Sepideh Arab:
An image schematic account of the polysemy of the verb 'see'
Argumentum 19 (2023), 1–31
Debreceni Egyetemi Kiadó
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An image schematic account of the polysemy of the verb *see*[*]

A Pilot Study

Abstract

This paper is a report of an examination on the role that recurring bodily experience, or image schemas, play in understanding various meanings of the polysemous word *see*, taken from the novel *Blindness* by Jose Saramago. According to cognitive semantics, various patterns of recurring bodily experience, called image schemas, emerge in our perceptual understanding of actions and events in the real world. Therefore, the central assumption of the study is that each meaning of *see* is motivated by a complex pattern of different image schemas. Two experiments have been designed to study whether the different meanings of *see* can be motivated by image schemas. Experiment 1 applied a similarity test to look at people's judgments of similarity for different meanings of *see* to reveal the tendencies by running an inter-rater agreement test and reporting the related observations. Experiment 2 first examined people's intuitions about the relative importance of five image schemas for different meanings of *see*; I then tried to predict the pattern of data from Experiment 1 by using the image schema profiles obtained for the different meanings of *see* in Experiment 2. I expected meaningful connections between image schemas and the various meanings of the polysemous word *see*. The data from the two experiments generally suggest significant connections between the introduced image schemas and the various meanings of the polysemous word *see*. Based on the findings, it can be argued that besides some conceptual operations such as metaphorization, metonymization, generalization, specification, image schematic motivation is another crucial factor of meaning extension (and hence the emergence of polysemy) deserving more scholarly attention.
Keywords: image schema, polysemy, meaning network

1 Introduction

In every language, words have multiple meanings and contexts of use. For example, we can speak of a sharp knife and a sharp taste, sound, or movement; each evokes a different but related sense of sharpness (San Roque et al. 2018: 371). Polysemy is a feature of all languages' linguistic systems in which a word might have several related representations, psychologically real (e.g., Pylkkänen et al. 2006: 98) and integral to language change. In cognitive semantics, polysemy has been one of the central research agendas. The primary view of cognitive seman-

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tics is that various meanings of a given polysemous word are neither arbitrary nor idiosyncratic but systematic and semantically motivated (Morimoto & Loewen 2007: 349).

Multiple lines of research have sought to investigate the intra-lexical structure of polysemous words such as *over*, *in*, *on*, and *through* with the descriptive concept of image schemas (Morimoto & Loewen 2007: 349). Image schemas are schematic structures developed through perceptual interactions and bodily movements of our physical environment, which can make it possible for us to experience, understand, and reason about our world (Johnson 1987: 19). Using image schemas, researchers in cognitive semantics have sought to visualize the meaning[1] network of various polysemous words (Lakoff 1987). The primary assumption of the study is that image schemas have a role in organizing a polysemous semantic structure and understanding a particular usage of the verb *see*. What is new here is that the chosen verb is not a motion or transitive, object-manipulation verb but a perceptual verb that implies a more passive perceiver. Nevertheless, image schemas may be essential in developing a polysemous network. In this case, the study can empirically support the idea of an experiential view of conceptualization and meaning. In this sense, I have designed two experiments to explore whether or not the different meanings of the perception verb *see* are motivated by image schemas. In this study, the polysemous structure and the meaning categories of the verb *see* are modeled based on experimental data. I took many occurrences of the verb *see* from the novel and an existing list of categories. The whole analysis is based on the preliminary step of sorting the sentences into groups along with the categories. Thus, our analysis of the polysemous structure is based on the test results. The first experiment helps prepare the research material for a novel and central analysis, so it is indirectly related to the research question without aiming to answer the study's main question. The two experiments are similarity and ranking tests; as mentioned, the study's central question is whether image schemas have any role in distinguishing different meanings of the word *see*. So basically, if our similarity test results in the categorization of concrete sentences into meaning groups, we can analyze what is common in these sentences regarding image schemas or whether there is any commonality between them. The ranking test examines the relationship between the selected image schemas for the physical experience of seeing and various meanings of the word *see*. Based on the study's findings, the data from the two experiments generally suggest meaningful connections between the introduced image schemas and the different meanings of the polysemous word *see*. In this sense, I can claim that besides some conceptual operations such as metaphorization, metonymization, generalization, specification, image schematic motivation is another crucial factor of meaning extension.

[1] Meaning generation is considered as a general term for producing and understanding linguistic structures. It is mental (in that it unfolds in the mind), but it is intersubjective (in that it presupposes that the other language users have similar minds with similar conceptualizations). Another, more precise term for it is construal (defined by Langacker, 1987). Meaning generation is the dynamic process of construing an intersubjective meaning in context.

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2 Theoretical Background

2.1 Polysemy

One of the most difficult challenges for cognitive semantic theories is explaining people's understanding of polysemous words (Gibbs, et al. 1994: 231). Polysemy, i.e., "the association of two or more related senses with a single linguistic form," is ubiquitous in natural language and therefore deserves linguists' attention (Taylor 2003: 103). Examples of polysemy have been cited as evidence for both culture-specific and universal conceptual structures. Within the cross-linguistic study of polysemy, the language of perception has received particular attention, as it represents the intersection of our common physiological basis for experience on the one hand and the bountiful variety of human linguistic and cultural systems on the other (San Roque, et al. 2018: 372).

Consider the word *see* in everyday conversations. This simple word can have different senses and meanings, common in everyday speech and writing. For instance, let us take a look at the following examples from the book *Blindness* by Jose Saramago (1997):

(1) Then he wanted with all his strength to *see* his wife kneeling at his feet.

(2) These things happen, it will pass you'll *see*.

In (1), we grasp the meaning of 'perceiving visually', and in (2), we get another meaning of *see,* which is 'finding out'.

Different senses or meanings attached to different lexical items are a central concern of lexical semantics. Alm-Arvius (1993) tackles this problem by investigating the synchronic uses of the English verb *see*. The two main aims of her study were to determine what meanings of *see* can be taken to be conventionalized and how these are related to each other. Given the complexity of the polysemy of *see,* this undertaking is no easy task. Alm-Arvius based her investigations on examples that she had collected systematically from a corpus of English conversations (1980) (982 tokens) and from newspapers and magazines (930 tokens) in addition to examples collected in a more unsystematic fashion, mainly from novels. She also uses examples from dictionaries and examples she has constructed herself. In other words, she studied the different meanings of the word *see* in various contexts and proposed nine different meanings for *see* (Table 1).

*See*1 'perceive visually'
*See*2 'understand'
*See*3 'consider, regard'
*See*4 'experience'
*See*5 'find out'
*See*6 'visit, consult'
*See*7 'attend to'
*See*8 'escort'
*See*9 'leave, send off'

Table 1. Nine different meanings of "see" according to Alm-Arvius (1993)

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Examinations of actual data lead Alm-Arvius to posit that *see* is a two-place predicate with the relation [perceive visually] in which the subject is an experiencer capable of visual perception, and the object represents something that exists or takes place in the outside world; in other words, *see* involves two arguments in its first meaning, somebody sees, and somebody or something gets seen. Different meanings of *see* seem to diverge from the prototypical meaning but should nevertheless be considered instances of *see*. Instead, as Alm-Arvius asserts, pragmatic expansion, pragmatic diversion, pragmatic restriction, and metaphor are argued to be pragmatic aspects of the interpretation of *see* in specific contexts. In contemporary cognitive linguistics, the process of the emergence of different meanings of a word is covered with a more general term of semantic extension. In other words, cognitive semantics models polysemy with a network structure: one basic meaning is in the center of it, and the metaphorical, metonymical extensions, generalizations, and specifications of it are arranged in a network around the center.

