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Reexamining Por and Para in the Spanish Foreign Language Intermediate Classroom: A Usage-Based, Cognitive Linguistic Approach

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1 Introduction

Recently, many researchers in L2 learning have suggested that language learning is best understood as usage-based, i.e. gradual, emergent and grounded in meaning (e.g. Cadierno and Eskildsen 2016; Ellis and Cadierno 2009; Eskildsen and Wagner 2015; Ortega, Tyler, Park, and Uno 2016; Tyler 2012). Twenty plus years of empirical research in language learning has provided us with evidence that language emerges gradually: The learner, whether an infant or an adult, first gains understanding of individual instances of a language unit used in meaningful contexts. Full control of an item only comes after multiple exposures and multiple attempts by the learner to use it to express their own meaning. Moreover, learning proceeds more effectively when scaffolded, that is when presented in carefully supported increments with appropriate modeling of the fundamental concepts to be learned (e.g. Lantolf and Poehner 2013). Tyler (2012) argues that, in spite of many hopeful advances in researched language pedagogy, such as task-based language teaching, most L2 curriculum and instruction is driven by L2 textbooks which present the target language in terms of discrete rules and vocabulary items. Further, this treatment of language appears to assume that once grammar is introduced, the best path to learning is for students to memorize the rules and the many, seemingly arbitrary meanings associated with a single lexical unit. Such an approach is distinctly not usage-based and is generally disconnected from recent advances in linguistic theory, cognitive science and learning theory (Ellis and Wulff 2015).

Currently, the standard teaching format for the multiple meanings of the Spanish prepositions *por* and *para* is to present a list of distinct meanings for each preposition in a one- or two-day unit. The meanings are commonly represented as translations of English prepositions. Students are instructed to memorize

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the different meanings and then test their understanding of the various meanings by way of fill-in-the-blank exercises. This basic lesson is recycled, and possibly expanded, approximately once every semester. There is ample evidence that this is not a particularly effective approach (e.g. Guntermann 1992; Lafford and Ryan 1995; Pinto and Rex 2006). Indeed, *por* and *para* are widely recognized as particularly difficult to master, often challenging even high proficiency L2 speakers (Guntermann 1992; Lafford and Ryan 1995; Pinto and Rex 2006; Sanz personal communication). Given their difficulty and the ineffectiveness of the standard approach to teaching them, it seems these prepositions represent particularly good targets for examining the efficacy of a more usage-based pedagogical approach. To this end, a large-scale, longitudinal investigation of the effectiveness of a more usage-based, Cognitive Linguistic-inspired presentation of *por* and *para* was undertaken.

The present chapter represents the first stage in the larger investigation; it examines two aspects of applying a usage-based, CL approach to teaching *por* and *para*. First, we presented the multiple meanings of the two forms gradually, building learners' knowledge in a series of scaffolded treatments, throughout the course of an entire semester rather than presenting them all in one concentrated lesson. Second, we presented the multiple meanings of *por* and *para* and structured their order of presentation according to a Cognitive Linguistic-inspired analysis, which emphasizes the systematic relationships among the multiple meanings. Such a systematic analysis is consistent with studies in cognitive psychology which have shown that it is easier to retrieve complexes of information if there is a systematic, organizing structure that specifies the relationship among the items, since this structure offers additional routes for accessing information (e.g. Bousfield 1953; Bower et al. 1969; Deese 1959; Lam 2009; Mandler 1967; Tulving 1962). A third area of interest was in examining the efficacy of providing explicit CL explanations of *por* and *para*, including discussion of CL concepts, such as the many meanings being represented by a systematically connected polysemy network whose central sense is a spatial relationship between a focus element and a background element, versus an approach which did not explicitly articulate CL concepts and did not explicitly present the multiple meanings as comprising a polysemy network.

1.1 Traditional methods of teaching *por* and *para*

It is widely recognized that prepositions are one of the most challenging areas for second language learners (Celce-Murcia and Larsen-Freeman 2015). For English-speaking learners of Spanish, *por* and *para* are two prepositions that are both

particularly intractable and also figure prominently in the traditional grammatical syllabus. Both have multiple uses – *por* has up to 12 meanings, several of which are typically translated by a range of English prepositions such as ‘through,’ ‘alongside,’ and ‘by,’ and *para* has up to 8 meanings, including ‘towards,’ ‘by,’ and ‘at.’ Even more problematic, certain uses of both *por* and *para* are commonly translated as ‘for,’ which itself has multiple meanings in English. These prepositions have proven difficult for learners until they reach very advanced proficiency levels, even with naturalistic exposure in an immersion environment (Guntermann 1992; Lafford and Ryan 1995). Pinto and Rex (2006) found that even after receiving repeated cycles of explicit grammar instruction over the course of a four-year university program, Spanish learners only reached an average of 61% accuracy on the two prepositions.

In order to determine how Spanish Foreign Language (FL) texts typically present *por* and *para*, nine popular intermediate textbooks were consulted. These textbooks’ approaches to *por* and *para* were consistent with the researchers’ experience as Spanish learners and teachers. Typically, in Spanish FL courses for L1 English speakers, *por* and *para* are presented in contrast during one self-contained grammar lesson, which is recycled through multiple curricular levels. We observed that the order varied widely from textbook to textbook, with no clear rationale offered for the ordering. In several of the texts, the first meaning of *por* is listed as “reason / motive / purpose / cause (‘for’)” or “means (‘by’)”, and the first meaning of *para* is given as “purpose (‘in order to’), goal / objective” (Spaine Long, et al. 2007; Nichols et al. 2009; Zayas-Bazan, Bacon, and García 2014). Note that both prepositions are confusingly glossed as “purpose”, potentially giving the impression that they are interchangeable. In other texts, the first senses listed are “length of time” (*por*) and “deadline” (*para*) (Marinelli and Mujica Laughlin 2014; Pellettieri et al. 2011). Some intermediate textbooks provide explanations of *por* and *para* that incorporate diagrams of spatial scenes. For instance, *De paseo* presents a diagram of a spatial scene to illustrate the first sense presented for each preposition (e.g. destination or goal for *para*) but then lists several additional uses that are seemingly unrelated to this spatial scene (Long and Macián 2015). In sum, with few exceptions (e.g. Underwood et al. 2012), the typical presentation of *por* and *para* amounts to a laundry list of apparently unrelated uses for each preposition, the effect of which is to “bombard students with more than a dozen uses of *por* and *para*, often in one class session” (Pinto and Rex 2006: 620). Our review of several newly released intermediate Spanish textbooks (Blanco and Colbert 2012; Blanco and Tocaimaza-Hatch 2015; Spinelli, García and Galvin Flood 2013) and popular language learning websites (<http://www.studyspanish.com/>; <http://www.spanishdict.com/>) suggests that this traditional presentation is still being promoted.

