structure** describes how a word is related to other concepts (1995:60). To exemplify, the structure for the verb *kill* is shown in (2).

(2)

$$\left[\begin{array}{l} \mathbf{kill} \\ \text{EVENTSTR} = \left[\begin{array}{l} E_1 = e_1:\mathbf{process} \\ E_2 = e_2:\mathbf{state} \\ \text{RESTR} = <_{\alpha} \\ \text{HEAD} = e_1 \end{array} \right] \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG1} = \boxed{1} \left[\begin{array}{l} \mathbf{ind} \\ \text{FORMAL} = \mathbf{physobj} \end{array} \right] \\ \text{ARG2} = \boxed{2} \left[\begin{array}{l} \mathbf{animate_ind} \\ \text{FORMAL} = \mathbf{physobj} \end{array} \right] \end{array} \right] \\ \text{QUALIA} = \left[\begin{array}{l} \mathbf{cause-lcp} \\ \text{FORMAL} = \mathbf{dead}(e_2, \boxed{2}) \\ \text{AGENTIVE} = \mathbf{kill_act}(e_1, \boxed{1}, \boxed{2}) \end{array} \right] \end{array} \right] \quad (1995:102)$$

Pustejovsky (1995) uses formal logic to derive the semantics of a proposition. The above structure includes symbols relevant for logic which will not be discussed here. In the Event Structure we can capture that *kill* can be used either to refer to a process or to a state. The Argument Structure contains information stating that the first argument, the killer is a physical object, while the one killed must be animate. Finally the Qualia contains other distinguishing information, such that it is a verb that results in the second argument being dead, and that the first argument is an agent that kills the second argument.

The variety of information contained in a lexical entry can account for logical polysemy (§2.2). When words combine in syntax, specific meanings arise because the

combining words pick out certain aspects of the structure. Returning to the example of *He began a book*; inside the Qualia Structure of the word *book*, there would be a specification that the function of a book is to be read. The verb *begin* and other contextual clues help pick out this sense from the structure, therefore deriving the correct semantics (i.e. *He began reading the book*). The Qualia “suggest” certain interpretations (1995:87), which are then activated within a context. In verb plus direct object combinations much of the information is provided by the direct object. Pustejovsky’s (1995) proposal does not require two entries for these senses, but instead this information is placed within an expanded semantic structure.

Though he discusses different kinds of semantic relations, including synonymy, antonymy, etc. (1995:23-27) it is not clear that his system captures synonymy in a way that is significantly different from the traditional view. Synonyms are lexical items with a similar structure. There is no way to mark this relation in the lexicon. The advantage to Pustejovsky’s system is that the lexical entry contains much more detail. This could allow for more fine-grained distinctions between synonyms.

Jackendoff (1990)

Jackendoff (1990) proposes that meaning is made up of primitives that combine in specific ways. All concepts belong to a set of “parts of speech” which include Thing, Event, State, Path, among others (1990:22). He also uses primitives to describe certain aspects of meaning; for example GO represents motion, BE represents existence, and prepositions such as FROM or IN symbolize certain spatial configurations (1990:43-46). These elements all combine to create meaning. The following is his representation of the verb *run*.

(3) [EVENT GO ([THING *i*, [PATH *j*])] (1990:45)

The verb is an Event which involves movement, marked by GO. It also contains two open argument positions: one is a Thing and the other is a Path. In a sentence such as *The dog ran inside* the constituent *the dog* fills in the argument position for Thing, satisfying the semantics of this position. Then *inside* fills in the Path argument position. The semantics of the verb determines to a large extent the types of sentences it will form.

Jackendoff (1990:34) stresses that his conceptual semantic structure only includes information that is relevant to syntax. Other information might appear in the mind of the speaker, but not necessarily within the meaning structure of individual lexical items. This separation of meaning into two components plays an important role in his characterization of polysemy and synonymy.

As with the previous two views of language, synonymy is captured by similarity of conceptual structure. For example, *throwing* and *tossing* are, at the level of conceptual structure, both verbs of propulsion (1990:34). Speakers have different characterizations of these actions, but this information is not included here. He adopts the notion of a 3D model, which contains information about shape, color and other physical attributes, which help a speaker decide whether a given object or action in the world can be labeled with a specific word (1990:33). A speaker can have a 3D model of what an act of *throwing* looks like and this is likely different from the 3D model for *tossing*. Synonyms are words with the same (or similar) conceptual structure, even though they may differ in their 3D model.

There are issues, though, when it comes to the primitives chosen to be represented in the conceptual structure. Verbs such as *walk* have the same conceptual structure as that shown for *run* in (3) above, seemingly making them synonymous. The issue is that the entry in (3) is only approximate, and there may in fact be other elements that must be included in the conceptual structure (1990:45 fn 2). Our judgments on synonymy will depend on the amount of detail we include in the conceptual structure.

One way Jackendoff's theory handles polysemy is by allowing primitives to express different concepts depending on the domain. The concept BE can mean different things depending on the semantic field: "In the spatial field, a Thing is located spatially; in possessional, a Thing belongs to someone; in ascriptional, a Thing has a property; in scheduling, an Event is located in a time period." (1990:26). A lexical item that contains the primitive BE can have these various meanings without any difference being marked in the conceptual structure.

Other meaning extensions can be captured using principles. Some meaning extensions are common and apply to several lexical items. For example, a word denoting an object X can also refer to a person characterized by X (an example of metonymy). These types of common changes in sense should be covered by principles that apply to (most) lexical items (1990:21). In these cases, there is no information in the lexical entry itself.

Jackendoff's (1990) main focus is on exploring the relationship between lexical semantics and syntactic structure. He places very little focus on polysemy, and even less so on synonymy. But both can be accommodated into his system to a certain extent. Synonymy, like in all the previous views, implies similarity of structure. Polysemy is not marked in any way in lexical entries. Instead primitives are allowed to express different types of meanings, and principles can be applied to lexical items to derive new senses.

Murphy (2003)

Since Pustejovsky (1995) and Jackendoff (1990) do not fully discuss synonymy, the concepts proposed by Murphy (2003) provide an explicit way to judge synonymy within their systems. Murphy (2003) argues that synonymy (and other semantic relations) is not the type of information that is stored in the lexicon. One reason for arguing that synonymy is not stored in the lexicon is that synonymy can vary depending on the context. This is especially true since words are often polysemous, or at least have slightly different senses depending on the linguistic context (2003:29-30). For example, *good* and *bad* are antonyms, but this is not true in all their senses. *Bad* in informal style can mean something that is good. In that specific case, *good* and *bad* are in fact synonyms. A word can have several different semantic relations to another, depending on the sense under consideration (2003:36).

It is also possible for a semantic relation to change, even when there is no obvious change in sense. That is, in one usage event words may be synonyms, while in another they are antonyms, homonyms, etc. Imagine two speakers discussing a group of people.

- (4) A: That's quite the mob.
B: That's not a mob, just a crowd.
A: Same thing.

From A's perspective the terms *mob* and *crowd* are close enough in meaning to be considered synonyms. This is not the case for B, who is instead highlighting their differences and not treating them as synonyms.

Another important characteristic of semantic relations is that they are productive: new relations can be derived (2003:27). When new slang words are created then new semantic relations are also created. For example, when *ride* is used to mean 'automobile' the word also immediately has new semantic relations; the word will be a synonym with previously known words such as *car*, *auto*, etc. (2003:27).

Murphy uses the above facts to argue that semantic relations such as synonymy can be generated by using a principle. Her principle is called Relation by Contrast (RC) (2003:44). Her RC for synonymy states that synonyms are words that have all the same properties relevant for a given context and only differ in form (2003:134). For example, for speaker A, in the given context *mob* and *crowd* are equal in all relevant aspects, only being different phonologically. For this speaker, they are synonyms.

Murphy's (2003) principle means that judgments on synonymy could vary across senses of a word, across usage events, and even across speakers. Her view allows for

creativity and productivity in synonymic relations. She does acknowledge that it is not necessary for semantic relations to always be generated. That is, sometimes a relation is common enough or salient enough to exist in memory. It is possible for synonymy to be part of our memory, but still she argues that this is non-linguistic knowledge and is not a part of the lexicon (2003:42).

The concept of a relation by contrast can be adopted into both Pustejovsky (1995) and Jackendoff (1990). In both of their theoretical models synonymy is judged by comparison, but they have little to say about how to compare two words. Murphy (2003) describes a principle that explicitly states the method of comparison that can be used to judge synonymy¹.

2.3.3 Constructions

The final approach to language comes from cognitive linguistics. Cognitive linguists disagree with generative views on many of their most basic assumptions. Generativists view the lexicon and syntax as strictly separate and distinct modules of language. Meaning is also separated into semantic and pragmatic meaning: semantics being relevant to the structure of language and the lexicon, while pragmatics, which is more context dependent, is considered peripheral to the lexicon. Cognitive linguists mostly disagree with this view, believing there to be a continuum between the lexicon and grammar and a continuum between semantics and pragmatics. (See Croft 2007, Langacker 2007, and Goldberg 2003 for an overview of the views shared by the various cognitive linguistics theories).

Goldberg (1995) and Langacker (2008) posit the existence of **constructions** (called symbolic structures in Langacker 2008). Constructions are pairings of phonological and syntactic form with meaning. Different types of entities are constructions: morphemes, independent words, idiomatic phrases, noun phrases, sentence types, etc. The lexicon and grammar are not strictly distinct entities. The difference between lexical items and syntactic items lies in the internal complexity and the extent of phonologically specified form (Goldberg 1995:7). That is, what is normally thought of as syntax includes constructions that are internally complex and which have little, if any, pre-specified phonological form.

An important concept in both theories is **motivation**. In many generative views, there is a strict division between aspects of language that are predictable and those that are arbitrary. Goldberg (1995) and Langacker (2008) focus on motivation, which lies between

¹ It is important to note that Murphy (2003:241) states that her Relation by Contrast principle (in its various subforms) is compatible with construction-based approaches such as Construction Grammar (Goldberg 1995).

predictability and arbitrariness (Goldberg 1995:69). It is not always possible to predict all aspects of language, but it is possible to motivate or make sense of a system (Lakoff 1987:96). Even though language is not always predictable, that does not mean it is arbitrary; speakers can find a certain amount of justification for why their language is the way it is.

Motivation plays an important role in their conceptions of the relations that exist among the constructions of a language. Both posit links or connections between constructions. For both, polysemy is captured by connecting the various senses of a lexical item. These connections signal the variations that a single form can adopt. They differ on their view on synonymy. Goldberg (1995) limits synonymy within her system, and only a few types of synonymy can be captured by links. Though Langacker (2008) does not discuss the topic, the same theoretical tools used for polysemy can also capture synonymic relations.

Goldberg (1995)

The main argument of Goldberg (1995) is that sentences of English are constructions. They exist independently within the language and have meaning. For example, the ditransitive is a construction in English which carries its own meaning, namely an agent successfully causing a recipient to receive a patient (1995:38).

Goldberg (1995) focuses primarily on sentential constructions: the ditransitive, the caused-motion construction, the resultative and the *way* construction. Still, Goldberg discusses her conception of lexical meaning, since it plays an important role in understanding how lexical items and constructions interact. She argues that meaning must be defined relative to some background frame or scene (1995:25), based on Fillmore's frame semantics. For example, *ceiling* and *roof* differ in construal: *ceiling* is construed with respect to the inside of a building, while *roof* is construed based on the outside (1995:25).

An important part of the frame semantics of a verb includes the **participant roles**. This refers to the elements that are understood to participate in an action. Participant roles are frame-specific (1995:43), and each individual word determines which aspect of its meaning is profiled or highlighted (1995:44). The verbs *rob* and *steal* can be contrasted:

- (5) rob <**robber** **victim** goods>
steal <**stealer** source **goods**> (1995:48)

Each verb has its specific roles. The first argument of *rob* is *robber*, while the first argument of *steal* is *stealer*. The verbs also highlight different roles (the ones marked in bold). Both verbs profile the first argument. They differ in the other profiled argument. *Rob* focuses on the victim, while *steal* profiles the goods.

Constructions themselves contain slots called **argument roles**. These argument roles capture more general roles such as agent, patient and goal (1995:43). To illustrate, the ditransitive construction is represented as follows:

(6) CAUSE-RECEIVE <agt rec pat> (1995:49)

Each construction must specify how the participant roles of verbs map onto the argument roles (1995:48). Goldberg posits several principles which will not be discussed. The concept, though, is that the ditransitive construction requires an agent (agt) in initial position, and a *robber* can be construed as an agent (1995:54). It is possible for verbs and constructions to differ in the amount of roles available. In that case, there must be a resolution of sorts. If the verb has more roles, then some roles do not get expressed at the sentence level. If the construction has more roles, then extra roles appear in the sentence even though they are not part of the verb's semantics (1995:54-58).

The language system is a set of interconnected constructions. Elements within a language are connected and can influence each other even if they do not strictly interact (1995:72). This is captured by asymmetric **inheritance links** between constructions. Links are posited when one construction inherits information regarding semantics or syntax from another. Goldberg adopts a type of inheritance termed *normal mode* (1995:73). In normal mode information is inherited, but can be overridden and allows for exceptions. A lower node can have information that conflicts with the dominant node. In that case, it only inherits the non-conflicting information (1995:73).

Goldberg uses four types of inheritance links: polysemy links, metaphorical extension links, subpart links and instance links (1995:75). **Polysemy links** connect constructions which are the same syntactically but which show some variation in meaning (1995:75). **Metaphorical extension links** are posited between constructions which are related by a metaphorical mapping, making explicit the specific metaphors that connect constructions (1995:81). If one construction is a subpart of another, yet exists independently, then these two will be connected by a **subpart link** (1995:78). Finally, an **instance link** is posited when a construction is a more fully specified version of a (more abstract) construction (1995:79).

Links have two important characteristics. First of all, links are objects in the system. This means that they can show frequency effects and can be used productively (1995:77). For example, if a specific metaphorical extension link is quite frequent then it can be productively applied to other constructions. Secondly, links do not simply apply one to one between whole constructions. Links can connect constituents internal to a construction and constructions can

be linked to several other constructions at a time. This allows her to capture multiple motivations (1995:100).

Polysemy is portrayed in language by means of inheritance links. Specifically polysemy links and metaphorical extension links capture variations in the meaning of a construction. For example, the ditransitive has ‘cause to receive’ as a central meaning, yet several other meanings are connected to this central sense by polysemy links. Each sense is a construction, which shares the same syntactic shape with the central sense. The meanings, though not identical, are related to the central sense (1995:33-38).

An important aspect of Goldberg’s theory is that it restricts the amount of polysemy; this is especially true for verbs. She states that it is not necessary to posit distinct senses for a verb for every structure that it appears in. Instead “systematic differences in meaning between the same verb in different constructions are attributed directly to the particular constructions” (1995:4). This limits the number of senses associated with a verb.

Two features of Goldberg’s theory play a role in the topic of synonymy. First of all, Goldberg adopts a Principle of No Synonymy. Basically this states that any difference in form implies either a difference in semantic meaning or in pragmatic meaning (1995:68). The idea being that if a speaker chooses to say *daddy* it is because he intends to express something different than if he had chosen to use *father*. A second feature is that semantic relations that are not accompanied by syntactic similarity (which includes phonological form) are not captured explicitly within her system. So, for example, *die* and *kill* though related semantically, have no syntactic similarity and therefore would have no links between them (1995: 100).

These two features seem to lead to a very limited role for synonymy within her system. Instance links are the only possibility for capturing semantic similarity. A lexically specified form of the ditransitive, for example, would be semantically synonymous with the more abstract construction. Even with this possibility, semantic similarity is only represented in very limited circumstances.

Langacker (2008)

Langacker (2008) employs the concept of **symbolic structures** to describe what in Goldberg’s (1995) terms are constructions. Symbolic structures incorporate or link together semantic structure and phonological structure (2008:15). Semantic structure contains the meaning of expressions, while phonological structure incorporates phonology and word order.

Grammar is normally thought of as a set of rules for putting together lexical items. This conception of grammar can be captured in Langacker's theory. Grammar consists of assemblies of symbolic structures which represent common patterns for joining smaller symbolic structures (2008:168). For example, English has a very productive schema for compounds which involves joining two nouns (2008:176). A schema for this pattern would show not only the final **composite** structure, but also how the individual items (called **components**) are connected. The connections are called **correspondences**. The correspondences connecting the components represent how these are integrated. There are also correspondences linking the components to the composite structure, but in this case the correspondences represent composition (2008:164). The component elements, the composite structure and the correspondences together form a **constructional schema** (2008:168).

An important concept detailed by Langacker is schematization. A **schema** is arrived at by noticing commonalities between multiple usage events (2008:17). When experiencing language, humans can abstract away from characteristics of specific usage events and notice patterns that are repeated throughout language. Then these schemas can be used to understand and to produce new expressions (2008:215).

Schemas can be derived at different levels of abstraction. The ditransitive can be described with a high level schema (Transfer[verb] + Nominal + Nominal). But it is also possible to posit lower level schemas that capture common patterns, such as (give + me + Nominal) (2008:243). These lower-level schemas can in fact be more active in understanding and producing language, even if there is a higher-level schema. Since they are lexically filled, lower-level schemas provide better motivation for new expressions (2008:237).

Schemas, though he represents them as boxes in his diagrams, are in fact not discrete elements; they are immanent in their instantiations (2008:56). Schemas are not distinct from the specific usage events, but instead lie within them (2008:174). For example, the lower level schema (give + me + Nominal) is also an example of the (Transfer[verb] + Nominal + Nominal). The more abstract schema is immanent in the more specified schema. Due to the restrictions of paper and written form, schemas are always represented as separate even though this is not really the case.

Verbs can be characterized as schemas. The schema for a verb will include participants. These participants are accorded different levels of prominence. The focal or main participant is a **trajector**, while the secondary participant is a **landmark** (2008:113). In a sentence such as *He ate the pizza*, the *he* is the trajector and *the pizza* is the landmark. The verb itself "evokes" these participants. In other words, the verb in its schema makes reference

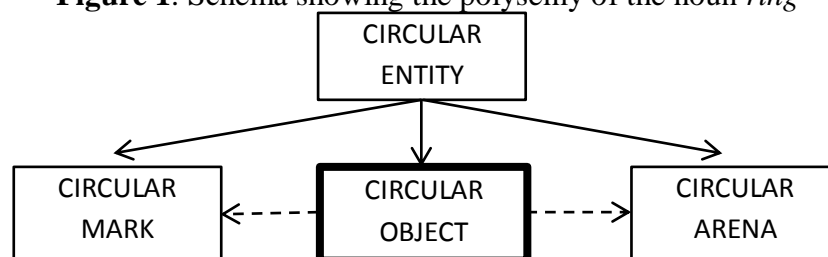
to other schemas. These are called **elaborations sites**, or **e-sites**. Verbs are dependent on other schemas in order to complete their meaning (2008:199).

In much the same way as Goldberg (1995), Langacker’s (2008) linguistic system contains symbolic structures which are interconnected. Langacker, though, only posits two types of relationships. If an expression fully conforms to a schema’s specifications, if it is an instance or instantiation of that schema, then the relationship is one of **elaboration**. If there is some conflict in specification, but there is still an association of similarity, then it is an **extension** (2008:170). These two types of relationships serve to connect and categorize schemas and specific usages.

Constructions are connected within the system. Langacker makes a point of arguing that this set of interconnected constructions should be understood using a mountain range metaphor. The different schemas are not discrete entities and there need not be a sharp distinction from one to another. One should imagine that schemas capture the peaks of a mountain range. They represent the most salient elements. Still there is a gradient from one to the other. Additionally the total number of peaks or schemas depends on the level of inspection chosen (2008:227).

Polysemy can be captured using schemas and relations of extensions and elaboration. A simplified example of the noun *ring* is shown in figure 1 (2008:37). The central or prototypical sense is marked by bolded lines. *Circular mark* and *circular arena* are understood as extensions in meaning from *circular object*; they are extensions since they do not conform completely to the central sense. This relationship is captured by dashed lines. Langacker also often posits more abstract schemas, to capture information shared by all elaborations. All three lower schemas are instantiations (solid lines) of the abstract schema; they conform to its specifications.

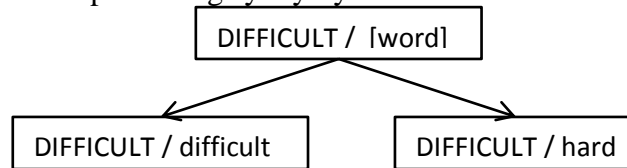
Figure 1. Schema showing the polysemy of the noun *ring*



Synonymy, though not discussed in Langacker (2008), can be captured with the same structures as polysemy. Synonyms can be seen as symbolic structures which elaborate the

same abstract schema. A very basic example for the adjectives *difficult* and *hard* is shown below:

Figure 2. Schema representing synonymy between the words *hard* and *difficult*



The lower schemas are the synonyms. They have their semantics specified (in capital letters). Even though not represented in this example, the semantics would be more specific to each word. The schemas also have the phonology specified, here shown in lower-case. A higher level schema captures the semantic similarities, showing they are synonyms. In the semantic structure, they would share at least some aspect of their meaning, in this case ‘difficulty’. On the phonological side, the higher schema would only state that both are single words, but there would be no specified phonology.

2.4 Views Adopted in this Study

The views adopted throughout this thesis fall closely in line with the framework of cognitive linguistics. I view the grammar and the lexicon as a continuum, both including schemas, but differing in the types of schemas that each include. I also assume that semantics and pragmatics lie on a continuum. In this thesis, I will focus mostly on semantic issues. Though I do not deny that pragmatics can play an important role in language, it is sometimes harder to pinpoint pragmatic details.

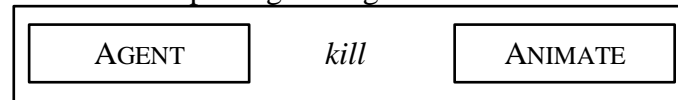
I adopt most of my theoretical tools from Langacker (2008), though I will incorporate ideas from other authors. My diagrams are reminiscent of Langacker (2008). As Langacker himself warns, the diagrams are a heuristic tool (2008:10); they are meant to represent the argument but are not completely accurate representations. Often only certain elements are included, excluding those elements of meaning that are not relevant to the point at hand. I use diagrams because they offer a visual representation of the basic aspects of my analysis.

The purpose of this section is to specify my theoretical assumptions and the tools that are used throughout this thesis. I also attempt to justify my position, by noting the types of details that my position is capable of capturing.

2.4.1 Jackendoff (1990) and Pustejovsky (1995) as Schemas

First of all, I want to note that the major aspects of the theories proposed in Jackendoff (1990) and Pustejovsky (1995) can be captured using schemas and links. Both authors include argument structure as part of their lexical structure. This can be easily captured by schemas. For example, the (simplified) argument structure for the verb *kill* is shown in the following schema.

Figure 3. Schema capturing the argument structure for the verb *kill*



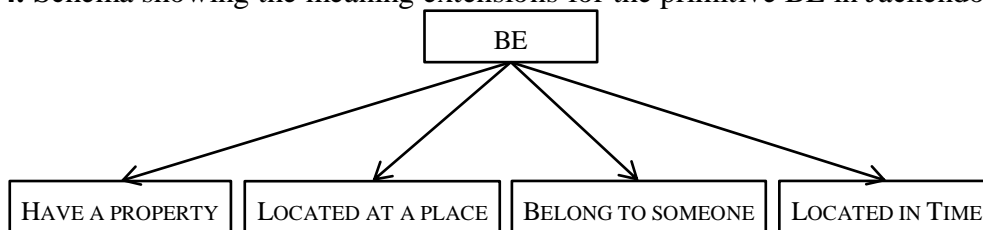
If we limit our discussion to the most prototypical uses of *kill*, the argument structure is shown in figure 3. The entire box is the schema for the verb. The boxes inside would be the e-sites (Langacker 2008), the participant roles (Goldberg 1995) or the arguments (Pustejovsky 1995 and Jackendoff 1990). The exact choice of terminology is irrelevant². Part of the meaning of the verb is the implication that there are two participants. The first is some type of agent, while the second is an animate being. To build a sentence with this verb, one must simply fill in those slots with a noun that fulfills the semantic constraints imposed. In other words, for a sentence to be correct the second element must be an animate entity. All this information is captured in the schema.

The type of information that Pustejovsky (1995) captures in his Qualia Structure and that Jackendoff (1990) includes in his 3D model are certainly compatible with the semantic information that a speaker will associate with the semantic side of a construction. That means that even from a CG perspective, part of the knowledge of the noun *book* will be that it is made of paper, that it is usually rectangular, that it sometimes has a hard cover and sometimes a soft one, that it is meant to be read, that it is written by people termed authors, and so on and so forth. Though, each author may have different views about the type of information that should be captured, my CG perspective can include many of the same types of semantic information as both Jackendoff (1990) and Pustejovsky (1995).

Jackendoff argues that some meaning extensions apply to all his primitives. For example (§2.3.2), he describes that the primitive BE can mean different things depending on the semantic field that is under discussion (1990:26). This can be captured with a schema.

² Throughout this paper I often borrow terminology from the various authors and use them as synonyms. For example, sometimes I talk of schemas and then use constructions to refer to the same objects. Participant roles and arguments are also used interchangeably. The exact terminology does not affect the analysis.

Figure 4. Schema showing the meaning extensions for the primitive BE in Jackendoff (1990)



BE is an abstract concept that encompasses at least four types of meaning. It can mean that an object has a property, that an object is located at a place, that something belongs to someone or that something/one is located in time. The meaning extensions seen with this primitive can be easily captured using a higher-level schema connected by solid elaboration links to more specific lower-level schemas.

Many of the theoretical tools proposed by Jackendoff (1990) and Pustejovsky (1995) can be captured with the tools proposed by Goldberg (1995) and Langacker (2008). The insights of the decompositional theories are not lost if we adopt a CG perspective. The benefit in adopting a constructional perspective is that there are aspects of the behavior of these *throw*-verbs that cannot be captured by the tools proposed in Jackendoff (1990) and Pustejovsky (1995). The following sections exemplify two cases where the CG perspective allows us a better insight into specific phenomena that would not be possible using the tools proposed by the traditional or decompositional theories.

2.4.2 Synonymy as Schemas

In §2.2 I describe two general views of synonymy. The first uses primarily truth-functionality to determine synonymy. It separates semantics from pragmatics, and views pragmatic details such as register and style as irrelevant to synonymy. Collocational restrictions are also irrelevant to synonymy. Let's call this the truth-functional synonymy perspective. The second view places emphasis on both semantic and pragmatic aspects of meaning, views collocational restrictions as important in pinpointing the meaning of words and strongly believes that there is no real synonymy: two words will always mean something different, even if at a nuanced level. I label this second view the no-synonymy perspective.

I believe these two views can be reconciled to a certain extent. Though I agree with the second view, there are important insights provided by a truth-functional approach to synonymy. As an example, the phrases in (7) and (8) illustrate some of the uses of the verbs *arrojar* and *lanzar*.

- | | | | | |
|-----|-----|----------------------|--------------------|--------------------------|
| (7) | (a) | arrojar una mirada | lanzar una mirada | ‘to throw (give) a look’ |
| | (b) | arrojar una frase | lanzar una frase | ‘to throw out a phrase’ |
| (8) | (a) | *arrojar una campaña | lanzar una campaña | ‘to launch a campaign’ |
| | (b) | *arrojar un ataque | lanzar un ataque | ‘to launch an attack’ |
| | (c) | arrojar resultados | *lanzar resultados | ‘to produce data’ |

In (7) *arrojar* and *lanzar* can both combine with the same nouns to produce similar meanings. In (8), we see other uses where this is not the case: some combinations (8a-b) are only acceptable with *lanzar*, while another (8c) is only acceptable with *arrojar*. From a no-synonymy perspective we would state that *arrojar* and *lanzar* are verbs with different meanings and different combinatory profiles. That is, they combine with a different set of nouns. We would also say that even though you can say *arrojar una mirada* and *lanzar una mirada*, these phrases must be different, if not semantically, then pragmatically (Goldberg 1995:67-68).

Even if we accept these statements are true, it is also useful to be able to distinguish (7) and (8). A speaker of Spanish will know that in some cases (such as those in (7)) the two verbs can combine with the same nouns to produce similar, though not identical, meanings. While in other cases (such as those in (8)) only one of the verbs can be used.

Goldberg (1995) could state that in (7) *arrojar* and *lanzar* can appear in the same constructions, and in (8) the verbs cannot appear in the same constructions. But saying that two verbs can appear in the same construction is different from saying that the two verbs denote similar situations. Sometimes both are true, but it is also the case that one can be true while the other is not. For example, the verbs *sell* and *paint* can be used in the same sentence.

- | | | |
|------|-------------------------------------|--------------------------------|
| (9) | Joe <u>painted</u> Sally a picture. | (Goldberg 1995:143, example 3) |
| (10) | Joe <u>sold</u> Sally a picture. | |

It is possible for *paint* and *sell* to be used in the same construction. But (9) and (10) do not describe the same situation³ and do not have the same truth-conditions. This means that there is a usefulness in distinguishing between two verbs that can appear in the same construction versus two verbs that express similar notions (in the same construction or not).

This is where truth-functional synonymy comes into play. From a truth-functional synonymy perspective we can say that in the case of (7a) and (7b) *arrojar* and *lanzar* are synonyms. Both verbs can be used to describe the same situation and both will be true of that

³ Both imply transfer from Joe to Sally. But the other details are not the same. In (9) Joe himself performed an action of painting which is not true of (10). Additionally, (10) implies that money was exchanged, which is not implied in (9). Overall, the actions performed by Joe in (9) are not the same as those in (10).

situation. In contrast, *arrojar* and *lanzar* are not synonymous in cases such as (8). Truth-functional synonymy gives us the means to distinguish (7) from (8).

Stating that at a certain level of analysis there is synonymy in (7) and there is no synonymy in (8) does not deny or run counter to the statements made from the no-synonymy camp. Instead, I believe they complement each other. I will adopt Tuggy's (1985a) distinction between functional meaning and imagic meaning. In functional meaning, two words or phrases mean the same thing if they have the same truth conditions or, if we do not wish to rely on truth conditions, two words mean the same thing if they have the potential of being used interchangeably to denote the same situation. Functional meaning is the type of meaning that is relevant from the truth-functional synonymy perspective. In (7), where *arrojar* and *lanzar* can be used to denote the same situation, the verbs are **functional synonyms**.

Imagic meaning allows a speaker to know that *father* and *daddy* are not the same thing completely, neither are *mob* and *crowd*, nor *lanzar* and *arrojar*. The pairs of words may mean similar things, they may be close in meaning, but they are not the same. Imagic meaning is the type of meaning that is relevant to the no-synonymy perspective.

Arrojar and *lanzar* are functionally synonymous in (7), but they are not imagically synonymous. I am accepting all the assumptions of the no-synonymy view, but also accepting the use of truth-conditions or interchangeability for positing synonyms. Throughout this paper, I will discuss functional synonymy. When two verbs can be used to express a similar concept they will be highlighted as functional synonyms.

I do not adopt the three-way classification of synonyms proposed by Cruse (1986) and Murphy (2003) (see §2.1). Absolute synonyms, words that mean exactly the same thing, are rare if they exist at all. The distinction between cognitive synonymy and near-synonymy is mostly based on a division of pragmatics and semantics. Cognitive synonyms are pragmatically different, while near-synonyms differ semantically. Since I view pragmatics and semantics as lying on a scale, the difference between cognitive synonyms and near-synonyms is one of degree not one of kind. Functional synonyms encompass both cognitive and near synonyms.

Murphy (2003) makes a convincing argument that synonymy (and other semantic relations) can be derived productively, they can vary by situational context, from speaker to speaker and even from conversation to conversation. But still, there are some synonyms that will be kept in memory. I disagree, though, with her assessment that synonymy is extra-linguistic knowledge. Synonyms can be captured as part of the mental lexicon of speakers.

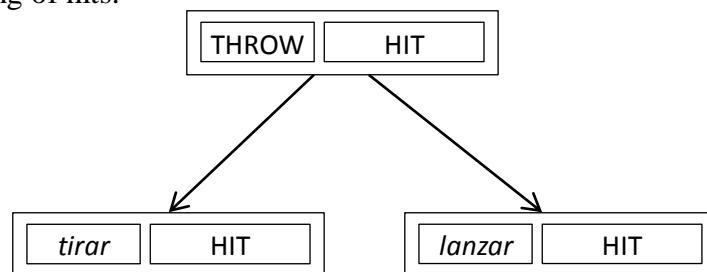
Take the following data from the study. In the corpus, both *lanzar* and *tirar* can combine with nouns that refer to hits, expressing the notion of throwing or giving someone/thing a hit.

- (11) arrojar un golpe ‘to throw (give) a hit’
- (12) lanzar un bofetón ‘to throw (give) a slap’

Though there are few examples in the corpus, we can state that *lanzar* and *tirar* can occur with similar nouns to express similar meanings (throwing hits). There are no examples of *arrojar* or *echar* with any noun referring to hits. A speaker of Spanish will know that you can *lanzar* hits and you can *tirar* hits but you do not *echar* hits. This is information regarding the way the verbs are used; information on the verbs’ meaning and the types of complements each can appear with. Therefore it is information that a speaker knows about how to use the language.

This knowledge is also knowledge of synonymy. A speaker is capable of making the connection between *lanzar* and *tirar* when it comes to nouns referring to hits. She can notice that in this case the two verbs are functional synonyms, and share a similar meaning. This knowledge can be captured using schemas.

Figure 5. Schema illustrating the functional synonymy of *tirar* and *lanzar* when expressing the throwing of hits.



The two lower-level schemas are partially specified. They include a lexically filled verb, *tirar* in the left schema and *lanzar* in right schema. The second element of each phrase is not a specific word, but can be any noun that means ‘a hit’. I use capital letters to indicate word classes.

The semantic relation between the two lower level schemas is captured by the higher level schema (the topmost box). The two lower-level schemas not only share a semantic similarity, but there is a structural similarity too. They are built up in similar ways and include similar parts. The first element of both is a verb that roughly means ‘to throw’, while the second element is a noun that means ‘a hit’.

The higher schema is connected to the lower schemas by elaboration links (solid lines). The higher schema only captures information shared by both lower schemas. The elaboration links mean that the lower schemas are instances of the higher schema. The schema for *lanzar golpes* ‘to throw hits’ contains all the information in the higher level schema, plus potentially some additional more specific information.

For Pustejovsky (1995), Jackendoff (1990), Murphy (2003) and even Goldberg (1995), synonymy is not a part of the mental lexicon. If it is captured at all, it would likely be part of extra-linguistic knowledge as Murphy (2003:42) states. Though, I cannot give a detailed argument in favor of why synonymy should be part of the mental lexicon, some general benefits of my analysis can be given.

First of all, part of the knowledge of a speaker is knowing how and when to use a word (Kilgarriff 1997:95). A speaker must already independently know that *tirar* can combine with nouns that refer to hits, and that *lanzar* combines with nouns that refer to hits. To use each verb properly a speaker will have the lower-level schemas in figure 5. It is then a very simple process to arrive at the higher-level schema: if a speaker at some point in time notices the semantic and syntactic commonalities of the lower-level schemas he will derive the higher-level schema, thereby noting the functional synonymy. In this analysis synonymy can also be productive: a speaker can derive or generate a higher-level schema in a specific situation when necessary.

A further benefit is that synonymy is captured using the same tools used throughout a language. Figure 5 does not differ drastically from schemas capturing polysemy or other types of relations. Schemas and links between schemas are the main tools to capture all kinds of aspects of language, including synonymy. This means too that synonymy can be captured implicitly. A speaker can have a representation of figure 5 in the mental lexicon, without necessarily labeling it as synonymy.

2.4.3 Polysemy as Schemas

The *throw*-verbs show a large amount of variation in the meanings that can be expressed with each verb. Adopting schemas and links allows us to show connections between a verb and its various uses. In fact, links can be posited for a verb and the different idioms it can appear with, no matter how semantically opaque the idiom may be.

The verb *echar* appears in the phrase *echar de menos*. The phrase means ‘to notice the absence of someone/thing and to feel sad about it’ (DELE, VOX)⁴. The phrase first appeared in the language in the 16th century. It is an adaptation of a Portuguese phrase *achar menos* which literally meant ‘to find not’ (Corominas & Pascual 1991). Even though historically there may be a semantic motivation for the phrase, synchronically this phrase is mostly non-compositional for most speakers; they treat *echar de menos* closer to a single chunk semantically.

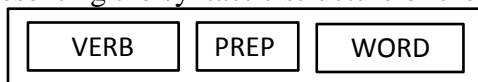
A traditional solution is to treat this phrase as a separate entry. There is a lexical entry for the verb *echar* and a separate one for the phrase *echar de menos*, and there would be no connection between them. This would likely be the solution proposed by Jackendoff (1990) and Pustejovsky (1995). Since it seems that the meaning of the individual elements in the phrase do not contribute to the final meaning (i.e. it is not compositional) it is unclear how Pustejovsky’s (1995) system would handle such a phrase. The meaning extension (if it can be called that) from throwing to missing is not common or regular enough to be captured by a principle. Therefore, Jackendoff (1990) would not have much to say about this phrase either.

From a construction perspective there is more to say about this idiomatic phrase. Idioms exhibit mixed characteristics: they are semantically idiosyncratic, a characteristic of individual lexical items, yet they are syntactically complex, a characteristic of phrases and sentences (Croft 2007, Cruse 1986). Often idioms follow regular syntactic patterns and can even be semantically compositional in some cases (Fillmore et al. 1988, Nunberg et al. 1994, O’Grady 1998, Mateu & Espinal 2007). Using schemas and links we can show these patterns of semantic and syntactic compositionality.

The syntactic make-up of the phrase *echar de menos* can be captured using schemas. First of all, the phrase is made up of three words. Simplifying a bit, there would be a schema that captures the fact that the first element is a verb. A schema can capture information at differing levels of abstraction: it is the verb *echar*, which is a caused-motion verb, which is a motion verb, which is a verb. The second element is the preposition *de* ‘from/of’. The final element is *menos* ‘less’. Though this last word is usually used as an adverb, in this case it is not behaving as an adverb. A speaker could reason that it seems to be behaving as a complement of the verb, so it might be a noun. Or a speaker could conceive of it simply as a word, not caring what type of word it is. This analysis of the structure is shown in figure 6.

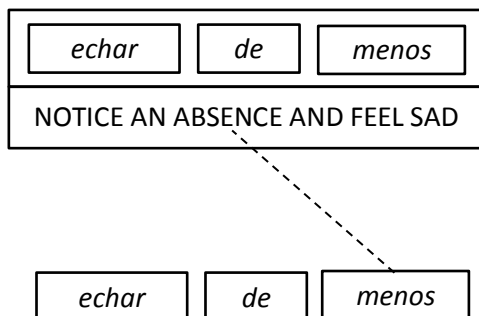
⁴ Throughout this paper I use various dictionaries, grammars and online resources to define the different meanings of the *throw*-verbs. The sources are in Spanish. All translations in the text are my own. I have attempted in each case to be as faithful to the original text as possible, though sometimes I merge definitions from two dictionaries, or shorten a definition. The original Spanish definitions are included in appendix C.

Figure 6. Schema representing the syntactic structure of the phrase *echar de menos*



From a syntactic or phonological perspective there are three words: *echar*, *de* and *menos*. But semantically there is little connection between these components and the composite structure (i.e. the phrase *echar de menos*). This is shown in figure 7. The composite structure is the topmost structure. The top half shows the elements of the phrase and the bottom half shows the semantics associated with the phrase. The components are shown as separate schemas at the bottom of the figure. Semantically there is no relation between the components *echar* and *de* and the composite phrase. That is, there seems to be no aspect of meaning that the individual verb *echar* contributes to the final phrase. This is shown by a lack of links connecting the component to the composite structure.

Figure 7. Semantic relation between the component parts and the composite phrase for *echar de menos*



One could argue that *menos* ‘less’ can be associated with some meaning in the composite structure. In this case, *menos* ‘less’ can be seen as related to the notion of absence. Then we see a partial semantic contribution (dashed line) made by *menos* ‘less’ to the entire phrase. *Menos* ‘less’ does not keep its full meaning in the final phrase, and there is nothing really resembling compositionality as it is usually conceived, but there is some relation between the concept of ‘less’ and the concept of ‘absence’.

Other theories would just list the phrase *echar de menos* as is and associate it with specific semantics. In contrast, our analysis has a lot to say about the structure (semantically and syntactically) of the idiomatic phrase. A speaker could have a schematic analysis of the phrase and the semantic relation between the parts. A speaker will at least know that the verb *echar* appears as part of the phrase *echar de menos* and that there seems to be no semantic connection between the single verb and the phrase. Trivially, a speaker should at least know that in a specific phrase *echar* (along with other elements) has the meaning of ‘to miss’.

The question here may be: why is it necessary for a speaker to analyze a fixed phrase? There happens to be a second phrase with *echar* that also means ‘to miss someone/thing’: the phrase *echar en falta* (literally ‘throw in lack’). Here it is important to note the similarity between both fixed phrases. Both use the verb *echar* as the first element and a preposition as the second element. The final elements, in both cases, have somewhat similar semantics: *menos* ‘less’ and *falta* ‘lack/missing’ both evoke a notion of absence. Both phrases mean ‘to miss’ and both show a similar level of (non-)compositionality: the verb and preposition seem to add nothing to the composite semantics, but the final element does seem to line up to the notion of absence.

The sources show no etymological information for the phrase *echar en falta*. It is not clear whether it was born on analogy to *echar de menos*. Still, from a synchronic perspective it is entirely possible for a speaker to notice the striking similarities between the two phrases. Even though this schema (*echar* + preposition + word that relates to absence) is not a common or productive pattern, it is a pattern nonetheless since it is repeated in the language. The CG perspective gives us the tools for capturing these patterns.

This example is in fact an extreme case of limited semantic relation between two meanings or uses of a verb. Several cognitive linguists hold that if the theoretical tools proposed can account for the syntactically irregular and semantically idiosyncratic parts of language (such as idioms) then we can easily transfer those tools to account for the more regular phenomena (Gibbs 2007:721, Goldberg 2003:222). We will see throughout this study that there are usually more semantic connections between each verb and its various uses. All those semantic connections can be captured with the tools provided by schemas and links.

Chapter 3. Methodology

This project is primarily a corpus study. The main source of data is a 400-sentence corpus which is explored using statistical tools. The results of this first study are complemented by a second corpus study (collostructional analysis) and by an experimental test performed in Juticalpa, Honduras. This section describes how the data was collected in all three cases and the statistical measures that are used in each. There is no discussion of the results of each test. The results are discussed in depth throughout chapter 4.

Before beginning a description of the three studies, I must begin by defining the focus of the study and the elements that are explored throughout this project. A stereotypical throwing event involves at least three arguments: a thrower, an object that is thrown and a trajectory of motion. The first participant, which will be labeled the INITIATOR, includes humans, animals, natural forces, objects and events that are conceptualized as the causers of motion. The term is borrowed from Morante et al. (1998) and ADESSE. This participant has also been termed an agent in Spanish FrameNet and Levin (1993). The INITIATOR is usually expressed as the grammatical subject.