The approach proposed by Alm-Arvius (1993) is a lexicalist one: it considers one meaning of the verb as a stable prototypical meaning, and it explains the phenomenon of meaning extension with the contextual change or shift of this basic meaning. However, a more dynamic picture of polysemy is provided in cognitive linguistics. According to this picture, there is an essential relation between knowledge and usage: the former motivates the latter; however, the latter affects the former (reorganizing it). For instance, Langacker claims a strong and bi-directional relationship between our schematic knowledge of linguistic structures and their instantiations. A schema can become reconfigured if usage motivates it.

Thus, in brief, polysemy can be located both on the level of our lexical semantic representtations and on the level of actual contextual usage. Meaning extension unfolds in context, but if it is a reoccurring pattern, it can be entrenched on the individual level of linguistic knowledge and conventionalized in the group of speakers. Sharifian's (2008) distributed and emergent cultural cognition model will captures this phenomenon even more adequately: image schemas can function on the group level, but polysemy begins on the individual level and does not necessarily spread out.

Moreover, there is no rigid distinction between semantics and pragmatics (Geeraerts & Cuyckens 2010: 236). The central concern of contemporary cognitive linguistics is to account for the multiple meanings belonging to any one lexical item. In her studies, Alm-Arvius (1993) seems to tackle this aspect through an in-depth investigation of the synchronic meanings of the English verb *see*. Her main concern is distinguishing what can be considered regular secondary meanings from those in which the context imbues the prototypical meaning with various pragmatic connotations. Alm-Arvius describes different meanings of *see* in her own manner. She systematically establishes and exemplifies the number of arguments, their relation to the 'traits' of the verb, their syntactic status, and the type of referents they would have. This way, interrelations between word meaning, syntax, and sentence meaning are made clear. Since she has many examples at her disposal, regularities pertaining to all these three aspects can be made explicit and supported (Hopper & Thompson 1980: 294).

Polysemous words, such as *see*, are pervasive in language. Psycholinguistic evidence shows that people often judge different uses of polysemous words as highly related (Gibbs, et al. 1994: 232). In many cases, the various meanings of a polysemous word are so interconnected that people automatically access many of these different meanings even when these meanings are contextually inappropriate (Gibbs, et al. 1994: 232). Nevertheless, what are the principles that relate to the meanings of polysemous words?

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Traditional linguistic and psychological theories assume that each polysemous word has a single, abstract sense and that its extended meanings can be derived through context (Caramazza & Grober 1976; Ruhl 1986). Due to Alm-Arvius referring to pragmatic operations, her approach seems to overlap with this traditional view. One view of polysemy, advocated by many cognitive linguists, is that the meanings of polysemous words can be characterized by metaphor, metonymy, and different kinds of image schemas (Lakoff 1987). Each meaning of a polysemous word is linked via metaphorical and other mappings to the sense adjacent to it. It is possible to construct a structure of meanings as a network called a radial structure, in which the meanings of a word are related in a family resemblance that characterizes the complexity of polysemous words (Lakoff 1987). Therefore, the lexical representation of polysemous words is not a repository of random, idiosyncratic information. Still, it is structured by general cognitive principles that are systematic and recurrent throughout the lexicon (Gibbs, et al. 1994: 232–233). Most important, perhaps, is the claim that these principles are natural because they arise from our phenomenological, embodied experience.

The main aim of the present study is to demonstrate that different image schemas underlie people's understanding of polysemous word meanings and that image schemas motivate essential aspects of how we think, reason, and imagine. Although this study does not refer to polysemous words in general, it focuses on perception verbs, especially the English verb *see*.

2.2 Image Schemas

Much has been written about image schemas in the cognitive semantics literature (e.g., Lakoff 1987). According to Oakley (2007: 215), an image schema is a condensed re-description of perceptual experience for mapping spatial structure onto a conceptual structure. According to Johnson (1987: 29), these patterns "emerge as meaningful structures for us chiefly at the level of our bodily movements through space, our manipulations of objects, and our perceptual interactions." Image schemas behave as "distillers" of spatial and temporal experiences. These distilled experiences, in turn, are what cognitive linguistics regard as the basis for organizing knowledge and reasoning about the world. Oakley (2007) suggests that Image Schema Theory plays a vital role in studying the polysemy of individual words or constructions, related words or constructions, as well as semantic change and grammaticalization. The same image schemas can be instantiated in many different kinds of domains because the internal structure of a single schema can be metaphorically understood, or it can be transformed by focusing on one part of a specific image schema or zooming in or out.

Oakley (2007: 219–221) mentions some studies of polysemy of individual words or constructions: Casad (1998) conducted an extensive study of the verb *give* in a Southern Uto-Aztecan language called Cora. He found four different types of giving with their specific image-schematic characteristics. The four types of giving include personal interest giving, transport giving, enabling giving, and terminative giving, each a variation of a prototype of giving that entails one person who uses his hands physically to transfer a discrete entity into the hands of a second person, and, by doing so, also transfers control over the entity in question to that second person. According to Casad (1998: 138), the Idealized Cognitive Model for personal interest giving matches the prototype and includes three entities, a giver, a thing, and a recipient, with salient attention, focused first on the giver and thing and subsequently on the recipient and thing, and with attention also paid to the motion of the thing from giver to the recipient.

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Pauwels's (1995) study of the verb *put* suggests that the containment schema and its entailments are crucial for understanding this verb's various metaphorical usages: from those profiling an inferred destination, as in *put in a good word for me*, to those profiling a loss of control, as in *put out a statement*. Similarly, in a study on the word *straight*, Cienki (1998) presents evidence that STRAIGHTNESS is an image schema that represents a recurrent pattern of action, perception, and conception. Cienki offers evidence, mainly from English and Russian, that sensory-perceptual meanings of *straight* are metaphorically extended into abstract domains of SPEECH, THOUGHT, TIME, and BEHAVIOR. Both Russian and English evidence *straight* as either an object or location metaphor. For instance, speech, thought, time and behavior can be expressed as straight objects (e.g., *a straight answer*) or alternately as self-propelled motions along a rectilinear path (e.g., *Say it straight to my face!*). Cienki argues that *straight* has much in common with verticality schemas and correlates strongly in these languages (English and Russian) with *up*, while antonyms like *bent* correlate with *down*. *straight* marks a recurring regularity in our everyday perceptual interaction with the world, which, in turn, provides reason to believe that it also patterns our everyday social interactions. Even non-Indo-European languages like Hungarian and Japanese evidence regular extensions of *straight* into abstract domains of speech and morality, such that maximally informative speech and morality is straight. At the same time, its opposites are bent, curved, convoluted, or crooked.

In addition to studies of individual items, several studies of closely related words show how differences in image-schematic structures account for their different meanings. For instance, Serra-Borneto (1995) studied the image-schematic constraints governing the use of the German locative verbs *liegen* 'to lie' and *stehen* 'to stand' in perceptual and nonperceptual contexts. The data suggest that *stehen* encodes verticality and *liegen* encodes horizontality.