The traditional presentation also often involves a contrastive emphasis. Contrastive sentences in which different uses of *por* and *para* can be translated by the same English preposition, most prominently the English preposition *for*, are presented side-by-side. For instance,

- (1) a. *Este regalo es **para** Adela.*
 ‘This gift is **for** Adela’ where **para/for** indicates the recipient of an action.
- b. *Pagaré \$3 **por** este sándwich.*
 ‘I will pay \$3 **for** this sandwich’ where **por/for** indicates an object in an exchange.

Students are given several examples of sentences involving these contrastive uses and instructed to memorize the different meanings or uses that go with each preposition. The literature shows that one common problem with *por* and *para* for FL learners involves substituting one for the other. This is not surprising, as psychologists have long established that presentation of two similar concepts in conjunction with each other often results in confusion and establishing the wrong associations. For instance, in the area of vocabulary Brown (2014) found that asking subjects to learn pairs of opposites led to substantially more errors than if the vocabulary items were presented in their own right.

There is ample evidence that the traditional approach is not very effective. Guntermann (1992) and Lafford and Ryan (1995) reported the errors that previously instructed learners in intensive, immersion situations made during oral proficiency interviews. Neither study reported intermediate learners producing above a 64% accuracy rate for the two prepositions. Indeed, Guntermann (1992) found that when participants’ uses of *por* involving set phrases (e.g. *por ejemplo* ‘for example’, *por eso* ‘for that reason’, and temporal expressions) were eliminated, their accuracy rate fell to 32%. Guntermann (1992) also found that the 3 participants who reached the advanced proficiency level still only had a 70% accuracy rate. In addition, the advanced participants were accurately using just a limited number of the possible meanings of both *por* and *para*. Indeed, both Guntermann (1992) and Lafford and Ryan (1995) reported that their participants used a very limited range of meanings (2–3) for each preposition.

Employing a cross-sectional design, Pinto and Rex (2006) analyzed how accurate 80 university students enrolled in years 1–4 of Spanish FL instruction were with *por* and *para* on a discourse completion test. Throughout the four levels of instruction, the traditional pedagogical approach was used. Pinto and Rex (2006) found that the learners improved their accuracy in using *por* and

para by only 8%, moving from 53% accuracy to 61% accuracy, after receiving repeated explicit grammar explanations over the course of a four-year university program. Additionally, the learners in their study showed relatively high levels of mastery of just two senses of *para* (beneficiary and purpose), which accounted for 94.6% of learners' accurate uses, and just three senses of *por* (duration of time, motive, and formulaic expressions), which accounted for 94% of learners' accurate uses.

In contrast, little empirical research has been done to test the effectiveness of alternative methods for teaching *por* and *para* in a more systematic, simplified, or motivated way. Mumin (2011) suggested presenting a simplified conceptual model for students to use as a semantic conceptual guide but did not empirically test its effectiveness. Mumin's model essentially posited that *para* is associated with precision, purpose, and specific limitations, whereas *por* is associated with imprecision, reason, and general lack of limitations. The model is not based on any apparent theoretical analysis and seems not to account for some common uses, such as *por* with a specific length of time, as in *Vivimos en San Juan por 2 meses* 'We lived in San Juan for two months'. Zyzik (2008) approached the multiple meanings of *por* and *para* in a somewhat more systematic way, presenting the meanings of the prepositions by first emphasizing the spatial meaning, then the temporal use, and finally several additional abstract uses; however, she offers no empirical data supporting the approach. Moreover, its semantic analysis relies on the traditional list approach. Mason (1992) suggested presenting rules for the semantically simpler preposition (*para*) with a mnemonic and instructing students to use *por* in situations that did not fit the mnemonic. Again, Mason did not provide empirical evidence of the effectiveness of this approach. A number of researchers (e.g. Guntermann 1992; Lafford and Ryan 1995) have criticized the assumptions underlying this approach, which asserts that *por* and *para* are pairs in an oppositional paradigm. They note that both *por* and *para* have a number of uses that do not fit this assumed "opposition". Furthermore, while this process of elimination technique might appear attractive in its simplicity, at best it only helps students decide between *por* and *para* in contexts where English is likely to use *for*, wrongly assuming that virtually all errors are *for*-based substitution errors. In fact, in Lafford and Ryan's (1995) study, the most common inaccurate uses of these forms were as substitutions for different prepositions (e.g. *en* 'in' or *a* 'at') or conjunctions or were uses of these prepositions where no preposition would normally appear in Spanish.

1.2 A Cognitive Linguistics approach

Recent advances in Cognitive Linguistics, which focus on understanding polysemy (multiple meanings for a single phonological form) and semantic extension (e.g. Tyler and Evans 2001, 2003), offer an alternative to the arbitrary list approach. Curry's (2010) Cognitive Linguistics-based (CL) analysis of *por* and *para* represents their many meanings as systematically motivated networks and offers an analysis that elucidates the complexities of *por* and *para*. According to the CL approach, the multiple meanings of *por*, *para* and other linguistic forms are not random historical accidents. Rather, they constitute a systematic polysemy network (a network of related meanings) that developed via a constrained set of principles governing semantic extension and are rooted in shared human experiences. The connections between the uses of a particular linguistic form are often based on our everyday experiences with the spatial-physical world we inhabit, as well as metaphor, which cognitive linguists define as understanding entities or events from one cognitive domain in terms of entities or events in another cognitive domain. For instance, from birth, humans experience intimacy and warmth as co-occurring, connected experiences in the comfort of their caregivers' embrace. This type of common experience provides a conceptual foundation for why we use language from the conceptual domain of temperature, i.e. describing people as warm, when we are referring to their emotional makeup (Grady 1999). The CL approach recognizes that metaphor and polysemy are ubiquitous in human language and suggests that understanding them as rooted in human cognition and embodied experience can help us make sense of complex relationships between surface forms of language

Finally, CL offers analytical tools for more precisely representing the multiple meanings within a polysemy network. For instance, Curry's (2010) analysis helps tease apart the temporal extensions for *por* and *para*. Curry's analysis, with its spatially based central sense, allows the representation of both a "temporal containment" sense and an "elapsed time" sense for *por*. The textbooks we consulted failed to distinguish these two senses, coupling them together (e.g. as "amount of time or time of day" in *Conexiones*) or subsuming them under one broad heading (e.g. "time" as in *De paseo* or "length of time" as in *En comunidad* and *Interacciones*).