The second participant is the element that is conceived of as undergoing motion. I will use the term MOVANT, defined as ‘one that is moving’ (WEBSTER). The term is inspired by the Spanish term *móvil* used in ADESSE, and is likely the closest translation. This participant has also been called theme (Spanish FrameNet, Levin 2008) and *entidad* ‘entity’ (Morante et al. 1998, Levin 1993). The MOVANT includes not only physical elements that can participate in a prototypical throwing event, but abstract ones such as light, smell, a smile, sound, etc., which can be conceptualized as moving. See §4.2.1 for a further discussion of what I classified as a MOVANT.

The final argument is the DIRECTIONAL (Cf. Fábregas 2007, Levin & Rappaport Hovav 1994). This expresses any portion of the trajectory of motion of the MOVANT, including origin of motion (*from the roof*), path of motion (*through the window*) and the destination (*to the floor*). It can also refer to a recipient (*at John*). The DIRECTIONAL is usually expressed by a prepositional phrase or an adverbial and, especially in cases with a human recipient, as a pre-verbal clitic. The DIRECTIONAL also encompasses elements that are tied metaphorically to the concept of trajectory. Take the following:

- (1) ...el grupo se lanzó al ataque (CdE:19-F, “El domingo fusilan a Januar...”)
 the group CL.3rd threw.3rd to.the attack
 ‘The group went on the attack’
- (2) ...echó su caballo a correr (CdE:19-F, “Cuentos de muerte y de sang...”)
 threw his horse to run
 ‘S/he made her/his horse run’

I will argue that (1) can be understood as moving to a place of attack. A continuum exists from the meaning of moving to a place, moving to an activity, and beginning an activity. This last meaning is salient in (2). Even though most DIRECTIONALS provide a semantic function, it is possible to view these phrases with grammatical function as extensions of meaning and usage. This is in line with Brugman (2001:552) who states that it is best to view grammatical function as continuous to semantic function, rather than opposed to it. The examples are given here to show that phrases such as *al ataque* ‘to the attack’ and *a correr* ‘to run’ are included in DIRECTIONALS. See §4.3.5 for a full analysis of these cases.

Though there are differences in the terminology and possibly the definition of each argument, several previous researchers have posited these same three participants as core arguments of (caused) motion verbs in general (Subirats 2004, Morante et al. 1998, Morimoto 2001) and of verbs that mean ‘to throw’ in particular (Levin 2008, ADESSE, Spanish FrameNet).

The three roles can be seen quite clearly in the following sentence.

- | | INITIATOR | VERB | MOVANT | DIRECTIONAL | |
|-----|-----------|--------|---------|---------------------|-------------------------|
| (3) | Bert | arroja | piedras | a su barquito | (CdE:19-F, Adam Birner) |
| | ‘Bert | throws | stones | at his little boat’ | |

Bert is the thrower, the source of energy and the INITIATOR. The noun *piedras* ‘stones’ represents the element that moves; it is the MOVANT. Finally, the phrase *a su barquito* ‘at his little boat’ describes the trajectory of the stones. This last element is the DIRECTIONAL.

It will become clear that the terms INITIATOR, MOVANT and DIRECTIONAL are meant to be abstract, and cover a somewhat wide range of semantic participants. Conflating various senses of a verb into a single category for the purpose of annotation does not mean that I consider the meanings to be the same. It is a method for exploring how differences in verb meaning correspond to differences (or not) in the types of arguments expressed.

I begin by describing the 400-sentence corpus study (§3.1). I describe how the data was collected and annotated and the statistical tools used to explore the results (§3.1.1). Next, I describe a collocation analysis (§3.2). It is a method for measuring the attraction of

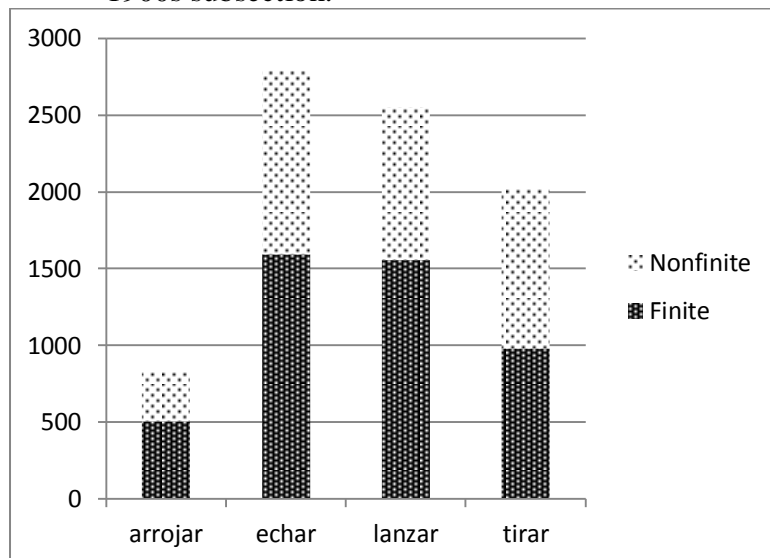
each verb to frequently occurring nouns. I explain the theoretical background for this study and the statistical tools that are employed. Finally, I will detail the execution of a questionnaire in Juticalpa, Honduras (§3.3). Within this section I specify how the questionnaire was constructed (§3.3.1) and a general overview of the respondents (§3.3.2). I end by noting the statistical tests used in this final study (§3.3.3).

3.1 The 400-Sentence Corpus Study

The main source of data for this work was a 400 sentence data set extracted from the Corpus del Español⁵ (henceforth CdE) 1900s subcorpus, created by Mark Davies from Brigham Young University. For each verb, 100 sentences with finite verb forms were selected randomly. *Arrojar*, *tirar* and *lanzar* have nominal forms which are tagged as verbs⁶; these were excluded from the sample. Additionally, sentences for each verb were limited to a maximum of one per source in order to avoid biases connected to given texts or authors. The data was collected in the months of September and November, 2010.

The total occurrences of these verbs are shown in graph 1. Overall, *arrojar* is much less common than the other verbs; *tirar* is the next least frequent verb; *echar* and *lanzar* are the most common in the corpus.

Graph 1. Occurrence of the four *throw*-verbs in the CdE 1900s subsection.



Each extracted sentence was manually annotated for the type of INITIATOR, MOVANT and DIRECTIONAL. The specific parameters that were chosen are discussed in the relevant sections. It is important to note that wherever possible only two or three variables were used. This was done in order to ensure that the resulting data

⁵ The CdE corpus was chosen for its useful interface features and its ease of access. It allows searches by lemma, and it has a feature for randomizing the sample. This simplified the extraction process, since the interface already gave a randomized sample and the data included variations in tense, mood, aspect, person and number.

⁶ The forms were: lanza 'spear', arrojo 'bravery', tiro 'shot' and tira 'strip'

counts could be explored using statistical measures. Chi-square tests (explained in the following paragraphs) become unreliable with very low counts; any value below 5 is not safely tested by chi-square. Limiting the amount of variables per parameter helps to keep the counts higher.

Sentences from the corpora also contain phrases with other functions, such as phrases that detail the reason that an object was thrown, the manner in which it was thrown and the time when it happened, for example. The INITIATOR, MOVANT and DIRECTIONAL are the most frequent in the data set. These phrases are in a semantic and syntactic relation to the verb and could be argued to be core elements of the meaning of each verb (Morimoto 2001, ADESSE, Spanish FrameNet).

Previous studies have explored (the semantic make-up of) the lexical items that appear in specific (syntactic) relations to the verb or noun under study. Arppe & Järvikivi (2007) explored the types of subjects that occurred with synonymous Finnish verbs. They found that each verb had different preferences on the types of subject. They used morphological features in some cases, but the focus was on the semantics of the subject. Liu (2010) was able to organize synonymous adjectives into a scale of meaning by first exploring the kinds of nouns each modified.

Bybee & Eddington (2006) analyzed Spanish verbs of becoming focusing primarily on the types of words that combined with these verbs. Then they organized these words into several groups based on semantic similarity. This categorization showed that the verbs typically combine with specific words with high frequency. The less commonly occurring nouns tended to appear with more than one of the verbs. Wulff (2006) studied the verbs that occur in the go-V and go-and-V constructions. She argues that the different types of verbs that appear with each construction signal differences in meaning between the constructions.

Meaning and syntactic information can be explored in conjunction. Divjak (2006), Divjak & Gries (2008) and Gries & Otani (2010) propose using multiple levels of linguistic features instead of focusing on a single feature. They annotate their corpora with ID tags which include morphological, syntactic, collocational and semantic information. They argue that the conjunction and interplay of the various features give a more complete picture of the closeness of synonyms (and antonyms). Divjak & Gries (2008) use statistical analyses of these ID tags to derive clusters of verbs, showing some to be closer in meaning than others.

Divjak (2006) argues that the distribution of synonymous verbs in different constructions and the distribution of collocates that appear in the slots of those constructions can be used to measure the similarity of verbs. This is the focus chosen for this study. The

focus is on the participants or arguments that appear with each verb. Exploring the participant roles gives us data on the common collocates for each verb, and also gives us indications of the types of constructions that each verb can participate in.

3.1.1 Statistics

The data resulting from the annotation process is explored using three different statistical measures. I will exemplify all three tests in the following discussion, using an example from the study. The data is provided only to illustrate the statistical tests; a full description of this specific example is given in §4.2.1.

Table 1. Distribution of MOVANT types

	physical inanimate	physical animate	nonphysical
arrojar	50	23	27
echar	24	37	27
lanzar	11	41	48
tirar	54	28	6

MOVANTS are classified into one of three categories: physical inanimate, physical animate and nonphysical (inanimate). The resulting data count is shown in table 1.

The first test performed on the data was the **Chi-square Test**. This test is used to compute the probability that the distribution (i.e. the values that appear in the table) found in the sample could be this uneven or even more extreme. The chi-square results for table 1 show that with a X-squared of 73.83 and a df of 6, the p-value is 6.697E-14 (or 0.00000000000006697, moving the decimal point 14 places to the left). The relevant value is the p-value. If it is below 0.05 it is standardly considered statistically significant (King & Minium 2008:255-256). Significance indicates that there is a relationship between the choice of verb and the type of MOVANT it appears with. It also means that the results are not an effect of the sample, but can be assumed to apply to the entire CdE corpus (Tummers et al. 2005:242).

The Chi-square test is able to detect smaller and smaller relationships as the size of the sample grows. The **Cramer's V** measure is used to check the size of the effect detected by a Chi-square test; that is, it measures how strong the relationship is between the choice of verb and a specific variable. A Cramer's V value of 0.5 represents a large effect, 0.3 represents a medium effect, and 0.1 represents a small effect (King & Minium 2008:327-329). The Cramer's V for the data in table 1 is 0.3133. There is a medium effect between the choice of verb and the type of MOVANT.

If the previous two statistical tests show that the data was significant, a final test is run: the **chi-square goodness-of-fit test**. The first step is to compare occurrences with each variable versus occurrences with the other features. For example, table 2 shows the count for

physical animate MOVANTS, which is compared to the sum of physical inanimate and nonphysical inanimate, marked as Other.

Table 3 compares the observed values from the data with the expected values. If all the verbs are the same then they should behave the same, and therefore the proportion of physical animate MOVANTS to all other MOVANTS should be the same for all four verbs. The expected values reflect this. That is, the expected value is the one that should occur if all verbs have the same proportion of physical animate to other MOVANTS. Both the observed and expected values are shown in table 3.

Table 2. Distribution of physical animate MOVANTS versus other

	Physical animate	Other
arrojar	23	77
echar	37	51
lanzar	41	59
tirar	28	60

Table 3. Observed and expected data for physical animate movants, with goodness-of-fit p-value

	OBSERVED		EXPECTED		GOF p-value
	Physical animate	Other	Physical animate	Other	
arrojar	23	77	34.31	65.69	0.0172
echar	37	51	30.19	57.81	0.1263
lanzar	41	59	34.31	65.69	0.1587
tirar	28	60	30.19	57.81	0.6227

The goodness-of-fit (GOF) test compares the observed values to the expected values. The resulting GOF p-value signals whether the observed data is significantly different from the expected values. The p-value is shown in the final column in table 3 above. For example, *echar*'s observed distribution of 37 physical animate and 51 other MOVANTS is not significantly different from the expected. In other words, the observed distribution could have happened due to chance. In table 3, only *arrojar* shows a significant effect for this variable (physical animate). It is the only verb with a p-value below 0.5.

This process was carried out for each of the three variables; that is, physical animate versus other, physical inanimate versus other and nonphysical inanimate versus other. The result is a GOF p-value for each comparison. Table 4 summarizes the results. The significant p-values are shown in bold. In most of the tables, only the significant p-values will be shown; where the p-value is not significant, the relevant box will be left blank.

The p-value for the goodness-of-fit test, plus a visual comparison to the expected value, highlights the different preferences of each verb. This is illustrated using arrows. A down arrow ↓ means that the observed distribution is lower than expected, while an up arrow ↑ means the observed distribution is higher than expected. For example, *arrojar* has a lower

number of physical animate MOVANTS and more physical inanimate MOVANTS. *Lanzar* has fewer in this last category (physical inanimate MOVANTS), contrasting with *arrojar*. *Lanzar* instead has a higher number of nonphysical MOVANTS.

Table 4. Distribution of MOVANTS with goodness-of-fit p-value

	Nonphysical		Physical animate		Physical inanimate	
		GOF p-value		GOF p-value		GOF p-value
arrojar	27	0.703287	23 ↓	0.017217	50 ↑	0.00694
echar	27	0.684723	37	0.12631	24	0.05947
lanzar	48 ↑	2.04E-05	41	0.158685	11 ↓	7.47E-08
tirar	6 ↓	5.59E-06	28	0.622657	54 ↑	2.13E-06

Notice in Table 4 that none of the counts for *echar* are significantly different from the expected. This does not mean that nothing can be said about this verb, or that the data provide no insight into its behavior. In fact, we can say from the data that the MOVANTS are distributed roughly 1/3 for each variable. In other words, 1/3 of all MOVANTS for *echar* are nonphysical, 1/3 physical animate and 1/3 physical inanimate.

The three statistical tests (Chi-Square, Cramer’s V and Goodness-Of-Fit Test) are used to explore the results of the annotation of the data. All statistical tests were run on R and Microsoft Excel. All graphs and tables were made with Microsoft Excel. The tests are a starting point for the semantic analysis of each verb and their similarities. For example, if the tests find that *arrojar* has a higher number of inanimate INITIATORS, the following step I take is to detail the possible reasons that explain this behavior. Through this detailed look at the semantics, we can slowly build up a picture of the polysemy of each verb and the synonymic relations between them. The statistical results of the 400-sentence corpus are discussed in §4.1, §4.2.1, §4.3.1 and §4.3.2.

This study explores the features individually. That is, each variable is measured one at a time. Tummers et al. (2005:243) argue that analyzing a series of features independently of each other is a simplification of the language. In fact, language is complex and parameters are capable of interacting. But Liu (2010:62) points out that the way that near synonyms differ will often vary depending on the words under study. This study is in fact the first step of exploring which features could be relevant to these four *throw*-verbs. Gilquin (2010) begins her analysis of periphrastic causative constructions by exploring each feature individually using chi-square tests, and only afterwards moves to statistical measures (linear regression) to study all features concurrently. There is a value, then, in exploring features individually, if only as a first step.

A second step would be to follow Gries (2006), Divjak (2006) Divjak & Gries (2008), Gries & Otani (2010) and Gilquin (2010). They use statistical tools that take into account all features simultaneously. In Divjak & Gries (2008:192-193) this results in a dendogram represents the different degrees of semantic similarity between the verbs in their study. The verbs that are clustered or connected earlier are semantically closer than the verbs that are connected later. A statistical study analyzing all kinds of semantic, syntactic and morphological features simultaneously would be a further step in the study of these verbs.

3.2 Collostructional Analysis

The 400-sentence corpus is the major source of data. Through manual annotation and semantic analysis, we can paint a picture of the data collected. The statistical tests ensure that the patterns are significant and representative of the verbs under study. Still, it is of interest to be able to explore a larger data set. The benefits of analyzing a larger set are two-fold. First, it allows us to confirm some of the results of the 400-corpus. Secondly, it allows us to discover patterns that happened to not be represented in the sample corpus.

A second limited corpus study was performed, again using the 1900s subcorpus of the CdE. The data for the collostructional analysis was extracted in the months of March and April 2011. The purpose of this second study was to explore the collocational patterns of these verbs. Many studies have used collocational patterns in studying verbs. Dąbrowska (2009) used collocational patterns to show that speakers can distinguish between near-synonymous motion verbs. In her study, collocates include different kinds of words that occurred with each verb within a sentence, such as nouns, adverbs and prepositional phrases. Bybee & Eddington (2006) study four Spanish verbs that often occur in verbal periphrasis. Their relevant data includes only the adjective that occurs as the second element in the periphrasis. In both cases, the collocational patterns revealed that the verbs have specific preferences for the words they co-occur with.

These two studies implement two different definitions of collocations; one including all types of words in all types of relations with the verb and another where collocates are limited to specific types of words in specific relations to verb. Stefanowitsch & Gries (2003) argue that this second operationalization of collocations is the most insightful. They propose a method for analyzing collocational preferences which they term **collostructional analysis**. Their analysis begins with a construction. Then they investigate which lexical items are attracted or repelled by a slot or position in that construction (2003:214). The constructions

range in complexity and schematicity, from a single verb (where they explored its object) to the ditransitive construction (where they explored the verb slot). My second study employs the Stefanowitsch & Gries (2003) methodology, along with their statistical measures.

For each *throw*-verb, I found the ten most commonly occurring nouns within a seven-word window. There is no standard window size (Stubbs 1995:11), though a 5-word window is often used (Gilquin 2010:172). A larger window was chosen for two reasons. First, since Spanish tends to have free word order, the elements in a sentence can vary in location, sometimes across a fairly large distance. Secondly, the frequency of each noun was quite low, so increasing the window size could increase the count. The result of this search was a list of 32 words representing the top ten nouns that collocate with each verb (some of the nouns appeared in the top ten list for more than one verb).

The next step was to extract all co-occurrences of a noun from the list with each of the four verbs. For example, *carcajada* ‘laugh’ appeared in the top ten list for *lanzar*. This second step involved searching for all occurrences of *carcajada* ‘laugh’ with each verb: *arrojar*, *echar*, *lanzar* and *tirar*. This was done for all 32 nouns. The resulting data had to be manually sorted, in order to ensure that the noun occurred in a specific semantic relationship with the verb. The study focuses on two relationships: one where the noun was the MOVANT of the verb and another where the noun represented the DIRECTIONAL.

Stefanowitsch & Gries (2003) use a **Fisher’s Exact Test** to measure the level of attraction of an element to a slot in a construction. Fisher’s Exact Tests are run on a two by two table. Table 5 illustrates how a data table is constructed.

Table 5. Exemplification of the data collection process for collocation analysis

	<i>luz</i> ‘light’	not <i>luz</i> ‘light’	TOTAL
arrojar	(a) 15	(c-a)	(c) 502
not arrojar	(b-a)	(d-b)-(c-a)	(d-c)
TOTAL	(b) 4631	(d-b)	(d) 1953930

The number of occurrences of a noun, in this case *luz* ‘light’, as the MOVANT of the verb *arrojar* appears in (a). The number in (b) is the total occurrences of the noun *luz* ‘light’ in the corpus. The number in (c) is the total number of times the verb *arrojar* appears in the corpus, excluding infinitives, gerunds and participles (consistent with the 400-sentence corpus). Finally, (d) is the total number of verbs in the corpus. The rest of the table is filled by subtraction. For example, the combination of *arrojar* + N is found by subtracting the

occurrence of *arrojar* + *luz* ‘light’ from all the occurrences of *arrojar*. This is meant to represent all constructions of V + N that occur with *arrojar*, but do not involve *luz* ‘light’.

This type of table is filled for all combinations of verb and noun. Then a Fisher’s Exact Test was run for each two-by-two table. The test was run on Microsoft’s online Fisher’s Exact Test Calculator⁷. The result is a p-value. In the case of table 5, the p-value is 2.79E-12 (or 0.00000000000279). The p-value indicates the level of attraction of the noun to the verb. A noun is attracted to a verb if it has more occurrences than expected and its p-value is small: the smaller the p-value, the larger the attraction. In this example, *luz* ‘light’ is highly attracted to the MOVANT position of *arrojar*. Repulsion can also be captured by this measure. The only difference is that the noun occurs less often with the verb. The p-value in such a case represents the level of repulsion.

Stefanowitsch & Gries (2003:227) argue that one of the benefits of their method is that it results in a ranked list of words associated to the construction, and this rank lends itself to meaningful analysis. In our study, the ranked list lends itself to two meaningful comparisons. First of all, one can compare the behavior of the various nouns with a single verb. This makes it possible for us to say which noun is most attracted to a verb. Since each attracted noun usually signals different meanings expressed, this also allows us to tentatively posit the most salient meanings for each verb. Thus the collocation analysis can give some insight into the polysemy of each verb.

The collocation analysis also provides insight into the synonymy of these verbs. Comparing a single noun across all four verbs, gives data on the meanings that these verbs share. We can compare the attraction of a single noun across all four verbs. This allows us to detail which verbs occur with a certain noun (and therefore express a specific meaning). The p-values can also pinpoint which verb prefers a given meaning.

There are some limitations to the collocation analysis, speaking specifically from the results of our study. First of all, in many cases the p-value is higher than 0.05 and is therefore not significant. It is unclear whether anything meaningful can be said about those instances. Secondly, there were only three cases of repulsion. Again, it was unclear whether anything meaningful could be said about why there was repulsion. The limited data available likely had an effect.

The results of the collocation analysis in most cases confirm the patterns found in the 400-sentence corpus, showing that the patterns found are representative of the entire

⁷ <http://research.microsoft.com/en-us/um/redmond/projects/mscompbio/FisherExactTest/>

corpus. The colostruational analysis also provides some valuable information on DIRECTIONALS, especially since the 400-sentence corpus provides little data on this final argument. The results of the colostruational analysis are described in §4.2.5 and §4.3.3.

3.3 Experimental Study

Several authors have recommended the use of multiple data sources when exploring linguistic phenomena (Labov 1972, Gilquin & Gries 2009, Gillham 2007). Arppe & Järvikivi (2007) is a recent example of a corpus study using experimental data to test their corpora results. Having this second data source allows one to corroborate previous corpus findings (Gilquin & Gries 2009:17, Arppe & Järvikivi 2007:27). It is also possible to use experimental data to explore phenomena that were not found in the corpus, since corpora will necessarily have a limited data set (Gilquin & Gries 2009:13). Using two types of data allows a more nuanced analysis of the phenomena.

The primary goal in this project was to complement both corpus studies (the 400-sentence corpus study and the colostruational analysis): since the results on DIRECTIONALS were limited, an experiment allows me to expand on the available data and confirm specific hypotheses (Tummers et al. 2005:233). The limited data set in the main corpus study results in little data for DIRECTIONALS. There are so many types of DIRECTIONALS and so few repeated words or semantic classes that little can be gleaned from the 400-sentence corpus data. The colostruational analysis did show tendencies in the types of DIRECTIONAL, but these cannot be confirmed in the 400-sentence corpus.

The experimental data explores two results, one from the colostruational analysis and another from the 400-sentence corpus. In the first case, the verbs seems to differ when it came to expressing direction, involving the nouns *aire* ‘air’, *piso* ‘floor’ and *suelo* ‘ground’. The first can be seen as contrasting with the latter two in directionality. *Lanzar* is attracted to upward motion, while it is not attracted to either phrase representing downward motion. These results, though, cannot be confirmed in the 400-sentence corpus, due to the low occurrence of these specific nouns in the sample.

Another trend seems to arise concerning the optionality of DIRECTIONALS. *Echar* has fewer sentences in the 400-corpus that lacked a DIRECTIONAL, compared to the other verbs. This result is statistically significant. This seems to indicate that a DIRECTIONAL is a profiled aspect of this verb’s meaning and that *echar* has a stronger requirement on expressing this argument.

To give a fuller picture of the role that the DIRECTIONAL plays for these verbs, a test was set up. The purpose was to explore two specific issues: 1) directionality of motion and 2) optionality of a DIRECTIONAL. The questionnaire was limited to these two issues in order to keep the test short, that way avoiding fatigue effects (Dörnyei 2003:14).

3.3.1 Materials and Procedure

The questionnaire consisted of 30 sentences. In each case, a verb was missing from the sentence. The subjects were instructed to fill in the blank with the verb or verbs that would best complete the sentence. The only options were the four *throw*-verbs. Respondents were told that they could write several verbs if they felt that they were (almost) equally as good in that context. Even so, more than half the respondents (19 out of the 30) only provided one verb per test sentence.

The test was printed as a booklet with 8 pages. This format was chosen since it feels and looks short and is therefore more welcomed by respondents (Dörnyei 2003:19). The initial page was a cover page which included the instructions and three example sentences. The 30 test sentences spanned the next 5 pages. There were four different randomized versions of the test in order to avoid any effects from order of presentation. The final page asked for some basic demographic information: age, education level and the place where the respondent was raised. The task took 15-30 minutes to complete.

The 30 sentences in the test were divided into 4 types. Two sentences were included as controls. These were always placed as the first and last sentence of the test. The control sentences included relatively fixed phrases, where there should only be one choice for an answer. The sentences from the tests are shown in (4) and (5); the correct verb is in parentheses.

(4) Tiene que _____ de la palanca. (tirar)
'You have to _____ on the lever'

(5) Ellos le _____ la culpa al jefe. (echar)
'They _____ the blame on the boss.'

The remaining 28 sentences tested the variation under consideration. Half of the sentences explored the issue of directionality (to the air versus to the ground/floor) and the other half explored the optionality of a DIRECTIONAL.

In the directionality set, 7 sentences expressed upward motion, 4 with the phrase *al aire* 'to the air' and 3 with other phrases: *al techo de la casa* 'to the roof of the house', *encima del closet* 'on top of the closet', and *al segundo piso* 'to the second floor'. The other 7

sentences of this set expressed downward motion; 2 with *al suelo* ‘to the ground’, 2 with *al piso* ‘to the floor’, and 3 with other phrases: *debajo del ropero* ‘under the dresser’, *al pozo* ‘to the well’, and *abajo* ‘down’.

The other set testing the optionality of the DIRECTIONAL was set up in a similar fashion. Seven sentences did not have an overt DIRECTIONAL. These were paired with 7 other sentences that had a DIRECTIONAL, always a goal. Examples include, *al lago* ‘to the lake’, *en la fuente* ‘in the fountain’ and *en el cesto* ‘in the basket’.

The seven sentence sets form a multi-item scale (Dörnyei 2003:33-34). The seven sentences from the upward directionality set focus on the same target (upward motion), but do so with different types of sentences, different objects thrown and different overall context. The benefit of multi-item scales is that they “maximize the stable component that the items share and reduce the extraneous influences unique to the individual items” (Dörnyei 2003:34). This means that it is more likely that the results we find are true of all sentences of that type and are not due to the various specificities of a specific sentence.

All sentences had human subjects. The MOVANTS used in each subset varied. This was done in order to try to ensure that the preference applied across different kinds of objects being thrown. In the directionality set for example, each upward sentence was paired with a downward sentence. This means that they were similar in word order, length and the type of object that was thrown. The object was not always identical, in order to avoid too much repetition in the test. For example, one sentence contained the word *sombrero* ‘hat’ and its pair had *gorro* ‘cap’.

In three cases the semantic group of the MOVANT was repeated. Three pairs of sentences included various clothing items. Two pairs of sentences included only a clitic, so that the identity of the object was unknown (the equivalent of using *it*). Finally one pair used the word *piedra* ‘stone’ while another used *piedras* ‘stones’, differing only in plurality. According to the colostruational analysis (§4.3.3), the singular and plural forms patterned differently. The expectation was that they would prefer different verbs in the test.

Some of the sentences were based on the 400-sentence corpus, though they were often shortened or edited to make them clearer. Other sentences, though, had to be created. They were still based on the corpus to an extent, by using the same types of MOVANTS and DIRECTIONALS as were found in the corpus. Priority was not given to repeating the sentences from the corpus, because the focus was to derive data that was not available in the corpus. The questionnaire’s cover page and the 30 sentences used in the test are given in appendix A.

3.3.2 Respondents

The respondents were recruited in Juticalpa, Honduras. It is a town located in the center of the country, northeast of the capital Tegucigalpa, and is the capital of Olancho, the largest department of the country. A total of 37 questionnaires were filled out, but 7 were eliminated from the final study. Four were eliminated because the individuals responded incorrectly to the control questions. The other three were eliminated for leaving test questions unanswered. The discussions of the test will only refer to the 30 remaining questionnaires.

Most of the respondents (14) were raised in this same city, 10 were originally from other cities in the same state (Olancho), and 6 were raised in other parts of the country. The subjects varied in age and education level. The majority were 20-39, and had either a high school or a college degree. There were 15 female and 15 male respondents. A full breakdown of respondents is given in Appendix B.

The questionnaire was pre-piloted with four colleagues. Then the questionnaire was piloted with 20 individuals. The pilots helped correct ambiguous sentences, odd wording and other issues such as the formatting. The entire process from pre-pilot to the administration of the questionnaire spanned from August 2011 to January 2012.

The CdE contains text mostly from the larger Spanish speaking countries. Only four data points in the 400-sentence sample (one for each verb) originated in Honduras, all from the newspaper La Prensa. A possibility exists that there are dialectal traits in the experimental data. Unfortunately, exploring dialectal variation (along with variation due to gender, age, education level, register, etc.) is beyond the scope of this project. Some anecdotal data is provided in order to give at least a basic picture of the possible factors.

3.3.3 Statistical Measures

Once the questionnaires were finished, all data was entered into a Microsoft Excel spreadsheet. The responses were summed up for each of the four sentence types. That is, all the responses for the seven sentences with upward motion were added together. The same was done for the other three sentence types. This resulted in a four by four table showing the occurrence of each verb with each sentence type. The results are shown in table 6.

Table 6. Distribution of verbs across the four sentence types in the questionnaire

	Upward motion	Downward motion	No directional	With a directional
arrojar	18	59	33	45
echar	11	24	32	56
lanzar	143	59	60	50
tirar	81	116	119	108

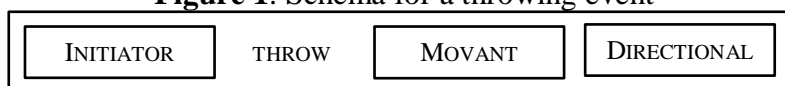
The results were then explored using the same statistical methods as the 400-sentence corpus. Namely, significance was tested with the chi-square test and the effect size with the Cramer's V test. The variation in behavior of each verb was further explored with the chi-square goodness-of-fit test. See the §3.1.1 for a full description of these tests. The results of the questionnaire are discussed in §4.3.4.

Chapter 4. Study of *Throw*-verbs

The starting point of this study is the possible synonymy of four Spanish verbs that express a throwing event. As discussed in the introduction to chapter 3, a typical throwing event can be described as including a thrower (INITIATOR), an object thrown (MOVANT) and a path of motion (DIRECTIONAL). These three participants are part of the THROWING schema for each verb. The schema is shown in figure 1.

The example in (1) (repeated from example (3) in chapter 3) illustrates how the participant roles of a *throw*-verb are normally expressed in a sentence. Throughout this paper, where necessary, the INITIATOR will be *italicized*, the verb in SMALL CAPS, the MOVANT underlined, and the DIRECTIONAL will be **bolded**.

Figure 1. Schema for a throwing event



	INITIATOR	VERB	MOVANT	DIRECTIONAL	
(1)	<i>Bert</i>	ARROJA	<u>pedras</u>	a su barquito	CdE:19-F, Adam Birner
	'Bert	throws	stones	at his little boat'	

Prototypicality is an important notion in cognitive linguistics. Different parameters have been proposed in order to classify elements as the prototype. Some researchers argue that the prototype is the most cognitively salient; corpus-based researchers usually consider the prototype the most frequent in a corpus (Gilquin 2006). Gries (2006) argues for a prototype that is the most frequent in the corpus and the one that exhibits the most variation in the characteristics that were annotated.

Cognitive salience would need to be explored with psycholinguistic experiments, which was not possible for this study. A look at the frequency of the THROWING schema shows that each verb has a different behavior; it is most frequent with *tirar* and *arrojar*, but is much less common with *lanzar* and *echar*. Based on frequency, different prototypes would have to be posited for each verb.

Still, I will use the THROWING schema as central for all verbs. One reason is that many cognitivists view concrete and physical senses as primary (MacWhinney 2001, Lakoff & Johnson 1980). The idea is that physical (versus abstract) things are easier to comprehend from our experiences with our bodies.

But the main reason for positing a central sense is that it allows for a single starting point for all verbs. That is, all four verbs are judged from the perspective of the same schema. All variations and extensions in meaning and usage can be compared to a single schema shared by all. Throughout this paper, I begin by describing the results from each study. Then any specific constructions or patterns of usage that appear with each verb are described. Then, these variant constructions are compared to the central THROWING schema.

I begin by describing the position of the INITIATOR (§4.1). The 400-sentence corpus is the only data source on this participant. I continue with a lengthy discussion of the MOVANT (§4.2). I begin by describing the results of the 400-sentence corpus (§4.2.1) and a semantic analysis of the results (§4.2.2-§4.2.4). I then describe the results of the collocation analysis (§4.2.5). I follow with a discussion of sentences with no overt MOVANT (§4.2.6), which could not be tested statistically. The most important findings from the study of MOVANTS are summarized in §4.2.7.

The discussion then turns to the DIRECTIONAL (§4.3). I begin by describing some of the results from the 400-sentence corpus (§4.3.1 and §4.3.2). Then I discuss the results of the collocation analysis (§4.3.3) and the results from the questionnaire (§4.3.4). In this final section I also describe how the results from the three tests converge and how they diverge. I then discuss the case of aspectual directionals from the 400-sentence corpus (§4.3.5). I end with a semantic analysis of a specific schema with *tirar* (§4.3.6). A summary of the major conclusions from the study of DIRECTIONALS is given in §4.3.7.

4.1 Initiator

The first participant in a typical throwing event is an INITIATOR. It is an entity that is conceived of as the causer of the action. The variable chosen to explore this position was **animacy**: whether the INITIATOR is an animate or an inanimate entity. Previous corpus studies have used animacy as a variable for elements in subject position (Divjak & Gries 2008, Gilquin 2010, Glynn 2009, Newman & Rice 2004). Theoretical works have also proposed that verbs can have requirements on the animacy of their subjects (Rozados Vila 1998, Lamiroy 1991, Cruse 1973). In the annotation process, all humans and animals were marked as animates; all other entities (companies, body parts, natural forces, etc.) were inanimate.

Two issues had to be resolved during the annotation process. First, Spanish is a so-called pro-drop language. Most of the time, no overt noun or pronoun appears as the subject in a sentence.

(CdE:19-F, Memoria sin tiempo)

- (2) Tiró los despojos en el cantero de flores
 threw.3rd.sg the wastes in the bed of flowers
 ‘S/he threw the waste in the flowerbed.’

In (2), there is no separate noun or pronoun to indicate the individual doing the throwing. Even so, the referent can be picked out because verbal morphology always indicates the person and number of the subject. Additionally, the referent is usually mentioned in the surrounding discourse.

The appearance or not of a subject is usually attributed to discourse pragmatics (NGRAE: §33.5). Since the presence or absence of an overt subject was likely not related to the choice of verb, presence or absence of an overt form was not studied. Instead all sentences were annotated for the animacy of the INITIATOR, whether mentioned in the sentence or not. In two instances, once each with *lanzar* and *tirar*, it was not possible to determine the exact nature of the INITIATOR; in these cases, this slot was marked as unknown.

A second difficulty arose with certain sentences involving a clitic. An example is shown below:

- (3) Nada se tira. (CdE:19-F, Demasiada historia)
 Nothing CL.3rd throw.3rd.sg
 ‘Nothing is thrown (out)’

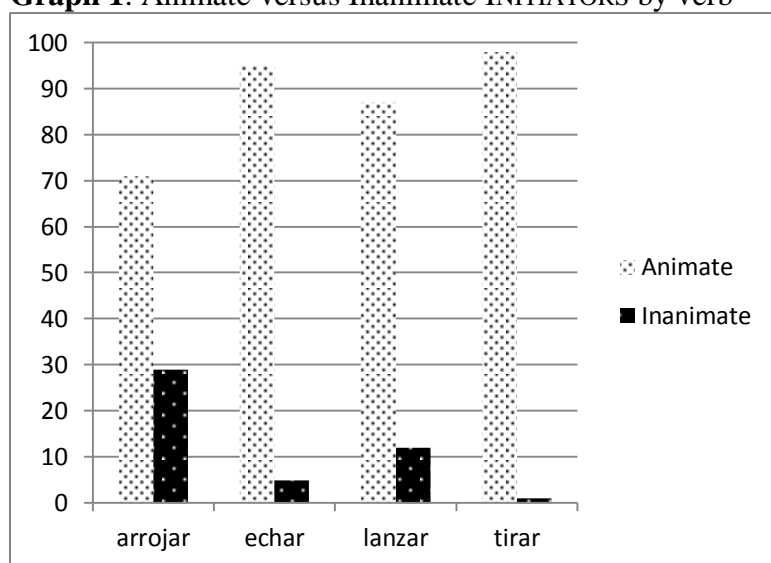
These constructions are usually called *pasivas reflejas* ‘reflexive passives’ (Gómez Torrego 1998:28). The closest English translation is a passive form. These are sentences which occur with a *se*-form clitic, where the referent is meant to be indeterminate. The grammatical subject, marked by verbal agreement, is actually what would normally be the MOVANT; in (3) the subject is *nada* ‘nothing’. These sentences, though meant to be indeterminate in reference, are always understood as being performed by a human. Therefore, they can be classified as animates, and were marked as such in the study.

The counts from the corpus are shown in table 1. The results are significant; with a X-squared of 43.92 and a df of 3, the p-value is 1.567E-09. The test on effect size (Cramer’s $V = 0.3322048$) shows a medium effect size (King & Minium 2008:327-329). The variation is significant and can be seen as reflecting actual differences among the verbs.

Table 1. Animacy of the INITIATOR

	Animate	Inanimate	GOF p-value
arrojar	71 ↓	29 ↑	9.99E-08
echar	95 ↑	5 ↓	0.03486
lanzar	87	12	
tirar	98 ↑	1 ↓	0.00087

Graph 1. Animate versus Inanimate INITIATORS by verb



There is a relation between the choice of verb and the animacy of the INITIATOR. *Lanzar* occurs mostly with animate INITIATORS, though it has at least 10% inanimate INITIATORS. Both *echar* and *tirar* reject inanimate INITIATORS, having less than 5 occurrences each. *Arrojar* contrasts with the others by

having a much higher number of inanimate INITIATORS, almost 30%. This can be visualized in graph 1.

Rozados Vila (1998:283) states that motion verbs generally have animate INITIATORS. The corpus data confirms this: animate INITIATORS are by far the most common for all verbs. This is especially important considering that animacy applies to the different senses that the verbs express. In other words, even when the *throw*-verbs express different notions, other than prototypical throwing, the INITIATOR is still preferably animate. This feature of the INITIATOR is maintained across most uses of each verb.

The types of inanimate INITIATORS appearing with *arrojar* and *lanzar*, and to a lesser extent with *echar*, are similar. One common INITIATOR is a body part. This is understood through metonymy: the body part represents the whole being. The body part mentioned is usually the one directly related to the action. The body part is an INITIATOR since it is capable of exerting motion: it receives that power from the being.

(4) ...*su puño* ARROJÓ **a la chimenea** el pliego... (CdE:19-F, Santa Eduguijes)
 ‘His fist THREW the sheet (in)to the chimney’

(CdE:19-F, Déjame Ver el Sol)

(5) *Mi mano* sujetaba lanzas, levantaba al caído y LANZABA **teas sobre los techos**.
 ‘My hand held spears, raised the fallen and THREW torches onto the roofs’

Another type of metonymy involves companies, where the company represents the individuals that work there. A company can perform (metaphorical) actions since it is in fact the individuals at the company who act.

(CdE:19-F, Los habitantes del abismo)

- (6) ...Ha de ser *nuestra sucursal* la que ARROJE una mancilla **sobre la Firma**...
'It must be *our office branch* that will THROW a stain **on the firm**...'

Another common inanimate INITIATOR is a natural force. This includes elements of nature such as volcanoes, hurricanes, storms and the sea; the following examples illustrate.

(CdE:19-N, Hon:Prensa:98Jun20)

- (7) *Volcán Pacaya*, en erupción violenta, ARROJA ceniza **a la capital de Guatemala**.
'*Pacaya Volcano*, in violent eruption, THROWS ash **(on)to the capital of Guatemala**.'

- (8) Pero *el sol alto* nos ECHA **encima** un calor **basto**. (CdE:19-F, Xaimaca)
'But *the high sun* THROWS **on(to) us** its vast heat.'

(CdE:19-F, Huellas en la arena)

- (9) *El mar* me LANZABA **de un lado a otro de mi pequeña barca**.
'*The sea* THREW me **from one side of my little boat to the other**'

The commonality between animates and natural forces is that both are capable of being agents (Cruse 1973, Levin & Rappaport Hovav 1994). Bosque (2004) would argue that even though most INITIATORS in our study are animates, this feature is not syntactically required by the verb. He would state that the fact that most are animate falls directly from the fact that a prototypical throwing event involves humans. He would argue that these verbs in fact require agents⁸.

Other cases of inanimate INITIATORS exist, but these are the direct result of the types of MOVANTS that each verb can appear with. For example, *lanzar* and *arrojar* can be used with nouns that refer to light and darkness. For this reason, any element that can be conceived of as the source of light can be its INITIATOR (10). *Lanzar* and *arrojar* can also express the throwing of sounds or voices; the source of sound is the INITIATOR (11). When plants produce part of their body, such as leaves or roots, one must use the verb *echar*⁹. Therefore, plants can be INITIATORS for this verb, shown in (12).

(CdE:19-F, Claroscuro)

- (10) *Los postes* LANZABAN trazos regulares de luz **sobre los muros y las banquetas**.
'*The light posts* THREW regular strokes of light **over the walls and sidewalks**.'

⁸ Another possible difference between INITIATORS is the extent of volition: if the energy sources have the desire or will for the actions to occur. An animate can purposefully and willingly throw an object, but the sea does not move the human by its own volition. This feature could be explored in future studies.

⁹ *Echar* in fact is used to express the production (including growth) or emission of elements that are thought to be natural parts of an entity. Plants produce leaves and roots, human bodies produce hair and bellies, and even chimneys and cars produce smoke. All of these use the verb *echar*.

- (11) ...tarareó acompañando la voz que la bocina ARROJABA... (CdE:19-F, Gallofero)
 ‘S/he hummed, accompanying the voice that the horn PRODUCED.’
- (12) ...*el tronco sin raíz* ... ECHÓ brotos verdes. (CdE:19-F, El peldaño gris)
 ‘*The rootless trunk* SPROUTED green shoots.’