As it can be seen from this brief outline, each of the mentioned studies above seeks to show how the symbolic structure in question forms a complex network of related meanings, each of which profiles a slightly different feature of an Idealized Cognitive Model, which is made possible by image schemas (Oakley 2007: 219). Although some cognitive linguistic research has been conducted on polysemy and lexical polysemy, it still can be considered a relatively unexplored field from a cognitive-cultural linguistic perspective. In cognitive linguistics, no empirical studies focus on perception words and their relation to the image schemas. Therefore, this study aims to provide insight into this field focusing on the polysemy of the perceptual verb *see* in English and the related image schemas.

In this investigation, I explore whether or not the different meanings of the perception verb *see* are motivated by image schemas, or, in other words, do image schemas organize the polysemous network of *see*? I do not, however, claim that image schemas provide a complete account of the meanings of *see* or any other word. Based on this study, I argue that each meaning of *see* is motivated to some degree by a complex pattern of different image schemas.

In this study, I will first provide empirical evidence on people's intuitions about why polysemous words have interconnected meanings. For instance, consider the uses of the word *see* in the following sentences from the book *Blindness*:

(3) There isn't likely to be any emergency service for eyes that cannot *see*.

(4) He had no hunch, he bought the ticket to *see* what might come of it.

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I intend to study to what extent people have some tacit understanding of the connection between these somewhat different uses of the word *see*.

According to the model introduced by Alm-Arvius (1993), the prototypical meaning of *see* is [perceive visually]; this meaning applies to (3). Nevertheless, the meaning we have in (4) is a different meaning of *see*, 'find out,' which according to Alm-Arvius, diverges from the prototypical one. Alm-Arvius defines this phenomenon in a pragmatic frame. As mentioned earlier, she states that the unconventional meanings of *see* in specific texts are due to pragmatic expansion, pragmatic diversion, pragmatic restriction, and metaphor which are argued to be pragmatic aspects of interpreting of *see* in particular contexts. However, as we will observe it, the concept of image schemas can explain the emergence of polysemy without any reference to pragmatic (hence context-based) operations. What is more important here is that the traditional explanation of the extended meanings of the verb *see* is a two-step model: first, there is the primary or prototypical meaning, then there comes the context, and new meanings can be derived from the prototypical one. The necessity to revise this model with the help of image schemas comes from the fact that if the whole network is modelled using image schemas, it can be demonstrated that the extension of the prototypical meaning is motivated by my experience; thus, it has a solid cognitive motivation. In other words, according to an image schematic account, polysemy resides in experiential and cognitive patterns and not within the boundaries of language use.

In the next step, I will examine the role that recurring image schemas play in understanding various meanings of the polysemous word *see;* this way, I can investigate if the diverse meanings of the perception verb *see* are motivated by image schemas, or, if image schemas organize the polysemous network of *see*.

3 Methods and Materials

As mentioned above, I took all the examples of the word *see* from the book *Blindness*, written by Portuguese author Jose Saramago. *Blindness*, written in 1995, was a best seller throughout Europe and was translated from Portuguese into numerous languages, including English. According to Chagas (2006: 1), "*Blindness*" by José Saramago explores the cognitive and aesthetic dimensions of *Blindness* in terms of embodied experience. Saramago uses the concept of blindness metaphorically and symbolically for both personal misfortune and social catastrophe. He describes the achievements of sightless people and emphasizes society's responsibility toward the blind. We understand seeing metaphorically as a gaze that goes out of one's eyes and touches the object seen. Nevertheless, in the book of *Blindness*, we notice many occurrences of the word *see* with different implications with various possible image schemas, as it will be seen in the chosen examples. This novel is a good source of data for analyzing the network of the polysemous word *see*, since there are authentic examples containing the word *see* in their context. An in-depth analysis of the book's text can decide whether *see* has one or more meanings to form a polysemous network, but this paper will not give a stylistic or poetic analysis of the novel since that is not the aim of the study.

Based on the book's subject and the existing polysemous network of the verb *see*, I found the right schematic motivation of the polysemous structure of the word *see* in this book that is worth studying. In this investigation, I focus on the English translation of the book. In contrast, the Portuguese original might be used for a more extended and cross-linguistic study in the near

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future. Nevertheless, according to a study on universal meaning extensions of the perception verb *see*, based on the recorded everyday conversation in thirteen diverse languages, Majid (2018: 3) argues that commonalities in polysemous meanings may rely not only on universal cognition but also on universal exigencies of social interaction.

3.1 Methodology

The main contribution of the two following tests in my study is to demonstrate experimentally that different image schemas underlie people's understanding of polysemous word meanings. The first experiment measures people's judgments of similarity of meaning for different uses of the polysemous word *see*. The purpose of the second experiment is to examine the relationship between the five image schemas for the perceptual experience of seeing and the various meanings of the word *see*.

3.1.1 Experiment 1

Experiment 1, which I call the similarity test, examined people's judgments of similarity of meaning for different meanings of the polysemous word *see*. My primary hypothesis was that the participants would generally group together instances of *see* that shared similar image schema profiles. It is in line with the claim by Lakoff (1987) that different kinds of image schemas can characterize the meanings of polysemous words. The main aim here is to present that different image schemas underlie people's understanding of different meanings of the perception verb *see*, and that our mind, reasoning, and thoughts can be motivated by image schemas. Participants in this study sorted 30 different sentences for different meanings of *see* into different groups based on their similarity of meaning according to nine different meanings of *see* introduced by Alm-Arvius (1993), provided in Table 1. Experiment 2 provides the primary test of this idea.

3.1.1.1 Subjects

Five master students from the English program of the University of ELTE, Budapest, participated as subjects to fulfil a course requirement. All subjects have a high proficiency in English with a minimum B2 level, TOEFL of 72, or IELTS 5.5.

3.1.1.2 Materials and design

Participants were provided with a questionnaire which was designed by me, containing 30 sentences, including the word *see* sampled from the book *Blindness* by Jose Saramago. The occurrences of the verb *see* in the translation of the novel were randomly sampled to avoid the dominance of one or another meaning group and hence the priming of the informants. The nine different meanings of *see* introduced by Alm-Arvius were listed in front of each sentence, and the participants' task was to put a check next to the most relevant meaning. I attempted to obtain a wide range of meanings for *see*, including physical and nonphysical senses. However, I do not claim that these 30 sentences would represent entirely different meanings, nor do the 30 sentences reflect all aspects of how *see* is used in contemporary speech and writing. Appendix 1 shows the list of the sentences with the different meanings of *see*.

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3.1.2 Experiment 2

The purpose of Experiment 2, which is a ranking test, is to examine the relationship between the five image schemas for the physical experience of seeing and the various meanings of the word *see*. In other words, this ranking trial tests the appropriateness of image schemas in sentence comprehension. Although I can explore the image schematic motivation in sentences grouped together in the similarity test in Experiment 1, I would rather to run the second analysis based on professional intuition. So, in the second test, I will collect data about how similar the image schematic motivation of the original sentences is.

I aim to determine which image schemas are most relevant to each of the 30 instances of *see* I studied. Experiment 2 allowed us to construct an image schema profile for each meaning by rank-ordering the participants' ratings of the five image schemas for each meaning of *see*. I expected that the image schema profiles would differ across the different meanings of *see*. For choosing the image schemas, I analyzed the sentences taken from the book of BLINDNESS, and identified all the possible image schemas myself. Then I ran a pilot study with two participants who were later excluded from the main experiment. So, based on this analysis, I came up with five image schemas for the word *see*: blockage, enablement, link, path, and restraint removal.

