Parallelism between Psychology and Linguistics with Focus on Ambiguity, Vagueness, and Polysemy

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This study attempts to show the parallelism between psychology and linguistics with focus on ambiguity, vagueness, and polysemy. Some psychologically attested examples clearly illustrate some equivalent cases in language. We will argue that language reflects some ideas that emerge in our perception. This idea represents a shift away from the atomistic and objectivist focus on naturalistic explanations. Formerly, a presumably inevitable desire to see the language system as formal and autonomous has inevitably distorted the essence in language. The explanations and understandings of language given here are intended to be a seminal work integrating psychology and linguistics. The fact that linguistics and psychology now exist as separate disciplines should not preclude the formation of them.

keywords: figure, ground, figure-ground reversal, ambiguity (homophony), polysemy, vagueness, schema

1. Introduction

In past decades formal models of language which I take to be fundamentally mistaken tended to produce separate and exclusive accounts of structure and meaning, rather than the psychologically unified account that this paper intends to outline. In Chomsky's view, syntax is abstract, formal, and autonomous with respect to its semantics. He suggests that semantics is mapped onto the syntax by means of rules of interpretation; that is, syntax in his view is a set of forms to which meanings are simply added. In Chomsky's account, syntactic structure is heavily based on the linear sequencing of formal class items on a syntagmatic axis.

To me his account is convincing to a certain extent, but on the assumption that language is a reflection of thought, the too great emphasis on linearity distorts the real picture; flows of thought may not always be rigidly sequenced. Rather they are often an integrated or non-integrated whole or Gestalt not able to be broken into clear-cut pieces.

In this paper a few examples will illustrate a number of things about the unity of psychology and linguistics. They pertain directly to interconnection between picture and language. The idea that language is rigid mathematical constructs requires a thorough rethinking. Hopefully this
paper takes a first step towards answering the question: what does it mean to say that concepts are embodied; thought is often unconscious. The idea in this paper seems highly speculative, yet I see no suitable alternative to it at this point if one wants to consider the idea of human cognition seriously.

2. Defining the Object of Study

In this paper interconnections between ambiguity and vagueness and polysemy are examined. They are inspected by comparing pictures considered in some way equivalent to ambiguity, vagueness and polysemy with them. I believe that Cognitive Grammar gives an insight into people's minds, but at the same time, it cannot give objective hard solid evidence, nor can it be given a definition in terms of necessary-and-sufficient attributes. That, however, may well be a natural consequence of the truth of our conceptions. Our construal of things, whether concrete or abstract, displays occasional subtleties of an unstable nature. To me it is safe to say that the nature of language is heavily based not on objective existence but on occasionally fleeting subjective construal. Our body-builds are not so different from each other and even if there exist some differences, they are unbelievably trivial considering the extent of variational dissimilarity between human beings and other species. Our body-builds, body-shape play a role in shaping particular kinds of concepts; this may be manifested in some language expressions. In other words the mind or concepts are 'embodied'. Although of course our understandings of language might be refracted in some respects through cultural categories, at the same time canonical ways of thinking do not fluctuate to the extent that one imagines: interpretations of, for example, ambiguous pictures and optical illusions may never be radically different per se depending on each individual. Language and other forms of reasoning are analogous to each other; they are the natural consequence of their commonalities in terms of human cognition.

3. Ambiguous Pictures and Homonyms

In this paper homonymy and ambiguity are treated in the same sense. Homonymy or ambiguity is exemplified by pole1(a long stick) and pole2(the most northern or southern point or territory on the Earth): two or more meanings associated with a given phonological form are distinct or ambiguous: two semantic structures are associated with the same phonological structure and are well-entrenched, while there is no well-entrenched, elaborately close schema, subsuming the semantic structures. Some kinds of tests have been proposed to make this measurable. According the logical test of Quine (1960), the acceptability of This is the pole (a long stick) but this is not the pole (the most northern or southern point of the Earth) indicates that pole is ambiguous. This is represented in Fig. 1. Note that C is at a great elaborative distance
from A and B. There is always some scheme (if one can call it that) uniting the substructures: one can extract from them some schema if it can be called an entity or thing. It is, however, hard to imagine a clearly delineated salient schema uniting the two cognitive structures, \emph{pole}1 and \emph{pole}2.

![Diagram of C, A, and B]

Fig. 1

Note that identity-of-sense anaphora suggests that the idea that there are semantic restrictions on the construction remains unspoiled (Geeraerts 1993: 229). Thus, (1) below is awkward if the two lexical meanings of \emph{pole} are at stake. If we disregard puns, the sentence only means that both Peary and Henson reached one of the top or the bottom extremities of the Earth or they both reached a long thin stick: the former interpretation may well sound more felicitous owing to our encyclopedic knowledge, which gives rise to the quite entrenched expression \emph{reach the pole} associated with a rather specific meaning, but the latter interpretation cannot altogether be
excluded. Crossed readings where the first occurrence of *pole* refers to the most northern point of the Earth and the second to a long thin stick and vice versa, is normally excluded. It may be that one cannot imagine two different contexts at one time: one-context-at-a-time can also be applied to the ambiguous picture below.