These similarities exist, but *arrojar* behaves differently from the other verbs. This verb’s larger relative preference for inanimate INITIATORS (almost 30% of the sentences with *arrojar*) is due in part to a specific construction, which I will label the PRODUCING DATA construction. In this construction, the INITIATORS are events or data sources which present or give as a result information, especially numerical data (DELE, ADESSE, VOX). The following examples will illustrate:

- (CdE:19-N Cuba:CubaNet:98Ene15)
- (13) *Los cálculos* ARROJAN 133,061 abstenciones en el acto electoral del 11 de enero...
 ‘*The calculations* RESULTED IN 133,061 abstentions in the electoral act of January 11th...’
- (CdE:19-N Bolivia:ERBOL:01/26/96)
- (14) Tres campesinos heridos de bala y aproximadamente 150 detenidos ARROJÓ como saldo *el enfrentamiento entre efectivos antidroga y coccaleros*...
 ‘Three farmers injured by bullets and approximately 150 detained WAS THE TOLL of the *confrontation between antidrug troops and coke-dealers*.’

The INITIATORS are italicized and the MOVANTS are underlined. In (13), the INITIATOR is a data source which produces or shows a value. In (14) an event results in a number of people injured and detained. There are 16 examples of this construction in the data, making up about half of the inanimate INITIATORS for *arrojar*.

The INITIATORS for this construction can be divided into two groups, shown in table 2. The first group contains nouns that refer to different types of events. The second group includes words referring to data or to numerical values. This division is seen in the definitions for this construction. Both DELE and VOX state that this meaning of *arrojar* is used when discussing calculations or documents: they acknowledge data INITIATORS. ADESSE’s definition mentions *un hecho* ‘an event’ as one of the arguments, acknowledging event INITIATORS.

The PRODUCING DATA construction is also associated with specific types of MOVANTS. The table shows the MOVANT that appears with each INITIATOR in the sentences from the corpus. Some of the MOVANTS are actual numerical values (labeled NUMBER in table 2), such as *133,061 abstenciones* ‘133,061 abstentions’ in example (13) above. Others include

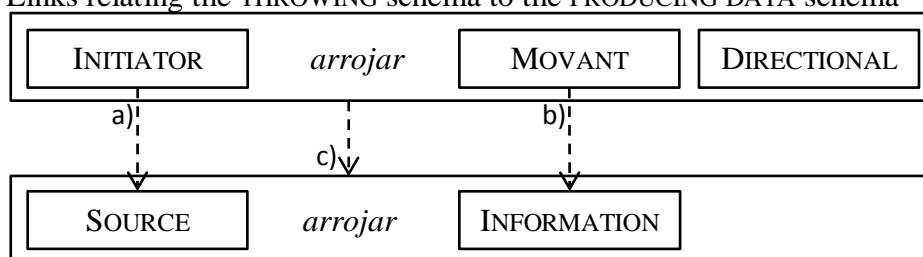
terms that refer to numerical values or even information in general, such as *novedades* ‘novelties (news)’.

Table 2. Examples of INITIATORS with accompanying MOVANTS from the PRODUCING DATA construction with *arrojar*.

INITIATOR: Event		MOVANT	
encuentro	‘meeting’	novedades	‘novelties’
accidente	‘accident’	saldo	‘balance’
enfrentamiento	‘confrontation’	NUMBER	
operación	‘operation’	resultados	‘results’
experiencia	‘experience’	resultado	‘result’
INITIATOR: Data		MOVANT	
total	‘total’	NUMBER	
resultado	‘result’	datos	‘data’
cálculo	‘calculation’	NUMBER	
censo	‘census’	cómputo	‘count’
inventario	‘inventory’	UNKNOWN	

The PRODUCING DATA construction is a motivated metaphorical extension from the central meaning of *arrojar* (the THROWING construction). The THROWING schema involves the three participants under study: an INITIATOR, a MOVANT and a DIRECTIONAL. The participants in the PRODUCING DATA schema can be labeled SOURCE and INFORMATION¹⁰. Figure 2 shows the linking relationships that exist between the participants in both schemas and between the schemas as a whole.

Figure 2. Links relating the THROWING schema to the PRODUCING DATA schema



Links a) and b) show the connections between the participant roles of each schema¹¹. A SOURCE can be seen as an extension (a) from an INITIATOR. They are both the initial component of the “event”, they are both sources of energy, and they are both seen as causers.

¹⁰ It is possible to view this schema for PRODUCING data as an abstraction of two lower-level schemas. One schema has events as the first element, while the other schema has data or calculations as the first element.

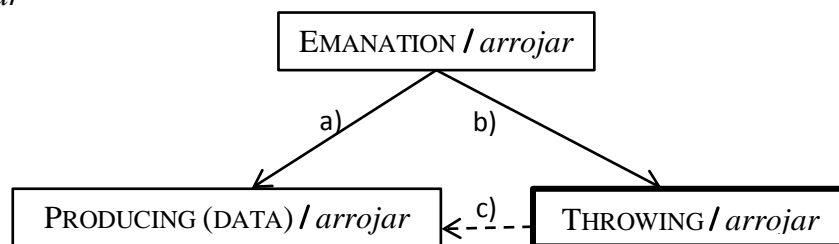
¹¹ There are other connections within and across the schemas that are not included in the figure. Each role has a relation to the other roles and to the verb, which Langacker (2008) would call correspondences. The two constructions can also be compared at this level. It is possible to say for example, that the relation between INITIATOR and MOVANT is similar to the relation between SOURCE and INFORMATION. It would be connected by an extension link.

An extension link can also be posited for the MOVANT and INFORMATION elements. INFORMATION is something that is given off and that comes from the source. This also applies to MOVANTS but in a physical sense. At an abstract level these first two participants of each construction are quite parallel. The two schemas do not coincide in the final element. The throwing sense involves a DIRECTIONAL and there is no equivalent or parallel role in the PRODUCING DATA schema.

The link shown in c) expresses that the entire schemas are linked, such that the PRODUCING DATA schema is an extension of the THROWING schema. This is true because of several intertwined factors. The entire meaning of each construction is related, producing information can be seen as a meaning extension from throwing. It is also an extension relation by virtue of the links that exist between the specific participants.

It is possible to view the connection between the two schemas at a more coarse-grained level. The focus is no longer on the participants, but on the overall meaning. Then we can posit an abstract schema that covers both uses.

Figure 3. Abstract schema motivating the THROWING and PRODUCING DATA schemas for *arrojar*



The extension relation that exists from ‘throwing’ to ‘producing’ is shown in c). An abstract schema captures the similarities of both uses. Let’s say that the semantics shared is **emanation**. Talmy (2000:105-106) uses the term emanation to label the fictive motion of an intangible object emerging from a source. Here, I understand emanation as something emerging from a source: in the PRODUCING DATA schema that something is intangible, while in the THROWING schema it is tangible. Both producing and throwing are instantiations of this higher schema; the elaboration link is shown by a) and b). This diagram also shows that the schemas share the same phonological shape.

The fact that the higher level schema is more abstract and is instantiated by both constructions does not mean that it is the primary meaning or the most salient. It is completely possible to maintain the salience of the throwing sense. This is marked in the diagram by the bolded box.

There is a large semantic distance between the throwing sense of the verb and the PRODUCING DATA construction. This is made apparent by some aspects of the analysis. First of all, none of the participants of the throwing event line up exactly with the participants of the PRODUCING DATA construction. We will see later that other meaning extensions sometimes maintain the same type of INITIATOR (or other argument), even when the semantics of the whole schema changes. Secondly, the schema that abstracts over both constructions, shown in figure 3, must be fairly abstract to cover the similarities between both. This also indicates that there is limited semantic overlap.

The exploration of the INITIATOR already teased out some differences in behavior among the verbs. *Echar* and *tirar* strongly prefer animate INITIATORS. Even though each verb is capable of expressing various types of meanings, those meanings always prefer animate INITIATORS. *Lanzar* and *arrojar* have many more inanimate subjects. Some examples are related to animates through metonymy: the body parts of animate beings or companies which are composed of individuals. Another common type is a natural force, which is seen as capable of creating and exerting its own force. Other examples of inanimates co-occur with specific MOVANTS, representing meaning extensions for each verb.

Most importantly, the data on INITIATORS is strongly influenced by one frequent construction with *arrojar*. This verb's higher number of inanimates is due in part to the PRODUCING DATA construction. I suggest that the PRODUCING DATA construction is an extension from the physical sense of 'throwing'. This extension in meaning can be expressed through different levels of analysis and by comparing the different elements that make up verbal meaning.

4.2 Movant

The second participant in a throwing event is the MOVANT. It is the element that is moving or conceptualized as moving. We will see that in many cases there is no actual physical movement, but different types of metaphorical or fictive motion. In our study, this slot is especially revealing, since the verbs tend to express different notions when occurring with different types of MOVANTS. There is in fact such a large amount of variation in meaning that only the most frequently occurring uses will be discussed¹². The reader should keep in

¹² Some examples that are not discussed include the fixed phrase *echar de ver* 'to notice' (1), sentences with no DIRECTIONAL but a phrase describing the manner of motion (2), and some cases of metonymy (3). Shown in the following examples: Continued...

mind that the following is not (and cannot be) an exhaustive description of all the meanings of each verb. It is also important to note that some of the meaning extensions, especially the less frequent ones, might not apply to all dialects.

4.2.1 The 400-sentence Corpus

Annotating the MOVANT was problematic: decisions had to be made about what counted as a MOVANT and what did not. The most common way to express the MOVANT is as the direct object of the verb (15). Direct objects can also be marked by a pre-verbal clitic (16).

(15) *TIRÓ su barra de hierro al suelo...* (CdE:19-F, Kensington Gardens)
 ‘S/he THREW her/his iron bar to the ground’

(16) *LO TIRARON sobre los ladrillos del calabozo...* (CdE: 19-F, El gallo)
 ‘They THREW him onto the bricks of the dungeon’

In both examples, the INITIATOR is a different entity than the MOVANT. In some cases both elements can refer to the same individual.

(17) *... ella lo ve y se LANZA encima de él...* (CdE: 19-F, Manzanos)
 ‘She sees him and THROWS herself on top of him’

This sentence includes both an INITIATOR (*ella* ‘she’) and a MOVANT (marked by *se* the third person clitic). It just so happens that the INITIATOR and the MOVANT refer to the same individual. The INITIATOR is acting on herself (Cifuentes Férez 2008:144). The clitic in (17) is a true reflexive clitic because it is part of the nominal paradigm (Gómez Torrego 1998:10). That is, the clitic can be replaced by *lo*, the third person singular non-reflexive clitic (or any other clitic), and describe a situation of throwing another individual. But sometimes clitics that look like reflexives do not pattern like normal reflexive clitics.

(1) *Aaú al bateador se le echa de ver.* (CdE:19-N, CR:PrLibre:98Jun28)
 Here to.the batter CL.3rd CL.3rd.nonrf throw.3rd of see.inf
 ‘Here, you can tell it about the batter’

(2) *El pez, cazador doméstico y amaestrado, se lanza como dardo...* (CdE:19-F, Maladrón: epopeya de los An...)
 the fish, hunter domestic and trained, CL.3rd throws like dart
 ‘The fish, a domestic and trained hunter, throws itself like a dart’

(3) *Pat Hengten tiró siete entradas...* (CdE:19-N, DR:Listin:98Jun22)
 NAME NAME threw seven innings
 ‘Pat Hengten threw seven innings.’

Pronominal verbs are verbs that appear with a clitic that usually co-references the subject. The clitic, though, cannot usually be replaced by any other clitic without causing a change in the meaning of the verb or ungrammaticality. Pronominal uses of verbs are normally marked in separate dictionary entries or sub-entry. The following use would classify as a pronominal form.

- (18) ...el grupo se LANZÓ al ataque. (CdE:19-F, El domingo fusilan a Januar...)
the group CL.3rd throw. 3rd to.the attack
'The group went on the attack'

The clitic in this type of sentence (18) is usually co-referential with the subject¹³. This has lead grammarians to argue that the clitic does not have its normal function of marking a direct object. Instead, the clitic is a morpheme that turns the transitive verb into an intransitive one (Gómez Torrego 1998:20-21). It is understood as changing a causative event into an inchoative one. Under this analysis there is no INITIATOR and *el grupo* 'the group' is the MOVANT, the element that moves.

Dividing verbs into pronominal forms and non-pronominal forms is justified in part because often the meaning of a pronominal verb differs in important ways from the non-pronominal verb. For example one can contrast the verb *ir* with the pronominal verb *irse*. The first verb means simply 'to go', implying direction away from the speaker. The second form with the clitic means something more specific: 'to leave'.

Despite this traditional analysis, I will treat the clitics in sentences such as (18) as MOVANTS. I follow Tuggy's (1985b) reasoning. The clitic in (18) marks a reflexive; the group is moving itself. The fact that reflexives have odd behaviors and sometimes have meaning extensions that are highly specific falls out from the fact that you cannot throw yourself in the same way that you can throw other things. Stating that the clitic in (18) does not behave like a normal reflexive, does not it fact mean that it is not a reflexive clitic. We can take it as an example of a non-prototypical clitic. Tuggy (1985b) calls both (17) and (18) examples of internal causation: the individual is both the INITIATOR and the MOVANT.

There are examples in the data where the appearance of the clitic is much more semantically anomalous. This is especially true with a specific construction that can occur with *echar*.

¹³ The clitic does not always have to be co-referential with the subject. See §4.3.5

- (CdE:19-F, Como un guante, como un cal...)
- (19) ...se echó a reír ella también...
 CL.3rd threw.3rd to laugh.inf she too
 ‘She too started to laugh’

This verbal periphrasis (Lamiroy 1991) involves the preposition *a* ‘at/to’ and a verb in the infinitive. The meaning is approximately ‘begin to do V’. As we will see (§4.3.5), some of the constructions occur with a clitic, while some do not. I classified the clitics in these types of constructions as MOVANTS. This choice was taken in order to give a consistent treatment of clitics during the annotation process. Additionally, to the extent that the meaning of *echar* in these periphrases derives from the central throwing sense, the appearance of a clitic can be seen as fulfilling the requirement for a MOVANT. Despite this annotation, I will later differentiate uses where the clitic turns a normally agentive action into a self-agentive one (Cifuentes Férez 2008:144) such as those shown in (17) and (18), from cases such as (19) where the clitic plays another role.

Often the constructions (and meanings) that the *throw*-verbs can occur in affect the types of arguments and participants that they combine with. A few cases are described here. The *throw*-verbs are capable of participating in verbal constructions called **light verb constructions**.

- (20) No ECHES la culpa a otros... (CdE:19-F, Angola y otros cuentos)
 no throw the blame at others
 ‘Don’t PLACE the blame on others’

Usually, the verbs in light verb constructions are considered semantically empty (Alonso Ramos 2004:17, Jespersen 1940 (cited in Brugman 2001)), so that the relation between the verb and the other elements in a sentence would be different from a regular verb plus noun combination. I treat the nominal element of light verbs as MOVANTS (*la culpa* ‘the blame’ in our example). I will argue (§5.1) that though the verb’s meaning is more abstract in LVCs, it still retains important parts of its meaning, including its participant roles.

Echar also occurs in the idiomatic phrase *echar de menos* (literally ‘throw of less’) which means ‘to miss someone/something’.

- (21) ECHO DE MENOS a los míos... (CdE:19-F, Luz)
 ‘I MISS my own (people)’

The meaning of this phrase involves two participants: a person who misses and the person/thing that is missed (e.g. *a los míos* ‘my own (people)’). It is this latter element that is

classified with the MOVANTS. The semantics of the second participant in *echar de menos* parallels the MOVANT in a throwing event; both are the second focal participant, the landmark (Langacker 2008).

Another interesting case occurs with *tirar* . It can mean ‘to pull something towards oneself or behind oneself’ (DELE). When expressing this meaning, the sentences show a special behavior.

- (22) ...TIRÉ de su gabardina, pero no se movió. (CdE:19-N, España:ABC)
 ... pulled.1st from his raincoat, but no CL.3rd move.3rd
 ‘I pulled on his raincoat, but he didn’t move.’

The most common sentence type for this meaning is to have the preposition *de* ‘from’ introducing the element that is being pulled (22). The one exerting the force is the speaker, and s/he is pulling on the raincoat. I agree with ADESSE in treating the element being pulled as the MOVANT (though see §4.3.6). This element is the one that is affected by the force created by the INITIATOR.

The PULL construction also appears in a different type of sentence shown in (23). This sentence type is less common in the 400-sentence corpus (and less common in ADESSE).

- (23) *él* TIRABA el caballo de las riendas (CdE:19-F, Pedro)
 he pulled the horse from the reins
 ‘ *He* PULLED the horse by the reins’

Here, there are three elements: the one pulling (he), the element being pulled (the reins), and also the element that is affected by the pulling (the horse). In a sense, the horse is also undergoing movement due to the force exerted by the INITIATOR. In these types of sentences, there is always a part-whole relationship: the element being pulled is a part of an entity affected by that pulling. In the annotation process, *las riendas* ‘the reins’ was considered the MOVANT, consistent with the rest of the sentences, while *el caballo* ‘the horse’ did not fall into any of the categories under study.

A final sentence type involves no overt mention of the MOVANT. This is exemplified in (24). The sentence includes the verb *tirar* but there is no mention of what is undergoing motion.

- (CdE:19-N, Hon:Prensa:98May11)
 (24) Fue *él* quien a los 28 minutos TIRÓ violento **desde 35 metros**.
 was he who at the 28 minute threw violent from 35 meters
 ‘It was *he* , who at 28 minutes SHOT with force **from 35 meters**.’

Sentences with no overt MOVANT were rare in the data. There were 11 sentences each with *echar* and *tirar* without a MOVANT expressed. We saw in §4.1, that Spanish allowed the subject to be unexpressed in a sentence. The same is not true with objects. They tend to be expressed. Therefore, the lack of an overt MOVANT is relevant. The distribution tables do not include the sentences with no overt MOVANTS because there are too few examples to be tested statistically, but they are discussed in §4.2.6.

Having discussed the elements that are considered MOVANTS, I will now detail how these were classified. All MOVANTS were divided into three categories: nonphysical (inanimate) movants, physical animate movants and physical inanimate movants. First of all, many uses of the verbs involve nonphysical elements: things that cannot be touched or handled, and therefore cannot be physically thrown. It is not the same to throw a candy (25) as it is to throw a laugh (26).

(25) ...*todos me LANZABAN caramelos...* (CdE:19-F, El nombre prestado)
 everyone CL.1st throw.3rd.pl candies
 ‘Everyone THREW me candy’

(26) ...LANCÉ una carcajada... (CdE:19-F, Fecundación fraudulenta)
 threw.1st a guffaw
 ‘I burst out laughing’

Distinguishing between physical and nonphysical elements is especially helpful for studying light verb constructions (Vaamonde et al. 2010:1906). Sentences with physical objects as MOVANTS tend to express literal motion, while the sentences with nonphysical elements are usually figurative or metaphorical in some way.

A majority of MOVANTS fall into the physical category. In order to make meaningful distinctions within such a large category, I divided the physical category into animate and inanimate elements. Separating physical entities into animate and inanimate allowed me to separate the data into more categories, making the semantic analysis simpler. It also helped to isolate the pronominal uses from non-pronominal ones.

This method exemplifies a bottom-up analysis (Gilquin 2010): I used the details of the corpora to guide my annotation process. The annotation choices I made are justified in at least three respects. Previous studies have used animacy as a parameter, as mentioned in §4.1. The distinction between physical and nonphysical elements is basically one of concreteness and abstractness, which has also been used in several other corpus studies (Gries & Otani 2010, Liu 2010, Glynn 2009, Vaamonde et al. 2010). The innovation in this case was to use the parameters concurrently.

Secondly, both Divjak & Gries (2008) and Liu (2010) mentioned adapting their annotation process based on the data they had available; this type of bottom-up analysis has been adopted before. Finally, the results of the statistical measures show that there is a statistically significant difference in the behavior of the verbs across these three variables. This indicates that the three variables are good predictors of the behavior of the *throw*-verbs.

The results from the data are shown in table 3. The p-value for the entire matrix of data is 6.697E-14 (with a X-squared of 73.83 and a df of 6). The Cramer's V is 0.3133, showing a medium effect size (King & Minium 2008:327-329). Each of the verbs shows a different preference in the type of MOVANT. The table also shows how each verb varies from the expected values. The goodness-of-fit p-value indicates that the observed data differs from the expected. The arrows in the table show in which direction each verb differs (See §3.1).

Table 3. Distribution of MOVANT types across all four *throw*-verbs¹⁴

	Physical inanimate		Physical animate		Nonphysical	
		GOF p-value		GOF p-value		GOF p-value
arrojar	50 ↑	6.94E-03	23 ↓	1.72E-02	27	
echar	24		37		27	
lanzar	11 ↓	7.47E-08	41		48 ↑	2.04E-05
tirar	54 ↑	2.13E-06	28		6 ↓	5.59E-06

Beginning with physical inanimate MOVANTS, the number of examples for *echar* is not significantly different from the expected value (approximately 1/3 physical animate MOVANTS). Both *arrojar* and *tirar* have significantly more physical MOVANTS than expected. In fact, (over) half of their total sentences include physical inanimate MOVANTS. *Lanzar* in contrast has significantly fewer MOVANTS in this category.

With physical animate MOVANTS, only *arrojar* has a significant result, having fewer physical MOVANTS than expected. The remaining three verbs have approximately 1/3 MOVANTS. In the final category, nonphysical MOVANTS, the number of examples for both *arrojar* and *echar* fall within the expected values, with approximately 1/3 nonphysical MOVANTS. *Tirar* has significantly fewer nonphysical MOVANTS, while *lanzar* has significantly more of this MOVANT type.

Table 3 shows that the verbs can be distinguished based on the MOVANT type. The goal now is to understand why the verbs show this distribution. In the following, I will discuss each MOVANT type, describing the most common uses and meanings that the verbs

¹⁴ The numbers for *echar* and *tirar* only add up to 88. There are 11 sentences with each verb that do not have an overt MOVANT (see §4.2.6). Additionally, in 1 sentence for each verb the exact nature of the MOVANT could not be discerned, and is therefore omitted from the table.

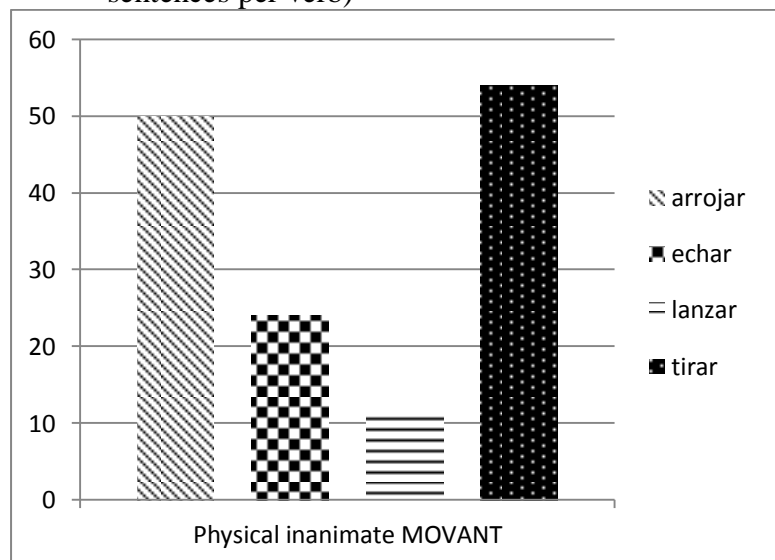
have when combined with each of the MOVANT categories. It will also be possible to describe areas of semantic overlap (in other words synonymy) and areas where one specific verb monopolizes a meaning. I begin discussing physical inanimate MOVANTS (§4.2.2), then describe physical animate MOVANTS (§4.2.3) and continue with a discussion of nonphysical MOVANTS (§4.2.4). I will then describe the results of the colostruational analysis (§4.2.5) and compare it to the results of the 400-sentence corpus. Finally, I discuss instances where there is no overt MOVANT (§4.2.6). The discussion on MOVANTS is then summarized (§4.2.7).

4.2.2 Physical Inanimate Movants

The first category is physical inanimate MOVANTS.

The results from the statistical tests show that *lanzar* had significantly fewer physical inanimate MOVANTS. *Arrojar* and *tirar* also show statistically significant behavior, having many more physical inanimate MOVANTS. In fact, half of the sentences with each verb have this MOVANT type. *Echar* falls in

Graph 2. Number of sentences with physical inanimate MOVANTS for each *throw*-verb (from a total of 100 sentences per verb)



between both extremes; 1/3 of its MOVANTS are of this type. I will discuss the meanings expressed by each verb individually. Then I will note any commonalities (there are very few) and what meanings the verbs prefer to express.

Arrojar has a large number of physical inanimate MOVANTS. Most of them express the concept of physically throwing an object.

(CdE:19-F, Anticipación y reflexión)

- (27) *El muchacho se quitó el casco transparente y lo ARROJÓ a sus pies.*
 ‘The young man took off the transparent helmet and DROPPED it at his feet’

- (28) ARROJÉ los cinco papeles por el balcón. (CdE:19-F, Estilo de Vida, Un)
 ‘I THREW the five papers through the balcony’

The examples instantiate the central THROWING schema: a human INITIATOR is physically causing a (small) physical object to move. This is the most common use with

arrojar. Its preference for physical inanimate MOVANTS is due to its increased use in the THROWING schema.

The verb *tirar*, like *arrojar*, also has a large amount of physical inanimate MOVANTS. And as with the previous verb, a majority of these express the notion of throwing an object.

(29) TIRÓ el cigarro para no fatigar sus pulmones. (CdE:19-OR, Penitencia)
'S/he THREW (away) the cigarette so as to not tire her/his lungs'

(30) Deja que TIRE esas cáscaras en el basurero. (CdE:19-F, Los habitantes del abismo)
'Let me THROW these peels in the trash'

Tirar also expresses a few other notions. The most common is the PULL schema, which was mentioned in §4.2.1 above.

(CdE:19-F, Tradiciones del hogar, Segu...)
(31) ...sintió que le TIRABAN del poncho.
'S/he felt that they PULLED on his poncho'

(CdE:19-N, España:ABC)
(32) ...TIRÉ de su gabardina, pero no se movió.
'I PULLED on his raincoat, but he didn't move'

(CdE:19-F, El camino)
(33) ...jamás TIRABA de navaja aunque sus adversarios lo hicieran.
'S/he would never PULL a knife even if her/his adversaries did'

The meaning of pulling is usually accompanied by the use of a specific syntactic construction. The MOVANT, the object that is pulled, is introduced by the preposition *de* 'from/of'. In a sense, (31) means that they were throwing him from his poncho (See §4.3.6).

Example (33) shows a fixed phrase that is built based on the PULL schema. The phrase *tirar de navaja* 'to pull a knife' has a specific meaning of 'taking out a weapon in order to use it' (DELE). The meaning is derived from the PULL schema semantically and syntactically, but the phrase has additional semantic and pragmatic connotations.

Tirar when combining with the noun *puerta* 'door' means 'to close violently' (DELE)¹⁵.

(CdE:19-N, Cuba:CubaNet:98Jun12)
(34) Agarró el bastón, echó una última hojeada al cuarto, TIRÓ la puerta y se alejó renqueando.
'S/he grabbed the cane, took a last look at the room, SLAMMED the door and walked away limping.'

When throwing, a person grabs hold of the object and applies force such that the object moves. This action also occurs in (34). The difference is that, since doors have hinges,

¹⁵ DELE marks this as a regional use of the Caribbean area of America.

the type of motion that the door undergoes is different from what normally happens when throwing an object.

One could argue, then, that there is no need to include the phrase *tirar la puerta* ‘to slam the door’ in the mental lexicon, since the meaning can be derived from the central meaning of ‘to throw’. Despite this, the phrase must be part of the speaker’s mental knowledge, because she must know that this meaning is only possible with *tirar* and not with any of the other verbs. Where *tirar la puerta* means ‘to slam the door’, *lanzar la puerta* necessarily describes a situation where a person lifts a door and flings it through space.

Tirar can also mean ‘to print’ (DELE), when combined with nouns referring to elements that are printed.

- (35) ...TIRÓ copia tras copia de aquellas imágenes... (CdE:19-F, El rey de los ratones)
 ‘S/he RAN OFF copy after copy of those images’

(CdE:19-OR, Habla Culta: San Juan (PR):...)

- (36) Entonces, una vez se TIRA el esbozo, se pone en cursivas...
 ‘Then, once the rough draft is PRINTED, it is put in italics’

This meaning of *tirar* could possibly be understood as a representation of the physical act of printing. That is, when printing, the final product moves out from the printer. This motion could potentially motivate the use of a caused motion verb.

Lanzar had the fewest physical inanimate MOVANTS. Still most of these referred to physically throwing an object.

- (37) ...**le** LANZO un trozo de pan... (CdE:19-F, Estación imposible)
 ‘I THROW **him** a piece of bread’

- (38) LANZÓ **al aire** su sombrero de yarey... (CdE:19-F, Sombra de las Batallas, La)
 ‘He THREW his straw hat **in the air**’

There is an example of metaphorical motion with *lanzar*, which in the data also appears with the verb *arrojar*.

- (39) Hubo un Ministro de Hacienda que ARROJÓ cuarenta millones más de papel **al mercado**. (CdE:19-F, Casa grande : escenas de la...)
 ‘There was a Secretary of Treasury who PUT *forty million more paper* **into the market**.’
 paper = money

- (40) ... Tran\$card LANZÓ **al mercado de la isla** una tarjeta de débito... (CdE:19-N, Cuba:CubaNet:98Jul2)
 ‘Tran\$card LAUNCHED a new debit card **to the island’s market**’

In both examples, the phrase *al mercado* ‘to the market’ appears. With *arrojar*, the INITIATOR is putting more money (*papel* ‘paper’) into the market. *Lanzar* can mean ‘to present an object or work to the public’ (VOX). In (39) the company is presenting a new debit card to the customers of the island. Though there is only one example of this schema with *lanzar* in the 400-sentence corpus, the collostructional analysis (§4.2.5) shows that it is in fact common with this verb.

The distributional behavior found for the verbs *arrojar*, *tirar* and *lanzar* can already be explained. For all three verbs, most of the sentences with physical animate MOVANTS express a typical event of throwing an object. They instantiate the THROWING schema. Though *lanzar* can express this meaning, it is not the preferred use of this verb. *Lanzar* is used only limitedly to express a typical throwing event. In contrast, *arrojar* and *tirar* appear frequently in the THROWING schema.

Echar also combines with physical inanimate MOVANTS, but the semantics related to this verb are very different compared to the previous three. Only a few of the sentences with this MOVANT type have a similar meaning to throwing a physical object.

(CdE:19-F, El principiante)

- (41) *El hombre* rompió el oficio en pedacitos y lo ECHÓ **al bote de basura marrón**...
 ‘The man ripped the document in pieces and THREW it **in the brown trash can.**’

(CdE:19-F, Del agua nacieron los sedie...)

- (42) *El chófer* inmediatamente la ECHÓ **en el depósito** ...
 ‘The chauffeur immediately THREW it **in storage**’

In these examples, the INITIATOR is causing an object to move in a specific direction. Still, I believe there is a relevant semantic distinction that can be made between *echar* even in cases such as (41) and (42) and the remaining three verbs in the THROWING schema. *Echar* implies less forceful motion. In (42), the chauffeur does not necessarily lift his arms and forcefully throw the object into the storage area. It is more likely that the sentence describes a situation where the man placed the object. In this case *echar* might better be translated as putting or tossing instead of throwing.

Echar seems to involve less force than the others. This seems to be backed up by DPA who describe *echar* as less intense. This lack of intensity can be seen in the types of meanings that this verb expresses. Take the following examples:

(CdE:19-F, Los hombres de a caballo)

- (43) ...*el masajista* le ECHÓ talco **debajo de las caderas**...
 ‘The masseuse PUT talcum powder **below her/his hips**’

(CdE:19-OR, Habla Culta: Havana: M36)

- (44) No **le** ECHAMOS crema, y aparte de eso, vaya, es más fuerte.
'We don't PUT any cream in it, and besides that, well, it is less strong'

In (43), the masseuse is putting talcum powder on the individual. It does not mean that he threw it forcefully or intensely, but purposefully let it fall on the customer. Something similar happens in (44) where the sentence is discussing a type of coffee. The verb does not describe a scene where they launch cream into the coffee. Instead it is an act of pouring. It is understood as pouring because the quality of cream requires pouring. In both cases, there is less force and intensity in the action described

Echar, in combination with specific physical inanimate MOVANTS, produces a few meaning extensions. Some examples are given here only to show the diverse uses of this verb. *Echar* combines with nouns that refer to various types of locks or locking systems.

(CdE:19-F, La guaracha del macho Camacho)

- (45) Graciela se encerró en la alcoba matrimonial, ECHÓ pestillo y lloró...
'Graciela shut herself up in the bedchamber, locked it and cried.'

(CdE:19-F, Son de la Guitarra, Al)

- (46) ...es mejor dejar guardados a los fantasmas en el clóset, ECHAS cerrojo y te tragas la llave.
'it's better to keep the ghosts hidden in the closet, lock it and swallow the key'

Echar appears with nouns such as *pestillo* 'latch', *cerrojo* 'bolt', *llave* 'key' and other instruments for locking or protecting (REDES). In those cases, as exemplified in (45) and (46), it means 'to lock'. It can be understood as applying or triggering the instrument (DCP).

Echar can also be used to refer to the production or growth of the parts of a plant.

- (47) ...*el tronco sin raíz* ... ECHÓ brotos verdes. (CdE:19-F, El peldaño gris)
'*The trunk without roots* SPROUTED green shoots'

(CdE:19-N, España:ABC)

- (48) Aquí ECHÓ sus raíces y conectó con el mundo artístico...
'Here s/he SET DOWN roots and connected with the artistic world'

With plants (47), *echar* can refer to the growth of roots, leaves, flowers, fruit etc. (DELE). These phrases can also be understood metaphorically. In (48), the phrase *echar raíces* means to 'establish oneself, to make a new life in a place that is not one's own' (DDFH). This is an example of an idiomatic phrase.

One final example of a fixed expression combines *echar* with the noun *tierra* ‘soil’.

(CdE:19-N, Perú:Caretas:1445)

- (49) *instancias superiores de la jerarquía militar* disuelven el equipo y ECHAN tierrita **al asunto**
 authorities superiors of the hierarchy military dissolve the team and throw dirt to.the matter
 ‘Superiors of the military hierarchy dissolve the team and cover up the matter’

The phrase *echar tierra* means to ‘hide or to try to erase the memory of something/one’ (DDFH). In (49), there is no act of physically putting soil/dirt over something. But this image is evoked. This figurative use could be a reference to burials, where a person is covered by soil (DDFH). One characteristic of *echar* is that it produces several different idiomatic phrases, and these take up a good amount of the data for this verb.

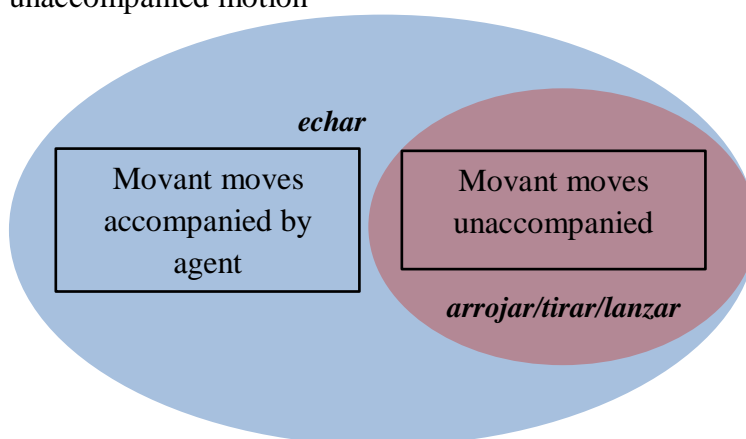
Difference between *Echar* and the Other *Throw-verbs*

All four verbs can express the notion of throwing an object. In other words, all instantiate the THROWING schema that was posited as the central sense for all *throw-verbs* . *Arrojar* and *tirar* occur much more frequently in the THROWING schema. There are few physical inanimate MOVANTS with *lanzar* , but most express a throwing event. Some other meanings are also possible. For example, *tirar* can mean ‘to print’, ‘to pull’ and ‘to slam (a door)’ and *lanzar* can mean ‘to present to the public’.

Echar behaves differently from the rest of the *throw-verbs* . Though about 1/3 of its MOVANTS are physical inanimate, the THROWING schema is not particularly common. Instead other schemas appear with this MOVANT type. *Echar* can express the pouring of a liquid, the locking of a latch and the growth of the parts of a plant. The verb also appears in idiomatic phrases such as *echar raíces* ‘to establish in a new place’ and *echar tierra* ‘to cover up’.

Additionally, the data seem to indicate that *echar* shows some important semantic differences from the other verbs. *Echar* seems, in some cases, to correspond more to the verb *put* . Levin (1993:147) describes the action of throwing (in English) as an event where an agent imparts force on an entity that is set into motion and moves unaccompanied by that agent.

Figure 4. Ability to express accompanied and unaccompanied motion



Potentially, what distinguishes *echar* from the other verbs is the fact that the motion of the element does not need to be unaccompanied. That is, *echar* can express instances where the MOVANT moves alone, without the INITIATOR or a part of its body accompanying the action. And *echar* can also express events where the agent does move along with the MOVANT. It is this later use that the other verbs do not have.

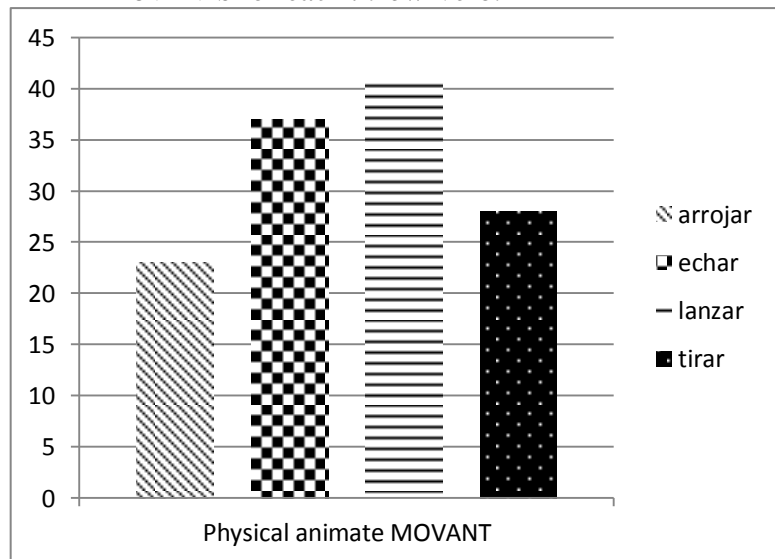
I also propose that *echar* in some cases seems to involve less force compared to the other verbs. Take for example, the following data: 75 sentences from 400-sentence corpus included phrases that described manner. Some of the phrases that appear with *arrojar* , *lanzar* and *tirar* are: *con fuerza* , *con rabia* ‘with strength, with fury’, *enfurecido* ‘enraged’, *con una inexplicable ira* ‘with an inexplicable fury’, *violento* ‘violent’, *con todo el furor de sus fuerzas* ‘with all fury of his strength’. These types of phrases referencing strength and violence do not appear with *echar* . The data is limited and it is presented here only anecdotally. Future research could clarify whether this intuition is correct. A systematic study of manner phrases in a corpus could provide better information. It is also possible to set up an experimental test judging the compatibility of each verb with different manner phrases.

4.2.3 Physical Animate Movants

Physical animate MOVANTS account for on average 1/3 of the MOVANTS in the data. *Arrojar* is the only verb that shows any significantly differing behavior. It has fewer physical animate MOVANTS than expected compared to the other three verbs.

Of the 100 sentences in the data with physical animate MOVANTS only 46 are instances of one entity throwing another.

Graph 3. Number of sentences with physical animate MOVANTS for each *throw-verb* .



(50) Me TIRARON **al suelo** y me amenazaron. (CdE:19-F, Amante, El)
 ‘They **THREW me to the ground** and threatened me.’

- (51) *La explosión me LANZÓ **contra un muro**...* (CdE:19-F, Lócura Húmeda)
'*The explosion* **THREW me against a wall**'

Most of the non-reflexive sentences in this category express similar meanings to (50) and (51). The *throw*-verb conveys the notion of physically causing another to move. Often there is a violent connotation to these sentences. This may be partly due to the fact that throwing someone requires force and strength, which are elements of a violent act.

One variant of this non-reflexive sentence type adds a connotation of not simply throwing, but of making someone leave a place (DELE, VOX). This is especially true for *echar*.

- (52) Por favor, ECHA a ese hombre **de ahí**; que se vaya ese hombre... (CdE:19-F, El camino)
'Please get **that man out of here**; that man should leave'

- (53) No me ECHARON a mí porque me necesitan pero con los demás es diferente. (CdE:19-F, Cuentos)
'They didn't GET RID OF me because they need me, but it is different with the others.'

- (54) ¿Por qué no lo ECHAMOS **a la calle**, como vino, sin un centavo? (CdE:19-F, Cuentos de tierra caliente)
'Why don't we KICK her/him **out** exactly as s/he came, without a cent?'

In these cases, *echar* does not necessarily imply any physical action. The INITIATOR could simply ask the person to leave. This verb can be used when an employee is fired from a job, exemplified in (53). It can also mean that a person is barred from or removed from their home. As seen in (54), the combination of *echar* and *a la calle* 'to the street' usually produces this meaning. In these cases *a la calle* is not literal. It is understood metaphorically: someone on the street is someone without a home.

This sense of getting rid of or barring from a place is also possible with *tirar* and *arrojar*, but is less common in the corpus.

- (55) "ARROJAD **de entre vosotros** al malvado" (CdE:19-AC, Enc:Espístolas a los Corint...)
'CAST AWAY **the evil** **from among you**'

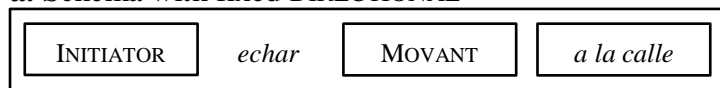
- (56) "Ella me TIRÓ, me sacó de su vida, me dejó y luego desapareció." (CdE:19-F, El peldaño gris)
'She GOT RID OF me, took me out of her life, left me and then disappeared'

In both (55) and (56) the *throw*-verb primarily means getting rid of someone, rather than any physical action of throwing someone. The three verbs (*arrojar*, *echar* and *tirar*) are capable of expressing similar, though not identical notions. There are no examples in the corpus of *lanzar* expressing this notion.

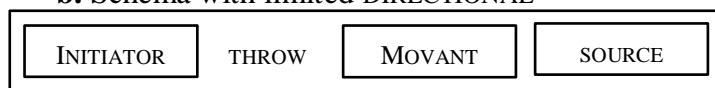
The data show three schemas for expressing banishment. One only appears with *echar*, which combines with *a la calle* ‘to the street’ (figure 5a).