3.1.2.1 Subjects

Five graduate students from the same population sampled in Experiment 1 participated in this study.

3.1.2.2 Material and Design

The participants were told that the test's purpose was to assess their intuitions about the physical experience of *see*ing and were introduced to different possible image schemas related to seeing. While introducing, the participants were asked to close their eyes and sense what different physical aspects of seeing feels like. Afterward, the participants were provided with a questionnaire containing 30 sentences, including the word *see*. At the top of each questionnaire was a description, once again, of a particular image schema, followed by the 30 instances of *see*. The participants' task was to rate the degree of relatedness between the image schema and each of the 30 uses of *see*.

Participants made their 'relatedness' ratings on a 7-point scale with 1 meaning 'not related at all' and 7 meaning 'very strongly related'. The participants independently completed the same ratings for all 30 sentences for each of the five image schema descriptions. Participants gave their ratings for all 30 uses of *see* for a particular image schema before moving on to the following image schema.

4 Results and Discussion

4.1 Experiment 1

Based on Al-Arvius' (1993) study, we provided nine possible piles for the participants to group together 30 sentences containing the perception verb *see*. The sorted data for each participant were tallied; the final results of the similarity test in Experiment 1 are shown in Table 2. Based on the data of the experiment, an inter-rater agreement rate is calculated to realize how complex

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the similarity task is for the informants and to assess the extent to which the participants' responses are concordant. Moreover, I will answer the critical questions raised by the topic by observing the categorized data. My main aim was to find out if the results contribute to describing the polysemous structure of the word *see* and if they can help us model the network of meanings for this perception word. Table 2 demonstrates which sentences were chosen for each meaning by the participants. I briefly used the number of sentences.

	P 1	P 2	P 3	P 4	P 5
*See*1: Perceive visually	6/7/9/29/10/24/12/30/5/25	3/4/6/7/9/29/20/11/25/16	6/7/29/15/24	4/6/9/7/29/19/27	3/4/6/7/9/29/22/11/8/27
*See*2: understand	19/22/2/11/8	12/2/17/30	22/2/20/11/8/30/16	22/12/2/20/11/1/28	18/20/30/16/2
*See*3: consider, regard	15/ 16	5		10/16	5
*See*4: experience	3/20/1/26/28/27	18/15/22/26/27	3/4/12/1/26/27/25	3/18/26/17/25	1/26/17/28/25
*See*5 find out	4/18/14/21/17	10/19/21/24/8/1/14/28	9/10/18/19/14/21/17/28	14/15/21/24/8/30	10/19/14/15/21/24/12
*See*6: visit, meet, consult	13/23	13/23	13/5/23	13/23/5	13/23
*See*7: attend to					
*See*8: escort					
*See*9: leave, send off					

Table 2. Results of the similarity test in Experiment 1

According to the hypothesis, each sentence has a specific image schematic background, resulting in different sentences grouped together by the participants. I try to back up this hypothesis by designing two experiments. The main aim of the first experiment was to assess people's judgments of the similarity of meaning for different meanings of the word *see* using the category system proposed by Alm-Arvius. For this purpose, I first summarized the data set and calculated the mean for the times each meaning of *see* was chosen for each sentence by the

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participants. The results are presented in Tables 3 and 4. In Table 3, it is demonstrated which meaning category was chosen the most frequently, and you can see how many raters chose a category other than the most frequent one. You can also check the dominant meaning category by sentences in Table 3; for instance, you can find ten sentences that were matched 100% with only one meaning. In Table 4, the dominant meaning categories of the sentences are presented. Based on the results, 'Find out' is the dominant meaning chosen by the raters by 28% for the 30 sentences.

Number / Meaning	*See*1: Perceive visually	*See*2: understand	*See*3: consider, regard	*See*4: experience	*See*5 find out	*See*6: visit, meet, consult	*See*7: attend to	*See*8: escort	*See*9: leave, send off
1		20%		60%	20%				
2		100%							
3	40%			60%					
4	60%			20%	20%				
5	20%		40%			40%			
6	100%								
7	100%								
8	20%	40%			40%				
9	100%								
10	20%		20%		60%				
11	40%	60%							
12	20%	40%		20%	20%				
13						100%			
14					100%				
15	20%		20%	20%	40%				
16	20%	40%	40%						
17		20%		40%	40%				
18		20%		40%	40%				
19	20%	20%			60%				
20	20%	60%		20%					
21					100%				
22	20%	60%		20%					
23						100%			
24	40%				60%				
25	40%			60%					
26				100%					
27	40%			60%					
28		20%		40%	40%				
29	100%								
30	20%	60%			20%				

Table 3. The results of the first experiment

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Meaning of *See*	**Sentence number**
*See*1: Perceive visually	4/6/7/9/29
*See*2: understand	2/8/11/12/16/20/22/30
*See*3: consider	5/16
*See*4: experience	1/3/17/18/25/26/27/28
*See*5: find out	8/10/14/15/17/18/19/21/24/28
*See*6: visit, meet, consult	5/13/23

Table 4. The meaning categorization of the sentences based on Experiment 1

To investigate the results, I ran an inter-rater agreement test based on the data in Table 2. Measuring inter-rater agreement can inform us about the reliability of the category system, as well as about the clarity of the fuzziness of the boundaries of the categories. If the agreement is high, the categories are helpful for grouping the sentences, whereas, in the case of a low agreement, the categories cannot grasp the fine-grained system of polysemy. This measurement provides evidence of the appropriateness of the nine groups and sheds some light on the complexity of distinguishing between different meanings of the same word. The inter-rater agreement test shows the level of agreement among the participants for the similarity test, for each sentence, and each meaning of *see*. The number of raters is the same as the participants, which is five, and the total number of possible sentences is 30. The sum of the agreement rating was 10, which means that the five raters, or participants, agreed on the same meaning for the perception word *see* for 10 out of 30 sentences. The ratio of the total agreed sentences is 33%, which shows a fair agreement based on the nature of the study. The result is due to the fact that, according to Table 1, the different meanings of the perception word *see* are very close, and distinguishing different meanings for different sentences is complex. So expecting a substantial agreement in the numbers for the total agreed sentences is unlikely.

Table 3 shows ten sentences with a 100% matched meaning with only one meaning. Furthermore, except for six sentences, we almost have a "winner" meaning for a sentence, which shows that for 24 sentences, we have one meaning of *see* which matches the sentence. From Table 3, it becomes clear that for 24 out of 30 sentences, which are 80 percent of the total number of the sentences, there is a partial agreement between the participants on the dominant meaning of *see* included in each sentence. We can see a variation in the judged meaning for six sentences, which is 20% of all the sentences judged. It shows that the meaning of these six sentences (and the verb *see* in it) cannot be generated based on the categories. Thus, the particular meaning is complex, or the categories are not reliable in the task.

On the other hand, we have five different raters with five different judgments. In this case, we can study the combination of judges to compare the degree of agreement. I came up with

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ten pairs to compare the judgments and find the dominant meaning categories. You can see the results of this test in Table 5. In this table, R stands for rater. According to Table 5, I calculated the mean for the Standard Deviations of the agreements for all the judges compared to each other. The mean was 52%, which shows an agreement among the judgements of the raters with more than 50%.