(1) Peary reached the pole and so did Henson

Presented here is a famous picture often shown in an introductory psychology class:

![Image of vase and faces](image)

Fig. 2 (adopted from Frisby 1979: 16)

One can see *either* a vase *or* two faces facing each other. One can *not* see *both* of them at the same time. When one sees a vase, a vase functions as the figure and the rest as the ground; when one sees two faces facing each other, they play the role of the figure and the rest the role of the ground, not of a vase. In other words only one interpretation is allowed at a time: a crossed reading or viewing in which one can see a vase and two faces in one context is normally excluded.

It is important to realize that it is hard to abstract common schema subsuming both views: what might be called schema here is an entity or a thing at best. Thus, the sameness and the difference are as follows:

1. Sameness: both are objects.
2. Difference: one is attached to the human body and the other is for drinking.

One can realize that the difference is very much foregrounded and the sameness is markedly backgrounded. The sameness (unity) shows only vestigially and one needs a great deal of effort to perceive the unity between the two in a normal situation, although the possibility should not be
precluded that the two are united.

One also has to note that which scene is foregrounded depends on contextual influences. Two faces facing each other are easily triggered by such an announcement as “Look at the picture where two people are talking.”, whereas a vase easily appears when “Look at the picture in which there is a container for flowers.” is announced or a big cup tends to show up when an announcement is “The picture is of a container for a drink in it.” This argumentation applies to language as well.

(2)  
a. He finally arrived at the pole.

b. He used the pole to hit her.

In (2a) the pole is most likely pole2, while the pole in (2b) is probably pole1. It is hard to get it the other way around unless one can imagine a rather mysterious situation: (2a) would be good if some pole (e.g. a flagpole) were his destination. (2b) might be felicitous if, in an imaginative story, he were a giant, much bigger than the Earth, and big enough to manipulate the planet.

Finally it may also be noted that ambiguity leads to the idea of separation or difference; in actual fact, one must also remember that difference only rests and is based on sameness or unity. It is my considered opinion that sameness always preexists before difference; we can recognize some difference between two given things only when the two have something in common. If the two are too far apart and too different, we as human beings are not able to grasp the difference between them.

4. Vague Pictures and Vagueness

Vagueness has various applications that do not coincide with the kind of vagueness meant in this paper. One kind of vagueness is the referential indeterminacy that may characterize the individual members of a category. This type of vagueness is illustrated by elbow: it is literally impossible to determine precisely where the elbow begins and ends in the arm region. Another kind of vagueness is the referential indeterminacy that may characterize the category as a whole: this is illustrated by such a color term as grey. Within the color spectrum it is not possible to draw a line between those degrees of brightness that are a member of the category grey and those that are not.

Prototypical vagueness as meant in this paper is exemplified by such words as child, and person, whose subcategory-meanings are not well-entrenched, but whose supercategory-meanings are well-entrenched with elaborately close schema subsuming them. Note that child and person do not contain a specification regarding gender; child and person are vague as to the dimension of gender. Several kinds of test are proposed to judge vagueness. According to the logical test of Quine (1960), the fact that the sentence I have a child (male child) but I do not have a child (female child) is
 unacceptable indicates that *child* is vague. They are represented in Fig. 3.

![Diagram](image)

Fig. 3

An example of vague pictures is represented in Fig. 4.

![Diagram](image)

Fig. 4

Note that this picture is rather schematic in the sense that one cannot tell whether this organism is male or female. The conception of this drawing is based minimally, if at all, on gender or age, but rather on the recognition of the existence of a general *person*. From a different angle, it may be said that dim and indistinct conceptions of male and female co-occur. Another example of vagueness in a picture is represented here:
Fig. 5 (adopted and modified from Frisby 1979: 16)

It should be emphasized that vagueness unlike ambiguity rests, among other things, on the assumption that it is based on sameness or unity. With some effort, it may be said that one might see either a swan-like bird or a pigeon-like bird in one instance; or one may recognize either a goose-like bird or a hawk-like bird in another instance. At any rate this picture displays very schematic birdiness while disregarding the slight differences between the two birds. Unlike ambiguity, vagueness focuses not on difference but on sameness. The difference and the sameness are as follows:

Difference: direction (Two birds are flying in the opposite direction.)
Sameness: The two entities are both birds sharing many of their contours.