Figure 5. Three schemas for expressing banishment or removal (BANISHMENT schemas)

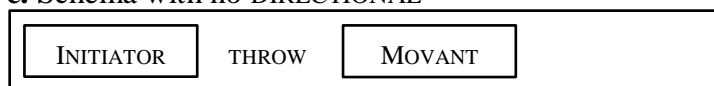
a. Schema with fixed DIRECTIONAL



b. Schema with limited DIRECTIONAL



c. Schema with no DIRECTIONAL



A second schema (figure 5b) occurs with *echar*, *tirar* and *arrojar*. The schema has a DIRECTIONAL, but it can only express a source, usually introduced by the preposition *de* ‘from/of’. This is seen in (52) and (55) with the phrases *de ahí* ‘from there’ and *de entre vosotros* ‘from among you’. A final variant includes no DIRECTIONAL (figure 5c). Sentences (53) and (56) are examples of this schema.

These three schemas can be considered a family of schemas, which I will label the BANISHMENT schemas. They relate in similar ways to the central THROWING schema. First of all, the INITIATOR of the BANISHMENT schema does not always have to perform a physical action or produce energy of any kind. The INITIATOR can simply ask the person to leave. Both physically removing someone and asking a person to leave are compatible with the BANISHMENT schema.

The MOVANT in the BANISHMENT schema is usually a human, especially with *echar*. There is some variation at the level of the DIRECTIONAL. In two cases, there is a DIRECTIONAL expressed in the sentence. In one case, the DIRECTIONAL is a fixed phrase with a specific metaphoric meaning. In another case, the DIRECTIONAL is limited to describing sources. In the final case, no DIRECTIONAL appears at all.

Non-reflexive physical animate MOVANTS also appear with the phrase *echar de menos*. It is a fixed phrase that means ‘to miss’. Sentences with this phrase mention both the person who has the feelings and the person who is missed. Example (57) shows that it is also possible to miss other inanimate entities.

(CdE:19-F, Preludio con fuga)

- (57) Los hijos no llegaron ... y *ninguno* los ECHÓ DE MENOS.
 ‘The sons didn’t arrive ... and *nobody* MISSED them’

(58) Pero *Balbina* lo ECHABA DE MENOS. (CdE:19-F, Casa de campo)
'But *Balbina* MISSED him'

(59) ... *el fumador* ECHA DE MENOS el efecto de la nicotina... (CdE:19-AC, Enc:Fumar)
'*The smoker* MISSES the effect of the nicotine'

The 400-sentence corpus shows 9 examples of the MISSING schema. *Echar de menos* is an idiomatic phrase. The meaning is mostly non-compositional: the meaning of the full phrase is not the sum of its parts. Instead the phrase as a whole has a very specific meaning, which seemingly has little connection to the 'throwing' sense of the verb. For that reason, it might be best to state that the MISS schema for *echar* is not semantically connected to the THROWING schema. Instead, they are only related by the fact that the same phonological form (*echar*) appears in both.

The majority of the physical animate MOVANTS are cases where the MOVANT is the same individual as the INITIATOR. The following sentences exemplify uses where the INITIATOR throws him/herself in a specific direction.

(60) *Menelao* se levantó desnudo como estaba y se ARROJÓ **contra mí**. (CdE:19-F, Gazapo)
'*Menelao* got up naked as he was and THREW himself **onto/against me**'

(61) *Una joven* se LANZÓ **desde el último piso de un edificio**... (CdE:19-F, Señales, una)intrahistoria
'*A young woman* THREW herself from the top floor of a building'

(62) Luego, se TIRÓ **en la cama**... (CdE:19-F, Debajo de la)cama
'Later, s/he THREW herself **onto the bed.**'

In sentences of this type, the INITIATOR is moving itself. The meaning would likely be glossed as 'jumping' or 'lunging' in English. *Tirar* occurs often in the data with this type of meaning, but the other verbs also express this meaning. There is usually a connotation of using a large amount of force though this may be tempered by context. For example, (60) could be a violent action of attacking another or it could be a less forceful event.

Echar stands out from these other verbs in preferring a less forceful reading.

(63) Nos ECHAMOS **bajo un pino**. (CdE:19-F, Robo)
'We (ourselves) LAID DOWN **under a pine tree**'

This example describes a notion closer to the one implied by lying down. *Echar* can be used to express the movement of one's body in various ways including lying down. Example (62) is related to this sense of the verb.

Reflexives (or pseudo-reflexives) also occur when the verbs are combined with DIRECTIONALS that refer to periods of time or to activities. Instead of throwing oneself to a location one can also throw oneself to a time.

- (64) Y *ambos se* ARROJAN **al futuro**... (CdE:19-F, Salón de Té Volvoretta)
 ‘And *both* THROW themselves to the future’

It is also possible to throw oneself to an action. The verb *lanzar* can combine with nominals that refer to actions or events. These uses fall into the category of pronominal verbs. The traditional analysis is that the clitic is not reflexive, but makes the normally transitive verb into an intransitive one (Gómez Torrego 1998).

- (65) ... Julián *se* lanzó a su encuentro. (CdE:19-F, De barro somos)
 NAME CL.3rd threw.3rd to his/her meeting
 ‘Julian plunged himself to the encounter’

- (66) ... los guardias *se* lanzaban a la caza de los fugados... (CdE:19-F, Santa Eduguijes)
 the guards CL.3rd threw.3rd to the hunt of the escapees
 ‘The guards launched a hunt for the fugitives’

These uses can be understood as expressing that an individual is throwing himself to an action. There is a notion of beginning an action. An abstract concept, in this case the concept of beginning, can be understood through a more concrete concept such as motion and space (Jackendoff 1990:25, Lamiroy 1991:88). This inchoative meaning takes up a large part of the reflexive physical animate MOVANTS with *lanzar*.

An inchoative meaning also appears with *echar* in its pronominal use. *Echar* combines with verbal forms to express the beginning of an action.

- (67) Nelly *se echaba* a reír... (CdE:19-F, Casa grande : escenas de la...)
 NAME CL.3rd throw to laugh
 ‘Nelly burst out laughing’

- (68) Pablo *se echó* a llorar nuevamente... (CdE:19-F, La mariposa azul y otros cu...)
 Name CL.3rd throw to cry again
 ‘Pablo burst out crying again’

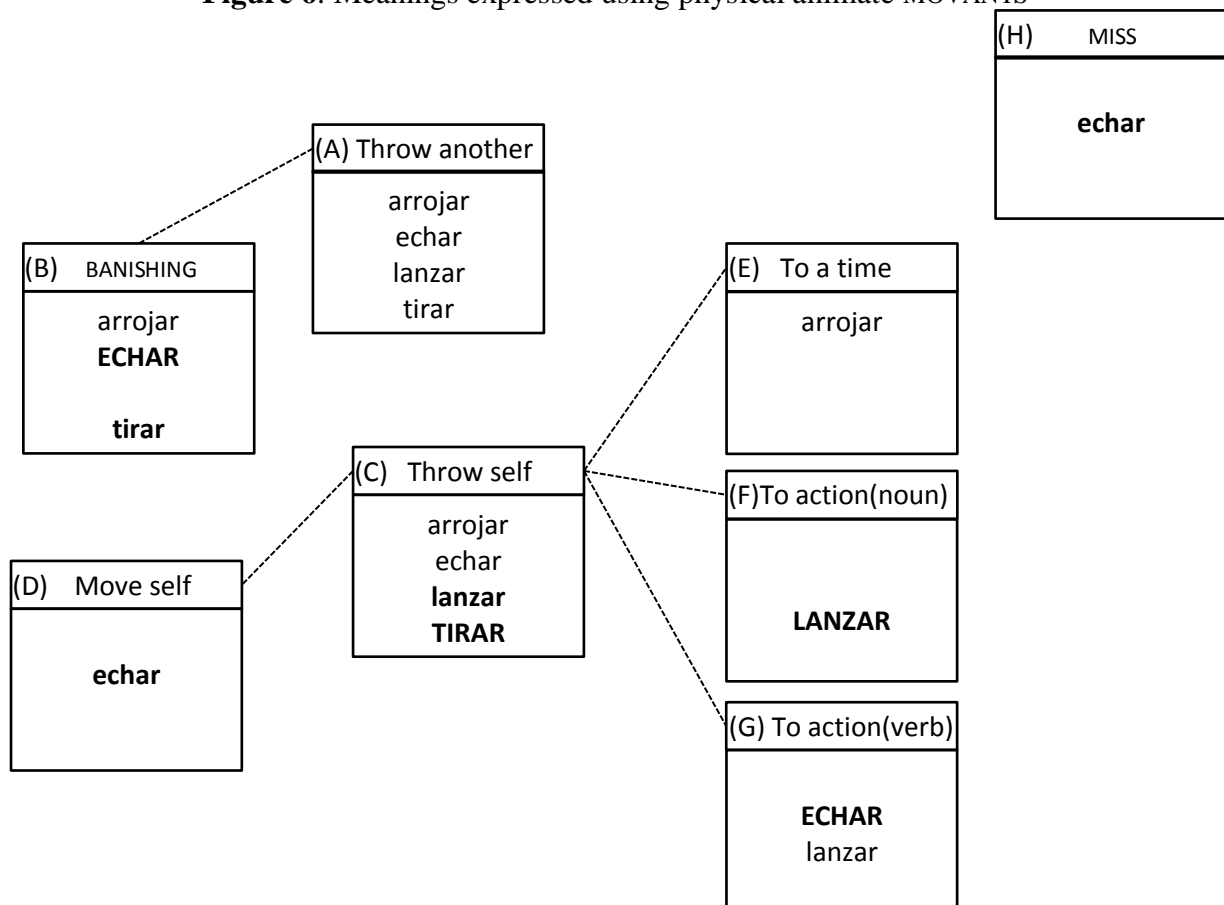
The *se*-form clitic appears usually in combination with the verbs *reír* ‘laugh’ and *llorar* ‘cry’ when appearing with *echar*. The inchoative meanings, along with the notion of throwing oneself to a time, are discussed in §4.3.5.

Functional Synonymy

Within the category of physical animate MOVANTS, a variety of meanings and notions can be expressed. The results of the previous discussion are illustrated in the figure 6. In each box, the upper part labels the specific schema or meaning. The SMALL CAPS indicate schemas that have already been labeled. The rest are meanings that are expressed, but where I have not yet posited a specific schema or given it a label.

The lower part of the box lists the *throw*-verbs that can be used in that specific construction. If the verb is listed in the box, then the corpus included at least one example of that meaning. The diagram also marks differences in relative frequency. A verb is **bolded** if it is used relatively frequently with that meaning, compared to other verbs in that same schema and also compared to other uses of that specific verb. Verbs that are **CAPITALIZED** indicate an even higher relative frequency.

Figure 6. Meanings expressed using physical animate MOVANTS



All four verbs can express the notion of throwing another (A). This meaning is not particularly frequent in the corpus with any of the verbs. The BANISHMENT schema (B), which is related semantically and syntactically to (A), occurs with three verbs: *arrojar*, *echar* and

tirar. The BANISHMENT schema is fairly frequent with *tirar* and even more frequent with *echar*. There are no examples in the corpus of *lanzar* having this meaning.

A further use of physical animate MOVANTS is seen in constructions that mean to throw oneself (C). In this category, I include only literal uses describing physically throwing oneself to a place. This meaning can be expressed by all four *throw*-verbs, though it is most common with *lanzar* and *tirar*. A variation on this meaning involves less forceful motion (D) closer to the concept of moving oneself. This is frequent only with *echar*.

There are three variations of throwing oneself that are metaphorical. In (E), one can throw oneself to a time. This use is only attested with *arrojar*. It is also possible to throw oneself to an action. There are two variations of this use, one with a nominal element and one with a verbal element. The nominal version (F) is almost exclusively used with *lanzar* and is very frequent with this verb. The version with an infinitival verb (G) occurs with *echar* and *lanzar*, but is most frequent with *echar*. The final schema (H) discussed in this section involved the phrase *echar de menos* ‘to miss’ which I labeled the MISS schema. This meaning only occurs with the verb *echar*.

Figure 6 shows overlaps in the usage of the different verbs. These areas of overlap represent functional synonymy (see §2.4.2). If two verbs can be used in a schema interchangeably to express a similar situation and produce the same truth conditions then they can be described as functionally synonymous.

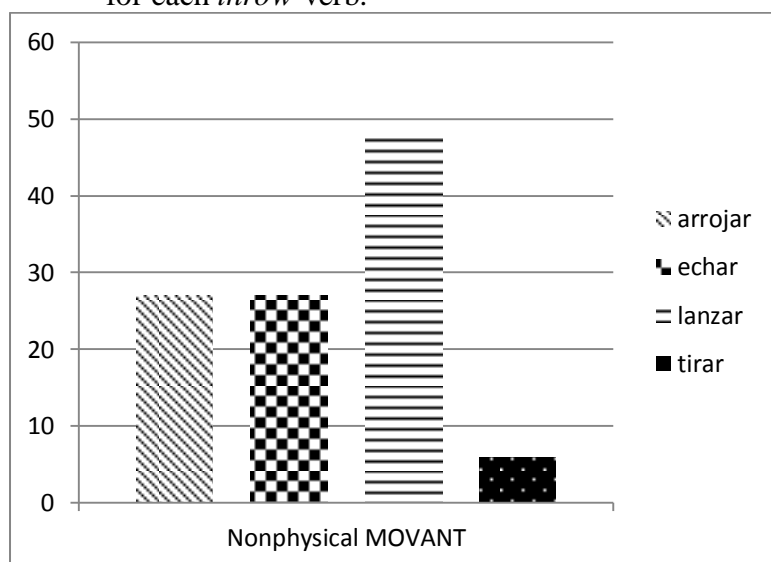
All four verbs are functional synonyms when it comes to expressing throwing oneself and throwing another. *Arrojar*, *echar* and *tirar* can capture the notion of removing a person from a place or banishing someone, and are, in that specific case, functional synonyms. These three verbs contrast with *lanzar*, which according to the corpus data at least, does not express banishment. *Echar* and *lanzar* are part of the verbal inchoative construction and are functionally synonymous in that case also.

The diagram also helps explain *arrojar*’s significantly lower occurrence of physical animate MOVANTS. *Arrojar* appears in 4 out of the 8 schemas. It can mean to throw another (A), to banish (B), to throw oneself (C) and to throw oneself to a time (E). Even though it expresses a variety of notions, it is not frequent in any of them. We can tentatively say that even though it is possible for *arrojar* to express the concept of throwing oneself, speakers prefer to express this notion using *lanzar* or *tirar*, which are more frequent in the corpus. *Arrojar* accepts different uses, but is not the preferred verb in expressing them.

4.2.4 Nonphysical Movants

The final category is nonphysical (inanimate) MOVANTS. The verbs differ in the frequency with which they combine with this MOVANT type. *Tirar* combines with very few, while almost half of the sentences with *lanzar* have nonphysical MOVANTS. *Arrojar* and *echar* lie somewhere in the middle with approximately 1/3 of MOVANTS being nonphysical.

Graph 4. Number of sentences with nonphysical MOVANTS for each *throw*-verb.



Often in our data, when the verbs combine with nonphysical MOVANTS we find **light verb constructions** (henceforth LVC). LVCs are combinations of a verb with a nominal where the major semantic contribution is made by the nominal (Alonso Ramos 2004:18, Atkins et al. 2003). Compare the following sentences: a “normal” use of *lanzar* (69) with an LVC (70).

(69) LANCÉ la pelota.
I threw the ball

(70) LANCÉ un grito.
threw.1st a scream.
'I screamed out'

If we ask what action the speaker is performing in each sentence, we would say that in (69) the speaker is throwing (something) while in (70) the speaker is screaming. In that sense, the majority of the meaning in (70) is contributed by the noun *grito* ‘scream’. Still, I argue that *un grito* ‘a scream’ is a MOVANT. The *throw*-verb in LVCs serves to indicate the (metaphorical) motion of a scream (§5.1).

The data show several semantic classes of nouns that combine with the *throw*-verbs to form LVCs. Each semantic class has a preference for the *throw*-verb that it normally appears with. Still, there are cases of overlap, where the same semantic class can appear with more than one of the verbs.

The MOVANT that appears with the most verbs, three in fact, is the noun *mirada* ‘look’. It occurs with *arrojar*, *lanzar* and *echar*.

(CdE:19-F, Con el Ritmo Tempestuoso de...)

(71) ...ARROJÓ una mirada sigilosa a su alrededor...
 ‘S/he TOOK a stealthy look to her/his surroundings’

(72) ...ECHÉ una mirada en torno. (CdE:19-F, Casa del Mono, La)
 ‘I TOOK a look around (me)’

(73) *Jimena* LANZÓ una mínima mirada a Miguel... (CdE:19-F, Estudiar Medicina)
 ‘*Jimena* TOOK a slight look at Miguel’

All three verbs express the act of throwing a look at someone or in a certain direction. In this case, looks are conceived of as elements that travel through space. A look that originates at Jimena, for example, travels through space until it arrives at Miguel (73). The conceptualization of traveling or moving is contributed by the *throw*-verb.

An interesting detail from the data is that though all three verbs appear with *mirada*, ‘look’ only *echar* appears with other nouns that mean ‘(a) look’. These include:

(74) ... uno ECHA la vista atrás... (CdE:19-OR, Habla Culta: Sevilla: M9)
 ‘One moves their sights back(wards)’

(CdE:19-F, Novios de antaño (1930-1940))

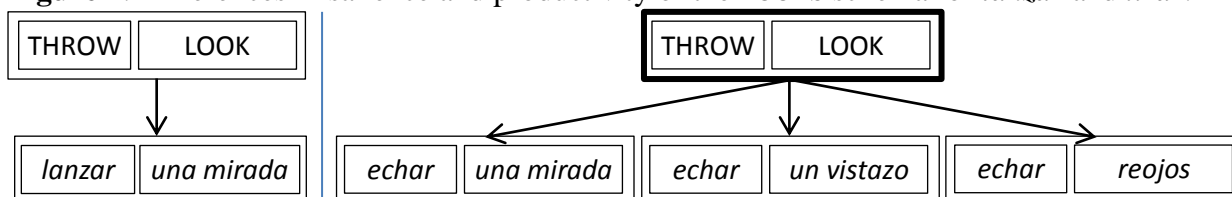
(75) ...ECHABA rejos censores sobre el chico...
 ‘S/he threw critical sidelong looks at the boy’

(CdE:19-F, Los habitantes del abismo)

(76) *La mujer* no resistió la curiosidad y ECHÓ un vistazo al contenido del baulito.
 ‘The woman didn’t resist her curiosity and took a peek at the contents of the little trunk.’

Echar combines with various kinds of nouns referring to looks, while *arrojar* and *lanzar* only appear with a single noun. In a sense, *echar* is more productive than the others, allowing for multiple words in MOVANT position. This difference in productivity can be seen as a result of differences in salience. A schema for ‘throwing looks’ occurs with all three verbs (*arrojar*, *lanzar* and *echar*) but it is more salient and productive with the latter verb.

Figure 7. Differences in salience and productivity of the LOOKS schema for *lanzar* and *tirar*.



This difference in salience is visually represented in figure 7, showing the differences between *lanzar* and *echar*. The LOOKS schema for *echar* is more salient and productive. This is represented by a bolded box. The schema in the case of *echar* is instantiated by more nouns that refer to looks. The same schema applies to *lanzar*, but it is not as salient for this verb and is only instantiated by one phrase.

Another semantic group that is repeated in the data includes nouns that refer to sounds or speech acts. These types of MOVANTS are especially common with *lanzar*, though the data shows one example with *arrojar*.

(CdE:19-F, Gran señor y rajadiablos)

(77) ...lo LANZÓ al viento: ¡Qué viva misia Carmela...
 ‘He LAUNCHED it to the wind: Long live Ms. Carmela’

(CdE:19-F, Palabras en juego)

(78) *Fernanda, Juliana, Teresa y Sofía* ... LANZARON gritos indignados.
 ‘*Fernanda, Juliana, Teresa and Sofía* LAUNCHED indignant screams’

(CdE:19-F, Cómo Deshacerse de su Colchón)

(79) ...*la dueña* ARROJA, sin destinataria específica, una frase...
 ‘*The owner* THROWS a phrase to no one in particular’

This semantic class includes a variety of types of sounds which are detailed further in table 4 below. This use is motivated by the Conduit metaphor attributed to Reddy (1979) (cited in Lakoff & Johnson 1980:9, Goldberg 1995:148). Lakoff & Johnson (1980:9) describe it as follows: “The speaker puts ideas (objects) into words (containers) and sends them (along a conduit) to a hearer [...]” The *throw*-verb denotes the sending or motion.

Tirar has few nonphysical MOVANTS. There is only one semantic class that occurs (repeatedly): MOVANTS that refer to hits. This semantic class also appears with *lanzar* (82).

(CdE:19-F, El otro round de Dinamita A...)

(80) ...al *grandote* que TIRA gualetazos al aire...
 ‘to *the big guy* who THROWS punches in the air’

(CdE:19-F, Y Goya Pintaba su Lienzo)

(81) *Orfi* TIRÓ el golpe al color azul...
 ‘*Orfi* GAVE a blow to the color blue.’

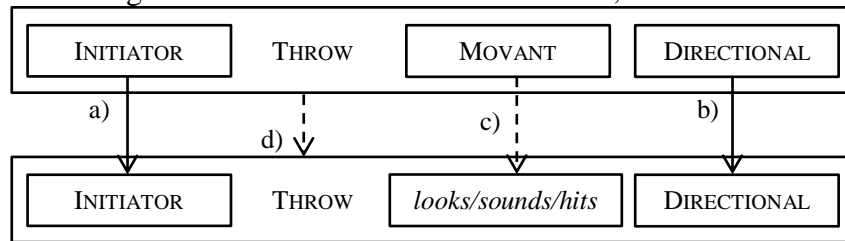
(CdE:19-OR, Habla Culta: Santiago: M24)

(82) Y me LANZÓ un bofetón a la cara...
 ‘And s/he GAVE me a slap to the face.’

The sentences in (80)-(82) can be translated as ‘throwing a hit’. A hit involves motion of the body, where (part of) the body of the INITIATOR moves towards the receiver. This aspect of motion from source to goal is what is highlighted by the use of a *throw*-verb.

The previous three combinations of MOVANTS show a very similar behavior. I would argue that all three show an analogous extension relation to the central THROWING schema. This is illustrated in figure 8.

Figure 8. Links relating the THROWING schema to the LOOKS, SOUNDS and HITS schemas



Let's label the schemas under discussion the LOOKS, SOUNDS and HITS constructions. In all three cases, there is an INITIATOR which is the same as the INITIATOR in the central THROWING schema (The link shown by (a)). In a throwing event, the INITIATOR is the source of energy and it is also an entity that moves its body in a certain way to cause motion of an object. When looking, the INITIATOR also moves its body (in this case the eyes and face) to cause an action of looking. The same is true for speaking and hitting: the INITIATOR moves his body and uses his physical abilities to cause the action.

The schemas also share the same type of DIRECTIONAL as the THROWING schema (shown in (b)). Since looks, sounds and hits are conceived of as traveling through space, they travel in certain directions. The DIRECTIONAL of the THROWING schema can be a person or a place where the MOVANT goes to. The DIRECTIONAL in the LOOKS, SOUNDS, and HITS schemas also represents the place or person where these nonphysical entities are moving to. Even if the MOVANT does not literally move, it is conceived of as moving to the DIRECTIONAL.

There is an extension relation from the MOVANT to the different nonphysical elements (link (c)). Neither sounds, nor looks, nor hits are elements which can be handled and thrown in a physical sense. Of course, they all still involve physical motion of some sort, especially hitting which includes the motion of the arm in a punching event, for example. Looks and sounds and hits are conceived of as entities which travel through space from a source to a destination, similar, though not identical to a MOVANT in the THROWING schema.

The SOUNDS, LOOKS and HITS schemas are extensions from the THROWING schema (link (d)). They include the same type of first argument (the INITIATOR) and the same final argument (the DIRECTIONAL). The extension relation and the extension in meaning is due to the differences in the type of entity that undergoes (or is conceived of as undergoing) motion.

Two further examples of LVCs can be highlighted: one occurring with *echar* and another with *lanzar* . *Echar* combines with the noun *culpa* ‘blame’ to mean ‘to place the blame’.

(83) ¿quién le aseguraba que no le ECHARÍAN la culpa ? (CdE:19-F, Bazar de cuentos)
 ‘Who would assure him that they wouldn’t PLACE the blame on him’

(CdE:19-OR, Habla Culta: Buenos Aires:...)

(84) ...les ECHO - - - la culpa de una política que han seguido...
 ‘I PLACE the blame on them for the policy they have followed.’

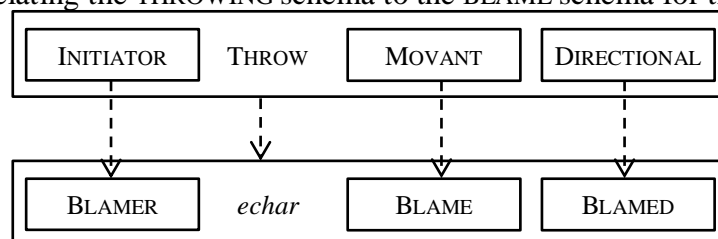
In these sentences, the subject is the one who is understood as transferring this blame to another individual. The BLAMER is an extension from an INITIATOR. It does not necessarily involve physical action; blaming someone can involve speaking or simply thinking. But it is the source of the blame. The second argument BLAME is conceptualized as an object that can be transferred. In fact, throughout Spanish, blame is understood as an object, which can not only be transferred, but held and owned.

(85) La culpa es mía
 the blame is mine
 ‘It’s my fault’

(86) Yo tengo la culpa
 I have the blame
 ‘I am to blame’

The final argument is the BLAMED. In a throwing event, the DIRECTIONAL is usually a person or a place, but always a physical entity. But blame can be transferred or given to a person, but also to a situation or an event. For that reason it is an extension from the DIRECTIONAL in a throwing event.

Figure 9. Links relating the THROWING schema to the BLAME schema for the verb *echar* .



These extension relations between the BLAME construction and its arguments and the THROWING construction are summarized in the figure 9. Unlike, for example the HIT

construction, where there is still a physical action being performed, in the BLAME schema there need not be any physical action or motion.

Another instance of an LVC is a construction with *lanzar* combined with *ataque* ‘attack’. There is only one example in the 400-sentence corpus. This MOVANT occurs more often in the collostructional analysis, discussed in §4.2.5.

- (87) LANZARON un ataque tras otro. (CdE:19-N, Mex:Yucatán:97Jun20)
‘They LAUNCHED one attack after another.’

Lanzar un ataque means ‘to launch an attack’. In this example, *lanzar* expresses the beginning of an action, very similar to the inchoative verb phrases. This notion of beginning is in large part due to the nature of *ataque* ‘attack’. Attacks are understood as having a beginning (potentially a middle) and an end. If an attack is set into motion (as in 87) then we quite naturally focus on the beginning portion of the action. An analysis of how the inchoative meaning is derived from the concept of motion is detailed in §4.3.5.

The nonphysical MOVANTS in the data do not always participate in LVCs. There are other constructions that occur with *arrojar* and *echar* that help to explain the relatively high number of nonphysical MOVANTS with each verb. *Arrojar* appears in two constructions that take up a majority of its nonphysical MOVANTS. The first is the PRODUCING DATA construction, discussed in §4.1. In this schema, the MOVANT position is filled by nouns that refer to information or numerical data. The meaning expressed is one of a source of information producing information.

Arrojar also occurs with the noun *luz*¹⁶. The phrase *arrojar luz* corresponds to the English phrase ‘shed light’; it means ‘to clarify a complicated situation’ (DDFH).

- (88) ... que ARROJE luz sobre el porqué he perdido los dones de su corazón.
‘That she SHED light on why I have lost the gifts of her heart.’

(CdE:19-N, España:ABC)

- (89) ... estos fragmentos ARROJAN luz sobre la historia judía...
‘These fragments SHED light on Jewish history.’

The SHED LIGHT construction uses *luz* ‘light’ to reference knowledge. Something that is lit up is seen, and if it can be seen then it is known. It is this metaphor that takes the literal meaning of light and produces a construction referring to knowledge. This construction is highly specific semantically and syntactically. The INITIATOR is any source of information, be

¹⁶ Light cannot be touched or handled, and therefore fits our definition of nonphysical.

it an individual (88) or a document (89). The MOVANT is always the noun *luz* ‘light’. The DIRECTIONAL is introduced by the preposition *sobre* ‘over/on’. Light is metaphorically moved over some type of situation.

This is an example of an encoding idiom (Fillmore et al. 1988 citing Makkai 1972). A speaker must learn that this specific combination of *arrojar* with *luz* ‘light’ is the conventional way of expressing the meaning ‘to clarify’. But it is likely that a speaker who hears this phrase for the first time could understand it perfectly (Fillmore et al. 1988:505, Goldberg 1995:155).

The phrase is also highly motivated. First of all, the appearance of the noun *luz* ‘light’ is motivated by other phrases in Spanish that refer to knowledge or thinking. The following are some example phrases with the literal translation and their definition.

- | | | |
|------|--|--|
| (90) | a buena luz
at good light | ‘With reflection, attentively’ (DRAE) |
| (91) | dar a luz ¹⁷
give to light | ‘Publish a piece of work’ (DRAE) |
| (92) | sacar a la luz
Take out to the light | ‘Discover, manifest, make apparent what was hidden’ (DRAE) |

The above examples are only a sampling: there are in fact many other phrases with *luz* ‘light’ that reference knowledge or information in one way or another. These phrases motivate the use of this noun in the SHED LIGHT constructions.

The choice of verb can also be motivated. There are two constructions with *arrojar* that refer to information and knowledge: the PRODUCING DATA construction and the SHED LIGHT construction. Even though the constructions are syntactically and semantically quite distinct, they share the fact that they refer to information. This allows one construction to motivate another (or the constructions to motivate each other). Say a speaker first learns the PRODUCING DATA construction. If she then learns the SHED LIGHT construction, she can motivate the use of *arrojar* since she already has one construction for producing information with the same verb.

The combination of *echar* with nonphysical MOVANTS also signals special constructions and meanings. The BLAME and LOOKS constructions discussed above account for most of the nonphysical MOVANTS. But there are also other constructions involving

¹⁷ It also means ‘to give birth’ (DRAE)

particular DIRECTIONALS that when combined with *echar* produce figurative meanings. Some examples are described here.

Echar can combine with *abajo* ‘down’ or *por los suelos* ‘to the ground’ to mean ‘to topple, to ruin, to destroy’ (DRAE).

(93) ...hasta que alguien ECHARA **abajo su marca**... (CdE:19-F, Absurdo Concursante)
Until that someone throw down his/her mark
‘Until someone BROUGHT **down his/her mark**’

(94) ...ECHÓ **por los suelos el trabajo de su rival**... (CdE:19-N, Guat:Gerencia:98JUN8)
threw by the grounds the work of his rival
‘He ruined the work his rival had done.’

These are the only examples in the 400-sentence corpus. The INITIATOR is the actor that does the toppling or ruining. The MOVANTS can be nonphysical since all kinds of elements can be toppled. In (93), it is a record in a competition; in (94), the player’s work during a game.

A second phrase is *echar a perder* ‘to damage, to spoil’ (DDFH). It is a variant of the inchoative construction. There is one example in the data with a nonphysical MOVANT.

(95) No lo eches a perder (CdE:19-OR, Habla Culta: Caracas: M19)
Not CL.3rd.nonrf throw.3rd to lose.inf
‘Don’t ruin it’

The clitic *lo* refers to a marriage. The sentence asks the individual to not ruin the marriage. This phrase has a similar meaning to the previous examples (93-94). There are several phrases with *echar* that in general mean ‘to ruin’.

Another phrase is *echar en cara* which means ‘to reproach, to accuse’ (DDFH, REDES). The phrase literally means ‘to throw in the face’ but is understood metaphorically. The MOVANT in these phrases can be all kinds of nonphysical entities such as thoughts, behaviors or attributes. One example is shown in (96).

(96) No me ECHES **en cara mi debilidad**. (CdE:19-F, La muerte de Artemio Cruz)
No me throw in face my weakness
‘Don’t reproach me my weakness’

A final combination involves MOVANTS that refer to work or burdens and the adverbial phrase *encima* ‘on top/over’.

(CdE:19-F, Los hombres de Celina)

- (97) Me ECHARÍAN **encima** todo el peso _____ de una casa...
 CL.1st throw.3rd on.top all the weight of a house
 ‘They WOULD PLACE the entire weight of the house on my shoulders’

(CdE:19-F, Cien años de soledad)

- (98) Se ECHÓ **encima** la dispendiosa tarea de atender a José Arcadio Buendía.
 Cl.3rd throw on.top the laborious task of attend to NAME.
 ‘S/he took on the laborious task of attending to José Arcadio Buendía’

The literal (physical) meaning of a person placing a heavy object on themselves (in English one would say on their shoulders) motivates a figurative understanding. Weight carried by the body is associated with the concept of burdens (both mental and physical).

The uses of *echar* just described all show a connection between the literal sense of the words and the figurative meaning evoked in the sentences. For example, if I *echar abajo* ‘throw down’ a wall, then I have also destroyed or ruined the wall. This leads to an extension in meaning, whereby if I throw down someone’s work, then I have ruined it. The idiomatic meaning is a more abstract (non-physical) and schematic version of the literal meaning. There are many examples with *echar* that show this semantic pattern. I label these semantically-schematic idioms and they are discussed in §5.2.

Lanzar’s Preference for Nonphysical Movants

The verb *lanzar* shows a significantly higher occurrence of nonphysical MOVANTS compared to all the other verbs. Most of the uses with *lanzar* fall into the category of light verb constructions. The purpose of this section is to show the semantic classes that can occur with *lanzar* can be motivated. I will argue that it is possible to posit a single semantic characteristic covering all uses with this verb.

Table 4. Classification of the nonphysical MOVANTS appearing with *lanzar*

Sounds and Speech Acts		Facial Expressions		Violence		Politics	
ofensas	‘offenses’	suspiro	‘sigh’	ataque	‘attack’	candidatura	‘candidacy’
frase	‘phrase’	sollozo	‘sob’	mordida	‘bite’	campana	‘campaign’
fragmento	‘fragment’	carcajada	‘guffaw’	bofetón	‘slap’	convocatoria	‘announcement’
aleluya	‘hallelujah’	mirada	‘look’			ley	‘law’
grito	‘scream’	sonrisa	‘smile’				
relincho	‘neigh’						
gruñido	‘grunt’						
kikirikí	‘cock-a-doodle-doo’						

Table 4 shows a possible classification of the nouns with *lanzar*¹⁸. The verb appears with MOVANTS that refer to a variety of sounds, screams, speech acts and types of information that can be spoken, shown in the first column. It can also appear with different kinds of facial expressions, including looks, sighs and laughs. A third group includes violent acts. This last group was not common in the data, but did occur.

The final grouping includes different aspects of politics and organization. The semantics and participant roles in this case are different from those that have been previously discussed. In these cases, *lanzar* behaves like the English ‘launch’, where it means ‘to present to the public’ (VOX).

- (CdE:19-AC, Enc: Jiang Jieshi)
- (99) *Jiang* LANZÓ una serie de campañas a principios de la década de 1930 contra los comunistas...
 ‘*Jiang* LAUNCHED a series of campaigns against the communists at the start of the 1930s.’
- (100) *Andrés Pastrana* LANZA su candidatura este lunes. (CdE:19-N, Col:Semana:823)
 ‘*Andres Pastrana* LAUNCHES his candidacy this (coming) Monday.’
- (CdE:19-OR, Entrevista (PRI))
- (101) LANZAREMOS convocatoria para que los primeros días hábiles del mes de enero se inicie el proceso
 ‘We WILL SEND OUT a call so that the process begins the first working days of the month of January’

In the first case, an individual is beginning a campaign against a specific group. The participant roles line up to the THROWING schema: an INITIATOR (*Jiang*), a MOVANT (the campaigns), and a DIRECTIONAL (the communists), though the semantics of each participant differ from a normal THROWING schema.

Some sentences do not include a DIRECTIONAL (100). It is not a salient part of the meaning of this schema. Often, what is more salient is the reason or purpose, as seen in (101). Since we have not explored the possibility of expressing a purpose in a throwing event, there is not much we can say at the moment about this role being expressed in the POLITICS schema.

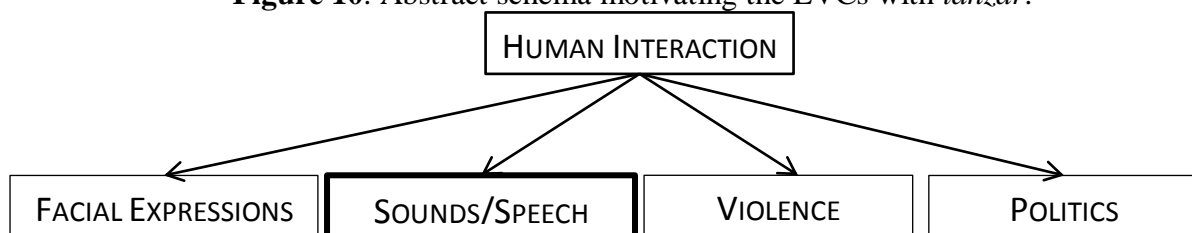
I want to argue that it is possible to semantically characterize the nonphysical MOVANTS that combine with *lanzar*. It may not be completely predictable what words will combine with *lanzar*, but it is possible to motivate all the uses that do occur. The SOUNDS

¹⁸ The groupings are not meant to be exclusive. It is entirely possible for a noun to be a part of two categories. For example, *mordida* ‘bite’ could arguably be part of the facial expressions group. The word *campaña* ‘campaign’ can also refer to attacks, and therefore be part of the violence grouping. It is also possible to posit smaller groupings. For example, Sounds/Speech can be separated into speech acts, animal sounds, screams, etc. The LOOKS schema discussed earlier is included within the facial expressions category.

schema is the most frequent in the corpus. It represents the most salient schema. When screaming, saying a phrase or even grunting, one individual is able to express feelings, thoughts or emotions with another. Speech acts and sounds can be understood as a method for interacting and communicating with other humans.

The next schema, FACIAL EXPRESSIONS, can also be understood this way. If I smile, I express that I am happy. If I give someone a look, I am interacting with another individual and can even express my feelings (with a grumpy look for example). It is this aspect of human interaction that I believe connects all these uses with *lanzar*.

Figure 10. Abstract schema motivating the LVCs with *lanzar*.



Violent acts are a way of interacting with other individuals, though in a negative fashion. Political nouns also incorporate interaction between humans. Making an announcement and launching a campaign are forms of societal organization. *Lanzar*'s increased use of nonphysical MOVANTS is in part based on its ability to express several notions relating to human interaction, mostly in light verb constructions.

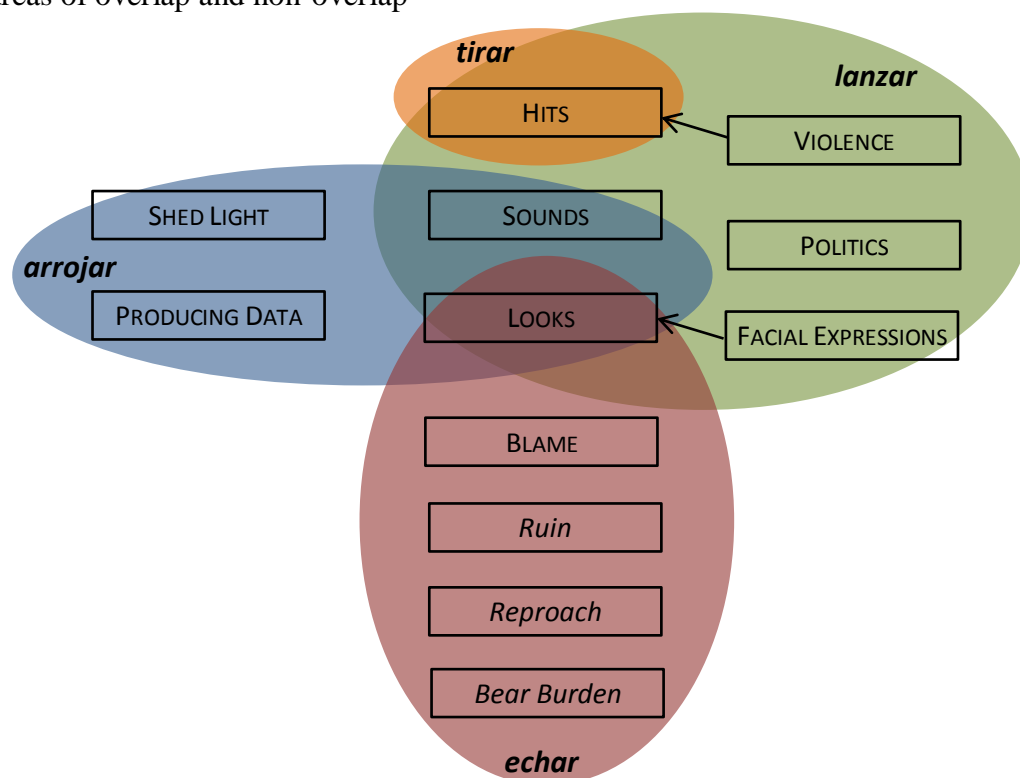
Functional Synonymy

The previous discussion shows that each verb tends to appear with certain types of nonphysical MOVANTS, though there are cases where more than one verb can appear with the same semantic class of nouns. This is summarized in figure 11. The boxes represent the different schemas that were detailed. The circles then show the combinations that each specific verb can show. For example, *tirar* has the smallest circle since the 400-sentence corpus only showed it appearing in the HITS schema.

In the 400-sentence corpus, *tirar* only appears in the HIT schema. *Tirar* has a low occurrence of nonphysical MOVANTS because it has a limited ability to appear in LVCs: it only appears in the HITS schema (which is an example of an LVC). *Arrojar* mostly appears in the SHED LIGHT and PRODUCING DATA constructions. There are also instances of *arrojar* in the SOUNDS and LOOKS schemas, but these are less common. *Echar* occurs in the LOOKS schema and other schemas specific to the verb, including the BLAME construction, and (fixed) phrases that meant 'to ruin', 'to reproach' and 'to bear a burden'. *Lanzar* has a significantly higher

occurrence with nonphysical MOVANTS. Not only does it appear in a large number of schemas, but does so frequently. *Lanzar* occurs in the VIOLENCE schema (HITS is a subset of VIOLENCE), the SOUNDS schema, the POLITICS SCHEMA and the FACIAL EXPRESSIONS schema (LOOKS is a subset of FACIAL EXPRESSIONS).