Report

	R1R2	R1R3	R1R4	R1R5	R2R3	R2R4	R2R5	R3R4	R3R5	R4R5
Mean	.4000	.6000	.4667	.4000	.5000	.5333	.6000	.5333	.6000	.5667
N	30	30	30	30	30	30	30	30	30	30
Std. Deviation	.49827	.49827	.50742	.49827	.50855	.50742	.49827	.50742	.49827	.50401

Table 5. The mean value of judgments for sentences

The study's central question is whether image schemas have any role in distinguishing meanings. So basically, if our similarity test results in the categorization of specific sentences into meaning groups, we can analyze what is common in these sentences regarding image schemas or whether there is any commonality between them. Based on Table 3, the sentences were mostly categorized into 3 groups for meanings 5 'find out', 4 'experience', and 2 'understand'. It means that the most common meanings in the polysemy network of the word *see* in the examples taken from the book *Blindness* are 'find out', 'experience', and 'understand'. The meanings in terms of frequency are 1. 'find out' by 28%; 2. 'experience' by 22%; 3. 'understand' by 22%; 4. 'perceive visually' by 24%; 5. 'visit, meet, consult' by 8%, and finally 6. 'consider' by 5%. This study did not recognize the rest of the nine meanings introduced by Alm-Arvius. This experiment suggests that Alm-Arvius' claim about the polysemy network of the word *see* is correct. Experiment 1 shows that instances of *see* can be grouped according to the polysemous network of perception verb *see*. The next step in Experiment 2 is to examine the relationship between the instances of *see* and different image schemas as well as to observe how the same sentences of Experiment 1 are grouped together based on the related image schemas.

4.2 Experiment 2

Based on an empirical pre-test that I conducted on 2 case studies, I came up with five different image schemas for the word *see*: BLOCKAGE, ENABLEMENT, LINK, PATH, and RESTRAINT REMOVAL. We could relate more image schemas to each sentence, but to control the duration of each test and the variables, we chose only these five main image schemas. Although the meaning of the whole sentence can be based on several image schemas, the study is interested only in the image-schematic motivation of the meaning of the verb *see* in the sentence. The participants ranked the relatedness of image schemas to each sentence with a Likert scale of 7 points.

The data from the ranking test were gathered. They are about the strength of the relatedness of the particular image schemas to each sentence. I used SPSS 22 to analyze my data for the ranking experiment. Based on Boone (2012), Likert-type items fall into the ordinal measurement scale, and on the other hand, Likert scale data are analyzed at the interval

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measurement scale. Descriptive statistics recommended for interval scale items include the mean for central tendency and standard deviations for variability. For the first step, I calculated the standard deviation for each image schema ranking for all the sentences. Based on the analysis, the SDs for the ranking test for image schema of BLOCKAGE show that around 93% of the values are within 1 standard deviation of the mean. For the second image schema, which is ENABLEMENT 80% of the values are within 1 standard deviation of the mean. For the third image schema link, this number is around 93%. For PATH and RESTRAINT REMOVAL, this number is 63% and 86%, respectively; the order of percentage of data with Standard Deviation within 1 can be seen in Table 6. The standard deviation within 1 indicates that for all the sentences containing the word *see,* the data are mainly clustered around the mean, so calculating a mean gives us a valid result. Based on Table 6, only PATH is an exception. 63% of the values for PATH indicate that it has a relatively low validity in motivating the network meaning of *see*, compared to the other image schemas. In the case of PATH, the low percentage of relatively low SD means more significant variability in meaning for this image schema, and relating the meaning of the word *see* to this image schema is not that evident for the participants. However, although the results suggest that PATH, compared to the other image schemas at hand, does not seem to be an appropriate conceptual structure for explaining the motivation of the polysemy of *see*, it plays a specific role in motivating the network meaning of *see*. This low validity may be simply due to the fact that PATH is the image schema most related to motion among the five proposed schemas. However, we cannot deny its role as a conceptual structure for explaining the motivation of the polysemy of *see*.

Image schema	**Percentage of data with Standard Deviation within 1**
BLOCKAGE	93%
LINK	93%
RESTRAINT REMOVAL	86%
ENABLEMENT	80%
PATH	63%

Table 6. SD for all sets of image schemas

Based on Table 6, a mean relatedness rating was calculated for each image schema for each meaning of *see*. We came up with groups of sentences that could be categorized together based on high frequencies of relatedness to each image schema, the ones with an average scale above the value 5 on the Likert scale of relatedness. The main point of this paper was to study whether image schematic motivation is a factor of meaning extension and hence the emergence of polysemy. In this sense, I picked the most robust image schemas chosen for each sentence with average rankings of more than 5 points and an SD within 1. I tried to compare the groupings in Experiments 1 and 2 to find the overlaps between the two groupings by the participants in the similarity and ranking test. Table 7 is dedicated to the grouping based on the ranking test.

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Image schemas	**Grouping for ranking test**
BLOCKAGE	2/6/7/8/10/11/18/19/25/26/29/30
LINK	-
RESTRAINT REMOVAL	4/10
ENABLEMENT	1/3/7/9/12/13/16/20/21/22/24/28
PATH	5/14/15/17/23/27

Table 7. The image schema categorization of the sentences according to Experiment 2

Based on the results, BLOCKAGE and ENABLEMENT are the image schemas with the highest frequency, and then there are PATH, RESTRAINT REMOVAL, and LINK with lower frequency levels. According to the nature of the ranking test, we can come up with three possible groups of data; the first group contains the sentences with one significant and dominant image schema chosen with a high satisfaction rate. The second group is for the sentences with more than one image schema assigned to them; in other words, they are sentences with multiple image-schematic motivations. Furthermore, the last group would consist of sentences with no significant image schemas assigned by the participants. In this study, only sentences 7 and 10 have two dominant image schemas making them fall under the second group; sentences with multiple image-schematic motivations. We do not have any potential members for group 3. Based on these categories, you can see the results in Table 8. RR stands for RESTRAINT REMOVAL, B stands for BLOCKAGE, E stands for ENABLEMENT, P stands for PATH, and L stands for LINK.

Meaning of *see*	**Sentences related to meanings and the chosen Image schemas**
*See*1: Perceive visually	4/6/7/9/29 RR/B/B/E/E/B
*See*2: understand	2/8/11/12/16/20/22/30 B/B/B/E/E/E/E/B
*See*3: consider	5/16 P/ E
*See*4: experience	1/3/17/18/25/26/27/28 B/E/P/B/B/B/P/E
*See*5: find out	8/10/14/15/17/18/19/21/24/28 B/B,RR/L/L/L/B/E/E/E/E
*See*6: visit, meet, consult	5/13/23 P/E/P

Table 8. The groupings based on the similarity and the ranking test

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According to Table 8, we can answer the question concerning the study's central hypothesis: Do image schemas motivate the polysemous network of the perception verb *see*? A closer inspection of the data summarized in Table 8 reveals some interesting similarities in the image schema profiles for many of the 30 instances of *see*. Based on Table 8, across all groups, BLOCKAGE and ENABLEMENT were seen as the most crucial image schemas for predicting participants' groupings of different meanings of *see* from Experiment 2.