There is mounting evidence that a CL approach is effective for teaching complex systems in language such as prepositions (Littlemore 2009; Tyler 2012) and English modals (Tyler, Mueller, and Ho 2011), as well as vocabulary (Boers and Lindstromberg 2008; Verspoor and Lowie 2003). Lam (2009) empirically tested the effect of adding CL-based descriptions and visual aids to an otherwise traditional *por* and *para* lesson. Although overall there were no large effect-size

differences between the control and CL groups in the study, Lam found some evidence in support of the CL approach in terms of students' increased confidence, accuracy in free writing, and accuracy on delayed posttests. Lam's experimental lesson was based in part on the textbook descriptions of the central spatial and temporal senses provided by Lunn and DeCesaris (2007) and presented a number of the different uses of *por* and *para* as embodying their central spatial meanings: "an object passing through another object" (*por*) and "an object aimed towards another object" (*para*). Lam's presentation was simplified for the intermediate students and omitted several important uses of the prepositions, as well as common idioms using *por* and *para*. Nevertheless, students in that study described the CL materials as less clear than the traditional materials; Lam suggested that the novel CL approach, which was presented in just two days, might take more time for students to process. We agree that a CL analysis involves learning many new concepts and new ways of thinking about language. Thus, it is likely to challenge L2 students in ways that the familiar, traditional approach does not. Most students are familiar with the strategy of memorizing meanings and, in the case of *por* and *para*, have already learned to try to contrast the two prepositions. Lam appeared to try to avoid the complex jargon and technical explanations found in Lunn and DeCesaris's (2007) advanced textbook and Delbecque's (1995) analysis of *por* and *para*, e.g. resultative, causative, global/local scope, and deictic. However, asking the students to reconceptualize the many meanings as a systematically-related network of senses organized around a central spatial relationship is a sharply different way of understanding prepositional meanings and calls for importantly different learning strategies. The CL approach is likely to present a substantially higher cognitive load that cannot be overcome in one or two days. Moreover, it would not be surprising for learners to find a novel approach to learning somewhat disruptive, and thus its positive effects might not emerge until much later. Lam's lesson spanned just two days and so still may have had the effect of bombarding students with too much at once. Moreover, we would suggest that such a short intervention is counter to a usage-based approach, which emphasizes gradual, scaffolded emergence of knowledge of language use. Even though Lam provided students with a CL analysis of the prepositions rather than rules, it may be that students experienced the lesson much like a traditional presentation of *por* and *para*, with too many meanings presented in one intense lesson.

1.3 The current study

In contrast to all previous studies, the multiple meanings for *por* and *para* based on Curry (2010) (see Appendices 1 and 2), were presented to our learners in

semantically related mini-clusters over the entire semester. When new meanings were introduced, learners were reminded of previous meanings they had studied, and thus important scaffolding intended to support the learning of new meanings was a key component of the interventions. Curry's analysis involved a constrained set of principles of meaning extension that highlighted embodied experience and well-documented cognitive processes such as experiential correlation (as explained in Grady, 1999). The novel analysis identified a number of senses not covered by Lam (2009), e.g. "employment" and "use" for *para*, "inclination" and "proportion" for *por*; neither were all these meanings covered by the texts we examined. We tested learners' ability to use the prepositions accurately with fill-in-the-blank and multiple-choice tests before and after receiving instruction.

The research questions that motivated the present study were:

1. Is distributing the presentation of *por* and *para* across the semester in small, semantically related units more effective than the typical one-off, laundry list presentation?
2. Are intermediate-level students able to gain in accuracy with a wider range of meanings identified through a CL-inspired analysis that more closely matches the subtle, multiple uses by native speakers of Spanish?
3. Does adding an explicit explanation of CL concepts, including explicit presentation of the polysemy network, to teaching *por* and *para* provide added benefit?

2 Methods

2.1 Participants

Our learners were enrolled in third semester (intermediate) Spanish courses at a large, public US university in the Mid-Atlantic. One of the researchers was the instructor. She taught two sections of this course. One student chose not to participate, five students dropped the course, and one student's data were eliminated from the analysis because she was a native speaker of Portuguese, which uses *por* and *para* like Spanish. The resulting group included 21 learners who received explicit explanations (+EE) of key CL concepts, and 15 learners who received no explicit explanations (-EE). In pre-study questionnaires, all but two learners reported having received prior instruction on *por* and *para*, usually one lesson per course, but not understanding them well (average of 5.38 on a 1–10 scale of comprehensibility). While learners thought that being accurate in using *por* and *para* was important (average 8.58 on a scale of 1–10), they rated their own accuracy quite low (average 3.83 on a scale of 1–10). When

asked to list the uses for each preposition, only a few learners could name more than two (average of 1.5 uses per preposition), and the vast majority (29) believed that there was no connection between these uses.

One class (+EE) received explicit CL-based explanations of the prepositions' uses while the other class (−EE) was presented with the same clusters of meanings, supported by the same visuals, but with no explicit explanations involving the notions that the spatial meaning was the central one or that each of the clusters of meanings were systematically related to the spatial meaning or any other meanings.

2.2 Instructional materials and procedures

In accord with a usage-based approach and following the suggestion of other researchers (Lam 2009; Lindstromberg 1996; Pinto and Rex 2006), we broke the traditional, single, intensive lesson into smaller learning units. Determination of how the small, semantically related units were configured was based on the CL assumption that the many meanings associated with *por* and *para* are systematically related. In our gradual, scaffolded approach, learners started with *por* and first learned the primary sense. The other senses were then introduced at multiple points throughout the semester and connected to the course's grammatical syllabus. In total, the instruction presented 11 senses of *por* and 8 senses of *para*, broken up into 11 total lesson units delivered over 14 weeks, as outlined in Tables 1 and 2. These lessons also included 7 idioms that use either *por* or *para* because the idioms appeared frequently in the course's textbook.