Figure 11. Meanings expressed by *throw*-verbs with nonphysical MOVANTS, highlighting areas of overlap and non-overlap



The diagram also represents functional synonymy. We can say that *tirar* and *lanzar* are functional synonyms since they both can express throwing hits (HITS). *Lanzar* and *arrojar* are also synonyms when combined with MOVANTS that refer to sounds. *Arrojar*, *lanzar* and *echar* are synonyms since all three can appear in the LOOKS schema.

Of course, noting that two verbs can appear in the same schema does not mean that they do so with equal frequency. For example, *lanzar* is much more frequent in the LOOKS schema than either *arrojar* or *echar*. It is of importance to note this difference, because there may be issues of preferences and unmarkedness at play. That is, even though it is possible to say *arrojar una mirada* ‘throw a look’, the version with *lanzar* might be the more natural, preferred or unmarked form.

It must be noted that there are limitations to the current analysis. The analysis is based on data from the 400-sentence corpus. Therefore it is not possible to make statements about what cannot or is not said. For example, in the 400-sentence corpus, *tirar* only appears with

one semantic class of the ones under discussion. But an exploration of the entire CdE shows one example each of *tirar una mirada* ‘throw a look’ and *tirar una carcajada* ‘throw a laugh’. From that, it seems that *tirar* **can** participate in the LOOKS and FACIAL EXPRESSIONS schema. As Bosque (2004) notes, there are combinations that to speakers seem entirely natural, but still only appear once in a corpus. Figure 11, then, represents what is frequent or common (in a corpus) and has little to say conclusively about what is possible or what is natural to Spanish speakers.

4.2.5 Collostructional Analysis

The 400-sentence corpus already shows some clear tendencies. Each verb is polysemous and each verb has its own profile of the types of meanings that it can express. The results of the collostructional analysis, as we will see, confirm most of the results from the 400-sentence corpora. The collostructional analysis gives a level of attraction between each verb and the most frequently occurring nouns for each verb. In this case, the nouns are limited to MOVANTS. The test results allow us to make some tentative claims about the most salient meanings of each verb (See §3.2 for a description of this test).

The results of the collostructional analysis for MOVANTS is shown in table 5. The numbers in the table are the p-values. They measure the level of attraction of the noun to the MOVANT position of the verb. The p-values in red and with a “R” next to them mark repulsion; the noun rejects the position of MOVANT. There are only three cases of rejection, and it is not clear if anything can be said at this time about these cases of repulsion. The empty boxes are cases where the p-value is not statistically significant. The crossed out boxes are cases where there was no occurrence in the corpus of that specific verb plus noun combination. For example, *tirar* does not occur with *vistazo* ‘look’ at all in the corpus, but there is 1 example of *mirada* ‘look’ combined with *tirar*. Neither noun showed attraction or repulsion to the verb.

First of all, it is important to note that the majority of nouns (12 out of 16 nouns) are only attracted to one verb. There are five nouns (5E-I, table 5 letters E through I) that are only attracted to *echar*, five (5J-N) attracted to *lanzar* and two (5O-P) attracted to *arrojar*. The analysis shows no nouns that are only attracted to *tirar*.

Only four nouns are attracted by more than one verb. The nouns *piedra* ‘stone’ and *piedras* ‘stones’ can be seen as representing the THROWING schema. The most prototypical object that is thrown is a stone. Both *arrojar* and *tirar* attract the nouns (5A) *piedras* ‘stones’

and (5B) *piedra* ‘stone’. This lines up well with the corpus result, where we found that these verbs had a high preference for expressing acts of prototypical throwing.

Table 5 shows *lanzar* attracting the plural *piedras* ‘stones’, but not the singular *piedra* ‘stone’. In an attempt to confirm this finding, the questionnaire included 1 sentence pair with the plural form and 1 sentence pair with the singular form (four sentences in total). The questionnaire results do not follow the results shown in the collocation analysis. In the four sentences, almost the same number of participants chose *lanzar* as the best verb to complete the sentence. In three of the sentences 14 respondents wrote *lanzar*, while in another sentence 13 respondents wrote *lanzar* (out of the 30 total participants). We can take this to mean that *lanzar* can combine with both nouns, and the combination is felt as natural by speakers, even though the corpus shows a higher occurrence with the plural. We can say that *lanzar* can express prototypical throwing because it can appear with *piedra(s)* ‘stone(s)’.

Echar does not attract either noun. I proposed earlier that *echar* was different from the other verbs in not expressing forcefulness and strength of motion. It is possible to speculate that *echar* is not compatible with *piedra(s)* ‘stones’ because these are usually thrown with strength or to a (relatively) far distance, and this meaning is not compatible with *echar*.

Table 5. Results of the collocation analysis for MOVANTS

	NOUN	arrojar	echar	lanzar	tirar
A)	piedras 'stones'	1.41E-07		8.49E-05	6.48E-06
B)	piedra 'stone'	3.62E-07			1.58E-09
C)	agua 'water'	3.19E-07	4.96E-11	8.26E-03 R	8.11E-04
D)	mirada 'look'	1.48E-02	2.28E-20	3.09E-18	
E)	vistazo 'look'		4.83E-59		
F)	culpa 'blame'		1.01E-46		
G)	mano 'hand'		4.84E-39	2.70E-02 R	
H)	cabeza 'head'		2.20E-06		
I)	tierra 'earth/dirt'		8.52E-03	1.76E-02 R	
J)	ofensiva 'offensive'			2.58E-52	
K)	grito 'scream'			1.18E-37	
L)	carcajada 'laugh'			1.53E-37	
M)	ataque 'attack'			1.08E-20	
N)	campaña 'campaign'			8.32E-12	
O)	resultados 'results'	5.07E-16			
P)	luz 'light'	2.79E-12			

It is important to note that some of the uses of *piedra* ‘stone’ belong to a fixed phrase. If we had eliminated these phrases from the collocation analysis, this could affect the levels of attraction.

- (102) Molina fue quien TIRÓ la primera piedra, al acusar a Anaya de haber solicitado su dimisión...
 ‘Molina was the one who CAST the first stone, by accusing Anaya of having solicited his resignation’

When the phrase *la primera piedra* ‘the first stone’ is combined with *tirar* (102), *arrojar* and *lanzar* it means ‘to be the first to criticize or verbally assault someone’ (DDFH). The saying originates from the Bible (DDFH).

Another noun attracted by three verbs is *agua* ‘water’ (5C). In this case, *arrojar*, *echar* and *tirar* attract this noun, while it is not attracted to *lanzar*. I described earlier how *echar* could mean something closer to pouring. And this is in fact the case with many of the uses in the collostructional analysis data. But it can also be used, for example, for describing a person splashing water on their face. *Lanzar*, according to the tests, repels this noun. It is one of the few cases of repulsion.

The final noun that is attracted by multiple verbs is *mirada* ‘look’ (5D). Three verbs are used to express the concept of throwing a look. Both *lanzar* and *echar* strongly attract this noun, while *arrojar* attracts it to a much lesser extent. This result coincides with the results from the 400-sentence corpus.

The collostructional analysis provides a ranked-list of attracted nouns. Stefanowitsch & Gries (2003) use their ranked lists to make generalizations about the constructions they study. In our case, almost each noun from the collostructional analysis indicates a different meaning or sense. For example, if we compare *echar un vistazo* ‘to take a look’ to *echar la culpa* ‘to place the blame’, we note that each combination produces a phrase with slightly idiosyncratic meaning, and in neither case does *echar* mean a literal throwing action. What we say about the ranked lists in the collostructional analysis will necessarily be conditioned by this fact. It is tentatively possible to take the level of attraction to indicate that the specific V + N combinations are salient. The lower the p-value, the more salient or entrenched the combination is for that specific verb.

Table 6 shows the most attracted nouns for *arrojar*. The highest ranked is *resultados* ‘results’. This noun participates in the PRODUCING DATA constructions (§4.1) where *arrojar* indicates that a data source or event has produced a result. The second highest is the noun *luz* ‘light’ which occurs

Table 6. Ranked list of MOVANTS attracted to *arrojar*

	NOUN	arrojar
A)	resultados 'results'	5.07E-16
B)	luz 'light'	2.79E-12
C)	piedras 'rocks'	1.41E-07
D)	agua 'water'	3.19E-07
E)	piedra 'rock'	3.62E-07
F)	mirada 'look'	1.48E-02

in the SHED LIGHT construction (§4.2.4). Though *arrojar* attracts *mirada* ‘look’ (in the LOOKS schema (§4.2.4)), it does so very weakly (6F).

Even though there are p-values for nouns that play a part of the THROWING schema (6C-E), I do not believe that this data can be used to argue for the saliency (or lack thereof) of the THROWING schema. The MOVANTS in the PRODUCING DATA schema are limited to words that refer to data, numbers or information. The MOVANT for the SHED LIGHT schema can only be the noun *luz* ‘light’. Both have limitations on the MOVANT type. This is not the case with the THROWING schema, where a vast number of objects can be thrown. In other words, *resultados* ‘results’ can be a good representation of the PRODUCING DATA schema because it is one of only a few possible MOVANTS. The same cannot be said for *piedra(s)* ‘stone(s)’.

Table 7. Ranked list of MOVANTS attracted to *echar*

	NOUN	<i> echar</i>
A)	vistazo 'look'	4.83E-59
B)	culpa 'blame'	1.01E-46
C)	mano 'hand'	4.84E-39
D)	mirada 'look'	2.28E-20
E)	agua 'water'	4.96E-11
F)	cabeza 'head'	2.20E-06
G)	tierra 'earth/dirt'	8.52E-03

The ranked list of collocates for *echar* are shown in table 7. The most attracted noun is *vistazo* ‘look’ (7A) which usually only appears with the verbs *echar* or *dar* ‘give’. It instantiates the LOOKS schema, as does *mirada* ‘look’ (7D). The LOOKS schema, then, is a salient meaning for this verb. The second most attracted is *culpa* ‘blame’, representing the BLAME schema (§4.2.4).

The MOVANT *mano* ‘hand’ (7C) is highly attracted to *echar*. In the data the combination expresses three (related) meanings. The phrase *echar mano* (literally ‘throw hand’), without a determiner, means ‘to use something to accomplish a purpose’ (DRAE). In (103), the teacher is using a resource to achieve her objectives.

(CdE:19-OR, Habla Culta: Buenos Aires: ...)

- (103) La maestra ECHA MANO de este recurso para lograr ciertos objetivos.
 ‘The teacher MADE USE OF this resource in order to achieve certain objectives’

This phrase is a further example of a figurative use that is understood by virtue of its literal sense, which I term semantically-schematic idioms. In its literal/physical sense, *echar mano* means ‘to seize, grasp’ (DRAE).

(CdE:19-F, Casa del Mono, La)

- (104) Urquiza se encogió de hombros y ECHÓ **mano a la botella del cajón**.
 ‘Urquiza shrugged her shoulders and grasped at the bottle in the drawer’

Echar also occurs with another phrase involving *mano* ‘hand’. In this case it is *echar una mano*, with the indefinite determiner.

(CdE:19-OR, España Oral: CLUD025B)

- (105) ...*Baltanás* eh - ÉCHAME una mano porque esto está muy difícil...
'Baltanas um - GIVE **me a hand** because this is very difficult'

Echar una mano is the equivalent of 'to lend/give a hand'. It means 'to help' (DDFH, DRAE). As Ruiz Gurillo (2001:21) argues, this phrase is understood through both metonymy and metaphor. Metonymy plays a role since *mano* 'hand' is a single part of the body but it represents the entire body. Helping does not only involve hands, but the body and mind. Metaphor plays a role in the change from the physical domain to the conceptual domain. From the physical action of moving one's hand we arrive at the concept of aiding another.

The noun *cabeza* 'head' (7F) is also attracted to *echar*. In this case the verb means 'to lean, recline, to tilt' (DELE).

(CdE:19-F, Hijo de ladrón)

- (106) ECHÉ la cabeza hacia atrás...
I.threw the head towards back
'I MOVED my head back'

In §4.2.2, I mentioned that in many cases *echar*'s meaning was closer to an action of moving one's body, and not necessarily throwing or thrusting as implied by the other *throw*-verbs. This is seen in (106). The INITIATOR is leaning her/his head back.

The last attracted noun is *tierra* 'soil'. There is a fixed phrase (§4.2.2) built by this verb and noun combination that means 'to hide or to try to erase the memory of something/one' (DDFH). If we cover something up with dirt, it is covered, and that which is covered is forgotten. This combination of *echar* and *tierra* is also used literally to describe throwing dirt over an object.

(CdE:19-F, El camino)

- (107) ...bajaron la caja a la tumba y ECHARON mucha tierra encima.
'They lowered the box into the tomb and PUT a lot of dirt on top'

Again, this example seems to illustrate a general tendency for *echar* to express less forceful motion. It can also be seen as a case of collocational preferences: when expressing the caused motion of dirt or soil, *echar* is the preferred verb. Collocational preferences are discussed further in §4.3.4. Most of the attracted nouns for *echar* in this collocation analysis represent schemas that were already highlighted in the 400-sentence corpus. Still, some further uses (such as the various phrases with *mano* 'hand') are also brought to light.

The collocation results for *lanzar*, shown in table 8, also converge with the analysis derived from the 400-sentence corpus. All the attracted nouns form LVCs with the verb. The nouns *ofensiva* 'offensive' (8A) and *ataque* 'attack' (8D) belong to the violence

subschema. They refer to the initiation of violent actions, the launching of an offensive or an attack. *Grito* ‘scream’ (8B) instantiates the SOUNDS schema: throwing a scream. Both *carcajada* ‘laugh’ and *mirada* ‘look’ fall into our FACIAL EXPRESSIONS grouping. Finally *campaña* ‘campaign’ exemplifies the POLITICS schema, though in some cases it also refers to attacks and is then part of the violence schema. The attracted nouns instantiate the schemas that were already apparent from the 400-sentence corpus (§4.2.4).

Table 8. Ranked list of MOVANTS attracted to *lanzar*

	NOUN	lanzar
A)	ofensiva 'offensive'	2.58E-52
B)	grito 'scream'	1.18E-37
C)	carcajada 'laugh'	1.53E-37
D)	ataque 'attack'	1.08E-20
E)	mirada 'look'	3.09E-18
F)	campaña 'campaign'	8.32E-12
G)	piedras 'rocks'	8.49E-05

Table 9. Ranked list of MOVANTS attracted to *tirar*

	NOUN	tirar
1)	piedra 'rock'	1.58E-09
2)	piedras 'rocks'	6.48E-06
3)	agua 'water'	8.11E-04

Finally, *tirar* shows no significant attraction to any nouns other than those representing the THROWING schema. We have already seen that the verb can in fact express different meanings. There are two possible reasons for this lack of results in the collostructional analysis. First of all is the fact that some of the meanings associated with *tirar* have no limitation on the types of MOVANTS. For example, the PULL schema, like the THROWING schema, can include a wide variety of MOVANTS; which we could classify as anything that can be pulled. A second reason is that some additional meanings are not common enough in the corpus to give significant results. For example the combination of the verb *tirar* with nouns referring to hits was attested in the 400-sentence corpus. But in the entire CdE corpus, there are only two instances of *manotazo* ‘slap’ and one instance of *golpe* ‘hit’ with *tirar*. So the combination is possible, but infrequent in the corpus.

4.2.6 Cases with No Overt Movant

The 400-sentence corpus has 22 instances in total where there is no noun or clitic that could be understood as representing the MOVANT. Spanish is not normally a pro-drop language when it comes to the direct object, so the lack of a MOVANT could be meaningful. Table 10 shows the distribution of the sentences without a MOVANT across the four verbs.

Table 10. Sentences without an overt MOVANT based on verb.

	no MOVANT
arrojar	0
echar	11
lanzar	0
tirar	11

This data could not be tested using a chi-square test because the expected value for each cell would be close to five (5.5 to be exact). That value is too low to be safely tested

using a chi-square test (Gillham 2007:78). Still we can describe the semantics related to sentences without an overt MOVANT.

All 11 sentences with *echar* are part of the inchoative schema. This construction combines *echar* with infinitival verbs and it expresses a notion of beginning an action.

- (108) Manuel se asustó tanto que ECHÓ a correr. (CdE:19-F, The Storm)
 NAME CL.3rd scared much that throw.3rd to run
 ‘Manuel was so scared that he started running’

The verb in this case has almost a grammatical function. Usually with *reír* ‘to laugh’ and *llorar* ‘to cry’, the inchoative sentences have a *se*-form clitic. When combining with other verbs, such as *correr* ‘to run’ and *andar* ‘to go/walk’, there is usually no clitic. The inchoative schema are discussed in §4.3.5

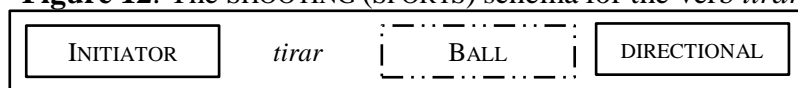
Tirar also has instances of lacking a MOVANT. With this verb, this characteristic is associated with specific meanings and uses. *Tirar* can mean ‘to shoot’ in the context of discussing sports.

- (CdE:19-N, Hon:Prensa:98May11)
 (109) Fue él quien a los 28 minutos TIRÓ violento **desde 35 metros**. La pelota se fue besando el horizontal.
 ‘It was *he*, who at 28 minutes SHOT with force **from 35 meters**. The ball kissed the goalpost’

- (CdE:19-N, Mex:Yucatán:97Jun20))
 (110) *Krassimir Balakov* ... TIRÓ **por sobre la salida del arquero**. La pelota se fue desviada...
 ‘*Krassimir Balakov* SHOT **over the goalie’s approach**. The ball went wide.’

Both examples refer to soccer. Therefore what the INITIATORS are actually doing is kicking the ball. In English, the verb *throw* cannot refer to kicking a ball; it must necessarily involve the arms or hands. But *tirar* is compatible with an act of kicking. Note that in both examples the MOVANT is mentioned in the following sentence. Still, when expressing the notion of shooting a ball, the sentences do not need to include an overt MOVANT. It is optional, and when it does not appear it is understood that the object moving is a ball (or whatever object is thrown in the sport). We could describe the arguments as implicit (Subirats 2004). The SHOOTING (SPORTS) schema is shown below.

Figure 12. The SHOOTING (SPORTS) schema for the verb *tirar*



The participant role for the ball is marked with a dashed box. This indicates that this role does not always need to be expressed at the sentence level. There may even be a preference for not expressing the MOVANT. It is understood that there is a MOVANT, an object moving, even if there is no syntactic expression of this role.

Tirar can also refer to shooting a weapon or firearm.

(CdE:19-F, Pancha)

- (111) TIRA, miserable. Tal vez sea el único servicio que deba agradecerte en mi vida...
‘SHOOT, you scoundrel. That might be the only thing in my life that I could be grateful to you for.’

(CdE:19-F, US:Herald:98May20)

- (112) “No TIREN, no TIREN, que se mató Don Alfredo”, rogó uno de los caseros...
“Don’t SHOOT, don’t SHOOT, Don Alfredo killed himself”, begged one of the landlords’

In these examples, the only element expressed is the INITIATOR. Recall that the verbal morphology is enough to indicate this. There is no mention of a MOVANT. Arguably the element that is understood as moving is the bullet or projectile. There is also no DIRECTIONAL. This use of the verb means ‘to shoot with a firearm’ (ADESSE) and semantically and syntactically only one participant is mentioned.

There is a third meaning for *tirar* that also occurs without a MOVANT.

(CdE:19-F, Palabras en juego)

- (113) Ni siquiera alcancé a ser mediocre. Creo que más bien TIRABA **a malo**.
Not even reach to be mediocre. Think that more good threw to bad
‘I couldn’t even reach mediocre. I think, instead, I was closer to bad.’

Tirar here means ‘to be close to having a certain attribute’ (ADESSE). The example means that the individual was almost bad but not quite. There is a metaphor here involving an INITIATOR who moves in a certain direction; in this case moving *a malo* ‘to bad/nasty’. Attributes are locations that one can move to. There are only two example of this schema in the data. ADESSE also only attested two examples in their corpus. This seems to indicate that it is not a common use.

The last four examples of sentences lacking a MOVANT are cases where the MOVANT is understood and normally mentioned in the preceding or following context. The following two examples serve to illustrate.

(CdE:19-F, San Antonio Gris Cadáver)

- (114) Germán le compró a Luis tres dardos, pero Luis no quería jugar. Linda le dijo que TIRARA...
‘German bought Luis three darts, but Luis didn’t want to play. Linda told him to SHOOT.’

- (115) Tome de aquí; eso es; TIRE **para allá**. *Usted*: TIRE **para acá**. Bien, el palo. Levanten. ‘Grab here: that’s it; PULL **that way**. You: PULL **this way**. Good, the stick. Lift.’

This dropping of the MOVANT occurs both in the THROWING sense and in the PULL sense. Since the MOVANT is made clear by the context, it can be left unexpressed in a specific sentence. In (114), the darts are mentioned earlier. Therefore, in the final sentence it is clear what is being thrown. It is also possible that the *tirar* in this case instantiates the SHOOT (SPORTS) schema. Darts are part of a game or sport and they can fit this schema where expressing the MOVANT is optional. Having one analysis or motivation does not preclude the existence of another and in fact both may be at play (Tuggy 1985b).

In (115), the interlocutors are aware of the element being pulled. Again, since context can fill in all the participants, the MOVANT is not expressed. It is also possible that the appearance of the prepositional phrase *para acá* ‘this way’ plays a role (See §4.3.6).

4.2.7 Summary

The *throw*-verbs are polysemous. They each express several different types of notions. These extensions in meaning can be captured with schemas that specify the participant roles that are required in each and the semantics of the entire construction. The MOVANTS are especially relevant to meaning, because it is often the case that a specific MOVANT or semantic class of MOVANTS is associated to a particular meaning.

This section (§4.2) showed that each verb tends to be used frequently in a small set of construction types which are associated with specific type of MOVANTS. *Arrojar* is used mostly in the THROWING construction explaining its attraction for physical inanimate MOVANTS. But the PRODUCING DATA construction was fairly frequent and an important part of the behavior of this verb.

Lanzar for the most part appears in a variety of light verb constructions expressing human interaction. For that reason it strongly attracts nonphysical MOVANTS. *Lanzar* also appears in sentences that describe throwing oneself to a place or to an action (the inchoative phrases). *Lanzar* is only rarely used in the THROWING schema, hence the very low occurrence of physical animate MOVANTS.

Tirar is used very often to express the THROWING schema, though it has a few other meaning extensions. *Tirar* is the verb with the highest attraction to physical inanimate MOVANTS. It generally does not appear in LVCs, though the HITS schema indicates that it can appear in LVCs, and combine with nonphysical MOVANTS, though very limitedly.

The behavior of *echar* is quite distinct from the other verbs. Instead of attracting a specific type of MOVANT, it is split almost equally across the three types. *Echar* is more characterized by the variety of semi-fixed phrases that it can appear in. It also appears in some LVCs, especially in the BLAME and LOOKS schema. It is often used in the inchoative periphrasis. I also argue that the central THROWING schema for *echar* differs in important ways from the other *throw*-verbs, especially concerning the amount of strength or force.

Each verb tends to appear with high frequency in a small set of schemas. But the data also makes evident that there are a variety of lower-frequency schemas associated with the *throw*-verbs. For example, *tirar* can mean ‘to slam (a door)’ and ‘to print’ and *echar* can mean ‘to pour’ and forms several idiomatic phrases that mean ‘to ruin’. There are many different types of meanings associated with different types of participants that are part of the behavior of each verb.

The data also show cases of functional synonymy; where two or more verbs can be used in the same or similar schema. Functional synonymy indicates that in certain cases the verbs have uses that overlap. For example, *arrojar*, *echar* and *tirar* can be used in the BANISHMENT schemas; *arrojar*, *echar* and *lanzar* are used in the LOOKS schema. Their meaning may not be identical, but the verbs can function in similar types of sentences and express similar situations.

For the majority of the meanings seen in the data, I have maintained that the associated schemas are connected to the central THROWING schema by extension links. The extension links capture the fact that there are semantic traits that are maintained. The *throw*-verbs mostly express motion. The most common is motion to a new location. This can be seen in the THROWING schema, the PULLING schema and in *echar* when it means ‘to put/pour’. In the BANISHMENT schemas there is motion (whether immediate or delayed) out of or away from a location. Movement also occurs when *echar* is used to describe the growth of plant parts. For example, when roots grow they extend; this is a type movement. Physical movement can also be seen in the HITS schema, where the arm must move in order to complete the hit.

Then, the data shows several types of abstract motion. In the LOOKS and SOUNDS schemas, and even in the POLITICS schemas, there is an element that is directed towards another. Looks are directed to another individual or to a location. Obviously looks do not literally move through space, but they are conceived in such terms. An action directed at a person is understood as an object given to that person (Goldberg 1995:94). It is also possible

for the motion verbs to express the beginning of an action. This is seen in the inchoative phrases, which is discussed in §4.3.5.

4.3 Directional

The final argument to be explored is the DIRECTIONAL. The DIRECTIONAL is usually expressed as a prepositional phrase (116) or adverbial phrase (117) (Meilán García 1998). It is also possible to express the trajectory of motion using (118) subordinated sentences (Meilán García 1998:11), though these are not taken into account in this study.

- (116) ...la muñeca verde la TIRASTE **al suelo** y la pisosteaste. (CdE:19-F, La muerte de Artemio Cruz)
 ‘You THREW the green doll **to the ground** and stepped on it’
- (117) ...uno ECHA la vista **atrás**... (CdE:19-F, Habla Culta: Sevilla: M9)
 ‘One MOVES their sights **backwards**’
- (118) ...LANCÉ la colilla **que fue a parar a la corriente del arroyo**. (CdE:19-F, Del agua nacieron los sedie...)
 ‘I THREW the cigarette butt, **which ended up in the stream’s current.**’

The DIRECTIONALS can refer to any portion of the path of motion, including the source or origin (119), the path (120), the intended goal (121) and the goal (122). There are also phrases that describe the spatial configuration of the entire action, not limited to the motion of the MOVANT. In other words, they describe the setting (123). These are also included in DIRECTIONALS.

- (119) ...sin dudarle, como había prometido, me ARROJÉ **desde la ventana**. (CdE:19-F, Ordinaria)
 ‘Without doubting, as I had promised, I THREW myself **from the window.**’
- (120) LANZO la moneda **por la ranura**... (CdE:19-F, La obra)
 ‘I THROW the coin **through the slot**’
- (121) Hiro tiró su gorra y se LANZÓ alegre **hacia su nuevo amigo**. (CdE:19-F, Ronda en las olas)
 ‘Hiro dropped his cap and THREW himself happily **towards his new friend.**’
- (122) ...se TIRÓ **al piso** enfermo... (CdE:19-F, Tierra Somos)
 ‘S/he THREW her/himself **to the floor** sick.’
- (123) ...un par de rijosos que se TIRABAN trompadas y puntapiés **al otro extremo del parque**. (CdE:19-F, Gallofero)
 ‘a couple of thugs that were THROWING each other punches and kicks **at the other end of the park.**’

In some cases the DIRECTIONAL can be marked as a preverbal clitic. This occurs when the goal of motion is a human, and often, though not always, the human is a willing recipient.

(124) **Nos** TIRABAN bolsas de agua. (CdE:19-OR, Habla Culta: Bogotá: M14)
'They THREW bags of water **to us**'

(125) Ellos me lo agradecen y **me** ARROJAN lo poco que tienen... (CdE:19-F, El mar)
'They thank me and THROW **me** what little they have.'

Finally, DIRECTIONALS include phrases that are introduced by the preposition *a* 'at/to' (in a couple of instances by *en* 'in') and are followed by nouns or verbs that refer to time periods (126), events or actions. The second element of the nominal inchoative phrases (127) and the verbal inchoative phrases (128) are included as DIRECTIONALS.

(CdE:19-F, Cerradura)
(126) ...una fuerza desconocida destruye su concentración y le ARROJA **a la realidad**.
'an unknown force destroys her/his concentration and throws him/her **to reality**.'

(CdE:19-F, Muy Buen Chingazo, Un)
(127) ...se LANZÓ **a la conquista de cinco metros de asfalto**...
'He THREW himself **to conquer five meters of asphalt**.'

(128) Rita se ECHÓ **a llorar**. (CdE:19-F, Micro cuentos para soñar en...)
'Rita BEGAN **to cry**.'

Two sentence types are excluded from the study of DIRECTIONALS. The first type is the 9 sentences with *echar de menos* 'to miss'. I argue in §2.4.3 and §4.2.3 that this phrase is mostly non-compositional and can be treated as a single whole, closer to a multi-word lexical item¹⁹. The phrase does not line up either semantically or syntactically to most other uses of verb *echar*. For this reason, these phrases are not included in the tests.

I also exclude the sentences with *tirar* that mean 'to pull' which include a phrase introduced by the preposition *de* 'from/of'. The structure of these phrases also differs considerably from all other sentences. I have annotated these *de* phrases as MOVANTS, which is discussed in §4.2.2. Yet in §4.3.6 I will argue that several characteristics of this 'pulling' schema can be explained if we see these phrases (*de las riendas* 'from the reins' for example) as both MOVANTS and DIRECTIONALS.

¹⁹ It is also true that the phrase includes a prepositional phrase of sorts (*de menos*), so that in structure at least it includes a phrase similar to that of other DIRECTIONALS. From a synchronic perspective, it seems very unlikely that *de menos* is considered a prepositional phrase with its own associated semantics.

The nature of the DIRECTIONAL differs from the previous two arguments in important ways. First of all, the DIRECTIONAL phrase seems to be optional (Morante et al. 1998, Porto Dapena 2002). We saw that INITIATORS are always present (due to verbal morphology) and there are only 22 sentences that lack a MOVANT. In contrast, over 100 sentences lack a DIRECTIONAL. The presence or absence of a feature or element can provide significant distinctions in a corpus study. For example, Divjak & Gries (2008) use the presence versus absence of negation as one of their multiple parameters. The first test on DIRECTIONALS explores the presence versus absence of a DIRECTIONAL (§4.3.1).

A second characteristic of the DIRECTIONAL, distinguishing it from the other arguments, is the fact that it is possible for a single sentence to have more than one DIRECTIONAL. Since DIRECTIONALS can refer to various parts of the trajectory of motion, two complementary phrases can be expressed simultaneously.

(CdE:19-F, Huellas en la arena)

(129) El mar me LANZABA **de un lado a otro** de mi pequeña barca.
 ‘The sea THREW me from **one side to the other** of my little boat’

(CdE:19-F, Ventana Abierta al Mar)

(130) ...la ARROJÓ **al mar a través de la ventana abierta**.
 ‘S/he THREW her **to the sea through the open window**.’

(CdE:19-F, Arbusto y Piedra.)

(131) ...ECHA **a andar hacia el sur**...
 ‘S/he STARTS **to go towards the south**.’

As we can see, (129) includes the source and the goal, (130) describes the goal and the path and in (131) there is an inchoative verbal periphrasis and the intended goal. The possibility of expressing two DIRECTIONALS in a single sentence has led some to propose separate types of DIRECTIONALS. For example, Morante et al. (1998) propose a schema for (autonomous) motion verbs which includes both a source (marked by *de* ‘from’) and a goal (marked by *a* ‘at/to’). Spanish FrameNet includes three frame elements for our single DIRECTIONAL: the source, the path and the goal. Only the goal is a core element.

But it is also possible to conflate the different aspects of a trajectory into a single category, as I have done. Morimoto (2001) speaks of an *argumento espacial* ‘spatial argument’ which includes any element of a trajectory. I follow Morimoto in conflating all elements that refer to a trajectory into a single participant. These double DIRECTIONALS only appear in 16 sentences in the 400-sentence corpus. Though they are possible, they are infrequent. Most of the time only one DIRECTIONAL is expressed even though multiple DIRECTIONALS are allowed.

Delving into the types of DIRECTIONALS in the 400-sentence corpus provides few statistically significant results. The specific prepositions and adverbs that appear vary greatly, but most are so infrequent that they can not be tested statistically. It is also possible to group prepositions into types, based on their usual function. Tests (see §4.3.2) show no significant variation among the verbs on the choice of preposition type.

A prepositional phrase also includes a nominal that describes a location or an object (Morimoto 2001:27). The nominals found in the corpus refer to a wide variety of objects, persons, places and directions, so little can be gleaned from the 400-sentence corpus. The colostruational analysis, though, does provide some specific information on common collocates in the DIRECTIONAL position, specifically the nouns as complements of the preposition. The results (§4.3.3) sometimes signal meaning differences between the verbs, but often they seem to signal collocational preferences²⁰. That is, a verb attracts a specific DIRECTIONAL because speakers have conventionalized the combination, but the meaning is entirely compositional.

The final data source on DIRECTIONALS is from a questionnaire (§4.3.4). The questionnaire explores two issues that arose from the 400-sentence corpus and the colostruational analysis. The results of the questionnaire are compared to those from the two corpus studies in order to give a well-rounded picture of the data.

The discussion then turns to some additional issues regarding DIRECTIONALS. First I discuss DIRECTIONALS that contain nouns (or verbs) referring to time and actions. In some cases, these aspectual DIRECTIONALS form part of inchoative constructions, signaling the beginning of an action. The semantics and structure associated with these types of DIRECTIONALS are discussed in §4.3.5.

Then I provide (§4.3.6) a semantic proposal connecting the central THROWING schema for *tirar* with the meaning ‘to pull’. I argue that the type of structures that appear with this meaning (‘to pull’) can be understood if the phrase introducing the object pulled is both a MOVANT and a DIRECTIONAL. This analysis also helps explain the meaning extension from throwing to pulling. I end this section with a summary of the findings (§4.3.7).

²⁰ Researchers often have different working definitions of collocations (See for example Alonso Ramos 1995 for a discussion). I am using the term *collocation* as defined by Cruse (1986:40) “The term collocation will be used to refer to sequences of lexical items which habitually co-occur, but which are nonetheless fully transparent in the sense that each lexical constituent is also a semantic constituent.”

4.3.1 Presence versus Absence of a Directional in the 400-sentence Corpus

Table 11 shows the distribution of the presence versus absence of a DIRECTIONAL. With a X-squared of 19.11 and a df of 3, the p-value is 2.59E-04. The Cramer's V is 0.2246; lying between a small and medium effect size (King & Minium 2008:327-329). The goodness-of-fit (GOF) p-value shows that only *echar* has a significantly distinct distribution. It has more sentences with a DIRECTIONAL, and far fewer sentences lacking a DIRECTIONAL.

Table 11. Presence versus absence of a DIRECTIONAL for each verb

	Present	Absent	GOF p-value
arrojar	68	32	0.33715
echar	82 ↑	9 ↓	0.00015
lanzar	66	34	0.15952
tirar	58	30	0.18068

An analysis of the absence of a DIRECTIONAL must take into account the many different schemas (and associated meanings) that have been posited so far. Each specific schema has its own preferences on the appearance of a DIRECTIONAL. We will see that some schemas from the data rarely occur with a DIRECTIONAL. Others show a level of optionality: the data show frequent cases of both presence and absence of a DIRECTIONAL. Finally, some schemas (almost) require²¹ a DIRECTIONAL, often times because it is lexically filled. The following is not meant as an exhaustive discussion but an exemplification of the preferences that schemas can present in the DIRECTIONAL slot.

Schemas with No Directional

A first schema that does not include a DIRECTIONAL is the PRODUCING DATA schema seen with *arrojar*. In most cases, there is a data source with the resulting data, but no element of directionality.

(CdE:19-OR, Entrevista (PRI))

- (132) ...*la experiencia de Baja California* ARROJÓ el resultado que conocemos...
 'The experience of Baja California PRODUCED the result that we know.'

(CdE:19-N, Col:Semana:824)

- (133) ...*las operaciones posteriores* no ARROJARON resultados ostensibles...
 'The operations that followed did not PRODUCE ostensible results.'

Since a DIRECTIONAL does not appear in the data for this type of expression, it is not included as one of its arguments (see §4.1). The schema only includes a source (INITIATOR)

²¹ I am hard pressed to use absolute phrases like never or always, or require or forbid since there are usually always exceptions to a rule. But finding one exception does not deny these generalizations. For example, if we find cases of the PRODUCING DATA schema with a DIRECTIONAL it does not deny that as a general (though not absolute) rule, this schema prefers not to have a DIRECTIONAL.

and the resulting data (MOVANT). The PRODUCING DATA schema takes up a large part of the 32 sentences with no DIRECTIONALS for the verb *arrojar*.

One schema with *echar* also lacks a DIRECTIONAL in the corpus. This is the LOCK schema. The phrases *echar pestillo* and *echar cerrojo* both meaning ‘to lock’ (§4.2.2) do not occur with a DIRECTIONAL of any sort in the data. The locking of a bolt involves motion in order to close it. Since the motion is on the bolt itself, there is no need to express a DIRECTIONAL. Since it is not a common schema in the data set it accounts for few cases of absent DIRECTIONALS for *echar*.

(CdE:19-F, La guaracha del macho Camacho)

- (134) Graciela se encerró en la alcoba matrimonial, ECHÓ pestillo y lloró...
‘Graciela shut herself in the master bedroom, locked the door and cried.’

Two phrases with *tirar* normally lack a DIRECTIONAL. The first is the PRINT schema (§4.2.2) and the second is the SHOOT (WEAPON) schema (§4.2.6).

- (135) TIRÓ copia tras copia de aquellas imágenes... (CdE:19-F, El rey de los ratones)
‘S/he RAN OFF copy after copy of those images’

- (136) “No TIREN, no TIREN, que se mató Don Alfredo” (CdE:19-N, US:Herald:98May20)
‘Don’t SHOOT, don’t SHOOT, Don Alfredo killed himself’

These two schemas are not common in the data set either, so they contribute little to the absent column for *tirar*. Overall, there are few schemas that seem to reject DIRECTIONALS. And of the few, only the PRODUCING DATA schema occurs more than 5 times in the data set.

Schemas with an Optional Directional

A larger number of schemas show a level of optionality in the DIRECTIONAL. That is, for some schemas the data show both cases where there is a DIRECTIONAL and cases where there is none. Still, there may be preferences for one or the other. For example, a particular schema may mostly appear with DIRECTIONALS, and only lack them in limiting cases. Currently it is not possible to give any statistically sound predictions on this, so only general tendencies from the corpus are described.

The central THROWING schema shows a level of optionality in this argument, a fact noted by Morante et al. (1998) for verbs of motion in general. Though the vast majority of sentences in the THROWING schema include a DIRECTIONAL, there are cases where none is present.

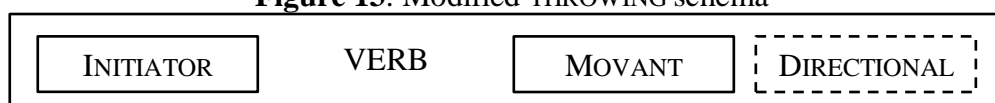
(CdE:19-F, Con pena y sin gloria)

- (137) Quizá sin darme cuenta TIRÉ un [...] fósforo sin apagar...
‘Maybe without noticing I THREW a lit match.’

- (138) ... gana el que TIRA la carta más alta... (CdE:19-AC, Enc:Bridge)
 ‘The one who THROWS the highest card wins’
- (139) Luis no entendió, pero ARROJÓ los dardos. (CdE:19F, San Antonio Gris Cadáver)
 ‘Luis didn’t understand, but THREW the darts.’

The examples in (137-139) show that it is possible to express acts of ‘throwing’ without a specified trajectory. The THROWING schema should be modified to show the relative optionality of the DIRECTIONAL.

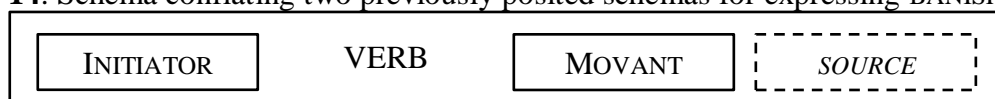
Figure 13. Modified THROWING schema



The dashed box indicates that the element is optional. A sentence can appear with or without a DIRECTIONAL. In many cases the direction of motion is understood. Morimoto (2001:130) argues that for certain verbs of motion, such as *caminar* ‘walk’, *nadar* ‘swim’, etc. there is always a reading of movement accompanied by a change in position even when there is no complement that expresses trajectory. Fábregas (2007) makes the same proposal for the verb *tirar*, which we could extend to all the *throw*-verbs. He notes that this verb presupposes that the object thrown has changed position in space. Even when there is no DIRECTIONAL in a sentence, it is always understood that the MOVANT was displaced to a different location. The DIRECTIONAL is a part of the THROWING schema, and a trajectory of motion is part of the meaning of each verb. The DIRECTIONAL differs from the other participants in not always requiring syntactic specification.

The verbs *arrojar*, *echar* and *tirar* can express the notion of banishing or removing from a place. I posit in §4.2.3 a set of three schemas. There are two general schemas that appear with all three verbs. In one case, the schema contains no DIRECTIONAL, while in another the DIRECTIONAL appears but it can only refer to the source. These two schemas can be conflated in a single schema:

Figure 14. Schema conflating two previously posited schemas for expressing BANISHMENT



Both previously posited schemas are captured by a single schema. The DIRECTIONAL phrase is optional, but if there is one present it must be a source of motion, and not any other

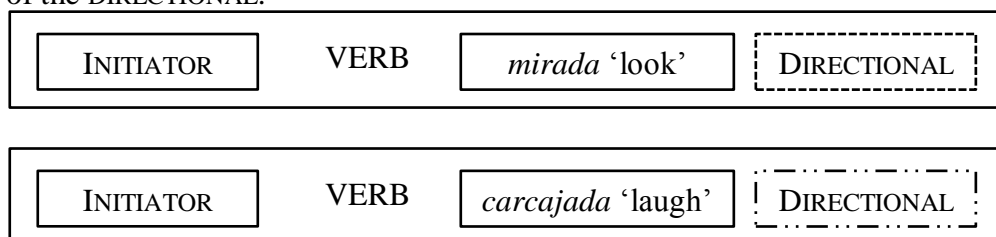
part of the trajectory. I also proposed a third BANISHMENT schema for *echar* which contains a lexically fixed DIRECTIONAL. The DIRECTIONAL must be the phrase *a la calle* ‘to the street’. This can be seen as a schema that does require a DIRECTIONAL. It is discussed in the following subsection.

Many of the LVCs seen in the data show optionality in the DIRECTIONAL, especially those that are common with *lanzar* . The FACIAL EXPRESSIONS schema (which includes the LOOKS schema) and the SOUNDS schema provide examples that lack a DIRECTIONAL.

- (140) Airamaná LANZÓ un largo suspiro... (CdE:19-F, Gallofero)
 Airamana threw a long sigh
 ‘Airamana GAVE a long sigh’
 (CdE:19-F, Fecundación fraudulenta)
- (141) Yo, se dijo la señora Inés, LANCÉ una carcajada y salí corriendo.
 I, CL.3rd said the Mrs. Ines, threw a laugh and left running
 I, said Mrs. Ines, LET OUT a laugh and ran out.
- (142) ...la mujer LANZÓ un grito... (CdE:19-F, Lluvia)
 the woman threw a scream
 ‘The woman LET OUT a scream’

We could posit more specific schemas for the different facial expressions and sounds since some show special tendencies. For example, most of the sentences with *mirada* ‘look’ include a DIRECTIONAL. In contrast, all the sentences with *carcajada* ‘laugh’ in the 400-sentece corpus lack a DIRECTIONAL. We can capture these preferences with two specific schemas for each noun.