For the first meaning group of *see*, the dominant image schema is BLOCKAGE. We have two dominant image schemas for the second meaning group: BLOCKAGE and ENABLEMENT. In this regard, the first two meanings of *see* 'perceive visually' and 'understand', share a common image schema, BLOCKAGE, and the second meaning has an extra image schema related to it by the participants. This finding shows that since the second meaning 'understand' is the metaphorical extension of the basic meaning, there is analogical reasoning in the extension's background. Now, the results demonstrate that (i) according to this analogy, the image schema profile of the two meanings are alike; (ii) the metaphorical extension may involve (or may be built on) additional image schematic motivation. Moreover, BLOCKAGE points to a physical obstacle in meaning 1, whereas it is a more complex kind of BLOCKAGE in meaning 2. It is worth mentioning that BLOCKAGE was chosen three times as a related image schema for the first meaning, while it was selected four times for the second meaning, implying that BLOCKAGE is the dominant image schema for the second meaning.

We have two dominant image schemas for the third meaning group: PATH and ENABLEMENT. Again, here we can see the same pattern with a shared image schematic motivation: the second and third meanings of *see* ('understand' and 'consider') share a similar image schema, namely ENABLEMENT. The image schema, ENABLEMENT, demonstrates the commonality between the meanings; i.e., 'understand' and 'consider' are both mental acts and metaphorical extensions of visual perception.

In the case of the fourth meaning group, the dominant image schema is BLOCKAGE. Meanings 4 and 1 have some commonality again: visual perception is one type of experience. The same image schema seems to be dominant in both cases. For the fifth group, the dominant image schema is ENABLEMENT, and for the last group of meanings of *see* we have PATH as the dominant image schema. Higher ratings reflect participants' intuitions that a specific image schema was related to a particular instance of *see*. Thus, except for two meanings (two and three), the participants chose a dominant image schema in the case of all the rest.

For the last analysis, based on the study's findings, we can look at some individual sentences with their unique semantic network of *see* and their related image schemas. It is worth investigating the image schemas and the network meaning generation they follow for at least some cases. Figure 1 is the collection of visual models for some image schemas, which can give a clearer idea of the image schemas.

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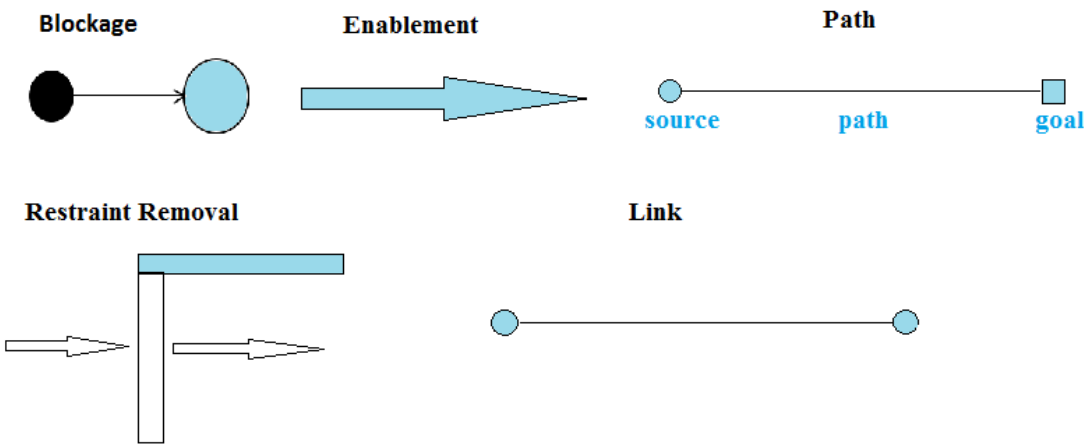

Figure 1. Illustrations of image schemas

For the first meaning of the polysemous network of *see* 'perceive visually,' the dominant image schema is BLOCKAGE. Based on Table 8, one of the sentences assigned to this image schema is the following:

(5) There isn't likely to be any emergency service for eyes that cannot *see*.

Based on the illustrations in Figure 1, the function of the image schema of BLOCKAGE and its role in the dynamic process of meaning generation of *see* in the selected sentence is demonstrated. In this regard, the disability to *see* or 'not perceiving visually' is blocking the receiving of emergency services.

For the second meaning of *see* 'understand,' the dominant image schema is ENABLEMENT. Let us take a look at one of the related sentences chosen by the participants:

(6) At this moment she is seated on her husband's bed, she is talking to him, as usual in a low voice, one can see these are educated people, and they always have something to say to each other.

ENABLEMENT is a potential force and the absence of BLOCKAGE or COUNTERFORCE. As indicated in the selected sentence, the gathering of the husband and wife in a peaceful scene enables others to see or 'understand' some specific quality in this couple.

The third meaning of *see* is 'consider,' and the dominant image schema for this meaning is PATH. One of the selected sentences for this category is:

(7) When they *see* me in this state they'll recognize at once that I'm in a bad way, put me in an ambulance and take me to a hospital.

The PATH image schema consists of a source, a path, and a goal and involves movement. In the selected sentence, this motion can be followed in the dynamic process of meaning generation; seeing or 'considering' a person in a state or situation makes others want to move that person from a source to a goal, here hospital.

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The fourth meaning of *see* is 'experience,' and the dominant image schema for this meaning is BLOCKAGE. One of the chosen sentences for this image schema is:

(8) She kissed him on the cheek, no one else could *see* that wrinkled forehead, that tight mouth, those dead eyes, like glass.

The BLOCKAGE image schema consists of a path, a directionality, and a destination that is not reached. In the selected sentence, you can see the character is seeing or 'experiencing' something that others are not able to experience, or in other words, their path to experiencing is blocked.

For the fifth meaning of *see* 'find out,' the dominant image schema is ENABLEMENT. One sentence which is chosen for this category is:

(9) We must *see* if there's a spade or shovel or whatever around, something that can be used to dig, said the doctor.

We can interpret the image schema of ENABLEMENT as a physical or metaphorical power to act. Here, in the selected sentence, the book's characters are trying to see or 'find out' if they can find a spade or shovel to enable them to perform the act of digging.

The last meaning of *see* in this study is 'visit, meet', with the dominant image schema PATH. The selected sentence is as follows:

(10) The latter I don't know, the other, from your description, might well be the blind man who came to *see* me at the surgery.

In this sentence, you can also perceive the motion of the blind man from a source to a goal to *see* or 'visit' the doctor. In all the above sentences, you can see the function of different image schemas in the process of meaning generation of *see*. It can explain the extended meanings of the word *see*, and how these meanings are related or even generated by different image schemas.

5 Conclusion

Numerous empirical studies in cognitive semantics have focused on representing different words in the mental lexicon. Still, they did not specifically address the critical question of how the complex meanings of perception words, like *see*, are mentally represented and what motivates each word's particular meanings. The general aim of this paper was thus to empirically support the claim that the meanings of the polysemous word *see* are motivated by people's recurring bodily experiences in the real world. A similar study has been conducted by Gibbs, et al. (1994) on the polysemous word *stand*. Their experiment extends the observations of cognitive semanticists to show how different forms of human embodiment influence people's understandings of the polysemous word *stand*.

In this study, I focused on a perception verb, namely *see*, to investigate if people figure out different meanings of a polysemous perception word because of their implied understanding of several image schemas that arise partly from the ordinary bodily experience of seeing. These image schemas, the most important of which are BLOCKAGE, ENABLEMENT, LINK, PATH, and RESTRAINT-REMOVAL, not only produce the grounding for some physical meanings of *see*, but

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also, to some extent, underlie people's understanding of complex, metaphorical uses of the word *see*. People perceive different meanings of *see* as similar partly based on the underlying image schema profile for each meaning of the word *see*.