What is at stake here is that the distinction between ambiguity and vagueness is not categorical and could be interchanged with effort: on one hand, in Fig. 2 to the extent that one can extract common schemas between the vase and the two faces, one can perceive the slight vestige of vagueness. In Fig. 1 the presence of C is not zero and there is the possibility that it could be foregrounded. One the other hand, in Fig. 3 the presence of A and B is not totally absent and might be foregrounded in some unusual context. In Fig. 4 the distinction of gender may be foregrounded and come close to ambiguity. For example, when a person must stay in an on-campus no-coed dormitory, an administration office must focus on the question of whether the person is a male or a female, so that the administration might ask "Is the person a male-person or a female-person?" In Fig. 5 in some contexts the birdiness itself might be backgrounded and the fact that there are two different types of birds is foregrounded, which would be a case of ambiguity rather than vagueness. For instance, when the direction of the two birds flying is crucial to some designated context where the bird flying to the right will die, the one to the left will survive, the birds are differentiated into two distinct birds and the idea of ambiguity emerges accordingly.

Now is the time to touch upon intermediate cases between ambiguity and vagueness: polysemy. In a sense polysemy is seen as a bridge between
ambiguity and vagueness.

5. Polysemous Pictures and Polysemy

Polysemy may be exemplified by *spring*. *Spring* has various sub-meanings, and yet there is also a common schema between them. *Spring* has several fairly distinct meanings: (1) a place where water comes up naturally from the ground, and water that flows up from under the ground, (2) a sudden quick jump in a particular direction, (3) a twisted piece of metal that quickly returns to its original shape, (4) the season between winter and summer, (5) the ability of a cushion etc. to return to its normal shape after being pressed down. These meanings do not cover the entire world of *spring*. This order (1) to (5), however, indicates the historical order in which the meanings appear. At the same time *spring* has a fairly distinct schema common to those sub-cases. It is an abstract picture or image in which something undergoes a sudden or gradual movement or change often in an upward direction. This is represented in the following figure:

![Diagram](image-url)

Fig. 6
What is to be noted is that the differences between Fig. 1 and Fig. 3 are not abrupt but gradual; polysemy occurs as in-between cases between them. In other words, drawing absolute lines between ambiguity, polysemy, and vagueness is almost impossible. To me this is analogous to the fact that in the case of brightness it is impossible to draw absolute lines between black, grey, and white.

Note also that polysemy has characteristics both of ambiguity and vagueness: it has the concept of difference and sameness or separation and unity. This is represented in the following figure:

![Figure 7](image_url)  

Fig. 7 (adopted from Frisby 1979: 16)

This picture depicts two different women: one young and pretty and the other old and ugly. But they have something in common, too. They share much of the contours of their faces. The following are the samenesses:

- Being a woman.
- Being a human.
- Sharing much of their facial contours.
- Sharing clothes and bonnet.

The differences are:

- Being old or young (=One is a maiden, the other a crone.)
- Being pretty or ugly.

Compared with an ambiguous picture, a polysemous picture focuses on unity, and compared with a picture illustrating vagueness, a polysemy image focuses on separation. This fact depicts the very image of family resemblance.
6. Family Resemblance

The presence of polysemy is most reasonably explicated as bridging the gap between ambiguity and vagueness. This is the situation to be called family resemblance. The idea of family resemblance originated with Wittgenstein (1953). Granting that all the credit goes to him, Wittgenstein himself does not seem to consider this idea as worthwhile and weighty. But my contention here is that family resemblance is deeply rooted in almost any relationship of conceptualization in which humans are involved. The relationship presented here between ambiguity, polysemy, and vagueness should well be that of family resemblance.

The fact that polysemy has constituents both of ambiguity and vagueness should most reasonably be explained in terms of family resemblance: polysemy bridges and straddles ambiguity and vagueness. This is analogous to the fact that the color grey bridges and straddles black and white. Just as the color grey has characteristics both of black and white, polysemy has characteristics both of ambiguity and vagueness. And just as we can ignore grey in brightnesses so only dichotomy of black and white will remain, technically speaking we can ignore polysemy. In this case, the connecting part in the family resemblance networks perishes.

Also one has to notice that light black could be considered as some type of white, in a context in which the light black part is surrounded by darker black and dark white as some type of black where the dark white is surrounded by lighter white. Perception of lightness may often be well cognized by emergence of difference.

7. Concluding Remarks

The consequences of the argument in the foregoing pages can be traced to two aspects. First, we may have to change our conception about the supposed boundary between language and other cognitive capabilities (e.g. reasoning, the ability to interpret pictures). More specifically, we have to discard the autonomy of language in the respect depicted in this paper.

Second, we will have to admit the gradience or continuity between ambiguity, polysemy, and vagueness in fields other than the sphere of language. The gradience may be taken as the instability of the distinction between them from a slightly different angle.

Finally the structural parallelism between language and picture presented here is easy to perceive once we are guided in the right direction, but this parallelism has never been recognized and mentioned as far as my limited knowledge is concerned.

References