Figure 15. Schemas for LOOKS and LAUGHS showing different preferences for the appearance of the DIRECTIONAL.



We can tentatively represent these preferences in the above schemas. The closer the dashes, the more the DIRECTIONAL is preferred. In the first schema, the DIRECTIONAL occurs most of the time, but it also accepts sentences without a DIRECTIONAL. In the second schema, on the other hand, there is a preference for not having a DIRECTIONAL, though I leave open the possibility that a DIRECTIONAL can appear.

There are several frequent schemas that show a level of optionality in the DIRECTIONAL slot. The schemas take up a large portion of the data set. For example, the THROWING schema and the FACIAL EXPRESSIONS and SOUNDS schema are quite frequent. Additionally, these schemas with optional DIRECTIONAL are instantiated by more than one *throw-verb*: the THROWING schema applies to all four, and the BANISHMENT schemas and LOOKS schemas appear with at least three of the verbs.

Schemas with a Directional

The final group we can distinguish are schemas that require (or at least very strongly prefer) a DIRECTIONAL. First I will discuss schemas that have an open slot for the DIRECTIONAL but still strongly prefer the appearance of one. Then I will discuss schemas that have a (partially) lexically filled DIRECTIONAL. Several of these lexically filled DIRECTIONALS occur with *echar*, though it is certainly not exclusive to this verb.

One schema, seen with *lanzar* and *tirar*, that prefers a DIRECTIONAL was the HITS (or VIOLENCE) schema.

(143) Y me LANZÓ un bofetón a la cara... (CdE:19-OR, Habla Culta: Santiago: M24)
And s/he GAVE me a slap in the face.

(144) Eres un imbécil Paco, dice y le TIRA un manotazo. (CdE:19-F, Pasillo Oscuro, El)
You are a jerk Paco, s/he says and GIVES him a slap

As we will see in §5.1, LVCs can be seen as a melding of the participants of the verb and the participants of the noun (Alonso Ramos 2004:18). Since hits normally involve two participants, a person hitting and the object hit, this is manifested in a stronger preference for a DIRECTIONAL (identifying the object hit) in the resulting light verb construction.

There is one common schema for *arrojar* that has a partially filled DIRECTIONAL: the SHED LIGHT construction (§4.2.4). In this schema, the DIRECTIONAL is introduced by the preposition *sobre* ‘over/on top of’. The phrase means ‘to clarify’. The light falls *sobre* ‘over/on top of’ a person, an event or a circumstance.

(CdE:19-F, Carta Abierta a una Pérfida)
(145) ...que ARROJE luz sobre el porqué he perdido los dones de su corazón.
‘That she SHED light on why I have lost the gifts of her heart.’

(CdE:19-F, Ayer soñé con Valparaíso)
(146) ...buenos grabados, retratos y pinturas inéditas que ARROJAN luz sobre facetas desconocidas de «la ciudad del viento».
‘Good engravings, portraits and unpublished paintings that SHED light on unknown facets of the “windy city”’

There are a variety of phrases with *echar* that strongly prefer that the DIRECTIONAL be specified. In this category we find the phrases that incorporate *culpa* ‘blame’, *tierra* ‘soil’ and *cuerpo* ‘body’. Each combination instantiates a different meaning. All three, though, strongly prefer the presence of a DIRECTIONAL.

(CdE:19-N, Hon:Prensa:98May27)
 (147) "A ese simple chivo expiatorio le ECHA la culpa *la sociedad*"
 ‘Society PLACES the blame on that simple scapegoat’

(CdE:19-F, Estudiar Medicina)
 (148) ...ECHÓ el cuerpo **hacia adelante**...
 ‘S/he LEANED her/his body **forward**.’

(CdE:19-N, Perú:Caretas:1445)
 (149) ...instancias superiores de la jerarquía militar disuelven el equipo y ECHAN tierrita **al asunto**.
 ‘Superiors of the military hierarchy dissolve the team and cover up the matter’

The BLAME schema (147) requires an individual (or a situation) that receives the blame. This is usually introduced by the preposition *a* ‘at/to’ (§4.2.3). The phrase in (148) expresses the leaning or tilting of the body (§4.2.5). It is a meaning associated with *echar* and not limited to the noun *cuerpo* : it can combine with nouns referring to other parts of the body. It is common for these sentences to include the direction of motion, even if usually only expressing movement forward (as in 148) or backward. Finally, the fixed phrase *echar tierra* meaning ‘to cover up’ (§4.2.2) usually includes a DIRECTIONAL expressing the thing that has been covered up.

In some cases, the DIRECTIONAL is lexically specified, guaranteeing the presence of this argument. Idiomatic fixed phrases with *echar* with lexically specified DIRECTIONALS include *echar en cara* ‘to reproach’, *echar abajo* and *echar por los suelos* ‘to ruin’ (§4.2.4) and *echar a la calle* ‘kick out/banish’ (§4.2.3).

(CdE:19-F, Fecundación fraudulenta)
 (150) ¿Y si mañana ella te ECHA **en cara** que la obligaste a abortar?
 ‘What if tomorrow she THROWS it **in your face** that you forced her to abort?’

(CdE:19-F, Absurdo Concursante)
 (151) Por lo menos hasta que alguien ECHARA **abajo** su marca...
 ‘At least until someone BROUGHT **down** his mark’

(CdE:19-N, Guat:Gerencia:98JUN8)
 (152) ...un roletazo hacia el jardín derecho que ECHÓ **por los suelos** el trabajo de su rival en la lomita.
 ‘a hit towards right field that BROUGHT **down** the work his rival had done on the mound.’

- (153) ... doña Bárbara sin muchos aspavientos ECHÓ **a la calle** a Cándida...
 ‘Mrs. Barbara without much ado KICKED Cándida **out (into the street)**.‘

In each case, there is a fixed DIRECTIONAL that produces a highly specific meaning. The resulting meaning is figurative, but it is grounded in the literal meaning of the parts. The phrases are conventionalized, such that the combination of a specific verb (*echar* in this case) and a specific prepositional phrase produces a figurative meaning. In the first three examples, removing the DIRECTIONAL would change the meaning of the sentence completely. The meaning can be maintained in (153) since there is a BANISHMENT schema that lacks a DIRECTIONAL which is functionally synonymous.

Overall, the data seems to indicate that *arrojar*, *lanzar* and *tirar* have a mix of phrases that do not have DIRECTIONALS, a larger variety of phrases with optional DIRECTIONALS, and fewer cases of phrases requiring DIRECTIONALS. *Echar* contrasts with these verbs in the types of phrases it has. It has a larger variety of phrases requiring this argument. The high number of sentences in the corpus with a DIRECTIONAL for the verb *echar* can be seen as a result of these phrases requiring or preferring a DIRECTIONAL.

In this section, I have treated the THROWING schema as a single unit, assuming that the schema is the same for all *throw*-verbs. I argue, though, in §4.2.2 that there may be some semantic differences between *echar* and all the other verbs when it comes to this central schema. This leaves open the possibility that *echar* could be different from the other verbs in the central THROWING schema. In other words, it might be the case that the verbs differ as to the level of optionality in the central THROWING schema.

Evidence in that direction comes from the first definitions that the DELE provides for each *throw*-verb.

- (154) *arrojar* To propel something with violence, so that it travels a certain distance
echar To make something end up somewhere, giving it a “boost”
lanzar *Arrojar*
tirar To let something fall intentionally

It is interesting to note that the focus of *echar* seems to be on the finality of motion. For *arrojar*, *lanzar* and *tirar*, though there is a mention of moving a certain distance or moving down (“fall”), the most salient aspect is the motion itself (“propel” and “fall”). With *echar*, in contrast, the focus is on the trajectory of motion (“make end up somewhere”). The definitions that this dictionary posits potentially signal a semantic difference in the central

THROWING schema for each verb. This possibility is explored in the questionnaire and is discussed further in §4.3.4.

4.3.2 Types of Directionals in the 400-sentence Corpus

In this study, I have annotated the category of INITIATORS into types (animate and inanimate), and done the same with MOVANTS (physical inanimate, physical animate and nonphysical). A similar type of distinction could prove useful in the study of DIRECTIONALS.

DIRECTIONALS can be expressed using prepositional phrases made up of a preposition and a nominal complement, or by an adverbial. The prepositions and adverbials can be classified according to the type of information they encode. The data set shows a wide range of prepositions and adverbs used as DIRECTIONALS. The most commonly used preposition is *a* ‘at/to’. Almost half of the DIRECTIONALS in the data use this preposition. Lamiroy (1991) describes *a* as the directional preposition par excellence. This preposition marks the end point of the motion of the MOVANT.

- (155) Le TIRÉ una piedra **a una rata**. (CdE:19-F, Adam Birner)
‘I THREW a stone **at the rat**.’

(CdE:19-F, Encuentro en la Ciudad del...)

- (156) ...le LANZA **al extraño** una sonrisa despectiva...
‘I GAVE **the stranger** a contemptuous smile.’

(CdE:19-F, Función patronal: novela)

- (157) Los del Sport Fariña se ECHARON **al suelo**...
‘The people from Sport Fariña THREW themselves **to the ground**.’

The *throw*-verbs also occur with prepositions that have traditionally been considered locative. Locative prepositions semantically mark the location in space of an element, and do not imply any motion (NGRAE §29.6b, Meilán García 1998). In the data we find the prepositions *en* ‘in/on’, *entre* ‘between’, *bajo* ‘under’, *sobre* ‘over’ and *tras* ‘behind/after’ to name a few. The following exemplify.

- (158) Nos ECHAMOS **bajo un pino**. (CdE:19-F, Robo)
‘We LAID DOWN **under a pine tree**.’

(CdE:19-F, Madre Ballena y el Pescador)

- (159) ...cuando él ARROJE la piedra **en la fosa** ... yo acudiré...
‘When he THROWS the stone **in the pit** I will come.’

(160) ...ARROJÉ un billete **sobre la mesa**.
 ‘I THREW a bill **on the table**. ‘

(CdE:19-F, Oquéi, Oquéi ...)

It is not uncommon for prepositions that normally express location to be used to express the goal (NGRAE §29.51). In (158-160), the prepositions mark the end point of motion, and also the spatial configuration at the end. In other words, *bajo un pino* ‘under a pine tree’ (158) states that once their motion was completed the individuals ended up under a tree (and not next to it or behind it).

This compatibility between locative prepositions and verbs of motion does not necessarily mean that these prepositions include motion as part of their meaning. We can still state that the prepositions are locative and do not imply motion (Meilán García 1998:25). They are compatible with motion verbs because the preposition only expresses that the object is located in a certain place at the end of the event (Fábregas 2007:193). The concept of motion is contributed by the verb.

Locative prepositions are useful because sometimes they express a spatial configuration not expressed by any directional preposition. The preposition in (159) indicates that the stone is inside the pit. If we change this to a directional preposition such as *a* ‘at/to’, it no longer implies that the stone is contained inside the pit, but could be on the outside edge (See Fábregas 2007:178-181).

The data do not show any statistically significant differences for the choice of preposition or adverbial. The only element that occurs more than 10 times with each verb is *a* ‘at/to’; all the other prepositions are too infrequent to test statistically. Even if we compare the use of *a* to all other types of prepositions, adverbials and clitics, there is no distinct behavior among the verbs. The results are shown in table 12.

Table 12. Distribution of *a* ‘at/to’ versus other prepositions/adverbs, including statistical results

X-squared=6.95, df=3, p-value=0.074		
	a 'at/to'	other
arrojar	31	37
echar	42	40
lanzar	39	27
tirar	21	37

It is also possible to group prepositions/adverbs into general functions. In our case, we classified them into 5 groups²². Locative prepositions are ones that do not imply any motion. They include *en* ‘in/on’ and *sobre* ‘over/on’. The remaining four categories are prepositions that imply motion, but highlight different parts of the motion event. The goal indicates the

²² The classification was based on NGRAE §29 and Meilán García (1998). Other classifications are also possible.

end-point of motion; where the object ends up. The typical preposition is *a* ‘at/to’, but *contra* ‘against’ is also classified as a goal²³.

Some prepositions mark the path that is followed, the route. Examples include *por* ‘by/through’ and *a través de* ‘through’. The fourth category is the intended goal. These prepositions denote motion directed towards a place or object, but there is no implication that the moving object has reached that place. This includes *hacia* ‘towards’ and *para* ‘towards’. The final group includes prepositions that mark the source or beginning of motion. The two most typical prepositions are *de* ‘from/of’ and *desde* ‘from’.

Table 13. Distribution of prepositions and adverbs grouped by type.

	goal	locative	route	intended goal	source
arrojar	33	18	6	2	4
echar	46	19	3	3	1
lanzar	46	10	3	1	2
tirar	23	15	6	1	5

Table 13 shows the distribution across the five groups. The counts for route, intended goal and source are too low to test using the chi-square test. If we test only goal versus locative the results are not significant. With a X-squared of 6.29

and a df of 3, the p-value is 0.098. All four verbs behave comparably. Looking strictly at the prepositions and adverbs, the verbs seem to behave the same. It is still worthwhile to notice that both the goal and locative prepositions mark the end point of motion. Therefore, the end point of the trajectory is expressed in over 75% of the sentences with DIRECTIONALS for each verb. Morante et al. (1998) had previously noted that sentences with verbs of motion tend to express the end-point. The data confirm this. Though it is possible to express the route, intended goal and source, it is done so infrequently in the 400-sentence corpus.

The DIRECTIONAL also includes a noun that serves as the complement of the preposition. In the 400-sentence corpus, this complement denotes an assortment of elements. It could be a small physical object (*maleta* ‘suitcase’), larger physical objects (*cama* ‘bed’), a building (*mansión* ‘mansion’), a part of a building (*celda* ‘(jail) cell’), a city (*la capital de Guatemala* ‘the capital of Guatemala’), bodies of water (*río* ‘river’, *lago* ‘lake’), plants (*el grano* ‘the grain’) a person (*el chico* ‘the boy/guy’), body parts (*cuello* ‘neck’), a generic trajectory (*en derredor* ‘around’), certain open spaces (*al aire* ‘(up) in the air’), to name a few. Since there seems to be no clear cut way to divide the different complements into 2 or 3

²³ *Contra* ‘against’ is also often classified as a locative preposition. In NGRAE §29.7j, it states that this preposition can express location in some contexts and a goal in others. In Meilán García (1998:25) she suggests that it is a preposition that implies motion, while later in the same text (1998:34-35) states that this preposition does not imply motion.

categories²⁴, this position is not analyzed in the 400-sentence corpus. The colostruational analysis, however, allows us to investigate the most common complements in the DIRECTIONAL.

4.3.3 Colostruational Analysis

The colostruational analysis for DIRECTIONALS shows the most attracted nouns that occur as complements of prepositions. The results, then, give us some data on the types of locations where motion can be directed to. Unlike the colostruational results for MOVANTS, where most of the attracted nouns indicate different meanings for each verb, a majority of the nouns in the analysis of DIRECTIONALS do not signal different meanings per se, but something closer to collocational preferences or routinized combinations.

The results of the colostruational analysis for DIRECTIONALS are shown in table 14. I begin discussing the DIRECTIONALS that combine with verbs to produce fixed phrases or derive meanings that are specialized to a verb, which are marked (14A-D) in the table. Then I discuss the remaining nouns which mark collocational preferences for the verbs.

Table 14. Results of the colostruational analysis for DIRECTIONALS

	NOUNS	arrojar	echar	lanzar	tirar
A)	ataque ‘attack’			3.83E-07	
B)	mercado ‘market’			5.01E-07	
C)	tierra ‘earth/dirt’		7.99E-06		
D)	cara ‘face’		1.11E-08		4.74E-08
E)	suelo ‘ground’	1.10E-05	3.04E-02		1.27E-43
F)	piso ‘floor’	3.09E-05			2.78E-09
G)	aire ‘air’	1.91E-02		6.25E-16	9.24E-04
H)	agua ‘water’	2.17E-03			5.65E-05
I)	mar ‘sea’	1.25E-06			
J)	cama ‘bed’	1.59E-10	2.46E-04		1.62E-18
K)	lado ‘side’	1.74E-03	1.27E-03		6.55E-03
L)	brazos ‘arms’	1.23E-03	3.59E-07		
M)	basura ‘garbage’		1.08E-05		1.40E-11

Lanzar is attracted to only 3 nouns, two of which are only attracted to this verb and in fact take part of specific meanings (14A and B). The phrase *lanzar(se) al ataque* means ‘to begin an attack’. It is part of the inchoative structures seen for this verb (§4.3.5). *Lanzar* can

²⁴ The reason I prefer fewer variables is that it helps ensure that the data counts are high enough to be statistically tested. Data counts under 5 cannot be tested, and even below 10 tend to be problematic (Gillham 2007:78). Given that there are only 100 sentences per verb, a large number of variables would likely result in smaller data counts which could not be testable. For example, in table 13, 3 out of the 5 categories are too low to be tested.

also mean ‘to present to the public’ (VOX). This is the meaning that appears in phrases with *al mercado*.

(CdE:19-F, Miramar: La gesta del pez)

- (161) Varios hombres aparecieron y se LANZARON **al ataque...**
‘Several men appeared and WENT **on the attack**’

(CdE:19-N, Guat:Gerencia:98JUN6)

- (162) Cervecería Costa Rica ... LANZÓ ayer **al mercado** una nueva bebida sin alcohol.
‘The Costa Rican Brewery yesterday LAUNCHED a new alcohol-free beverage **to the market.**’

I argue in §4.2.4 that the light verb constructions with *lanzar* share a semantic core; all express different ways of communicating and interacting among humans. This semantic trait also exists in the phrases exemplified in (161) and (162). Launching an attack involves the beginning of a physical confrontation with another group. Attacks are types of (negative) interactions between humans. Launching a new product also involves human interaction. In (162) a business is presenting a new product to the members of the community, in that way interacting with them in an economic sphere. It is possible to motivate a large variety of the metaphorical uses of *lanzar* with one semantic characteristic.

Echar attracts the noun *tierra* (14C). Most of the sentences represent two fixed phrases. The first is *echar por tierra*, literally ‘throw by land’, which means ‘to destroy, to spoil, to waste something’ (DDFH). This phrase is in fact one of four phrases in the data that mean ‘to ruin’. The other three are *echar abajo* ‘throw down’, *echar por los suelos* ‘throw by the grounds’ and *echar a perder* ‘throw to lose’ discussed in §4.2.4. The noun *tierra* also appears in the phrase *echar pie a tierra*, literally ‘to put foot to ground’, which means ‘to dismount or to exit a vehicle’ (DRAE). Examples of each meaning are shown below.

(CdE:19-F, El lado de la sombra)

- (163) El plan estaba preparado, pero en un rato el azar lo ECHÓ **por tierra.**
‘The plan was prepared, but in a short time chance BROUGHT it **down.**’

(CdE:19-F, La casa y su sombra)

- (164) ...un jinete ECHABA **pie a tierra** junto a la gradería del corredor de la casa.
‘A jockey dismounted next to the steps in the hallway of the house.’

The final noun that is part of a fixed phrase with conventionalized meaning is *cara* ‘face’ (14D). It appears in the phrase *echar en cara* ‘to reproach’. This construction is discussed in §4.2.4.

- (CdE:19-F, La víspera y el día)
- (165) A mí me ECHAN **en cara** mi origen de «buena familia»
 To me CL.1st throw.3rd in face my origin of good family
 ‘They reproach me my “good family” origin.’

I describe *echar en cara* as a semantically-schematic idioms: a phrase whose figurative meaning is an abstract version of the literal, compositional meaning of the phrase. There are also combinations of *echar* and *cara* that express physical motion to(wards) the face (166). And there are uses that lie halfway between the figurative (165) and the literal (166), exemplified in (167).

- (166) ...me ECHÓ el humo **en la cara...** (CdE:19-F, Del agua nacieron los sedie...)
 ‘S/he BLEW smoke **in my face**’

- (CdE:19-F, La melodía prohibida)
- (167) ‘Peggy le ECHÓ **en cara** la trágica verdad: ya no le quería.’
 ‘Peggy THREW the tragic truth **in his face**: she didn’t love him anymore.

In (167) the INITIATOR is directing speech towards an individual, where the face is in a metonymic relation to the individual. There is a short step between throwing a speech act in someone’s face (167) and throwing a speech act in their face in order to reproach them (165).

Tirar also attracts the noun *cara* ‘face’, also forming both figurative and literal meanings. In (168) the meaning is the individual is confronting another by metaphorically throwing truths or facts in their face’. This meaning is semantically close to *echar en cara* ‘to reproach’ (165) and with (167). This figurative meaning for *tirar* co-exists with a literal sense, where an object in fact moves towards and impacts the face (169).

- (168) ...sin demoras me TIRARON la verdad **a la cara.** (CdE:19-F, El peldaño gris)
 ‘without delay they THREW the truth **in my face**’

- (169) ...le TIRÓ el refresco **a la cara...** (CdE:19-F, Novios de antaño (1930-1940))
 ‘S/he THREW the soda **in his/her face**’

These examples illustrate (165-169) the fuzzy line between some types of idiomatic fixed phrases and non-idiomatic metaphorical phrases. For example, *echar en cara* is included in the DDFH as a fixed phrase, but there is no entry for *tirar a la cara*. Still, the metaphor that gives *tirar a la cara* ‘throw to the face’ the meaning of reproaching is the same metaphor that exists in *echar en cara* ‘to reproach’.

The remaining nouns in table 14(E-M), involve physical meanings for each of the verbs. In other words, in all cases there is literal motion directed to a physical place. The

following discussion will focus solely on these literal uses. *Arrojar* attracts all the nouns except *basura* ‘garbage’. *Arrojar* can be used to throw towards the ground or floor (14E-F), up in the air (14G), in the water and in the sea (14H-I), on the bed (14J), to the side (14K) and into someone’s arms (14L). The most attracted nouns are *mar* ‘sea’ (14I) and *cama* ‘bed’ (14J). The first of these (*mar* ‘sea’) is in fact only attracted to *arrojar*. The preferred verb to express throwing something/one to the sea is *arrojar*.

(CdE:19-F, Destello del Trueno, El)

- (170) ...sin bañarme me ARROJO **a la cama vacía**...
 ‘Without showering I THREW myself **at the empty bed**.’

(CdE:19-AC, Enc: Guerra de la Independe...)

- (171) ...ARROJARON **al mar** los cargamentos británicos de té.
 ‘They DUMPED the shipments of British tea **(in)to the sea**.’

Echar attracts fewer nouns. It attracts *suelo* ‘ground’ (14E) but very weakly. It also attracts *cama* ‘bed’ (14J) and *lado* ‘side’ (14K). The most attracted nouns are *brazos* ‘arms’ (14.12) and *basura* ‘garbage’ (14.13). If a person wishes to express throwing oneself into someone’s arms they will likely choose *echar*.

- (172) ECHAMOS **a la basura** la ropa sucia... (CdE:19-F, Casa del Mono, La)
 ‘We THREW the dirty clothes **in the trash**.’

(CdE:19-F, Micro cuentos para soñar en...)

- (173) El osito se ECHÓ **en brazos de sus padres**...
 ‘The little bear THREW himself **in his parents arms**’

Lanzar contrasts greatly with the other verbs. Focusing only on the nouns that refer to concrete motion, while the other verbs attract nouns expressing many different locations and directions, *lanzar* only attracts *aire* ‘air’ (14G) and does so with a high level of attraction (p-value is 6.25E-16). This noun is also attracted to *tirar* and *arrojar*, but the level of attraction is lower (the p-values are 9.24E-04 and 1.91E-02, respectively). This seems to indicate that *lanzar* is the preferred verb for expressing an event of throwing into the air.

(CdE:19-AC, Enc: Baloncesto)

- (174) El partido comienza cuando el árbitro LANZA la pelota **al aire**...
 ‘The game begins when the referee THROWS the ball **up in the air**.’

- (175) ...LANZABAN insultos **al aire** para que ella los escuchara... (CdE:19-F, Extraño, El)
 ‘S/he LAUNCHED insults **into the air** so that she would hear them’

The verb *tirar* also attracts a large number of DIRECTIONALS. The most attracted noun by far is *suelo* ‘ground’ (14E). It also attracts the nouns *cama* ‘bed’ (14J), *basura* ‘garbage’

(14M), *piso* ‘floor’ (14F), *agua* ‘water’ (14H), *aire* ‘air’ (14G) and *lado* ‘side’ (14K). The only nouns it does not attract are *mar* ‘sea’ (14I) and *brazos* ‘arms’ (14L).

(CdE:19-AC, Enc: Fútbol Americano)

(176) ...el jugador TIRA la pelota **al suelo** y le da una patada...
‘The player DROPS the ball **to the ground** and gives it a kick’

(177) Me TIRO **sobre la cama**. (CdE:19-F, Gazapo)
‘I THROW myself **on top of the bed**.’

It is problematic to give a semantic analysis of the results of the collocation analysis. The only verb that shows any clear behavior is *lanzar*: it only attracts the noun *aire* ‘air’ (the nouns *mercado* ‘market’ and *ataque* ‘attack’ correspond to meaning extensions). We could tentatively posit that *lanzar* in its physical sense refers to upward motion.

There also seems to be an indication that *tirar* means downward movement. The DELE definition for *tirar* states that it means ‘to let something fall intentionally’. The choice of the verb “fall” signals this downward movement. This could help explain *tirar*’s strong attraction of *suelo* ‘ground’.

Other data from the collocation analysis, though, shows that the attraction (or lack thereof) does not seem to be due only to semantics. *Tirar* attracts *aire* ‘air’, which calls into question the presumption that this verb means to fall or move downward. *Echar* slightly attracts *suelo* ‘ground’ but does not attract *piso* ‘floor’, even though both refer to comparable locations. Similarly, *tirar* attracts *agua* ‘water’ but not *mar* ‘sea’, both referring to water. From a theoretical perspective, Fábregas (2007:170) argues that verbs like *lanzar* and *tirar* do not lexicalize any direction. That is, there is no inherent direction of motion that is understood for either verb.

The collocation analysis supports Fábregas’ (2007) assertion to a certain extent. The table shows that the *throw*-verbs combine with a variety of DIRECTIONALS in the data even if there is no statistical attraction²⁵. That is, *lanzar* attracts only *aire* ‘air’, but in the data it occurs at least once with all other DIRECTIONALS except for *basura* ‘garbage’ (this is shown with a crossed out box in table 14). In fact, there are only two cases where the corpus does not show at least one occurrence of a verb and a noun from the list: there are no examples in the corpus of *echar* with *aire* ‘air’ and none with *lanzar* and *basura* ‘garbage’.

²⁵ This also contrasts with the collocation results for MOVANTS, where a large part of the combinations of verb plus noun are not attested in the corpus (i.e. there are several crossed out boxes in the table). See §4.2.5 Table 5.

This seems to indicate that the verbs can express a variety of directions of trajectory, but that the verbs show preferences for certain combinations. Here I resort to Bosque (2004:LXXX) who states that language consists not only of idiomatic expressions and phrases that are combined using regular syntactic rules, but also routines, clichés and tendencies. This can be seen as a continuum, with fixed phrases lying at one extreme and so-called free combination at the other end.

All four verbs combine with *al suelo* ‘to the ground’ in the corpus.

- (178) ...el administrador se LANZÓ **al suelo**... (CdE:19-N, Cuba:CubaNet:98Sep15)
 ‘the administrator threw himself on the ground’
- (179) ...el encapuchado se ARROJÓ **al suelo**... (CdE:19-F, Miramar: La gesta del pez)
 ‘the masked man threw himself on the ground’
- (180) ...Pancho y yo nos ECHAMOS **al suelo**. (CdE:19-F, Los pies de barro)
 ‘Pancho and me threw ourselves on the ground’
- (181) ...ella se TIRÓ **al suelo** como si hubiera sido atropellada... (CdE:19-F, Señales: una intrahistoria)
 ‘She threw herself on the ground as if she had been run over’

Despite this ability to appear with any *throw*-verb, the collocation analysis seems to indicate that if a speaker must choose one verb to join with *suelo* ‘ground’, he is more likely to choose *tirar* above all the others. In other words, the combination of *tirar* and *al suelo* (with a p-value of 1.27E-43) is routinized. We do not necessarily have to argue that *tirar* means ‘throw to the ground’ but that it can be used to express this. And it is used more frequently to express this compared to the other *throw*-verbs.

4.3.4 Questionnaire Results

A questionnaire (§3.3) was constructed and administered in order to test generalizations discussed in §4.3.1 and §4.3.3. In the 400-sentence corpus we find that *echar* had more sentences with a DIRECTIONAL and fewer cases without a DIRECTIONAL. The statistical tests show that *echar*’s behavior is statistically different from the other verbs. The goal with the questionnaire is to determine whether this preference for DIRECTIONALS applies to the THROWING schema, and therefore indicates further differences in the central schema between *echar* and the other *throw*-verbs. In the test, sentences were paired, one with a DIRECTIONAL and one without a DIRECTIONAL, in order to see if this forced a change in the choice of verb.

The colostruational analysis shows that *lanzar* highly attracts the noun *aire* ‘air’, but none of the other nouns that take part in the THROWING schema. This might imply that *lanzar* prefers to express upward motion, especially considering that it does not attract either *piso* ‘floor’ or *suelo* ‘ground’, which can be understood as expressing downward motion. Sentences in the questionnaire were paired, such that one expressed upward motion and another expressed downward motion.

The results of the questionnaire are shown in table 15. The table shows the total number of times that a given verb was written in a sentence in each category. In other words, *arrojar* was written as a response 18 times in sentences that express upward motion. A chi-square test was run on the entire matrix. The X-squared is 138.85, the df is 9, and the p-value is less²⁶ than 2.20E-16. The Cramer’s V (0.2136) shows a small-to-medium effect size (King & Minium 2008:327-329).

Table 15. Results from the questionnaire showing the distribution across the four sentence types with goodness-of-fit p-values

	Directionality				Optionality			
	Upward motion		Downward motion		Without directional		With directional	
		GOF p-value		GOF p-value		GOF p-value		GOF p-value
arrojar	18 ↓	1.24E-04	59 ↑	3.09E-04	33	0.4193	45	0.4492
echar	11 ↓	4.08E-05	24	0.1309	32	0.6123	56 ↑	0.0003
lanzar	143 ↑	1.54E-17	59 ↓	8.06E-03	60 ↓	0.0458	50 ↓	0.002
tirar	81 ↓	5.40E-03	116	0.3654	119 ↑	0.0538	108	0.9795

If we look at the upward motion results, the verb *lanzar* has a very strong preference for expressing upward motion, while all the other verbs are used less than expected in sentences of this category. The GOF p-value for *lanzar* is quite small, indicating that the results from the questionnaire differ considerably from the expected values. *Lanzar* in fact shows such a high preference for upward motion, that it has statistically fewer occurrences in all other categories (downward motion, without directional and with directional). This result coincides with the results from the colostruational analysis. Combining *lanzar* with phrases indicating upward motion, including *al aire* ‘to the air’, is preferred to using other verbs.

I argue in the previous section that the colostruational results are collocational preferences. Basically, the argument is that it is more correct to say that *lanzar* attracts the phrase *al aire* ‘into the air’ specifically, and not all phrases that express upward motion in general. Superficially, the results from the questionnaire seem to run counter to this hypothesis since *lanzar* does have a generalized attraction to phrases that mean upward

²⁶ 2.20E-16 is the lowest value given by R.

motion. Recall that three sentences from the upward motion set do not include the phrase *al aire* ‘into the air’.

To determine which analysis is more accurate, we can compare the totals for sentences from the upward motion set that used *al aire* ‘into the air’ to sentences with other types of DIRECTIONAL expressing upward motion: *encima del closet* ‘on top of the closet’, *al techo de la casa* ‘to the roof of the house’, and *al segundo piso* ‘to the second floor’. We can use the goodness-of-fit (GOF) test to compare the observed data for sentences with *aire* ‘air’ and sentences with other phrases. If the choice of phrase is irrelevant, then we should find that the observed data should not differ significantly from the expected values. In other words, the proportion of *aire* sentences to other sentences should not vary across verbs. Table 16 shows the observed data, the expected values and the GOF p-values.

Table 16. Goodness-of-fit test comparing the results of sentences with *al aire* ‘into the air’ and sentence with other upward motion DIRECTIONALS

	Observed		Expected		GOF p-value
	<i>aire</i> ‘air’	other	<i>aire</i> ‘air’	other	
arrojar	12	6	10.2451	7.7549	0.403538
echar	2 ↓	9 ↑	6.2609	4.7391	0.009477
lanzar	93 ↑	50 ↓	81.3913	61.6087	0.049951
tirar	37 ↓	44 ↑	46.1028	34.8972	0.041104

Relevant to the point at hand is the fact that *lanzar* combines more than expected with *al aire* ‘into the air’ than to other phrases expressing upward motion. This supports our original hypothesis. It is more accurate to say that *lanzar* is highly attracted to the phrase *al aire* ‘into the air’.

Note though that the three sentences with other upward motion DIRECTIONALS combine with *lanzar* on 50 occasions. If we look again at table 15, *lanzar* occurs about 50-60 times in each of the other categories (downward motion, without directional and with directional). If we keep in mind that in each of these other three categories there were seven sentences in the questionnaire, then there is still a relatively high occurrence of *lanzar* in the three sentences that contain other upward motion DIRECTIONALS. *Lanzar* still occurs with high frequency with upward motion DIRECTIONALS other than *al aire* ‘into the air’.

The analysis of this case is close to Bybee & Eddington’s proposal for Spanish verbs used in verb + adjective combinations to mean ‘to become Adj’ (For example: *quedarse quieto* ‘to become/stay still’, *ponerse nervioso* ‘to become nervous’). They note that “semantic features did not successfully determine the occurrence of the verbs” (2006:324).

Instead, certain combinations of verb plus adjective occur frequently and are conventionalized. Other less frequent adjectives that appear with the same verb are usually synonymous with the conventionalized expressions (2006:330).

We can say that *lanzar X al aire* ‘throw X into the air’ is a conventionalized or routinized schema. A speaker will prefer to use *lanzar* with the phrase *al aire* ‘into the air’ over any other verb. *Lanzar* also occurs frequently with other phrases meaning upward motion on analogy to *lanzar X al aire*. A speaker can note that this *aire* ‘air’ schema means upward motion and that it preferably occurs with *lanzar*. This will motivate the use of *lanzar* with other phrases that mean upward motion.

The downward motion column in table 15 shows results that do not completely coincide with the collostructional analysis. The collostructional analysis had shown that *tirar* highly attracts *suelo* ‘ground’ and attracts *piso* ‘floor’. Yet, in the questionnaire, *tirar*’s data count is within the expected values. It is *arrojar* that shows higher than expected numbers in the downward motion set, even though in the collostructional analysis *arrojar* attracted both *suelo* ‘ground’ and *piso* ‘floor’ to a lesser extent than *tirar*.

Goodness-of-fit tests did not show any difference for either *tirar* or *arrojar* when comparing sentences with *al suelo* and *al piso* to the other DIRECTIONALS or when we comparing sentences with *al suelo* versus *al piso*. This suggests that the preference to use *arrojar* in the downward motion set applies across all types of DIRECTIONALS. It also means that the questionnaire did not find a high attraction between *tirar* and *al suelo* ‘to the floor’. In this case, the questionnaire results do not replicate the collostructional data.

It is possible that the questionnaire data illustrate a case of dialectal variation: Hondurans’ use of *arrojar* is different from that represented in the CdE corpus. Here it is worthwhile to note that some respondents reported that they rarely if ever used *arrojar* and if they did it meant ‘to vomit’. We might tentatively state that *arrojar* is uncommonly used in the Honduran dialect to refer to a physical act of throwing. But when speakers use it in this sense, they associate *arrojar* with downward motion.

Next we can analyze the results for the optionality of the DIRECTIONAL (the third column in table 15). The questionnaire shows that *tirar* was used more than expected in sentences without a DIRECTIONAL. This result, though, is on the threshold of significance: the p-value is 0.0538 and p-values over 0.05 are standardly considered non-significant (King & Minium 2008:255-256). The 400-sentence corpus does not show any verb strongly preferring sentences without DIRECTIONALS. The results from the questionnaire I believe indicate that *tirar* is used, at least in this dialect, as a default verb. It is the most commonly used verb

throughout the questionnaire. Additionally, of the 138 instances where respondents used more than one verb in a single response, *tirar* is included in 121 of those. Throughout the questionnaire, respondents strongly tended to use this verb, and even in cases with multiple acceptable choices, *tirar* was usually also found acceptable.

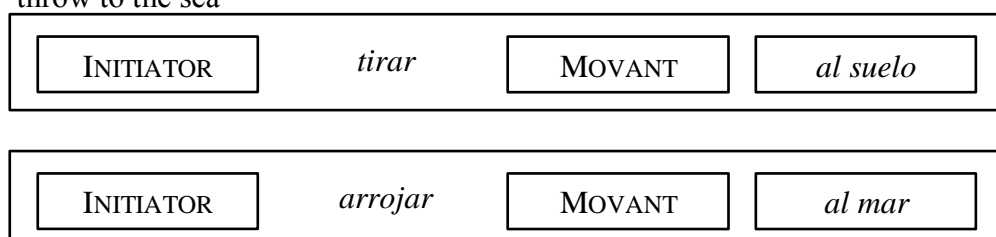
The results for the set with DIRECTIONALS (last column in Table 15) indicate that *echar* appears in this sentence type more than expected. Though it occurs less frequently overall in the questionnaire, it is more frequent in sentences with a DIRECTIONAL. The 400-sentence corpus shows that *echar* has far more sentences with a DIRECTIONAL as compared to the other verbs. I had argued that this was in large part due to the metaphorical extensions that the verb appears in. Now we can state that even when expressing physical motion, this verb prefers the presence of a DIRECTIONAL. From the results of both the questionnaire and the corpus we can posit that *echar* has a stronger preference for the presence of a DIRECTIONAL in the THROWING schema when compared to the other *throw*-verbs. .

Still, further investigation is needed. The types of DIRECTIONALS in the questionnaire all marked the end point of motion. Additionally, several of the DIRECTIONALS referred to goals construed as containers: *en el cesto* ‘in the basket’, *en la fuente* ‘in the fountain’ and *al bote de basura* ‘to the trash can’. An analysis of *echar* with a wider variety of DIRECTIONALS could potentially give results that provide a more nuanced picture of *echar* and the other *throw*-verbs’ behavior.

Collocational Preferences as Schemas

The results of the collostructional analysis and the questionnaire regarding the types of attracted DIRECTIONALS can be captured using schemas. The routinized combinations are part of a speaker’s knowledge of the language. Just as a speaker will know that *al ataque* ‘to the attack’ should combine with *lanzar*, a speaker will know that *arrojar* is the preferred or most natural verb to use when using *al mar* ‘to the sea’ as a DIRECTIONAL. Collocational preferences are also schemas. We can illustrate a few schemas that must be posited to account for the data in the collostructional analysis.

Figure 16. Collocational schemas for *tirar al suelo* ‘throw to the ground’ and *arrojar al mar* ‘throw to the sea’



The first schema captures the high attraction between *tirar* and *al suelo* ‘to the ground’ found in the collostructional analysis. The p-value in the collostructional analysis was 1.27E-43, indicating a high level of attraction. The speaker has this schema as part of her mental lexicon. When she decides she wants to express for example that she threw the toys to the ground, she will access the schema and produce *Tiré los juguetes al suelo* ‘I threw the toys on the ground’. From the results of the questionnaire, it would seem that this schema is not available in the Honduran dialect, since there was no special attraction between *tirar* and *al suelo* ‘to the ground’.

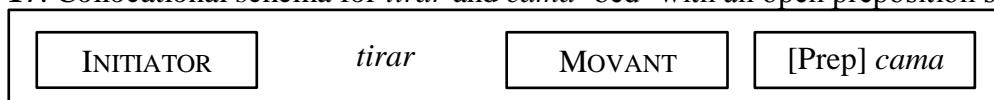
The second schema shows the combination of *arrojar* and *al mar*. Though the level of attraction between these was lower (p-value of 1.25E-06) than the previous example, the noun *mar* was only attracted to *arrojar*. This indicates that there is still a preference for using *arrojar al mar* ‘throw into the sea’ versus *lanzar al mar* ‘throw into the sea’ for example.

The schemas in figure 17 illustrate cases where the DIRECTIONAL was entirely specified. That is, the DIRECTIONAL always appears with the same noun and the same preposition. There are instances in the collostructional analysis where there is an attraction to a noun, but the sentences from the corpus show that the noun occurs with a variety of prepositions. For example, *tirar* strongly attracts the noun *cama* ‘bed’: the p-value was 1.62E-18. Yet, the sentences from the corpus use a variety of prepositions.

- (182) ...me TIRA **de la cama**. (CdE:19-OR, España Oral: CLUD025C)
 ‘S/he THROWS me **from the bed**.’
- (183) Corrió a su cuarto, y se TIRÓ **en la cama**. (CdE:19-F, La víspera y el día)
 ‘He ran to his room, and THREW himself **on the bed**.’
- (184) ...me TIRÉ vestido **a la cama**. (CdE:19-F, El nombre prestado)
 ‘I THREW myself **to the bed** with clothes on’
- (185) Entonces me TIRABA boca abajo **sobre la cama...** (CdE:19-F, Jueves, Los)
 ‘Then I THREW myself face down **on top of the bed**.’

In this case, there is an attraction to the noun, but there is variation in the preposition that introduces the noun. We can still capture this attraction between *tirar* and *cama* with a schema; the only difference being that in this case we leave open the slot for the preposition. The schema is shown in figure 17. The freedom in the preposition slot is indicated by the symbol [Prep]. It shows that there is a preposition in the DIRECTIONAL, but that the schema does not place any requirement on the specific preposition.

Figure 17. Collocational schema for *tirar* and *cama* ‘bed’ with an open preposition slot



The collostructional analysis also shows that a verb can attract a specific noun that participates in both a fixed phrases schema and a collocational schema. For example, *echar* attracts the noun *cara* ‘face’. In some cases, the verb and noun appear in the fixed phrase *echar en cara* ‘to reproach’ and in other cases *cara* appears with different prepositions and expresses literal physical motion.

(186) Yo le **ECHO EN CARA** la falta de curiosidad (CdE:19-F, El lado de la sombra)
 ‘I REPROACH him his lack of curiosity.’

(187) ...se **ECHÓ** agua **por la cara** y el pelo. (CdE:19-F, Rayuela)
 ‘S/he **SPLASHED** water **on her/his face** and hair’

(CdE:19-F, Del agua nacieron los sedie...)