Several aspects of word meaning have little to do with image schemas. However, based on this study I suggest that it plays a role in people's understanding of word meaning and their judgments of similarity of meaning for different meanings of a polysemous word. Although not exactly clear, the study's results indicate that image schemas play a role in modelling the meaning networks. Even if a minor part of the meaning generation is connected to image schemas, this connection is worth investigating, especially in more extensive corpora and with different meaning networks in the future.

Finally, I should assert that in this study, I had some limitations regarding the subject selection and the results of the two experiments. First, it was a pilot study, so the number of participants was limited to 5. Secondly, none of the participants were native English speakers, which affected their interpretations of the text and, consequently, their grasp of the network meaning of the verb *see*. The last but not least factor that may stop the study's result from being broadly generalized is that the text used for the two experiments was an English translation of the Portuguese text. In this investigation, I focus on the English translation of the book. The original text, Portuguese, might be used for a more extended and cross-linguistic study in future studies.

Nevertheless, these limitations came with some benefits. For instance, a solid empirical investigation requires a complex research design that can be tested and refined through a minimal pilot study. Another attribute is the question of universality or culture-specificity: though the meaning extension of perception verbs can be culture-sensitive, image schemas belong to the universal background stage of cognition, so the factor of English as a second language may not be necessarily decisive; San roque et al. (2018) argues that the similarities of extending perception verbs across cultures can be motivated by universal social interaction patterns. This paper's general aim was to empirically support the claim that the meanings of the polysemous word *see* are motivated by people's recurring bodily experiences in the real world.

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Appendix 1

30 sentences with different meanings of see used in Experiment 1

1.he had no hunch, he bought the ticket to see what might come of it
2. What he could not see was that in addition to his own clothes, she had packed a number of blouses and skirts, a pair of slacks, a dress, some shoes that could only belong to a woman.
3.Some were sighing and murmuring in their dreams, perhaps in their dream they could see what they were dreaming.
4.Then he wanted with all his strength to see his wife kneeling at his feet
5. When they see me in this state they'll recognize at once that I'm in a bad way, put me in an ambulance and take me to a hospital
6.The next moment they were embracing, a single body, kisses in search of kisses, at times lost in mid-air for they could not see each other's cheeks, eyes, lips.
7.He knew that his image was there watching him, his image could see him, he could not see his image.
8. Bear in mind that making a cross is much less easy than it may seem, not to mention the little time it would last with all these blind people around who cannot see where they are treading.
9.Wonder that the first concern of the new arrivals should be to choose a bed, just as they had done in the other ward, when they still had eyes to see.
10.His wife would appear any minute now to see if he was still sleeping, it was almost time for them to go to the hospital.
11.I can see that, as for the supermarket, we would probably run up against various legal obstacles, legal matters that would have to be taken into account.
12. the doctor took him by the arm and installed him behind a scanner which anyone with imagination might see as a new version of the confessional, eyes replacing words
13.In the surgery, the last patient to be seen was the good-natured old man
14. The doctor's wife went to see how the injured man was faring, it's me, she said,
15. I'll go on all fours, he thought, keeping under the rope, and from time to time I'll raise my hand to see whether I'm on the right track
16.At this moment she is seated on her husband's bed, she is talking to him, as usual in a low voice, one can see these are educated people, and they always have something to say to each other
17.In a low voice, the girl continued to console the boy, don't cry, you'll see that your mother won't be long.
18. He accompanied them to the door, murmured words of reassurance, let's wait and see.
19. the first blind man groped under the bed to see if there was a chamber pot, yet at the same time hoping he would not find one for he would be embarrassed if he had to urinate in the presence of other people
20. These things happen, it will pass you'll see
21. We must see if there's a spade or shovel or whatever around, something that can be used to dig, said the doctor.
22. The eyes wide open, the wrinkled skin of the face, his eyebrows suddenly screwed up, all this, as anyone can see, signifies that he is distraught with anguish.
23.The latter I don't know, the other, from your description, might well be the blind man who came to see me at the surgery
24. She kept looking from one side to the other, to see if any of the blind internees were awake
25. There is then a person sitting peacefully at home, confident that at least in his case all will turn out well, when suddenly he sees coming directly towards him a howling mob of the people he most fears.

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26.She kissed him on the cheek, no one else could see that wrinkled forehead, that tight mouth, those dead eyes, like glass.
27.The blind internees fell one on top of the other, it all happened so incredibly slowly, one body, then another, it seemed they would never stop falling, as you sometimes see in films and on television.
28.A doctor is worth several men, words we should not accept as a straightforward expression of quantity, but above all, of quality, as we shall soon see.
29. There isn't likely to be any emergency service for eyes that cannot see
30. The doctor's wife passed on to the next set of shelves, and the unexpected happened, her blind hand that could not see where it was going, came up against and knocked over some tiny boxes.

Appendix 2

Questionnaire 1– Experiment 1

Dear participant,

Please, put a ✓ next to the most relevant meaning of the verb *see* in each sentence. Bear in mind that you can only choose one word that has the most related meaning of the verb *see* to each provided instance.

***See* in a sentence**	**Related meaning**
1.he had no hunch, he bought the ticket to *see* what might come of it	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
2. What he could not *see* was that in addition to his own clothes, she had packed a number of blouses and skirts, a pair of slacks, a dress, some shoes that could only belong to a woman.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
3.Some were sighing and murmuring in their dreams, perhaps in their dream they could *see* what they were dreaming.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off

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4.Then he wanted with all his strength to *see* his wife kneeling at his feet	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
5. When they *see* me in this state they'll recognize at once that I'm in a bad way, put me in an ambulance and take me to a hospital	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
6.The next moment they were embracing, a single body, kisses in search of kisses, at times lost in mid-air for they could not *see* each other's cheeks, eyes, lips.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
7.He knew that his image was there watching him, his image could *see* him, he could not *see* his image.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
8. bear in mind that making a cross is much less easy than it may *see*m, not to mention the little time it would last with all these blind people around who cannot *see* where they are treading.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off

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9.Wonder that the first concern of the new arrivals should be to choose a bed, just as they had done in the other ward, when they still had eyes to *see*.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
10.His wife would appear any minute now to *see* if he was still sleeping, it was almost time for them to go to the hospital.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
11.I can *see* that, as for the supermarket, we would probably run up against various legal obstacles, legal matters that would have to be taken into account.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
12. the doctor took him by the arm and installed him behind a scanner which anyone with imagination might *see* as a new version of the confessional, eyes replacing words	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
13.In the surgery, the last patient to be *seen* was the good-natured old man	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
14. I'll go on all fours, he thought, keeping under the rope, and from time to time I'll raise my hand to *see* whether I'm on the right track	perceive visually understand consider, regard

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	experience find out visit, consult attend to escort leave, send off
15.At this moment she is seated on her husband's bed, she is talking to him, as usual in a low voice, one can *see* these are educated people, and they always have something to say to each other	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
16. A doctor is worth several men, words we should not accept as a straightforward expression of quantity, but above all, of quality, as we shall soon *see*.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
17.In a low voice, the girl continued to console the boy, don't cry, you'll *see* that your mother won't be long.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
18. He accompanied them to the door, murmured words of reassurance, let's wait and *see*.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
19. the first blind man groped under the bed to *see* if there was a chamber pot, yet at the same time hoping he would not find one for he would be embarrassed if he had to urinate in the presence of other people	perceive visually understand consider, regard experience find out visit, consult