The instruction presented all the senses of one preposition before the other preposition so as to avoid a contrastive emphasis or presenting the prepositions in an oppositional paradigm; as mentioned above, psycholinguistic research (e.g. Brown 2014) has indicated that doing so can confuse learners and encourage them to establish the wrong associations. Furthermore, the contrastive approach tends to erroneously assume all learners' errors are *for*-based substitution errors, whereas our approach (in lesson units 1 and 10) specifically instructed learners on how to avoid another common error, which is overextending the prepositions to utterances where no preposition is needed (Lafford and Ryan 1995). The instruction first presented all the senses of *por*, because learners typically exhibit the lowest accuracy with *por*, with the exception of a few set phrases like *por ejemplo* 'for example' (Guntermann 1992), and they typically overuse *para* as a default preposition. Thus a main goal of the instruction was for learners to learn to use *por* accurately and in a wider variety of target-like senses. An unavoidable consequence of this pedagogical choice was that learners were not instructed on *para* until the last month of the term.

Table 1: Instructional sequence for *por*

Unit	+EE Instruction	-EE Instruction	Example Items (+EE and -EE)	Thematic Syllabus (Grammatical Syllabus)
1	No preposition used with <i>buscar</i> ('to look for'), <i>esperar</i> ('to hope for'), <i>pedir</i> ('to ask for')			Chapter 1: Personal Relationships (Present tense, <i>ser</i> and <i>estar</i> ('to be'), present progressive, object pronouns)
2	Path through a container Alongside Time elapsed	'Through' 'Alongside' 'For' with time elapsed	La futbolista corre por el campo hasta la portería. ('The soccer player runs through the field toward the goal.')	
			Las personas caminan por la playa. ('The people walk along the beach.')	
			Estudiamos por dos horas. ('We studied for 2 hours.')	
3	Containment (spatial) Temporal containment <i>por ahora</i> (idiom, 'for now') <i>por lo general</i> (idiom, 'in general')	'Around' 'During'	Vagaron por la casa y encontraron a sus amigos en la cocina. ('They wandered around the house and found their friends in the kitchen.')	Chapter 2: Diversions (<i>Gustar</i> ('to like') and indirect verbs, reflexive verbs)
			El gato duerme por el día. ('The cat sleeps during the day.')	
			Tenemos bastante comida por ahora. ('We have enough food for now.')	
			Por lo general, la familia come a las ocho. ('In general, the family eats at eight.')	
	Inclination	'In, for, to' with inclination	Siempre voto por el mejor candidato. ('I always vote for the best candidate.')	
	<i>por supuesto</i> (idiom, 'of course')		¡Por supuesto puedes venir a la fiesta! ('Of course you can come to the party!')	
4	Proportion Multiplication and division Units of measure Exchange	Math	El 30 por ciento de los estudiantes habla inglés. ('30 percent of the students speak English.')	
			Cinco por dos son diez. ('Five by two is ten.')	
			¡El límite de velocidad es 80 millas por hora! ('The speed limit is 80 miles per hour!')	
			La tomé por Carolina. ('I mistook her for Carolina.')	

Table 1: Continued

Unit	+EE Instruction	-EE Instruction	Example Items (+EE and -EE)	Thematic Syllabus (Grammatical Syllabus)
5	Means <i>por casualidad</i> (idiom, 'by chance')	'By' 'Because of' with motivation	Las personas van a Madrid por tren. ('The people go to Madrid by train.) ¡Por casualidad encontré el vestido perfecto! ('By chance I found the perfect dress!')	Chapter 3: Daily Life (Preterite past tense, imperfect past tense)
	Motivation <i>por eso</i> (idiom, 'because of this')	'Because of' 'Because'	El hombre lucha por la justicia. ('The man fights for (because of) justice.') Tenía mucho que hacer. Por eso, me levanté temprano. ('I had a lot to do. Because of this, I got up early.')	
	Cause	'Because'	Pablo estaba cansado por su tarea. ('Pablo was tired because of his homework.')	
	Passive	'By' with passive	<i>War and Peace</i> fue escrito en 1869 (por Leo Tolstoy). (' <i>War and Peace</i> was written in 1869 (by Leo Tolstoy).')	
6	Review of <i>por</i> network	Review of list of <i>por</i> uses		

Table 2: Instructional sequence for *para*

Unit	+EE Instruction	-EE Instruction	Example Items (+EE and -EE)	Thematic Syllabus (Grammatical Syllabus)
7	<p>Destination</p> <p><i>para colmo</i> (idiom, 'to top it all off')</p> <p>Deadline</p> <p><i>para entonces</i> (idiom, 'by then')</p> <p>Recipient</p> <p>Review of exchange (<i>por</i>) and recipient (<i>para</i>)</p> <p>Work</p>	<p>'Towards'</p> <p>'Due'</p> <p>'Giving'</p> <p>Review of 'for' as exchange (<i>por</i>) and giving (<i>para</i>)</p> <p>'For' with work</p>	<p>El profesor salió para la universidad. ('The professor left for the university.')</p> <p>Me caí y me perdí y para colmo empezó a llover. ('I fell and got lost, and to top it all off it started to rain.')</p> <p>La tarea de matemáticas es para el viernes. ('The math homework is due Friday.')</p> <p>¡Mañana es el examen! Tengo que estar listo para entonces. ('The test is tomorrow! I have to be ready by then.')</p> <p>Julio hizo el pastel para Juanito. ('Julio made the cake for Juanito.')</p> <p>Julio hizo el pastel por/para Juanita. ('Julio made the cake for Juanita.')</p> <p>Trabajo para una compañía muy grande. ('I work for a very large company.')</p>	<p>Chapter 4: Health and Wellbeing (Subjunctive in nominal clauses, commands)</p>
8	<p>Comparison</p> <p>Judgment</p>	<p>'For' with comparison</p> <p>'For' with opinion</p>	<p>Javier es muy alto para un niño de 10 años. ('Javier is very tall for a 10-year-old boy.')</p> <p>Estudiar mucho es importante para los estudiantes. ('Studying a lot is important for students.')</p>	<p>Chapter 5: Travel (Comparisons, superlatives, subjunctive in adjectival clauses)</p>
9	<p>Desired outcome</p> <p>Review of motivation (<i>por</i>) and desired outcome (<i>para</i>)</p> <p>Use</p>	<p>'In order to' with goal</p> <p>Review of 'because of' with motivation (<i>por</i>) and 'in order to' with goal (<i>para</i>)</p> <p>'For' with use</p>	<p>Consuelo camina rápidamente para no llegar tarde a la clase. ('Consuelo is walking fast so as not to arrive late to class.')</p> <p>Él salió por tabaco / para comprar tabaco. ('He left for / to buy tobacco.')</p> <p>Usó tijeras para cortar el papel. ('I use scissors to cut / for cutting paper.')</p>	
10	No preposition with impersonal expressions		Es importante que hagas ejercicio. ('It's important for you to exercise.')	
11	Review of <i>para</i> network	Review of list of <i>para</i> uses		