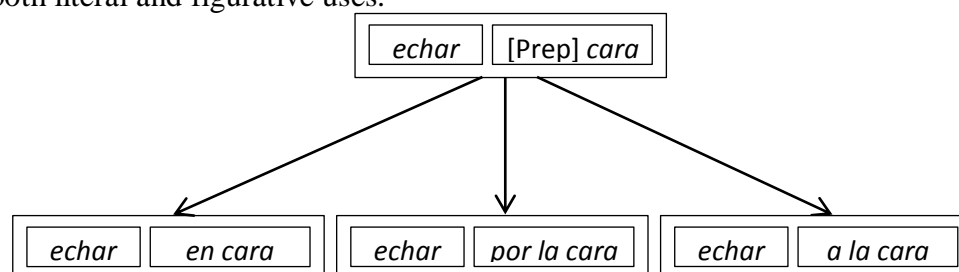
(188) ...le **ECHÉ** el humo **a la cara**...
 ‘I **THREW** the smoke **in her/his face**’

(CdE:19-F, La catedral sumergida)

(189) ...le **ECHABA** **en la cara** el mal aliento de cerveza rancia...
 ‘S/he **THREW** **in his face** the stench of rancid beer’

Leaving aside the semantics for now, an abstract schema (the highest schema in figure 18) can capture the general preference for using *echar* with *cara* . Again, the schema leaves the preposition open: any preposition can be used. I am glossing over the issue of the determiner. Where *echar en cara* does not use a determiner, in all other cases, a determiner is present. A full schema would capture this.

Figure 18. Higher level schema capturing the attraction between *echar* and *cara* ‘face’ in both literal and figurative uses.



It is possible to use schemas to capture collocational restrictions and to describe fixed phrases. Since both types of elements are schemas, they can interact and be connected within the lexicon. It is likely not accidental that *echar* shows a high level of attraction to *cara* ‘face’

in both fixed phrases and in “free” phrases. If a speaker knows that *echar* combines with *cara* already in *echar en cara* ‘to reproach’, this would likely motivate the use of *echar* with *cara* in other types of phrases.

Proposing the use of schemas to capture frequent combinations and routines may seem to imply an extensive use of schemas throughout language. Schemas are in fact pervasive. But this does not mean that there must be a fully specified schema for every sentence or every combination that is produced. In other words, just because I can use *al suelo* ‘to the ground’ with *arrojar*, *lanzar* and *tirar* does not mean that there is a schema for each combination. I propose a schema for *tirar al suelo*, because the combination is much more frequent than would seem likely if it is the result of free combination. If the combination of *tirar* and *al suelo* were left up to regular productive syntactic rules, it should occur just as frequently as *arrojar al suelo* and *lanzar al suelo*.

I follow Dąbrowska’s (2009:10-12) explanation for learning collocational patterns. She suggests that speakers produce lexical representations (schemas) of typical collocational patterns. Schemas that are only used once or twice tend to be forgotten. But schemas that are striking for some reason or another, or schemas that are frequent tend to stick in memory. These frequent and striking schemas will be the ones that persist.

Let’s take a concrete example: as I am writing this thesis I am using the phrases *lanzar al suelo* and *arrojar al suelo* with some frequency. Since the phrases are pertinent to my task at hand and they are being repeated often, I will have schemas for each as part of my memory. But once this thesis is finished, I will likely not use those combinations with frequency. The schemas will become less and less salient and they will be forgotten. But a schema for *lanzar al aire*, for example, will persist even past this period of time because it will be repeated not only by me but also by those in my language community. Since this schema will be used frequently in many different contexts (not only in the writing of a thesis) it will remain salient, and therefore will be maintained in my mental lexicon.

This means that the schemas that are available in the mental lexicon can vary through time, from context to context and even from speaker to speaker. It is possible for one speaker to have a collocational preference that another speaker does not have. The linguistic community is unified to the extent that the most frequent and salient schemas are shared by all speakers. Dialectal variations can be seen as differences in the schemas that are present in a given group’s mental lexicon.

4.3.5 Aspectual Directionals

Some of the DIRECTIONALS in the data are phrases that refer to time periods or to actions. These aspectual DIRECTIONALS include elements that incorporate time as an inherent part of their meaning. For example, an attack takes place in time. It is understood as involving a span of time in which the attack occurs and then presumably ends. Contrast this with the floor; we do not understand floors as incorporating time in their meaning. The first of these is an aspectual DIRECTIONAL, whereas the later I will label a motion DIRECTIONAL. (Cf. Langacker (2008:104) distinction between prototypical verbs and prototypical nouns)

If we separate these aspectual phrases from motion DIRECTIONALS, we find that the *throw*-verbs show significantly distinct behaviors. Table 17 shows the distribution. With a X-squared of 20.69, and a df of 3, the p-value is 0.0001221. The Cramer's V (0.2794) test represents close to a medium effect size (King & Minium 2008: 327-329).

Table 17. Distribution of aspectual directionals versus motion directionals

	Motion	Aspectual	GOF p-value
arrojar	61	7	0.07611
echar	55 ↓	25 ↑	0.00391
lanzar	48	15	0.29589
tirar	52 ↑	2 ↓	0.00475

Arrojar and *lanzar* do not show significant behavior. They mostly occur with motion DIRECTIONALS, but still include several examples of aspectual DIRECTIONALS. *Tirar* differs from the other by dispreferring aspectual DIRECTIONALS. And *echar* differs for significantly preferring these aspectual DIRECTIONALS.

Many researchers have argued that the words and concepts associated with space, including motion and spatial location, can be used to comprehend more abstract semantic notions (Jackendoff 1990, Lamiroy 1991). This is usually termed the localist hypothesis attributed to Gruber (1965) (cited in Jackendoff 1990:25). Lamiroy (1991:88) follows this hypothesis in her analysis of Spanish verbal periphrasis stating that time, which is an abstract concept, can be understood through the more concrete notion of (motion in) space.

The conceptualization of time as a physical entity can be seen with some of the aspectual DIRECTIONALS occurring with *arrojar*. For example, one can throw oneself to the future.

(CdE:19-F, Salón de Té Volvoretá)

(190) Y ambos se ARROJAN **al futuro** por el camino del deseo...

‘And both THROW themselves **to the future** through the path of desire’

The future is a span of time; it encompasses time that is yet to come. In this example, there are several indications that the future is understood as a location. First of all, the use of

the motion verb *arrojar* brings in the concept of motion to a place. Secondly, the phrase *al futuro* appears in the DIRECTIONAL slot, which usually contains places or physical objects located in space. Finally, the use of the noun *camino* ‘road’ finalizes this image of travelling to a location.

With aspectual DIRECTIONALS, the verb *arrojar* maintains a meaning very similar to that seen in the THROWING schema. The motion is simply abstract. Instead of moving yourself or an object to a place, people can move to the future (190), light can be shed on life (191) or a force can move you to reality (192).

(CdE:19-F, El lado de la sombra)

(191) ...la circunstancia de figurar entre nuestros mejores recuerdos una película cinematográfica ARROJA **sobre la vida una curiosa luz**...
 ‘The fact that a movie can be part of our best memories SHEDS a curious light on life.’

(CdE:19-F, Cerradura)

(192) ...una fuerza desconocida destruye su concentración y le ARROJA **a la realidad**.
 ‘An unknown force destroys her concentration and THROWS her (back) **to reality**’

The majority of the remaining aspectual DIRECTIONALS in the 400-sentence corpus refer to actions. Sometimes the action is expressed as a noun (*caza* ‘hunt’, *lucha* ‘fight’, *expediciones* ‘expeditions’, etc). Other times, the actions are expressed as infinitival verbs (*reír* ‘to laugh’, *llorar* ‘to cry’, *correr* ‘to run’, etc). In the 400-sentence corpus, the former appear mostly in combination with *lanzar*, while the latter appear mostly with *echar*.

Of the 15 sentences with aspectual DIRECTIONALS with *lanzar*, 13 have nouns that refer to actions. The following sentences exemplify.

(CdE:19-F, La guaracha del macho Camacho)

(193) ...los chóferes y los pasajeros se LANZAN **a un bembeteo boricua**...
 the chauffeurs and the passengers CL.3rd throw.3rd to a gossip Puerto Rican
 The drivers and passengers LAUNCHED **into a Puerto Rican gossip-fest**.

(CdE:19-F, Muy Buen Chingazo, Un)

(194) ...se LANZÓ **a la conquista de cinco metros de asfalto**...
 CL.3rd threw.3rd to the conquest of five meters of asphalt
 ‘He LAUNCHED himself **to the conquest of five meters of asphalt**’

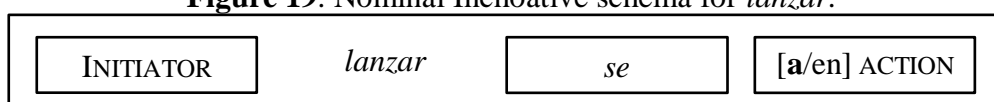
(CdE:19-F, Demasiada historia)

(195) Danilo, enfurecido, se LANZA **en una lucha** que termina en el suelo...
 NAME, enraged CL.3rd throws.3rd in a fight that ends in the ground
 Danilo, enraged, THROWS himself **in a fight** that ends up on the ground’

In these types of sentences, *lanzar* means roughly ‘to begin an action’. DELE defines the verb as ‘to begin an action with spirit or without reflection’. VOX defines it as ‘to undertake an action abruptly or with decisiveness’. Ignoring for now the manner in which the action is undertaken, this is an example of an inchoative phrase. The verb no longer means physical motion per se, but the beginning or initiation of an action. I will term this the nominal inchoative²⁷.

Most of the time, the noun is introduced by the preposition *a* ‘at/to’ see (193) and (194). But there are also three cases where the preposition used is *en* ‘in/on’ as in (195). All the examples also include a *se*-form clitic. We can propose a nominal inchoative schema for *lanzar* that captures these characteristics.

Figure 19. Nominal Inchoative schema for *lanzar*.



I still argue that the clitic is a reflexive clitic. Recall that a truly reflexive clitic is part of the verbal paradigm and is replaceable by non-co-referential clitics. We can distinguish *se*-form clitics which are always co-referential with the subject and cannot be changed to another clitic without drastically changing the meaning or resulting in ungrammaticality (see §4.2.1) from reflexive clitics that are usually co-referential but can be changed in some cases. It is true that in the vast majority of nominal inchoative sentences, the clitic is co-referential with the subject. Still, there are cases where the clitic is replaceable by non-co-referential clitics. The following is an example taken from the contemporary corpus available by the Real Academia Española called CREA.

- (CREA, La Vanguardia 1995)
- (196) Sirviéndose de un altavoz los LANZÓ **al** **ataque**...
 Helping.oneself of a loudspeaker CL.3rd.pl.nonrf launch.3rd.sg to.the attack
 ‘Using a loudspeaker s/he sent them into attack.’

Sentence (196) shows a clitic that is not co-referential with the subject; the INITIATOR is making someone else begin the attack. This supports the analysis that the clitic in this schema is a reflexive clitic, because it can be replaced by other clitics. Still, I have written *se* in the schema to capture the fact that the majority of the time the clitic is co-referential. The

²⁷ Infinitival verbs appear in similar syntactic contexts as nouns. Infinitival verbs can be the subject of a sentence, they can be modified by adjectives, and appear as the predicate of a copula. For these reasons, DIRECTIONALS with infinitival verbs can be considered nominals. The choice of terminology is just meant as a label to distinguish the DIRECTIONALS with nouns from those with verbs.

schema has a preference self-agentive action, hence the preference for reflexive clitics. Non-reflexive forms such as (196) are not common, but they are possible.

The schema in figure 19 includes two options for the preposition, either *a* ‘at/to’ or *en* ‘in/on’. The first of these is bolded in order to show that it is the preferred preposition. The DIRECTIONAL also includes a noun phrase that refers to an action. This is the first type of inchoative phrase seen mostly with *lanzar*.

The literature has normally focused on inchoative phrases that include an infinitival verb as a second element, which in our study mostly occur with *echar*. Verbal periphrasis (Lamiroy 1991) consisting of a motion verb plus the preposition *a* ‘at/to’ followed by an infinitival verb are in fact quite common in Spanish. They are termed phasal periphrases (Quesada 1993, NGRAE §28.2d) since they focus on different time lapses of an action. A subtype of phasal periphrasis is the inchoative phrase, such as those seen with *echar*, which focus on the initial part of the process (Quesada 1993, NGRAE §28.2d, Fogsgaard 2001). Since the second element is an infinitival verb I will term these verbal inchoative phrases.

Echar normally combines with verbs referring to (emotional) expressions and to bodily motion (Fogsgaard 2001):

- (197) Todos se ECHARON a reír. (CdE:19-F, El último vuelo del pájaro...)
 everyone CL.3rd throw.3rd.pl to laugh.inf
 ‘Everyone started to laugh’
- (198) ...el prudente animal ECHÓ a correr... (CdE:19-F, Eme)
 the prudent animal throw.3rd to run.inf
 ‘The sensible animal started to run.’
- (199) ...el niño ECHA a andar... (CdE:19-F, La reivindicación del conde...)
 the boy throw to go/walk
 ‘The boy got going’

There are 24 examples of this construction with *echar*. It takes up almost a quarter of the sentences in the 400-sentence corpus for this verb. Note that unlike *lanzar* which appears with *se*-form clitics in most cases, *echar* in the inchoative construction can sometimes appear with a clitic (197) and sometimes without (198-199). In general, the verbs that refer to emotional expression (*reír* ‘laugh’ and *llorar* ‘cry’) appear with a clitic, while verbs referring to motion appear without a clitic (including *andar* ‘go/walk’, *correr* ‘run’), though there are exceptions.

Here, the appearance (or not) of the clitic is closer to that of a pronominal verb analysis. The inchoative periphrasis referring to laughing or crying cannot be causative. That

is, I cannot **echarlo a llorar* ‘start him crying’. The clitic, then, does seem to be turning a normally causative verb (*echar*) into an inchoative one.

The cases without clitics are also interesting. The combination of *echar* with motion verbs such as *andar* ‘go/walk’, *correr* ‘run’, *caminar* ‘walk’ and even others such as *funcionar* ‘function/work’ can be causative: you can cause another object to begin running. The causative sentences have a direct object that is beginning the action (200). But even when the action is not causative, when the subject itself begins the action, there is no clitic (201). Compare the following sentences.

- (200) ...ECHÓ su caballo a correr... (CdE:19-F, Cuentos de muerte y de sang...)
 threw his horse to run.inf
 ‘He made his horse run.’
- (201) ... ECHÓ a correr por el parque.
 threw to run.inf by the park
 ‘He started running through the park’

(CdE:19-F, Kensington Gardens)

Neither example includes a clitic. Notice that in (200) the verbal action is causative: a person is causing another entity (a horse in this case) to begin running. In (201), in contrast, there is no causation: the individual himself is beginning to run. Yet, there is no syntactic element that marks a change from causative to non-causative. If there is a direct object (200) the verbal periphrasis is causative; if there is no direct object (201) then it is not causative.

This is the first case, I believe, where the behavior of a verb does not line up in a somewhat predictable way to the THROWING schema. If we assume that *a correr* ‘to run’ is a DIRECTIONAL as I have up to this point, the sentences in (200) and (201) line up differently with the THROWING schema. Take the following adaptations of examples (200) and (201):

- | | | | | |
|-------|-----------|------|-------------|-------------|
| (202) | INITIATOR | VERB | MOVANT | DIRECTIONAL |
| | Él | echó | su caballo | a correr |
| (203) | MOVANT | VERB | DIRECTIONAL | |
| | Él | echó | a correr | |

If *echar* were determining the behavior of the participant roles, we should see a consistent pattern that lines up with the causative THROWING schema. In all the previous schemas discussed in this paper, there has always been an INITIATOR, related however abstractly to the THROWING schema. This does not seem to be the case in the verbal inchoative phrases, especially those such as (203).

Verbal inchoative periphrases are common to the language. The preferable analysis would be to state that there is a (family of) general inchoative schema(s) that applies to a wide variety of verbs. The verb *echar* is incorporated into this general inchoative schema. The verb does not maintain all its participant roles, nor does the verb itself determine when clitics will be utilized. In general, the use of a clitic seems to correspond to the appearance of specific infinitival verbs: verbs of emotion use clitics, while verbs of motion do not.

Echar is partially grammaticalized in the verbal inchoative construction²⁸. Where the inchoative constructions with *lanzar* still evoke a sense of motion, of throwing oneself, this notion seems less apparent with *echar*. Where *lanzar* in general keeps its participant roles, and the semantic structure does not change considerably from a “normal” non-inchoative sentence, *echar*’s inchoative sentences show a slightly different structure.

Of course this does not mean that *echar* is completely devoid of meaning in these inchoative phrases. Quesada (1993:102) argues that the fact that a verb can be sensitive to the choice of infinitival verb means that the semantics of the initial verb are maintained. In our case, *echar* does seem to limit the types of aspectual DIRECTIONALS it can combine with. Though the majority of the semantic weight of *echar* is lost in these inchoative constructions (e.g. it does not mean ‘to throw’ and it does not maintain all its participant roles), some aspects of the verb’s meaning and behavior are maintained in the inchoative phrases.

I have maintained throughout that these aspectual phrases are extensions from the DIRECTIONAL. In the case of the time period aspectuals seen with *arrojar* and the nominal action aspectuals with *lanzar* this seems to be correct. In each case, time and actions are conceived as places that one can move to.

(CdE:19-F, Salón de Té Volvoretta)

- (204) Y ambos se ARROJAN **al futuro** por el camino del deseo...
 ‘And both THROW themselves **to the future** through the path of desire’

(CdE:19-F, Muy Buen Chingazo, Un)

- (205) ... reunió el desempeño neuronal necesario y se LANZÓ **a la conquista de cinco metros de asfalto...**
 ‘... s/he mustered up the necessary neuronal effort and THREW himself **to conquer five meters of asphalt.**’

Example (204) (repeated from (190) above) was already discussed. There are clear indications that the future is understood as a place, and therefore fits well into the category of

²⁸ Grammaticalization can be seen as a gradation. A verb such as *ir* ‘go’ in the inchoative phrase (forming a type of future tense) is more grammaticalized. Evidence for this is the fact that the second element of the verbal periphrasis with *ir* ‘go’ can incorporate pretty much any verb, while *echar*, which is less grammaticalized, limits its second element greatly. The point at hand is that *echar* is more grammaticalized compared to *lanzar*.

DIRECTIONALS. In (205), the sentence describes a person mustering up the energy to move across the street. Though the entire scene is conceptualized metaphorically, it describes an actual event of moving across a span of distance. In that way, the phrase *a la conquista de cinco metros de asfalto* is metaphorically connected to a “normal” DIRECTIONAL.

The choice of the preposition *a* ‘at/to’ in inchoative phrases is sometimes taken to be derived from the motion senses of verbs (Lamiroy 1991:87). The fact that most of the motion DIRECTIONALS and the aspectual DIRECTIONALS use the same preposition is not accidental. Lamiroy (1991:87) argues that the syntactic structures of a verb functions as a mold that supports and justifies the transition from the physical/literal sense to more abstract and figurative uses. In other words, you can use motion verbs in abstract ways (such as to mean ‘to begin an action’) because the literal sense of the words and the syntactic realization of that literal sense grounds the abstract meaning in the physical meaning of the verb.

Still, there may be hints that verbal aspectual phrases, at least, are not really DIRECTIONALS, but should be understood as some other type of semantic entity. For example, the data shows one example of *tirar* with an infinitival phrase.

(CdE:19-F, Micro cuentos para soñar en...)

- (206) ...se TIRARON a descansar sobre el césped.
‘They THREW themselves to rest on the grass’

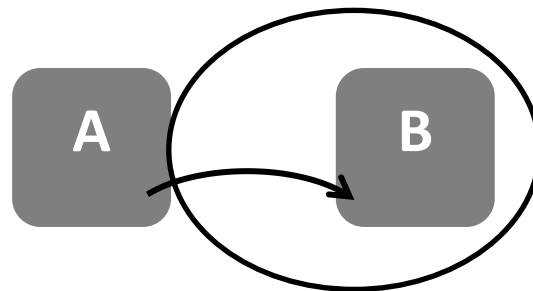
One way to understand this sentence is by classifying *sobre el césped* ‘over/on the grass’ as the DIRECTIONAL, while the phrase *a descansar* ‘to rest’ describes the purpose. In (206), there is actual physical motion of throwing oneself to a place, in this case on the grass. Spanish FrameNet labels the infinitival phrases as the Intention. The Intention expresses the reason or purpose for performing an action. The individuals in (206) are moving themselves to a new place with the intention of resting. This example serves to indicate that there are potential problems with classifying infinitival phrases as DIRECTIONALS.

Still, there is justification for analyzing the inchoative phrase as a meaning extension from the physical motion use of these verbs. The transition from the THROWING schema describing literal motion to an abstract concept of beginning in action is quite straightforward and easily motivated. Take the following sentence.

- (207) TIRÉ el libro **al** **piso**.
Threw.1st.sg the book to.the floor.
‘I THREW the book **to the floor**’

An important aspect of the meaning of this sentence is that the book moved from its original position, whatever it was, to a new position, namely the floor. This point was made by Fábregas (2007): *tirar* presupposes that the object thrown has changed position. This semantic characteristic is captured by the figure 20.

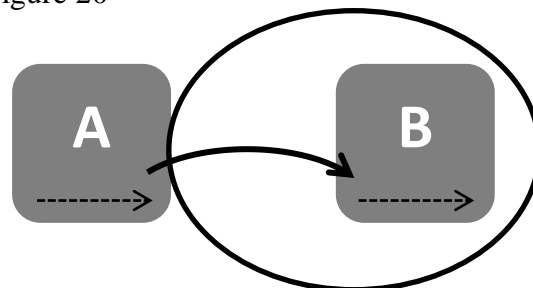
Figure 20. Characterization of the change of motion meaning associated with the *throw*-verbs



The verb expresses that an object has moved from A to B. Since the prepositional phrase expresses a goal, the focus is on the end point of motion (and not the source). The circle captures the focus of the sentence. The object moves to a new place B. The original position (A) is backgrounded and is not relevant.

The change from movement to beginning an action can be seen if the locations (A and B) are no longer locations per se, but actions. One characteristic of actions is that they include time as part of their semantics. Figure 21 shows a modified version of figure 20, where now A and B represent actions. The dashed arrow at the bottom of each box means that the events are seen as spanning time. The sentence in (208) serves to exemplify.

Figure 21. Characterization of the meaning of ‘to begin’ associated with the *throw*-verbs, a modification on Figure 20



(208) ... *el grupo se LANZÓ al ataque.* (CdE: 19-F, El domingo fusilan a Januar...)
 the ground CL throw to.the attack
 ‘The group went on the attack’

An inchoative periphrasis expresses a transition to a new action and there is a backgrounding of the remainder of the event, its continuation and conclusion, and the focus is

left on the initial stages (Fogsgaard 2001:16). The sentence in (208) expresses that the group was doing something first. They were certainly not attacking, but it is not exactly relevant what action they were performing. Then there is a transition to a new state of attacking. It only matters that they began the attack, not that it continued, or that they finished or that it was successful, only that they began.

This meaning of a transition to a new action can be seen as a natural extension of the semantics associated with THROWING. In the physical sense of the verb, the focus is on the transition to a new location, but there is no real focus on what happens once it is in this new location. Something similar happens in the figurative sense: the focus is on the transition to a new event and no real focus is placed on what happens thereafter.

The meaning extension from the physical act of throwing (oneself) to that of beginning an action is a fairly straightforward metaphorical process illustrated by figures 20 and 21. If we change locations to actions, then the meaning of beginning an action is derived.

4.3.6 The Case of *tirar de*

I mention in the introduction to §4.3 that the sentences with *tirar* that mean ‘to pull’ and use the preposition *de* ‘from/of’ are excluded from the study of DIRECTIONALS. In the annotation process, I labeled the elements that are pulled as MOVANTS. I justify that stance by noting that this element is the one that undergoes motion and is directly affected by the force exerted by INITIATOR. In that sense, these phrases are analogous to “normal” MOVANTS.

(CdE:19-OR, Habla Culta: Madrid: M1)

- (209) ...entonces usted TIRA de una palanca que tiene su --- a su izquierda...
‘Then you PULL on a lever that you have your --- to your left.’

(CdE:19-F, La víspera y el día)

- (210) ...TIRÓ con fuerzas de un cordón que había en el techo...
‘He PULLED with strength on the string that was on the roof’

I analyzed the phrases *de una palanca* ‘from a lever’ (209) and *de un cordón* ‘from a string’ (210) as MOVANTS. They differ from all the other MOVANTS in the study since they are introduced by the preposition *de* ‘from/of’. There are 15 sentences in the corpus that mean ‘to pull’ and 11 of those have the structure shown in (209) and (210). Other sentence types are also possible. Two examples are shown below.

- (211) ... él TIRABA el caballo de las riendas... (CdE:19-F, Pedro)
‘He PULLED the horse by the reins.’

(212) ... TIRE **para allá**. Usted: TIRE **para acá**. (CdE:19-F, Hijo de ladrón)
'PULL **that way**. You: PULL **this way**.'

In (211), there are two affected elements. The phrase *de las riendas* 'from the reins' is classified as a MOVANT. It is the object that is pulled. But the sentence also mentions the entity that is affected by the pulling. In a way, the horse is being pulled, by using a part of it, namely the reins. In (212) there are two continuous sentences that lack an overt MOVANT. This example is the only case where there is a DIRECTIONAL. That is, of the 15 sentences that mean 'to pull' only one (212) contains a phrase expressing the trajectory of motion.

The sentences in (211-212) are the only ones of their kind in the corpus. Still I believe that they provide an important insight into the behavior of *echar*. There are three ways that the 'pulling' sentences differ from other sentences in the corpus: 1) the element that is moving is introduced by the preposition *de* 'from/of'; 2) it is possible to include two elements that are affected, the whole individual that is (indirectly) pulled and the specific element or part that is pulled; and 3) there is only one case of a DIRECTIONAL and it occurs in a sentence that does not contain a MOVANT. I believe these three features have a single explanation.

First, let us compare the actions associated with *tirar* 'throwing' and *tirar* 'pulling'. In the first case, there is a propelling of an object away from the INITIATOR. In 'pulling', the INITIATOR is using force to bring an object towards herself, or even pulling along behind herself as she moves (VOX). I believe that there is a semantic connection between both meanings. Specifically, the beginning of a prototypical throwing event matches a pulling event. This is illustrated in the figure 22(a and b).

The meaning of pulling is derived from the concept of throwing. The appearance of the preposition *de* 'from/of' is crucial. It is the prepositional phrase that causes the meaning of 'throwing' to be extended to derive the meaning of 'pulling'. The preposition signals the source or beginning of motion. The preposition serves to focus the central meaning of the verb ('to throw') to the initial part of motion. In a sense, 'throwing' and 'pulling' are related by metonymy. Where 'throwing' involves a full action (figure 22a along with the entire follow-through), the phrase *tirar de* 'throw from' limits the action to the initial portion, shown in figure 22b. The initial portion of a throwing event (figure 22a) coincides with a pulling event (figure 22b).

Figure 22a. The beginning of a throwing event.



Figure 22b. A pulling event.



In a sense, a phrase such as *de un cordón* ‘from a string’ is both a MOVANT and a DIRECTIONAL. In essence and in structure the phrase is a DIRECTIONAL. The phrase helps to transfer from a meaning of throwing to one of throwing from a specific place to one of pulling. Since the construction has become conventionalized, the *de* phrase may no longer be viewed strictly as a DIRECTIONAL, but as the object directly affected, which permits the analysis of it being a MOVANT.

It is also worthy of note that most of the objects that are pulled in the data set are elongated in shape. Examples include *vara* ‘pole’, *riendas* ‘reins’, *pelos* ‘hair(s)’, *cordón* ‘string’, *brazo* ‘arm’²⁹. The trajectory of motion of an object can be conceived of as an (invisible) line that marks each step of the movement. In cases where there is an elongated object, such as a cord, the object itself occupies this line of motion. It is no longer an invisible line, but instead the MOVANT takes up the space of the trajectory. In that sense, these elongated objects are the MOVANTS and also physically mark the DIRECTIONAL.

This analysis helps explain why sentences with two affected individuals are compatible with the verb. In (211), *de las riendas* ‘from the reins’ can be understood as the DIRECTIONAL and the phrase *el caballo* ‘the horse’ can be understood as the MOVANT. Of course, there is always a part-whole relationship between these two arguments. The DIRECTIONAL (e.g. the reins) is always a part of the whole MOVANT (e.g. the horse). By virtue of this part-whole relationship, it is enough to express the DIRECTIONAL, since it implicitly

²⁹ There are some examples that do not seem quite as elongated, such as *pestaña de la lata* ‘tab on a can’ and *mano* ‘hand’.

evokes the whole object that is moved. That is why most sentences with pull only mention one element.

The fact that sentences in the PULLING schema do not usually include a trajectory of motion can also be explained. Sentences do not usually have a DIRECTIONAL because the *de* phrase is understood as fulfilling that role. When there is no *de* phrase, as in (212), a DIRECTIONAL can be included.

4.3.7 Summary

The study of the third participant (DIRECTIONAL) gathers information from three data sources: the 400-sentence corpus, the collocation analysis, and a questionnaire. Each test on its own provides relatively few conclusions regarding the *throw*-verbs, so that multiple data sources are needed to give a fuller picture.

First of all, the data from the 400-sentence corpus and the questionnaire show that *echar* has a stronger preference for the appearance of DIRECTIONALS. Though DIRECTIONALS in general tend to be optional (they may or may not be expressed), *echar* appears with DIRECTIONALS more than the other *throw*-verbs. These results add to the conclusions posited in §4.2 that *echar* shows some significant meaning differences in the central THROWING schema as compared to the other verbs. *Echar* can refer to both accompanied and unaccompanied motion, it tends to involve less force or strength than the other verbs (§4.2.2), and it has a stronger preference for the syntactic realization of the DIRECTIONAL.

The majority of the data for DIRECTIONALS involve goals. The goal can be expressed with either a directional preposition or adverb such as *a* ‘from/to’ and *abajo* ‘down/below’ or with locative prepositions such as *en* ‘on/in’ and *sobre* ‘over/on’. But little else could be said about the expression of routes or paths or sources, since they are fairly uncommon in the 400-sentence corpus. A larger scale corpus study might show distinctions between the verbs as to the types of prepositions preferred by each verb.

The collocation analysis shows that most of the attracted DIRECTIONALS involve physical motion. *Arrojar*, *echar* and *tirar* attract a wide variety of DIRECTIONALS. *Lanzar*’s behavior is unique since it only attracts one noun describing physical motion to a place: *aire* ‘air’. The questionnaire confirms that *lanzar* is highly attracted to this noun, and that by analogy it also attracts other types of DIRECTIONALS that express upward motion.

In some cases, the collocation analysis and the questionnaire show slightly inconsistent results. While in the collocation analysis *tirar* is highly attracted to *al suelo*

‘to the ground’, the questionnaire did not find a strong attraction. In fact, *arrojar* shows more attraction to DIRECTIONALS expressing downward motion. I tentatively posit that this could be the result of dialectal differences. Further dialectal variations seem to arise with the pattern of use of the verb *tirar*. The questionnaire results seem to indicate that *tirar* was in some ways the default *throw*-verb. The results though are only tentative. It is also not conclusive whether the dialect is limited to the state of Olancho (since most respondents were from this state, and even those born outside have lived here for many years), of Honduras in general or even potentially applicable to Central America (since many authors have treated the region as fairly homogenous (Lipski 1996, Moreno de Alba 2007)).

Aspectual phrases play an important role in the data. The inchoative phrases take up a large part of the corpus examples for *echar*. Inchoative phrases also occur with *lanzar*, though each verb prefers a specific type of structure. *Echar* usually combines with infinitival verbs, while *lanzar* usually combines with nouns. *Arrojar* combines with aspectual phrases, but not to form inchoative meanings. *Arrojar* usually expresses motion into a time period. *Tirar* differs from all the other verbs in dispreferring aspectual DIRECTIONALS: it does not participate in inchoative phrases, nor does it normally express motion to a time period.

Finally, I propose a semantic analysis for the verb *tirar* in its meaning of ‘to pull’. Sentences with this meaning show interesting semantic and syntactic behavior. I argue that this behavior could be explained by viewing the *de* phrase in the sentences as both MOVANTS and DIRECTIONALS. This example illustrates the difficulty in the semantic analysis of some meaning extensions. A researcher could propose that these sentences include a MOVANT, as I did in §4.2 and as in ADESSE, or a researcher could posit that those same phrases are DIRECTIONALS. And neither would be incorrect. Multiple analyses are possible, and each can capture certain characteristics of the data.

Chapter 5. Constructional Schemas

Up to this point, the schemas that have been discussed have been fairly specific. The schemas posited describe the semantics and participant roles associated with certain meanings that appear with a verb. For example, I posit a PRODUCING DATA schema for *arrojar*, a BLAME schema for *echar* and a HITS schema for *lanzar* and *tirar*. In each case, there is a highly specific meaning associated with the schema. Additionally, some schemas are lexically filled (the BLAME schema uses *echar* and the noun *culpa* ‘blame’) while others have restricted the class of nouns that can appear (the MOVANT in the PRODUCING DATA is normally a noun that refers to information).

There exist, though, patterns at higher levels of abstraction. For example, the BLAME, HITS, LOOKS and SOUNDS schemas are all described as light verb constructions (LVC, §4.2.4). LVCs have different characteristics from the schemas discussed thus far. First of all, LVCs appear not only with the *throw*-verbs but with a wide variety of Spanish verbs. Secondly, LVCs allow a wide semantic variation in the types of participants that fill the roles. For example, there seems to be little in common semantically between *blame*, *hits*, *looks* or *sounds* (although there may be general concept of human interaction, see §4.2.4). Despite this, there are certainly characteristics associated with LVCs. In order to recognize a specific sentence as a case of an LVC, we must find certain traits and qualities that LVCs share.

I use the term constructional schema (Langacker 2008) to label the constructions that discussed in this chapter. Specifically, I describe the patterns for assembling light verb constructions (§5.1) and for a certain type of idiomatic expression that I term semantically-schematic idioms (§5.2). LVCs and idioms are grammatical patterns for building sentences. Constructional schemas are in fact constructions (as Goldberg 1995 would label them), but they explicitly show the process of compositionality: how the component parts come together to form a composite structure (see §2.3.3). They are also more schematic: they do not have any lexically filled slots. Instead, the slots can refer to semantic classes (such as nouns that refer to hits) or even very abstract categories (such as any noun). This schematicity usually implies that the schemas apply to a larger set of words. So, where the HITS schema applies to only *lanzar* and *tirar* (and maybe even a few other verbs), a constructional schema for creating compound nouns in English applies to a large variety of nouns.

By describing the semantic characteristics and motivation for these two constructional schemas I can give a fuller picture of the behavior of the *throw*-verbs. *Lanzar* appears with a

somewhat large set of nonphysical nouns that refer to hits, speech, sounds, looks and various facial expressions. But this behavior can be understood if we notice that *lanzar* has a general attraction to appearing in LVCs. It is not the case that LVCs are fully productive with this verb (i.e. *lanzar* does not appear with just any noun in an LVC), but this verb exhibits an increased productivity compared to the other *throw*-verbs. Similarly, the constructional schema for semantically-schematic idioms helps to motivate several of the idiomatic phrases with the verb *echar*. This means that instead of simply listing a series of idioms as part of the behavior of the verb with seemingly no connection between them, we can at least partially motivate the appearance of *echar* in these idioms by noting this verb's increased preference for appearing in semantically-schematic idioms.

Other constructional schemas are definitely possible. For example, I mentioned already the existence of a (verbal) inchoative construction for creating verbal periphrasis in Spanish, associated with *echar* and many other verbs. It might also be conceivable to posit a constructional schema for caused motion sentences in Spanish. By describing the two constructional schemas in this chapter I wish to show that it is feasible to give a semantic analysis of some grammatical patterns seen with the *throw*-verbs, and that the existence of these constructional schemas helps to motivate the behavior of these verbs.

5.1 Light Verb Constructions (LVC)

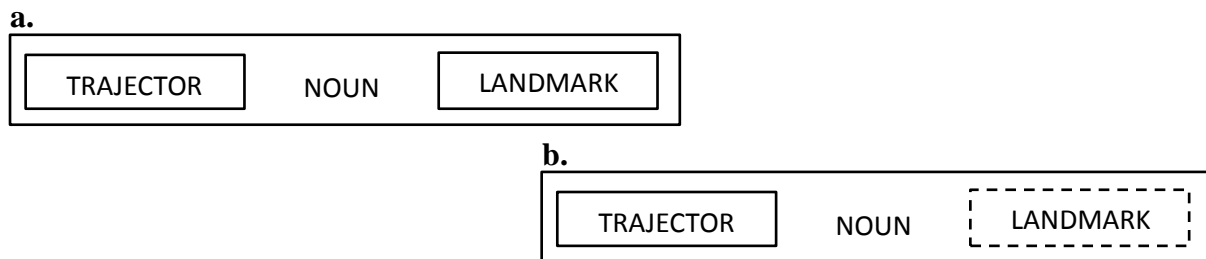
All four *throw*-verbs can occur in light verb constructions. LVCs are combinations of a verb and a noun, where the noun provides most of the semantic weight of the sentence. Example LVCs are seen in (1) and (2):

- (1) Marcos promete mucho y LANZA miradas... (CdE:19-F, Sobre héroes y tumbas)
 'Marcos promises a lot and throws looks...'
- (2) ...le enjuagué el rostro cubierto de sangre y LANCÉ un grito. (CdE:19-F, Tradiciones del hogar)
 'I washed his blood-covered face and screamed out'

In (1) the individual is looking, and in (2) the person is screaming. In neither case are they physically throwing an object. That the noun provides the most information on the type of action being performed is one of the major traits of LVCs. This and other characteristics can be highlighted as the main semantic traits of LVCs in general. The purpose of this section is to show that it is possible to give a semantic characterization of LVCs.

One characteristic of LVCs is that the nominal is normally a predicate: it includes participant roles (Mel'čuk 1998:13, Alonso Ramos 2004:18). Those participants are understood to be there, even if they are not expressed at the sentence level³⁰. A *golpe* 'hit' involves someone who performs the action of hitting and someone/thing that is hit. A *grito* 'scream' includes the person who screams. It is not necessary for a scream to be directed at someone, but it is possible. We can represent these roles as follows³¹.

Figure 1. Schemas for predicate nominal



I use Langacker's (2008:113) terminology of TRAJECTOR and LANDMARK³², which represent the primary focal participant and the secondary participant respectively. Figure 1a represents nouns such as *golpe* 'hit' which involve both a hitter (TRAJECTOR) and a thing hit (LANDMARK). Figure 1b represents nouns such as *grito* 'scream', where the only required element is a screamer (TRAJECTOR), though it is also optionally possible to include someone who the scream is directed at (LANDMARK). The optional element (the LANDMARK in figure 1a) is shown with a dashed box.

One important aspect of LVCs is not only that the nouns have participant roles, but that these roles line up in specific ways to the roles of the verb (Alonso Ramos 2004:18). The grammatical function usually attributed to the verb in LVCs is in part due to the fact that the participant roles of the nominal are expressed as syntactic arguments of the verb (Alonso Ramos 2004:20-21, Atkins et al. 2003:270). The semantic roles that we posited for the *throw*-verbs line up with the semantic roles of the nominals. This lining-up of roles can be seen in the following example.

³⁰ These roles can be expressed in noun phrases. For example, the phrase *the attack on the city by the army* expresses the attacker (*the army*) and the ones under attack (*the city*).

³¹ Though the diagrams drawn for the nouns are identical to the ones for verbs, I do not wish to imply that nouns and verbs are the same. The difference between nouns and verbs is tangential to our study. For the purposes at hand, we can treat nouns and verbs in similar fashions.

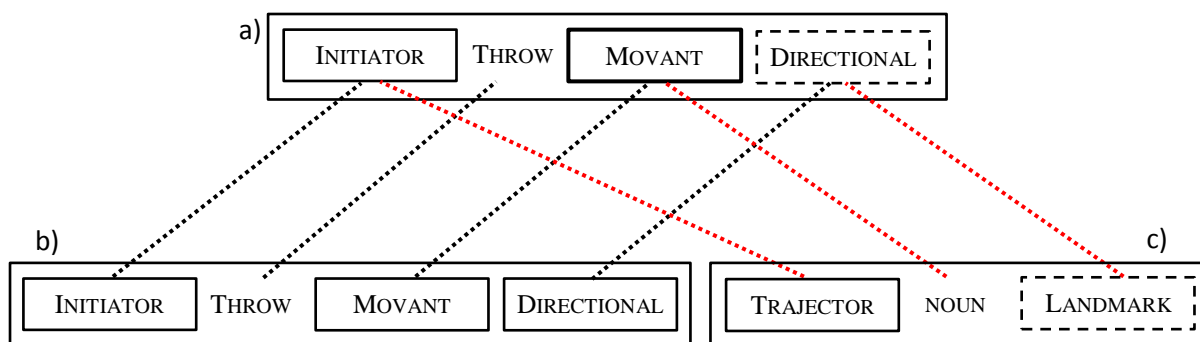
³² TRAJECTORS and LANDMARKS are more abstract concepts. An INITIATOR is a type of TRAJECTOR.

- (3) (a) ... [Mónica] [me] echó [una mirada malhumorada]...
INITIATOR DIRECTIONAL MOVANT
- (b) ... [Mónica] [me] [echó una mirada malhumorada]...
TRAJECTOR LANDMARK
- ‘Monica threw me a grumpy look’ (CdE:19-F, El emisario)

From the perspective of the verb (3a), *Mónica* is the INITIATOR, *una mirada* ‘a look’ is the MOVANT and *me* ‘me’ marks the DIRECTIONAL. From the perspective of the noun *mirada* ‘look’ (3b), *Mónica* is the TRAJECTOR, the one looking, while *me* ‘me’ marks the LANDMARK, the one being looked at. This correspondence of roles can be seen in most of the LVCs with the *throw*-verbs.

It is possible to specify a constructional schema describing how light verbs are built up. Figure 2 is the constructional schema for LVCs with *throw*-verbs.

Figure 2. Constructional schema representing the building of light verb constructions



At the bottom we find the schema for the *throw*-verbs (b) and the schema for the predicate nouns (c). These are the component structures, the ones that come together to form the LVC. At the top is the LVC (a), the composite structure that results from putting together the elements. The dashed lines show the correspondences between the component structures and the composite structure on top.

An LVC is a construction that involves a specific combination of a *throw*-verb and a predicate noun. Both verb and noun are associated with specific participant roles. The roles of the LVC are mostly determined by the verb; the number and kind of roles are largely decided by the *throw*-verb. The roles from the noun are integrated into those roles. The TRAJECTOR of the noun becomes the INITIATOR in the LVC, and the LANDMARK becomes a DIRECTIONAL. The noun itself is expressed as the MOVANT. The MOVANT in the composite schema is bolded, in order to indicate its semantic salience.

As already mentioned in §4.3.1, the optionality of the DIRECTIONAL in an LVC is affected by the optionality of the LANDMARK in the noun. For example, since hits strongly presuppose two participants, the hitter and the one hit, there is a stronger tendency for an LVC with hits to have a DIRECTIONAL (4). Contrast this to a noun such as *carcajada* ‘laugh’. Since this noun usually only involves one participant, the one laughing, the LVCs with this noun tend to lack a DIRECTIONAL (5).