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	attend to escort leave, send off
20. These things happen, it will pass you'll *see*	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
21. We must *see* if there's a spade or shovel or whatever around, something that can be used to dig, said the doctor.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
22. The eyes wide open, the wrinkled skin of the face, his eyebrows suddenly screwed up, all this, as anyone can *see*, signifies that he is distraught with anguish.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
23.The latter I don't know, the other, from your description, might well be the blind man who came to *see* me at the surgery	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
24. She kept looking from one side to the other, to *see* if any of the blind internees were awake	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off

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25.The doctor's wife went to *see* how the injured man was faring, it's me, she said,	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
26.She kissed him on the cheek, no one else could *see* that wrinkled forehead, that tight mouth, those dead eyes, like glass.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
27.The blind internees fell one on top of the other, it all happened so incredibly slowly, one body, then another, it *see*med they would never stop falling, as you sometimes *see* in films and on television.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
28. There is then a person sitting peacefully at home, confident that at least in his case all will turn out well, when suddenly he *sees* coming directly towards him a howling mob of the people he most fears.	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
29. There isn't likely to be any emergency service for eyes that cannot *see.*	perceive visually understand consider, regard experience find out visit, consult attend to escort leave, send off
30. The doctor's wife passed on to the next set of shelves, and the unexpected happened, her blind hand that could not *see* where it was going, came up against and knocked over some tiny boxes.	perceive visually understand consider, regard

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	experience find out visit, consult attend to escort leave, send off

Appendix 3

Questionnaire 2- Experiment 2

For this experiment I have 5 booklets. On top of the first page of each booklet one image schema is introduced (you will be given a 1 minute tutorial on the definition of each image schema). Then you should read 30 sentences and rate the degree of relatedness between the image schema and each of the 30 uses of *See* in the sentences on the scale of 1 (not at all related) to 7 (very related).

For each image schema I prepare a single questionnaire with whole the 30 sentences of the book.

Image schemas:
Blockage: In our attempts to interact forcefully with objects and persons in our environment, we often encounter obstacles that block or resist our force. Something may block our further progress in some direction. We can try to go over the obstacle, around it, or even through it, where there is sufficient power to do so. This is a part of the meaning of force and of forceful resistance in the most immediate way.
Enablement: If you choose to focus on your acts of manipulation and movement, you can become aware of a felt sense of power (or lack of power) to perform some action. While there is no actualized force vector here, it is legitimate to include this structure of possibility in our common gestalts for force, since there are potential force vectors present, and there is a definite "directedness" (or potential path of motion) present. That is, you feel able to move the chair over to the corner, or to lift the comb up to your hair.
Link: Physical linking is never the full story of our humanity the combination of our perceptual capacities and the circumstances of our perceptual environment gives rise to some concrete and abstract linkages. Linkages are not only physical and spatial. Event A is linked to event B by a series of events. Instead of an actual physical bond, the events are linked because we experience them as temporally related, as somehow being part of the same temporal sequence.
Path: This image schema consists of three elements (a source point A, a terminal point B, and a path between them) and a relation (specified as moving from A to B).
Restraint Removal: This image schema is pretty much like the blockage with this difference that in this image schema you have to overcome all the blocks in the way of doing something.

Degree of relatedness		'not at all related' 'very strongly related' □1 □2 □3 □4 □5' □6 □7
1	**he had no hunch, he bought the ticket to *see* what might come of it**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
2	**What he could not *see* was that in addition to**	'not at all related' 'very strongly related'

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	his own clothes, she had packed a number of blouses and skirts, a pair of slacks, a dress, some shoes that could only belong to a woman.	□1 □2 □3 □4 □5 □6 □7
3	**Some were sighing and murmuring in their dreams, perhaps in their dream they could *see* what they were dreaming.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
4	**Then he wanted with all his strength to *see* his wife kneeling at his feet**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
5	**When they *see* me in this state they'll recognize at once that I'm in a bad way, put me in an ambulance and take me to a hospital**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
6	**The next moment they were embracing, a single body, kisses in search of kisses, at times lost in mid-air for they could not *see* each other's cheeks, eyes, lips.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
7	**He knew that his image was there watching him, his image could *see* him, he could not *see* his image.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
8	**bear in mind that making a cross is much less easy than it may *see*m, not to mention the little time it would last with all these blind people around who cannot *see* where they are treading.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
9	**Wonder that the first concern of the new arrivals should be to choose a bed, just as they had done in the other ward, when they still had eyes to *see*.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
10	**His wife would appear any minute now to *see* if he was still sleeping, it was almost time for them to go to the hospital.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
11	**.I can *see* that, As for the supermarket, we would probably run up against various legal obstacles, legal matters that would have to be taken into account.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
12	**the doctor took him by the arm and installed him behind a scanner which anyone with imagination might *see* as a new version of the**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7

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	confessional, eyes replacing words	
13	**.In the surgery, the last patient to be *see*n was the good-natured old man**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
14	**The doctor's wife went to *see* how the injured man was faring, It's me, she said**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
15	**I'll go on all fours, he thought, keeping under the rope, and from time to time I'll raise my hand to *see* whether I'm on the right track**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
16	**At this moment she is seated on her husband's bed, she is talking to him, as usual in a low voice, one can *see* these are educated people, and they always have something to say to each other**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
17	**In a low voice, the girl continued to console the boy, don't cry, you'll *see* that your mother won't be long.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
18	**He accompanied them to the door, murmured words of reassurance, let's wait and *see*.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
19	**the first blind man groped under the bed to *see* if there was a chamber pot, yet at the same time hoping he would not find one for he would be embarrassed if he had to urinate in the presence of other people**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
20	**These things happen, it will pass you'll *see***	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
21	**We must *see* if there's a spade or shovel or whatever around, something that can be used to dig, said the doctor.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
22	**The eyes wide open, the wrinkled skin of the face, his eyebrows suddenly screwed up, all this, as anyone can *see*, signifies that he is distraught with anguish.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
23	**The latter I don't know, the other, from your description, might well be the blind man who came to *see* me at the surgery**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
24	**She kept looking from one side to the other, to**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7

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	***see* if any of the blind internees were awake**	
25	**There is then a person sitting peacefully at home, confident that at least in his case all will turn out well, when suddenly he *see*s coming directly towards him a howling mob of the people he most fears.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
26	**She kissed him on the cheek, no one else could *see* that wrinkled forehead, that tight mouth, those dead eyes, like glass.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
27	**The blind internees fell one on top of the other, it all happened so incredibly slowly, one body, then another, it *see*med they would never stop falling, as you sometimes *see* in films and on television.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
28	**A doctor is worth several men, words we should not accept as a straightforward expression of quantity, but above all, of quality, as we shall soon *see*.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
29	**There isn't likely to be any emergency service for eyes that cannot *see***	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7
30	**The doctor's wife passed on to the next set of shelves, and the unexpected happened, her blind hand that could not *see* where it was going, came up against and knocked over some tiny boxes.**	'not at all related' 'very strongly related' □1 □2 □3 □4 □5 □6 □7