Table 3: Differences between +EE and –EE instruction

+EE	–EE
A spatial relation was specifically identified as the central sense for each preposition: path through a container (<i>por</i>) and an object aimed at another object (<i>para</i>).	This sense was simply termed ‘the first use.’ Rather than emphasizing the spatial components, the instruction simply provided English translations of the sample sentences and so relied more heavily on English prepositional equivalents (e.g. “this sense of <i>por</i> means ‘through’”).
Each new sense was presented as systematically related to the polysemy network.	The instruction did not formally present a polysemy network.
Each distinct sense was presented as a unique spatial scene, depicted in an accessible diagram.	The instruction did not include these diagrams.
The instruction included explanations of concepts such as metaphor and terms of spatial relations such as the use of “path” and “container” in the definition of <i>por</i> .	The senses were not defined in these more elaborate spatial terms.

Both the +EE and -EE lessons were delivered as 11 units lasting 10–15 minutes each. The total instructional time was thus roughly equivalent to two class sessions, which is similar to the instructional time traditionally allotted. The instructor delivered the lessons in English, supported with numerous examples and visual aids. The lessons prepared for the +EE instruction and –EE instruction groups were identical in terms of instructional time, sequencing, examples, number of photos/illustrative visuals, and amount of practice. There were four differences in the instruction, which are summarized in Table 3.

The prepositions’ polysemy networks used for +EE instruction and which served as the underlying guide for –EE instruction are provided in Appendices 1 and 2. During the presentations learners filled out worksheets with their own example sentence in Spanish for each new sense of the preposition. The instructor checked these sentences for accuracy and reviewed errors during the following class period.

Although our intent was to provide +EE instruction to just one group of learners, we purposefully balanced the instructional conditions in other ways (i.e. order of presentation, time on task, example items, visual support) that may have resulted in learners in the –EE group being able to construct CL-informed knowledge of the prepositions on their own. First, though CL-based concepts were not explicitly articulated in the –EE instruction, many of the slides in the –EE presentations discussed the meanings of *por* and *para* using

spatially motivated explanations. For instance, “towards a place, time or goal” was given as the first meaning for *para* in the –EE explanation. This meaning was illustrated by sentences such as:

- (2) *El profesor salió para la universidad.*
 ‘The professor left for (headed towards) the university’.

El profesor was identified as the person heading in the direction of a place; *para* was identified as “towards” and *la universidad* was identified as where the professor was heading. Thus, the narrative accompanying the slide laid out a scenario of movement along a path in the direction of a destination or goal, even though the terms ‘path’ and ‘goal’ were not explicitly mentioned.

A spatial understanding was also evident in the explanation for *para* as it occurs in the so-called “give” use:

- (3) *Este regalo es para ti.*
 ‘This gift is for you’.

In the narrative explaining this use, *este regalo* was identified as “the gift being given”; *para* was identified as “telling us where the gift is going” (Notice the choice of the verb “going” in the explanation emphasizes movement of the object, as does the use of *where* which identifies location as part of the scene), and *ti* was identified as “the person who is getting the gift” (the final destination for the moving gift). The illustrative visual depicted the meaning in such a way that the spatial underpinnings of both *para* and the “give” construction were present.

Second, some of the –EE slides also incorporated non-literal or metaphoric language into the explanation. The examples in (4) show the +EE narrative and the –EE narrative for the first sense for *para*:

- (4) a. +EE: The primary meaning of *para* is “an object aimed towards another object” or the “destination” sense. That is, the focus of the sentence is on the destination. This destination can be **literal** (i.e. “school” or “Spain”) or **it can be metaphorical** (i.e. “a time of day or a goal to be accomplished”).
- b. –EE: The first use of *para* is ‘towards.’ You could be heading towards a place, a time, or even a goal.

Although the term “metaphorical” was not mentioned in the –EE narrative, by referencing “towards a time or a goal”, a metaphorical definition of *para* was

introduced. Moreover, the presentation closely tied the spatial meaning to the metaphorical meanings. In three of the illustrative –EE narratives, the word “destination” was used.

Finally, we noted above that one final way in which the +EE and –EE presentations differed was that in the +EE presentation, the different uses were explicitly represented as part of a network of senses, while the –EE senses were labeled as being part of a list. However, since the senses were presented in exactly the same order, the –EE group was exposed to a small cluster of related meanings in each presentation. Additionally, in the –EE presentations there was a strong tendency for a new meaning to refer back to previous meanings. For instance, the first use of *por* presented in the treatment was “through”, which was exemplified by sentences such as *La futbolista corre por el campo hasta la portería* ‘The soccer player runs through the field toward the goal’, in which some sort of container (here the soccer field) was referenced. The second sense for *por* was presented in the –EE treatment as ‘around’, as in (5). The bolded language in (5) indicates references to the spatial relationship of containment, thus relating the “around” sense back to the “through” sense. The third sense of *por* was “alongside”. The visual was a photo of people walking along a beach. The narrative, provided in (6), explicitly relates ‘alongside’ to ‘through’. Thus, there were several elements of the –EE treatment which indicated that the senses were related in some sort of organized way.

- (5) *Vagaron por la casa y encontraron a sus amigos en la cocina.*
 ‘They wandered around the house and found their friends in the kitchen’
 In this case, *por* means ‘around,’ **as the action is happening within a certain area.** In this use, the action occurs **around a certain area.** In (5), that area was a house. Where that action takes place might be more general, as **in a country or a neighborhood”.**
- (6) “The ‘alongside’ sense of *por* is similar to ‘through’. However, this time the movement is along the side of something, as in this beach”.