(4) Eres un imbécil (sic) Paco, dice y **le** TIRA un manotazo. (CdE-19F, Pasillo Oscuro, El)
 Are a jerk NAME, says and CL.3rd.nonrf throw a slap
 You are a jerk Paco, s/he says and GIVES **him** a slap

(5) ...*ella* LANZABA una espontánea carcajada... (CdE-19F, Cuentos de tierra caliente)
 she launched a spontaneous laugh
 ‘*She* LAUNCHED a spontaneous laugh’

(6) *un gallo* ... LANZA su kikirikí estridente **contra los animales**... (CdE:19-F, Tiempo de silencio)
 a rooster throws his cock-a-doodle-doo strident against the animals
 ‘*A rooster* LAUNCHES his strident cock-a-doodle-doo **against the animals**’

It is not the case that the noun decides on its own whether the LVC contains a DIRECTIONAL or not. It is still possible for the verb itself to coerce a DIRECTIONAL. For example, a cock-a-doodle-doo is normally associated with one participant, the rooster who produces the sound. Yet, the example LVC in (6) shows that the sound can be directed towards another. In this case, the fact that *throw*-verbs normally have a DIRECTIONAL allows this position to be expressed in the LVC.

The constructional schema should also describe the semantics associated with the LVC. Previous analyses have suggested that the verb in LVCs provides little information semantically, that its function is mostly grammatical (Alonso Ramos 2004:18, Fernández-Soriano & Rigau 2009:141). Note, for example, that a single verb that is morphologically related to the nominal in the LVC can express a similar situation as that expressed by the LVC (Alonso Ramos 2004:24). Compare (7) (repeated from (3) above) and (8).

(7) ...Mónica **me** ECHÓ una mirada... (CdE:19-F, El emisario)
 ‘Monica THREW **me** a look’

(8) Monica me MIRÓ
 ‘Monica LOOKED at me’

There is a semantic similarity between (7) and (8); if a speaker were asked to paraphrase an LVC (7) the best choice would probably be to use the morphologically related

verb (8) (Alonso Ramos 2004:38-39). Examples (7) and (8) are functionally synonymous. Though (7) and (8) are certainly not identical in meaning³³, there is a morphological and semantic similarity between the two sentences: they both describe a situation where Monica looks at another individual. This similarity can be used to justify the view that the verb in the LVC, in this case *echar*, adds little information semantically.

I would argue that examples (7) and (8) in fact show that the LVC verb does provide semantics, even if very abstract. Both sentences can express the same event, hence their functional synonymy, but they differ in the details. An important function of an LVC is that it distributes the verbal meaning across more elements (Brugman 2001:556, citing Hopper 1991). What *miró* '(s/he) looked' expresses in a single word form, *echó una mirada* '(s/he) threw a look' expresses in three word forms. This distribution highlights the concept of transitivity. An LVC expresses that there is a transitive action which originates in one place and travels (metaphorically or literally) to another.³⁴ Specifically, the verb *echar* adds the notion that there is an action that begins at the INITIATOR and moves in a direction (either away from the INITIATOR or towards another entity). The nature of the action being performed is specified by the MOVANT.

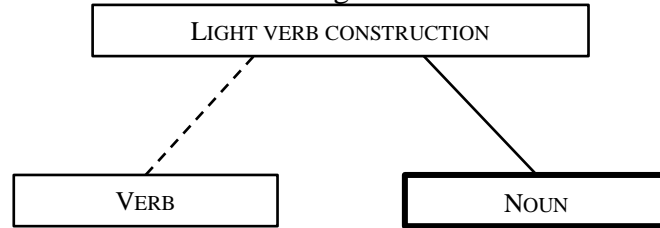
Previous researchers have also claimed that the verb adds abstract meaning. Brugman (2001) argues that a verb maintains basic force-dynamic properties when used in an LVC. Brugman (2001:563) also claims that the verbs in LVCs impose certain characteristics on the type of subject. Stevenson et al. (2004) claim that the verb in the LVC maintains a subset of the semantic features it has in non-LVC environments.

Broadly speaking, we can say that the semantics associated with the noun are maintained in the LVC, while the semantics of the verb are more abstract and generic when in the LVC. The overall semantic relation between the component parts (verb and noun) and the composite structure (light verb construction) is shown in Figure 3. When the verb is incorporated into the LVC it has a more abstract meaning compared to its more "normal" uses. It maintains a general notion of motion, but it is a very abstract and metaphorical meaning. It also for the most part maintains its participant roles.

³³ One important difference is in telicity: (7) is telic and (8) is atelic. Sometimes (though not always) the LVCs and the single verb differ in telicity. The issue of telicity is not addressed in this study, but is certainly a factor that can be taken into account. Future research could explore the telicity of the *throw*-verbs.

³⁴ The same notion of transitivity is present in the simplex verb, but it is backgrounded.

Figure 3. Semantic links relating the verb and noun and the LVC



The noun maintains all (or most) of its semantic content. It provides most of the semantic weight for the LVC. Its participant roles are usually maintained in the LVC, though merged with those of the verb. The main characteristic of the noun, though, is that it determines the semantic nature of the entire LVC. While the verb gives only an abstract concept of an action “moving” from a first participant to a final participant, the noun details the exact action being performed. Goldberg (1995:95) states that the difference between an LVC such as (7) and monomorphemic paraphrase such as (8) is that the LVC increasingly focuses attention on the action denoted by the nominal. She states that (8) can be used in cases where there is no focus on the action. So, a further characteristic of LVCs is that they place focus on the nominal. The noun in Figure 3 is bolded in order to show this focus.

Figures 2 and 3 represent the general schema for building light verb constructions. There are certainly other aspects that play a role. For example, even though I argue that all *throw*-verbs contribute a similar concept of transitivity, this does not preclude the addition of other semantic or pragmatic factors. It is possible that each *throw*-verb brings its own nuances and details to the LVC. There are also variations on the participant roles that are available for the nominal (shown by the optionality of the LANDMARK). The diagrams represent a higher level schema, but there may be other lower-level schemas.

An important aspect of the behavior of *lanzar* is its preferred appearance in LVCs. That means that this LVC constructional schema is particularly salient and productive with *lanzar*. Of course, the schema also appears with the other verbs but to a much lesser extent. *Arrojar* and *echar* appear in LVCs though not very frequently. *Tirar* appears even less frequently in LVCs. This constructional schema is an important part of the behavior of *lanzar* and plays a smaller role with the other *throw*-verbs.

5.2 Semantically-schematic Idioms

Several researchers have argued that idioms exhibit (at least partial) syntactic and semantic regularity. Fillmore et al. (1988), Mateu & Espinal (2007) and O’Grady (1998) have argued that idioms use regular syntactic rules. That is, the rules that apply to all other types of

phrases and combinations are also applicable to idioms. Our analysis so far has also taken this stance. Phrases like *echar en cara* ‘to reproach’, *echar tierra* ‘to cover up’, *echar raíces* ‘to settle in a new place’ when used in full sentences have been shown as having INITIATORS, MOVANTS and DIRECTIONALS just as the other sentences with this verb.

A major characteristic of idioms is their idiosyncratic meaning. While other types of phrases are compositional, at least to a large extent, idioms have meanings that do not seem to derive from the combination of the meaning of its parts. That is, in *kick the bucket* (meaning ‘to die’) kicking and buckets have seemingly nothing to do with dying. Some authors, though, have noted that this is not the case with all idioms: some idioms are at least partially analyzable and decomposable.

Nunberg et al. (1994) distinguish between idiomatic phrasal constructions (IP) and idiomatically combining expressions (ICE). *Kick the bucket* is an example of the former. In this idiom, the individual parts do not contribute to the meaning of the whole. In contrast, in ICEs speakers can recognize a level of compositionality. For example, the phrase *spill the beans* ‘reveal information’ can be analyzed as partially compositional. The verb *spill* refers to revealing, while the noun *the beans* refers to the information. The semantics can be split across the elements of phrase, even if the meaning is not literal.

Gibbs & Nayak (1989) distinguish between three types of idioms: normally decomposable, abnormally decomposable and nondecomposable idioms. Nondecomposable idioms are the IPs in Nunberg et al. (1994). Gibbs & Nayak (1989) can be seen as dividing ICEs into two kinds. A normally decomposable idiom would be *pop the question*. *Pop* refers to asking or proposing. *The question* refers to a question, but in this case a very specific question (“Will you marry me?”). *Spill the beans* qualifies as abnormally decomposable. In these types of idioms the individual parts do not refer to the real-word referents, but there is a metaphorical relation between the component (*spill*) and the meaning (*reveal*).

Though both Nunberg et al. (1994) and Gibbs & Nayak (1989) (and others) focus on the potential compositionality of idioms, compositionality is not the only issue at play. Idioms can also differ as to their transparency (Espinal & Mateu 2010, Nunberg et al. 1994, Gibbs & Nayak 1989, Cruse 1986:39). If the speaker can recover the original motivation for an idiom then it is highly transparent (Espinal & Mateu 2010:1398). With *kick the bucket*, most speakers are not aware of how kicking a bucket is related to dying. This idiom is opaque. Contrast this with a phrase such as *a drop in the bucket* which is used to refer to a very small item or issue compared to the whole. This idiom is fairly transparent. A literal

drop in a bucket is a small item inside a big thing. The literal meaning helps the speaker motivate the metaphorical meaning.

Fillmore et al. (1988) use other types of parameters to classify idioms. Idioms can follow regular grammatical rules or not. Compare *kick the bucket* which seems to have a completely grammatical word order to *all of a sudden* which does not. Idioms can be lexically filled or have an open slot that can be filled by several possible words. A lexically open idiom would include *the X-er, the Y-er* construction. Idioms can have special pragmatic uses, such as *How's it hanging?* compared to more neutral phrases such as *by and large*. Sometimes idioms contain pieces that are only found in a single or a few combinations (*kith* in *kith and kin*). The classification given by Fillmore et al. (1988) shows that idioms can be categorized using a variety of factors.

Previous researchers have refined our understanding of idioms. They have made it apparent that there may be some level of systematicity to idioms. If idioms can vary in transparency, in compositionality and in other factors, and if they follow (at least some) syntactic rules, then it should be possible to categorize idioms into types sharing similar characteristics. Gibbs (2007) in fact speaks of idiom schemas. Croft (2001:16) talks of schematic idioms. According to Croft, schematic idioms show regularities that should be captured as such. Idioms are in many ways quite similar to “normal” phrases of a language. There are syntactic and semantic patterns within the wide category of idioms.

I would like to propose that a more specific classification (than those proposed by Nunberg et al. 1994 and Gibbs & Nayak 1989) is possible. I wish to argue in this case that there is a specific pattern for constructing idioms which is seen throughout the data with the verb *echar*. I call these semantically-schematic idioms, and will describe the constructional schema that shows how they are built up. This idiom type is more specific than those proposed by Nunberg et al. (1994), Fillmore et al. (1988) and Gibbs & Nayak (1989), who focused on wider categories of idioms.

In §4.2.4, I discuss the phrase *echar abajo* which means ‘to topple’. This phrase illustrates a few of the traits that characterize these semantically-schematic idioms. The main characteristics of this phrase are described in order to give a picture of the major traits of this category of idioms.

First of all, though the phrase has an idiomatic meaning, it can also be used in a literal and mostly compositional sense.

(CdE:19-F, Tradiciones del hogar. Segunda serie)

- (9) Si yo quisiera de una patada ECHARÍA **abajo** esta torre.
If I wanted of one kick throw down this tower
'If I wanted to, I would BRING **down** this tower with a kick'

In example (9), *echar abajo* means pretty much what you expect it to mean. The INITIATOR is causing an object to move down. Since the MOVANT is a building, the moving down necessarily involves some type of destruction of the tower. The important point is that the phrase is mostly compositional: *echar* brings in the notion of causative motion, while *abajo* describes the direction of motion, where the MOVANT ends up.

There is, I believe, a clear relationship between the physical/literal meaning of *echar abajo* (as seen in 9) and the figurative 'to topple, to ruin, to destroy' (DRAE). If the individual in (9), were to actually kick the tower down, then he would be in fact toppling it and destroying it. So the physical sense of the phrase is an example of the figurative. The physical sense (causing to move down) is an instance of the more abstract idiomatic meaning (toppling and destroying).

Though the physical meaning is possible with this phrase, in most cases the figurative meaning is the only relevant one and there is no implication of actual physical action.

(CdE:19-AC, Enc: Literatura inglesa)

- (10) Salman Rushdie, que HA ECHADO **abajo** las distinciones entre británicos y no británicos...
NAME NAME, that has thrown down the distinctions between Brits and no Brits
'Salman Rushdie, who HAS TAKEN **down** the distinctions between Brits and non-Brits'

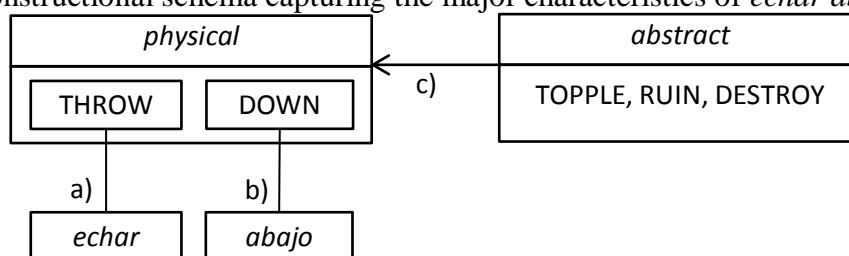
In (10), only the figurative sense of toppling is at play. There is no physical action in this case. Though the physical sense is backgrounded, it still helps to motivate the figurative meaning. There is a metaphorical understanding that distinctions are objects that can be brought down and therefore destroyed. The physical sense (though there is no physical action in (10)) still grounds and motivates the metaphorical meaning.

These characteristics of *echar abajo* 'to throw down' can be captured with a schema (figure 4). The left side of the schema shows the formation of the literal sense of the phrase. The combination of a verb and a DIRECTIONAL produces a mostly compositional phrase³⁵. The correspondence lines from *echar* (a) and *abajo* 'down' (b) to the composite structure are solid, which indicates that the meaning is maintained in the composite phrase. It is

³⁵ If we see compositionality as lying on a scale, the physical meaning of the phrase lies on the more compositional end.

compositional because the meaning of *echar* and *abajo* line up in a one to one fashion to the elements of meaning of the phrase (*echar* corresponds to THROW and *abajo* to DOWN).

Figure 4. Constructional schema capturing the major characteristics of *echar abajo*



The idiomatic or figurative meaning (on the right) is derived from this literal meaning. The link (c) connects the two meanings. The link captures the semantic relation between the two meanings: the abstract meaning is more schematic. In other words, the physical sense is an instantiation of the more abstract sense.

The arrow indicates that the physical sense is an instantiation of the abstract sense (a solid elaboration link). But it is the abstract sense that is derived from the physical sense, despite the directionality of the arrow (c). Geeraerts (2004:219-220) describes this as a process of generalization. It is a type of meaning extension where the original meaning (*physical*) is a subset of the extended meaning (*abstract*). That is, the extended meaning includes the original meaning as a special instance or case. Physically throwing down an object is also an act of toppling or ruining. ‘Throwing down’ is a special instance of the more abstract meaning.

The constructional schema seen in Figure 4 not only applies to this specific phrase, but to other idiomatic phrases with *echar* .

Table 1. Idiomatic phrases with *echar* that are semantically-schematic idioms

Phrase	Literal/Physical Meaning	Abstract Meaning
(a) <i> echar abajo </i>	‘to throw down’	‘to ruin’
(b) <i> echar por tierra </i>	‘to throw by earth’	‘to ruin’
(c) <i> echar por los suelos </i>	‘to throw by the ground(s)’	‘to ruin’
(d) <i> echar en cara </i>	‘to throw in face’	‘to reproach’
(e) <i> echar a la calle </i>	‘to throw to the street’	‘to banish’
(f) <i> echar encima </i>	‘to throw on (top)’	‘to carry (a burden)’

The constructional schema applies to other phrases that mean roughly ‘to ruin’: *echar por los suelos* ‘throw by the ground’ and *echar por tierra* ‘throw by soil’. In both cases, physically throwing an object to the ground or to the soil can be seen as a special instance of the more abstract meaning of ruining.

Other phrases that fit into this idiom schema include *echar en cara* ‘throw in face’ and *echar a la calle* ‘throw to the street’. The former phrase idiomatically means ‘to reproach’. The act of physically throwing an object in someone’s face is an example or a way of reproaching (see §4.3.3). *Echar a la calle* figuratively means ‘to banish’, usually from the home. Let’s imagine a situation where a father is banishing his son from the house. He could ask him to leave. Or he could actually grab his son and throw him to the street. Both could be described using *echar a la calle*.

Idiomatic phrases with *echar encima* ‘to throw on (top)’ are also semantically-schematic. If I put a heavy object onto my shoulders, then I am carrying something heavy, a burden. This physical meaning leads to the abstract concept of carrying a burden. The idiom is then used to refer to different types of nonphysical entities, such as responsibilities and duties which are burdens to a person.

There are several phrases with *echar* combined with specific DIRECTIONALS that fit into the idiom schema in Figure 4. The exact details of each idiom are certainly different. But at a certain level of abstraction all the phrases show a very similar structure. There is both a physical and abstract sense. The physical sense is highly compositional. The abstract sense derives from the physical sense. The abstract sense is a generalization over the physical sense: the physical sense is a special instance of the abstract sense.

All these examples involve fixed phrases that combine a verb with a DIRECTIONAL. Similar characteristics can be argued to exist in idiomatic phrases of *echar* plus a MOVANT. *Echar tierra a X* can be used literally to mean ‘to throw dirt on X’ but it can also be used in a more abstract sense of ‘to cover up’. Again, if I throw dirt on an object I am in fact covering it up. The physical sense is an instantiation of the more schematic idiomatic meaning.

The same analysis could be posited for *echar raíces* ‘throw roots’. The physical sense of ‘growing roots’ can be seen as a special instance of settling down in a place (abstract sense) applying in its physical sense only to plants.

Something similar can be argued to occur with *echar mano* literally ‘throw hand’ and figuratively ‘to make use of something’ and *echar una mano* literally ‘throw a hand’ and the more abstract ‘to help/aid’. The first step in grabbing an object is to move my hand towards it (throw my hand). If I grab an object, then I can make use of it. These examples show, though, that these are still idioms we are dealing with. The choice of using a determiner or not plays a crucial role in the final meaning. The combination of *echar + mano* ‘hand’ without a determiner produces one meaning, while using a determiner produces a completely different meaning. In that way, these phrases differ from non-idiomatic language, where the

determiner is usually freely variable. The point, though, is that despite these idiosyncratic characteristics, there is some semantic motivation to these idioms.

Not all idioms have the characteristics of semantically-schematic idioms. Take for example the phrase *arrojar luz* ‘to throw light’ which is used to mean ‘to clarify a complicated situation’ (DDFH). First of all, the literal use of the phrase seems to be uncommon. There are few cases in the collostructional analysis sample or 400-sentence corpus where *arrojar luz* refers to the actual light being directed at a place. The physical sense is always backgrounded in this idiom, unlike with semantically-schematic idioms.

Secondly there is no relationship of generalization between physical and abstract senses. Literally shining a light on an object is not a case of making sense of a complicated situation. *Arrojar luz* is a different type of idiom than the idioms seen with *echar*. This does not mean that it is not possible to motivate the idiomatic meaning of this phrase, it simply means that a different schema would need to be posited for idioms such as *arrojar luz*.

The idiom schema in figure 4 helps to make sense of some of the variation in meaning seen with *echar*. The description of *echar* throughout this paper has mostly involved the listing of fixed phrases that appear once or twice in the data. There was not much to say up to this point about these phrases, other than describing their form and semantics. The analysis presented in this section shows that at least some of these fixed phrases with *echar* follow a similar pattern and can be seen as instances of a general idiom schema. There is then a semantic and syntactic motivation for several fixed phrases with this verb. An important characteristic of *echar* is its frequent appearance in semantically-schematic idioms.

Chapter 6. Conclusion

The study of the four verbs *arrojar*, *echar*, *lanzar* and *tirar* has revealed some interesting facets of the behavior of these verbs. There are several cases where multiple verbs can be used in the same or similar constructions and produce similar meanings. All four verbs can be used in the THROWING schema, in the more prototypical sense of throwing another object and also throwing yourself. Other cases of overlap include the BANISHMENT schemas, the HITS, SOUNDS and LOOKS schemas, and the fact that both *echar* and *lanzar* can be used in an inchoative meaning, even though there are differences in structure.

Still, there are a large number of cases where only one of the verbs can express a particular meaning. Only *arrojar* can appear in the PRODUCING DATA and SHED LIGHT constructions. *Tirar* can mean ‘to pull’, ‘to print’, ‘to slam (a door)’ and ‘to shoot’. *Lanzar* monopolizes the POLITICS schema and it is the only verb that expresses the throwing of facial expression (excluding looks) and the beginning of attacks (excluding hits). *Echar* shows the most variation in uses: it can mean ‘to lock’, ‘to grow (part of a plant)’, ‘to miss (someone/thing)’, ‘to blame’ and it also appears in several semantically-schematic idioms.

A first generalization that can be made of the data is that each verb has its own constructional profile (Janda & Solovyev 2009). A verb is associated with its own unique distribution of constructions. Most of the data for *arrojar* can be accounted for with three schemas: THROWING, PRODUCING DATA and SHED LIGHT. The most frequent schemas for *tirar* are the THROWING and PULLING schema, though it also occurs in other infrequent constructions including the SHOOT (SPORTS), BANISHMENT and HITS schemas. *Lanzar* has a very strong preference for appearing in LVCs of different types (SOUNDS, FACIAL EXPRESSIONS, ATTACKS, POLITICS) and is also somewhat frequent in an inchoative schema. *Echar* has the widest variety of schemas; the most common are the inchoative constructions and the semantically-idiomatic schemas, but it also appears in the LOOKS and BLAME schemas with some frequency.

The data also provide interesting details on the topic of synonymy. There are cases where two or more verbs can be used in similar constructions to express similar meaning (and keep the same truth-conditions even), even though there may certainly be some semantic and pragmatic details that tease them apart. I describe these as cases of functional synonymy. One of the strong reasons for speakers to label these verbs as synonymous is that they share the more physical and central sense of ‘to throw’. But the verbs also share some of the same

meaning extensions. Murphy (2003:11) notes that words that are antonyms in one sense can maintain that relation of antonymy in some of the meaning extensions. She gives as example *hot* and *cold*. They are antonyms in many different senses: high temperature versus low temperature, near the searcher versus far from the searcher (in a hiding game), and radioactive versus not radioactive.

I believe these verbs are synonymous not only because they share meanings, but because the same types of meaning extensions can apply to them. I argue that the LOOKS schema is a meaning extension from the concept of ‘to throw’. The verbs *arrojar*, *echar* and *lanzar* are all part of this schema, but there is also one example of *tirar* in this schema. Part of being synonymous may be not only sharing a meaning, but also having the same meaning extensions apply to the synonyms. One could argue that a speaker can make an analogy between the central uses and extended uses: if *tirar* can be used interchangeably with the other *throw*-verbs in the THROWING schema, a speaker may also use the verbs interchangeably in the LOOKS schema or in other senses.

Synonyms share some of their semantic space. But the results of this study have also shown that each verb monopolizes certain areas of semantic space. Even in cases where there is overlap, one verb may show a higher frequency (*lanzar* versus *arrojar* in the SOUNDS schema) or a higher level of productivity (*echar* compared to *lanzar* and *arrojar* in the LOOKS schema). There is then a delicate balance between sharing semantic space and each verb claiming its own areas.

A third result of this study is a view of polysemy as a network of related meanings. In the conception of language that seems to me to be the most compatible with the results obtained in this thesis, a word may have one (or more) central or prototypical meanings. Then other meanings and senses are derived through metaphor, metonymy, generalization and other semantic processes. The type and degree of motivation is extremely varied: for example, there seems to be very little motivation for the phrase *echar de menos* ‘to miss’, while a phrase such as *tirar golpes* ‘throwing hits’ shows many semantic similarities to the central THROWING schema. But motivation helps a speaker make sense of their language. Language need not be simple a list of all the meanings of a word, as the traditional view contends. Speakers acquire new uses and extensions from the central or primary meaning of words (Bosque 2004:CXII). The semantic analysis of the various constructions in this study sought to provide plausible motivations for the (unpredictable but not arbitrary) meaning extensions.

I posit that the THROWING schema is the central schema for all four verbs (though there are certainly reservations about that choice; see the introduction to Chapter 4). The characteristics of this central schema are often maintained in the different meaning extensions. For example, the majority of the data contain animate INITIATORS, across a variety of meaning extensions. Even when the INITIATOR is not animate, the position retains some traits of animates. In the majority of cases, the INITIATOR, be it an animate being or a document, is conceptualized as a source and as a causer. Likewise, the central notion of caused motion, is maintained in many of the meaning extensions (HITS, BLAME, SOUNDS, throwing oneself, etc.) even when the object that is moved is not a physical object. Characteristics of the THROWING schema, including the participant roles and part of its meaning are maintained in the various meaning extensions.

As a final point, this study has also shown that various linguistic phenomena can be described and understood using constructions, links and correspondences, all derived by a schematization process that traces the commonalities between different instances of language in use. Some schemas are mostly lexically filled, such as the SHED LIGHT schema that had a fixed verb, MOVANT and preposition in the DIRECTIONAL, while other constructions are completely schematic, such as the semantically-schematic idiom schema which only requires a verb and a DIRECTIONAL or MOVANT of some sort. Sometimes a schema is mostly compositional (all the collocational schemas) while other schemas are almost completely non-compositional (the schema for *echar de menos* and *echar en falta* ‘to miss’). Some schemas can be highly productive (LVC constructional schema) while other schemas are limited in their application (the SLAM (DOOR) schema). All these phenomena are captured as constructions, but they still are capable of displaying their own unique traits and characteristics. All are constructions with their own specific flavors and details.

This project also points to future areas of research. Little focus has been placed on the pragmatic or connotational details of the data under study. Still, I argue that we can notice some important differences between *echar* and the other verbs in the THROWING schema. I posit three distinctions: 1) *echar* can express a less forceful action, 2) it can mean that the MOVANT is accompanied by the agent throughout the motion, and 3) *echar* has a stronger requirement on the appearance of the DIRECTIONAL. This shows that there are some future avenues for research. One is to directly explore the encoding of force and strength associated with each verb, using a corpus analysis of manner phrases or an experimental study focusing on expressions of strength. There is also the possibility that there are important pragmatic differences between the verbs, even when they are functionally synonymous, as Goldberg

(1995) would argue. For example, both *arrojar* and *tirar* are used frequently in the THROWING schema. This leads one to wonder if there are any differences that can explain the choice of one verb or another. There may be influences, for example, from the type of genre (Gilquin 2010:21) or even the dialect.

The statistical measures explore each variable individually. Future research could explore the interaction of all features simultaneously, as has been done successfully by Divjak & Gries (2008), Gilquin (2010), Gries & Otani (2010), to name a few. Additional variables can also be at play. In the position of the INITIATOR, previous works have discussed the volitionality of the doer, whether it is a willing actor or not. This feature could be explored directly in future corpus and experimental studies. Another feature worth exploring is telicity. Verbs can differ in whether they describe an event as completed or not. There may even be differences in telicity between different uses of the same verb (as shown by LVCs).

There is much left to explore in order to get a full understanding of the semantic characteristics of each *throw*-verb and the similarities that bind them as synonyms. The initial steps taken in this study have teased apart the complex behavior of four verbs, having demonstrated their partial synonymy and the capability of each verb to express a variety of related notions.

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Dictionaries, References and Online Resources

Acronym

used in text

- ADESSE ADESSE: Base de datos de Verbos, Alternancias de Diátesis y Esquemas Sintáctico-Semánticos del Español. Available online at: <http://adesse.uvigo.es/>. Accessed January 9, 2012.
- CdE Davies, M. (2002-). Corpus del Español. (100 million words, 200s-1900s). Available online at <http://www.corpusdelespanol.org>.
- Corominas, J. & Pascual, J.A. (1991). *Diccionario crítico etimológico castellano e hispánico*. Madrid: Editorial Gredos.
- CREA Real Academia Española: Banco de datos (CREA). *Corpus de referencia del español actual*. Available online at <http://corpus.rae.es/creanet.html>. Accessed March 17, 2012.
- DCP Bosque, I. (2006). *Diccionario combinatorio práctico del español contemporáneo*. Madrid: Ediciones SM.
- DDFH Buitrago Jiménez, A. (1997). *Diccionario de dichos y frases hechas*. Madrid: Espasa Calpe.
- DELE Real Academia Española. (2006). *Diccionario esencial de la lengua española*. Madrid: Espasa Calpe.
- DPA Albaigès, J. M. (2001). *Diccionario de palabras afines con explicación de su significado preciso*. Madrid: Espasa Calpe.
- DRAE Real Academia Española. (2001). *Diccionario de la lengua española*. 22nd Edition. Madrid: Espasa Calpe. Available online at <http://rae.es>. Accessed January-March, 2012
- DSA Alonso, J.I. (2000) *Diccionario de sinónimos y antónimos*. Madrid: Espasa Calpe
- NGRAE Real Academia Española. (2010) *Nueva gramática de la lengua española*. Madrid: Espasa Calpe.
- REDES Bosque, I. (Dir.). (2004). *REDES: Diccionario combinatorio del español contemporáneo*. Madrid: Ediciones SM.
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Appendix A: The Questionnaire

The cover page of the booklet handed out to the respondents is shown below. The examples show the format given for the sentences. The empty slot (for the verb) was marked with large brackets { }. This format was chosen in order to give respondents enough space to be able to write multiple verbs if they wished to. It also helped to spread out the questions, so that the page did not look too loaded with sentences.

<u>Cuestionario</u> Emma Skallman Universidad de Tromsø, Noruega Noviembre 2011				
Instrucciones: A continuación se le presentará con oraciones en donde <u>hace falta una palabra</u> . Le pedimos que escriba en el espacio la o las palabras que <u>mejor podrían completar la oración</u> . Escogiendo siempre entre las siguientes 4 palabras:				
	<i>arrojar</i>	<i> echar</i>	<i> lanzar</i>	<i> tirar</i>
Ejemplos:				
(a) Molesto,	{		}	
	el libro al basurero.			
(b) Le	{		}	
	crema al café.			
(c) Ella se	{		}	
	a la piscina.			
COMIENCE EN LA SIGUIENTE PÁGINA.				

Translated version of the cover page.

Questionnaire

Emma Skallman

University of Tromsø, Norway

November 2011

Instructions:

You will be presented with sentences where there is a word missing. We ask that you write in the space the word or words that could best complete the sentence. Always choosing from the following four words:

arrojar

echar

lanzar

tirar

Examples:

(a) Molesto, { *arrojar* } el libro al basurero.
Angry, (s/he) _____ the book (in)to the trash(can)

(b) Le { *arrojar* } crema al café.
_____ cream in the coffee.

(c) Ella se { *arrojar* } a la piscina.
She _____ herself (in)to the pool.

BEGIN ON THE FOLLOWING PAGE.

The questionnaire consisted of 30 sentences. Two were control sentences, while the remaining 28 were divided into two major groups: directionality and optionality. The control sentences only had one correct answer, shown in italics.

In the directionality group 7 sentences expressed upward motion, while 7 express downward motion. In the optionality set, 7 sentences contained no directional, while 7 sentences contained a directional of some sort. The sentences are paired, such that the sentence here labeled D1-U was very similar in structure, wording and semantics to sentence D1-D (D2-U with D2-D, O1-N with O1-W and so forth). Below are the original sentences with a gloss. In the questionnaires, the sentence order was randomized. There were four versions of the questionnaire.

There are three factors to keep in mind with the translations: 1) Spanish clitics are in the examples usually preverbal, while the English equivalent must be post-verbal. 2) Spanish and English prepositions do not line up and often do not have the same semantics. I have tried to be faithful to the Spanish semantics, even though it results in slightly odd wording in the translation. 3) Spanish is pro-drop, so that the subject of a sentence or clause often does not appear. In the examples, it often means that the gender (and even number) of the sentence is unmarked and is open to interpretation. For that reason, in the translations I have not written a subject in the English translations either, even if the result sounds awkward.

Control

C1 Tiene que { *tirar* } de la palanca
You have to *pull* on the lever.

C2 Ellos le { *echan* } la culpa al jefe.
They *place* the blame on the boss.

Directionality

Upward motion

D1-U Ella { } su suéter viejo encima del closet.
She { } her old sweater on top of the closet.

D2-U Mi hermano { } mis juguetes al techo de la casa.
My brother { } my toys to the roof of the house.

D3-U El señor { } al aire su sombrero.
The man { } (in)to the air his hat.

D4-U Los niños { } la pelota al segundo piso.
The kids { } the ball to the second floor.

D5-U En celebración, los jugadores { } a su entrenador al aire.
In celebration, the players { } their coach (in)to the air.

D6-U Asustado, Juan lo { } al aire.
Scared, John { } it (in)to the air

D7-U Marta { } las monedas al aire.
Martha { } the coins (in)to the air.

Downward motion

- D1-D Yo { } mi pantalón viejo debajo del ropero.
I { } my old pants under the wardrobe (closet).
- D2-D El joven { } los juguetes al pozo.
The young man { } the toys (in)to the well.
- D3-D La niña { } su gorro al suelo.
The girl { } her cap to the ground.
- D4-D Desde el segundo piso, { } la pelota abajo.
From the second floor, { } the ball down.
- D5-D Mis hijos me { } al suelo y me abrazan.
My sons { } me to the ground and hug me.
- D6-D Yo lo { } al piso y salí asustado.
I { } it to the floor and left scared.
- D7-D Al pasar por la mesa, José { } las monedas al piso.
As he passed the table, Joseph { } the coins to the floor.

Optionality

No directional

- O1-N El fumador { } el humo.
The smoker { } the smoke.
- O2-N De niño me gustaba { } piedras.
As a child I liked to { } stones.
- O3-N El soldado { } el fusil y corre hacia el teniente.
The soldier { } the rifle and runs to the lieutenant.
- O4-N Susana { } una piedra.
Susana { } a stone.
- O5-N Al entrar a su cuarto { } sus zapatos.
Entering the room, { } his/her shoes.
- O6-N El trabajador lo { }.
The worker { } it.
- O7-N El hombre rompió el papel y lo { }.
The man ripped up the paper and { } it.

With directional

- O1-W Él me { } humo en la cara.
He { } (me) smoke in my face.
- O2-W A ella le gusta { } piedras al lago.
She likes to { } stones to/at the lake.
- O3-W Manuel { } el arma al suelo.
Manuel { } the weapon to the ground.
- O4-W Ella { } una piedra en la fuente.
She { } a stone in the fountain.
- O5-W Encendió las luces y { } su falda en el cesto.
Turned on the lights and { } her skirt in the basket.
- O6-W El chofer lo { } en el asiento trasero.
The chauffeur { } it in the back seat.
- O7-W Ella arrugó la hoja y la { } al bote de basura.
She crumpled up the page and { } it to the trash can.

Appendix B: Respondents

The respondents were asked to provide basic information. Because the study did not explore these issues in detail, the respondents were only required to choose from categories, instead of giving exact details. This was also done to make the respondents feel more comfortable in providing a response.

- Age was divided into 5 age ranges: 20-29, 30-39, 40-49, 50-59, and 60+
- Education level was also divided into 5 categories: *primaria* (the equivalent of 1st-6th or barneskole), *bachiller/técnico* (10th-12th or videregående skole), *licenciatura* (bachelor's degree), *maestria* (master's degree) and *doctorado* (doctorate degree).
- Respondents were asked to name the place where they were raised. I have grouped them here into three categories: from Juticalpa, from somewhere else in the same state (Olancho) and from somewhere else in the country (Honduras). The questionnaires, though, most often contain the exact city or town.
- Respondents were also divided by gender

The characteristics of the respondents are summarized in the following tables.

Age	
20-29	12
30-39	10
40-49	4
50-59	4
60-69	0

Education Level	
Primaria	3
Bachillerato	14
Licenciatura	9
Maestria	1
Doctorado	2
No response	1

Raised in	
Juticalpa	14
Olancho	10
Honduras	6

Gender	
Male	15
Female	15

Appendix C: Original Dictionary Sources

Original texts from dictionaries.

DELE		<i>Location in text</i>
Arrojar.		
1. Impeler con violencia algo, de modo que recorra una distancia, movida del impulso que ha recibido.		107
4. echar (hacer salir a alguien de algún lugar)		69
5. Dicho de una cuenta, de un documento, etc.: Presentar, dar de si como consecuencia o resultado.		52
Echar.		
1. Hacer que algo vaya a parar a alguna parte, dándole impulso.		107
4. Hacer salir a alguien de algún lugar, apartarlo con violencia, por desprecio, castigo, etc		69
5. Deponer a alguien de su empleo o dignidad, impidiéndole el ejercicio de ella.		69
6. Dicho de una planta: Empezar a tener raíces, hojas, flores y frutos.		66
10. Inclinar, reclinar o recostar.		91
Echar de menos o ~ menos.		
1. Advertir, notar su falta.		
2. Tener sentimiento y pena por su falta.		29
Lanzar.		
1. arrojar.		107
<i>Pronominal</i>		
5. Empezar una acción con mucho animo o con irreflexión.		126
Tirar.		
1. Dejar caer intencionalmente algo.		107, 115
5. Desechar algo, deshacerse de ello.		69
12. <i>Impr.</i> Imprimir.		64
15. <i>A. Caribe.</i> Cerrar con fuerza algo, especialmente una puerta.		63
<i>Intransitive</i>		
17. Dicho de personas, animales o vehículos: Hacer fuerza para traer hacia si o para llevar tras si.		59
19. Sacar o tomar un arma o un instrumento en la mano para emplearlos.		63
DRAE		
echar ¹ . (Del lat. <i>iactāre</i>)		
29. tr. Derribar, arruinar, asolar. <i>Echar abajo, en tierra, por el suelo</i>		82, 146
luz ¹ . (Del lat. <i>lux, lucis</i>)		
a buena ~.		
1. loc. adv. Con reflexión, atentamente.		81
dar a ~.		
1. loc. verb. Dicho de una mujer: parir .		81
2. loc. verb. Publicar una obra.		81
sacar a ~, o a la ~.		
1. locs. verbs. dar a luz (l publicar una obra).		81
2. locs. verbs. Descubrir, manifestar, hacer patente y notorio lo que estaba oculto.		81

mano ¹ . (Del lat. <i>manus</i>).	
 echar una ~ a.	
1. loc. verb. Ayudar a la ejecución de algo.	91
2. loc. verb. Ayudar a alguien.	
 echar la ~, o las ~s, o ~, a alguien o algo.	
1. locs. verbs. Asirlo, cogerlo, prenderlo.	90
 echar ~ de alguien o algo.	
1. loc. verb. echar la mano.	90
2. loc. verb. Valerse de él o de ello para un fin.	90
pie. (Del lat. <i>pes, pedis</i>).	
 echar ~ a tierra.	
1. loc. verb. Descabalgarse o bajarse de un vehículo.	112

DDFH

Arrojar/dar Luz.	
Aportar datos que ayudan a entender un asunto. Aclarar una situación complicada. Luz, es aquí sinónimo de claridad, verdad, en clara oposición con oscuridad, ‘ignorancia’. Lo mismo sucede en otros casos...	80, 149
Echar/echarse a perder.	
Estropear. Deteriorar. Se usa bastante con los alimentos	82
Echar en cara/a la cara.	
Reprochar. En sentido literal, arrojarle algo a alguien a la cara, aunque solo sean palabras.	82, 113
Echar por tierra.	
Destruir, estropear, malograr algo. Aunque la primera imagen que nos viene a la mente es la del caballero en el suelo, derrotado, derribado por otro en un torneo o en un combate, no es descabellado pensar que en los orígenes de la expresión este la idea de las cosechas frutales destruidas por inclemencias meteorológicas.	112
Echar raíces.	
Establecerse, hacerse una nueva vida en un lugar que no es el propio. Las plantas o esquejes trasplantados a otra tierra puede o no echar raíces en ella; por eso surge la expresión.	66
Echar tierra encima.	
Ocultar. Intentar borrar el recuerdo de una cosa o de una persona, cometido que en nuestra cultura se encomienda a la tierra del cementerio. A veces también se usa con el significado de ‘perjudicar, querer hacer daño a alguien’, muchas veces a uno mismo.	67, 91
Echar/tender una mano.	
Ayudar	91
Tirar/arrojar/lanzar la primera piedra.	
Ser el primero en criticar o en agredir verbalmente a alguien. El dicho tiene su origen en la frase con la que Jesucristo reprende a los que están a punto de lapidar a una supuesta adúltera: “Aquel de vosotros que este libre de pecado que tire la primera piedra.”	89

DCP

Echar

[aplicar, accionar]

cierre, llave, candado, cerrojo, persiana, cortina, pestillo, toldo, seguro, freno

66

DPA

Arrojar | echar | lanzar | tirar

Arrojar es impulsar con fuerza una cosa hacia lo lejos; tirar es despedir con la mano una cosa; lanzar es dejar libre una cosa, tirarla en determinada dirección; echar es dar impulso a una cosa en determinada dirección, es menos intenso que arrojar. Se arroja una piedra, se tira un desecho, se lanza la jabalina, se echa una carta.

1, 65

VOX

Arrojar (I) (v. arrollar)

3. Tratándose de cuentas, documentos, etc. dar como consecuencia o resultado.

52

Echar (I) (l. *iectare; por iactare, arrojar)

2. Hacer salir (a uno) de un lugar, apartarle con violencia. P. analogía, deponer (a uno) de su empleo o dignidad; junto con un nombre de pena, condenar a ella.

69

Echar (II)

En la expr. clásica ~ menos, modernamente ~ de menos (a una persona o cosa), advertir la falta (de ella) o sentir pena por su falta o ausencia: ~ en falta.

29

Lanzar (b. l. lanceare, manejar la lanza)

7. Dar a conocer (al público)

65, 84,
112

Pronominal

12. Empezar bruscamente o con decisión una acción.

126

Tirar (origen incierto)

1. Hacer fuerza para traer hacia si o para llevar tras de si

133

REDES

Echar:

Echar en cara ‘acusar de’

82

E) INSTRUMENTOS DE CIERRE, PROTECCIÓN O DETENCIÓN, USADOS MUY FRECUENTEMENTE EN SENTIDO FIGURADO: cierre ++, llave ++, candado +, cerrojo ++, persiana +, cortina ++, pestillo +, toldo +, seguro +, freno +.

66

ADESSE

Arrojar

4. (fig.) Dar [un hecho] [algo] como resultado o consecuencia

52

Tirar I

1. Lanzar(se) o arrojar(se) [algo] o [a alguien]

• Disparar con un arma de fuego

94

Tirar II

Tener [cierta cualidad] de modo aproximado

94