2.3 Testing materials and procedures

Two assessment measures were used for pretests and posttests: a fill-in-the-blank test and a multiple-choice test. There were practical reasons to employ both tests. Fill-in-the-blank tests are commonly used for assessment of *por* and *para* and so allow for some comparison between our findings and those of other language programs and researchers (e.g. Pinto and Rex 2006). However, Lam

(2009), the only previous study testing a CL approach to teaching *por* and *para*, employed a multiple-choice test. In order to make our results comparable to the broad range of previous studies, we decided to use the two types of tests. More importantly, however, the tests' qualitative differences were of interest here. The fill-in-the blank test presented learners with a subject, verb, and the object of the preposition, leaving a blank for just the preposition (Table 4). The fill-in-the blank test items in effect set up a complete spatial scene for learners, similar to what they experienced in the instruction. The fill-in-the blank test also mimicked the processing learners typically experience as they produce the target language (i.e. while speaking or writing) when they are planning an utterance and must choose between *por* or *para* (or some other word) to complete the utterance. In contrast, the multiple-choice test presented the subject, verb, and preposition, leaving four choices for how to finish the sentence with a logical object of the preposition (Table 4). The multiple-choice test items in effect required learners to mentally construct four different scenes and choose which was most appropriate or logical, arguably a more cognitively challenging task. The multiple-choice test also mimicked the processing learners experience as they interpret incoming information in the target language (i.e. while listening or reading), constructing possible spatial scenes as they hear or read a preposition and anticipate what comes next. Both types of knowledge are involved in real-world communicative tasks.

Each test included one item for each of the senses taught (11 senses and 4 idioms for *por*, 8 senses and 2 idioms for *para* – see Table 1), for a total of 25 items. The fill-in-the blank test had four options to fill in the blank: *por*, *para*, another word, or leave blank. The multiple-choice test presented learners with sentences that included either *por* or *para* and four options to complete the sentence. All the options were semantically related to the prompt, but only one would constitute native-like usage. Test items were designed to mirror the expressions that learners had been exposed to during instruction in terms of their verb and prepositional phrases, since in our usage-based approach we were interested in whether or not students learned the expressions to which they were exposed. However, the test item sentences' subjects were not identical to those used in the instruction. The subjects were varied in an effort to ensure that students could not identify the correct response merely from recognizing a familiar sentence subject. As an example, Table 4 provides the sentences used in instruction and both tests for the primary sense of *por*. Three versions of the test items were created and their order was scrambled among learners' tests so that no learner saw the same item more than once (to avoid practice effects) and so that the item versions were spread out among the testing times (to avoid results being skewed by differences in test items' relative difficulty).

Table 4: Items in instruction and tests. Example: Path through a container (primary sense of *por*)**Instruction Items**

1. La futbolista corre por el campo hasta la portería. ('The soccer player runs through the field toward the goal.')
2. En caso de incendio debes salir por la ventana. ('In case of fire, you should exit through the window.')
3. El gato mira por la ventana. ('The cat looks through the window.')
4. Caminar por el parque ('walk through the park')
5. Pasar por la aduana ('pass through customs')
6. Pasear por el centro comercial ('stroll through the mall')
7. Volar por el aire ('fly through the air')

Multiple-choice Test Items (* indicates the correct choice)

1. Los estudiantes corrieron por ____ durante el recreo. ('The students ran through ____ during recess.')

a. las piernas ('their legs')	c. la profesora ('the teacher')
b. el fútbol ('the soccer ball')	* d. el campo ('the field')

2. Los niños caminaron por ____ porque querían ver las flores. ('The kids walked through ____ because they wanted to see flowers.')

a. el árbol ('the tree')	* c. el parque ('the park')
b. sus amigos ('their friends')	d. sus zapatos ('their shoes')

3. La familia caminó por ____ a sus asientos en el concierto. ('The family walked through ____ to their seats at the concert.')

a. el boleto ('the ticket')	c. el calor ('the heat')
* b. el pasillo ('the aisle')	d. la pelota ('the ball')

4. El pájaro entró en la casa por _____. ('The bird entered the house through _____.')

* a. la ventana ('the window')	c. el suelo ('the floor')
b. el agua ('the water')	d. el pan ('the bread')

Fill-in-the-blank Test Items

1. Los niños corrieron ____ el parque hasta la piscina. ('The kids ran ____ the park to the pool.')
 2. El ratón salió ____ la ventana abierta. ('The mouse left ____ the open window.')
 3. Ella camina ____ el túnel hacia el campus. ('She walks ____ the tunnel towards campus.')
 4. La pareja camina ____ el parque al lago. ('The couple walks ____ the park to the lake.')
- * a. por b. para c. another word d. leave blank

3 Results

Learners' scores on the fill-in-the-blank tests and multiple-choice tests were analyzed with repeated measures analyses of variance (RMANOVA). The within-group factor was Time of test (pretest and posttest) and the between-groups

Table 5: *Por* usage and accuracy (Aggregate of +EE and -EE)

Senses of <i>por</i>	Accuracy on tests (%) ($n = 37$)			
	Fill-in-the-blank		Multiple-choice	
	pre	post	pre	post
Aggregate of all senses	50	74*** ($\eta_p^2 = .63$)	53	70*** ($\eta_p^2 = .45$)
Path through a container	33	86***	75	75
Alongside	50	89**	64	83*
Time elapsed	61	89**	58	75
Containment (Spatial & Temporal)	44	69*	39	56
Inclination	41	75**	67	78
Proportion	56	92**	33	81***
Exchange	53	50	64	69
Means	58	81	64	86*
Motivation	39	47	72	75
Cause	36	53	67	75
Passive	50	53	58	58

Significant gain at * $p < .05$, ** $p < .01$, *** $p < .001$

factor was Instructional condition (+EE instruction and -EE instruction). This analysis was done for the overall test scores per preposition as well as each unique sense of the prepositions. There was no interaction effect of Instructional condition, suggesting that incorporating an explicit CL explanation into the instruction did not provide added benefit. This conclusion must be interpreted with caution, however, because observed power levels were low (5–30%) for the Time \times Instructional condition interaction effect. Thus, it is possible that a relationship existed but could not be found in these data, perhaps due to low number of participants. Though learners in the +EE group believed that their accuracy had improved slightly more (average perceived gain score of 3, on a scale of 1–10) than the -EE group (2.4), as reported on the post-instructional questionnaires, their actual performance on the posttests was not significantly better. Since there was not a statistically significant difference between the +EE and -EE groups' scores, those scores are presented in aggregate form here. Tables 5 and 6 present the scores for various senses, in the order that they were presented to learners.

As noted in Tables 5 and 6, learners' aggregate gain scores (all senses) were statistically significant on all four tests. There was a significant main effect of Time for *por* fill-in-the-blank ($F(1,35) = 59.62$, $p < .001$, $\eta_p^2 = .63$), *por* multiple-choice ($F(1,35) = 28.59$, $p < .001$, $\eta_p^2 = .45$), *para* fill-in-the-blank ($F(1,35) = 6.62$,

Table 6: *Para* usage and accuracy (Aggregate of +EE and -EE)

Senses of <i>para</i>	Accuracy on tests (%) ($n = 37$)			
	Fill-in-the-blank		Multiple-choice	
	pre	post	pre	post
Aggregate of all senses	56	65* ($\eta_p^2 = .16$)	51	67*** ($\eta_p^2 = .36$)
Destination	53	59	81	72
Deadline	63	76	22	81***
Recipient	53	70	67	67
Work	39	64*	58	67
Comparison	47	72*	41	78**
Judgment	69	81	56	61
Desired outcome	67	61	89	97
Use	67	81	72	86

Significant gain at * $p < .05$, ** $p < .01$, *** $p < .001$

$p < .05$, $\eta_p^2 = .16$), and *para* multiple-choice ($F(1,35) = 19.41$, $p < .001$, $\eta_p^2 = .36$) tests. The observed power levels for the main effect of time were in the 90–100% range. We interpreted the significant main effect of time as a reflection of learners having received instruction between pretest and posttest. Thus the results indicated that our approach – presenting *por* and *para* gradually in semantically related clusters, informed by an underlying CL analysis, and with many visual aids and opportunities for spontaneous production practice – was effective in terms of learners increasing their accuracy on tests. Our learners agreed that our novel approach was effective. A questionnaire was distributed via e-mail after the semester ended, and although only a third of the learners returned it ($n = 10$), their responses were consistent and encouraging. These learners' self-reported estimated accuracy increased (on average from 4.60 pre-instruction to 7.30 post-instruction, on a scale of 1–10), and they reported comprehending our *por* and *para* lessons better (on average 8.50, on a scale of 1–10) than more traditional lessons they had in the past (average 5.78).

The partial eta square statistic indicated that 16–63% of the variation in learners' scores could be attributed to time of test. That wide range of effect sizes suggested that learners did not fare equally well on all tests. Learners generally improved more on *por* than on *para*, which was likely due to having presented *por* first, thus providing the learners a longer period of time in which the meanings could become entrenched. Moreover, since each new lesson included some recycling of prior lessons, learners had much more exposure to and practice with *por* than with *para* over the course of the semester. Again, this finding is

consistent with a usage-based approach, which emphasizes the importance of frequency of the input. Learners' gain scores were greater on the fill-in-the-blank test compared to the multiple-choice test for *por*, which was likely due to the fill-in-the-blank test being more similar to the instructional intervention than the multiple-choice test. We also hypothesize that the fill-in-the-blank test was somewhat less cognitively challenging. For most individual senses of *para* learners also made greater gains on the fill-in-the-blank test than the multiple-choice test. Even though their *para* aggregate gain scores were higher for the multiple-choice test, this appeared to be an artifact of one very exceptional score ("deadline"), and with this outlier removed from the analysis, the effect size on the *para* multiple-choice test was much more similar ($\eta_p^2 = .20$) to the fill-in-the-blank test.

As far as the individual senses of the prepositions, learners made gains on almost every sense on all the tests, suggesting that their large aggregate gains could not be attributed to gains in just a few senses. There were aggregate gains on all senses of *por* except the "exchange" sense on the fill-in-the-blank test and the Passive sense on the multiple-choice test. There were aggregate gains on all senses of *para* except the "desired outcome" sense on the fill-in-the-blank test and the "destination" and "recipient" senses on the multiple-choice test. Even with the small number of items (one per sense per test) and participants, about half of the senses' gain scores reached statistical significance, and most of these were the first senses taught, thus the senses which learners got the most exposure to and practice with. Learners also demonstrated improvement on the seven idioms included in the instruction, with their scores increasing from pretest to posttest for all idioms and both test types (range of 6–25% increase in accuracy), and again with more improvement on *por* than *para*.

For the five senses for which learners' test scores did not improve over time on both tests, even though learners had demonstrated improvement during in-class work, an item analysis revealed that the results were likely related to problematic test items. Recall that there was just one item relating to each sense on each test, but four versions for each item were created and were counter-balanced across learners and test times. Once scores were grouped by item version, it became clear that a few item versions challenged learners more than others and lead to the inconsistent results. For instance, one item for the "desired outcome" sense of *para* was *Eduardo guardó la mitad de su almuerzo _____ comerlo más tarde* 'Eduardo saved half of his lunch _____ to eat it later'. This item was the only one to involve an object pronoun attached to an infinitive, which may have inadvertently increased the difficulty of the item. Once a few such problematic item versions were removed from the analysis, the posttest scores

were greater than pretest scores on every single sense and every single test. Thus, the results indicated that our approach was effective in terms of learners increasing their knowledge of a wider range of the prepositions' senses.

4 Discussion

Although Spanish FL learners in the US typically receive a traditional grammar lesson contrasting *por* and *para* several times during their high school and university language studies, their use of the prepositions usually remains highly inaccurate (Pinto and Rex 2006), which calls into question the effectiveness of the status quo for teaching *por* and *para*. Our study empirically tested an approach that was usage-based in nature and novel on two accounts: it presented *por* and *para* incrementally across a semester and presented the senses in semantically related, CL-inspired mini units. We found strong evidence in support of the gradual, scaffolded approach in learners' gain scores on accuracy on fill-in-the-blank and multiple-choice tests, which increased substantially both for several individual senses of the prepositions as well as the aggregate scores, with large effect sizes. The progress our learners made in one semester stands in dramatic contrast to the gains typically made by similar learners in instructed university-level Spanish FL programs, who have been shown to improve only 8% over the course of a four-year university program (Pinto and Rex 2006).

We suggest these results indicate that a cognitive linguistic analysis of the multiple meanings of prepositions, with its emphasis on systematically related senses and principled semantic extension (via metaphor and embodied experience, etc.) provides teachers with the tools to offer more precise representations of the many meanings associated with the prepositions, clarify the relationships among the different meanings, and explain patterns of meaning extension. This allows teachers to offer more coherent, meaningful, scaffolded instruction as opposed to telling the learners to simply memorize an arbitrary list of meanings. Learners stated on the post-instructional questionnaire that our lessons were "way more organized and understandable (than types of lessons I've received in the past). They were helpful and easy to remember" and reported appreciating the visual support, depth, and connections made between senses in our lessons, e.g. "We created a map of the different types of uses and in the past we were just given a couple of differences". Of course it is difficult to directly compare across studies because different researchers have organized the senses into different functional/meaning categories and used different assessment

methods, but it appears to be the case that our presentation of *por* and *para* helped learners acquire substantially more new meanings for each of the prepositions than reported in previous literature. For instance, learners in an instructed, university-level context similar to ours have been reported as relying 94% of the time on just two distinct senses of *por* (Pinto and Rex 2006).

In addition to exploring a usage-based, CL-inspired approach, one group received an explicit Cognitive Linguistics (+EE) explanation while the other group (–EE) did not receive this explicit explanation. The instructional condition +/- explicit CL explanation did not make a statistically significant difference in learners' performance on tests. We were somewhat surprised by this as we thought that the CL-inspired diagrams and the explicit representation of the relationships among the senses illustrated in the diagrams for the semantic network would provide important learning supports.

After some reflection, we have come to the conclusion that the results are not all that surprising. First, our +EE and –EE presentations taught the *por* and *para* networks in exactly the same order. The sequence of presentation might have had the effect of making the –EE group aware of semantic connections between senses even though they were not explicitly taught about the connections. In fact, it is consistent with a usage-based approach to language learning that learners would be able to make these connections themselves. Moreover, as we saw earlier, careful examination of the –EE materials showed that the narratives often related a new sense back to other senses, thus providing scaffolding for both groups and potentially equalizing the +EE and –EE conditions that we initially believed to be rather different. This conclusion is supported by comments made by the learners, some of whom stated that they did not experience the –EE condition as unsystematic or like the traditional (list) approach. For example, on the post-instructional questionnaire we received comments such as, "I have never had such a methodical approach to teaching *por* and *para*", "the charts were a great touch", and "same grammar concepts but you taught them differently than past teachers". Of course, the real test is whether both groups continue to retain their increased accuracy. If these gains hold over time, the findings suggest that effective classroom materials and pedagogy, which does not require as much explanation, can be developed. This will undoubtedly be good news for many teachers.

4.1 Conclusion and future directions

There are several important limitations for this study. It lacked two important control treatments – a traditional list presentation concentrated in one intensive lesson and a traditional list presentation but presented incrementally across a

full semester. Since the gradual treatment and organization of the CL-inspired semantic mini-clusters were conflated, we cannot say with confidence if one of these adjustments to the traditional approach would be sufficient to result in the large gains we saw with both our groups. Adding the two additional treatments would give us a much fuller picture.

Another limitation is the lack of a delayed posttest. Time constraints of the semester system kept us from being able to gather these data. We plan to expand the current study by collecting these additional data. We hypothesize that learners receiving CL-inspired instruction would show sustained improvement, as we are convinced that research in psychology supports the argument that systematically organized information is easier to access than arbitrarily related information. We are also convinced that the principles of semantic extension utilized in Curry's (2010) analysis, and which were central to our materials development, provide learners with valuable tools for further independent analysis as they encounter instances of *por* and *para*. Following the usage-based tenets of gradual, exemplar-based learning, we expect that additional encounters with the various uses of *por* and *para* would result in entrenchment of the polysemy networks and, thus, more efficient processing.

Por and *para* are not the only items in the Spanish FL syllabus which are likely to benefit from being presented using a usage-based, CL framework. We hypothesize that all Spanish prepositions are equally analyzable using a CL, polysemy approach. A growing body of research has demonstrated that prepositions and other spatial language across a wide range of languages can be effectively analyzed using the same CL principles that guided Curry's (2010) study: Russian (Shakhova and Tyler 2008), Vietnamese (Ho 2011), Chinese (Huang 2013), Korean (Kang 2012), Farsi (Mahpeykar and Tyler 2011), and Arabic (Jan 2014), among several others. Indeed, most lexical items, particularly nouns and verbs, are also polysemous; both Spanish FL teachers and students are likely to benefit from having access to informed polysemy analyses of high frequency, polysemous items.

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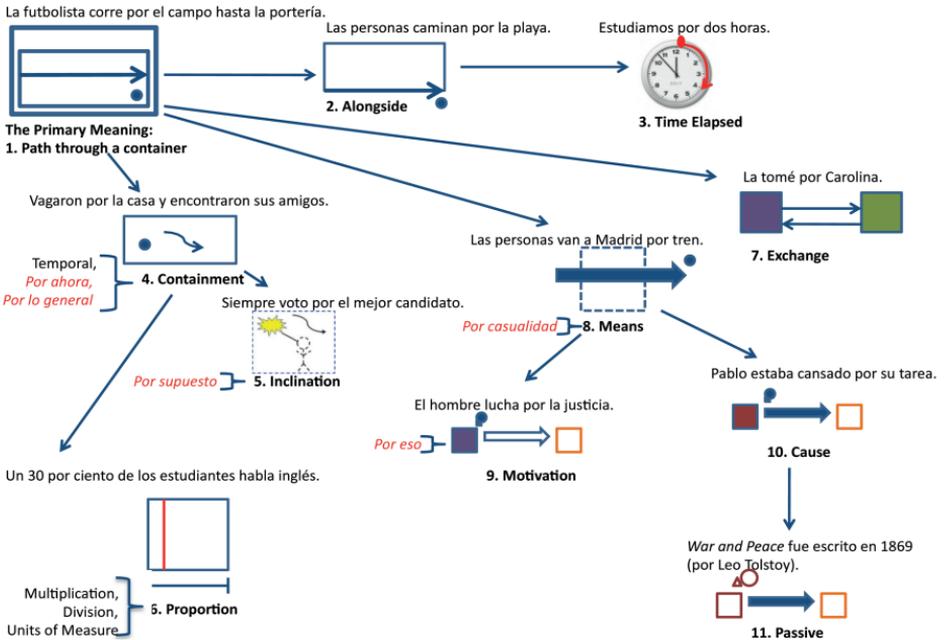
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Appendix 1

Polysemy network of *por* (+EE group)



Appendix 2

Polysemy network of *para* (+EE group)

