The notions of figure and ground in linguistics and those in psychology

Ryuta Fukui

Center for Humanities and Sciences, School of Health Sciences, Ibaraki Prefectural University of Health Sciences

Abstract

The notions of figure and ground, which originated in the field of psychology, have also been applied to linguistics. In psychology, the perception of figure and ground occurs simultaneously. In linguistics, Ground is a reference object that determines the unknown properties of Figure. However, in linguistics the notions of Figure and Ground are frequently not clearly understood. The purpose of this paper is therefore to clarify the difference in definition between the notions of figure and ground in psychology and those in linguistics.

Keywords: Figure and Ground in linguistics, figure and ground in psychology

1. Introduction

This paper concerns about the notions of figure and ground. These notions, which are widely known especially in the area of Gestalt psychology, were first introduced by Rubin (1921, 2001). The notions of figure and ground have been applied to linguistics in some papers such as Talmy (1975, 2000) since the 1970s. However, the actual meanings of figure and ground in psychology and those in linguistics are slightly but clearly different while the identical terms are used in both areas of study. In the following, we clarify the difference between the meanings of figure and ground in psychology and those in linguistics.

2. The notions of figure and ground in psychology

The notions of figure and ground are very fundamental in the area of perceptual psychology and nowadays the description of these notions is found even in introductory textbooks of psychology. The notions of figure and ground are often described by using the picture (Fig. 1), which is usually called the figure-ground vase, or Rubin’s vase. Rubin’s vase is named after the Danish psychologist, Edgar Rubin, who publicized this picture in Rubin (1921, 2001).

When one turns one’s eyes on the picture (Fig. 1), the light reflected from the picture goes into one’s eyes and it produces an image on the retina. However, this sensory input does not indicate that one recognized what’s on the
picture. The information from the retina needs to go into one's brain and needs processing and interpreting.

The picture (Fig. 1) can be seen in two ways. On one hand, if the central white region is seen as a vase shape, the black region is formless and not perceived as a particular thing. In this case, the two curvilinear edges between the black and white regions belong to the white region; that is, the edges are the contour of the white region. In addition, the vase shape looks as if it is in front of the black region. On the other hand, if the both sides of the black region are seen as two profiles which face each other, the white region is not perceived as a particular thing. Similarly to the former case, the two curvilinear edges belong to the black region; that is, the edges are the contour of the black region, and the shapes of two faces look as if they are in front of the white region.

While we can switch between the two ways of seeing the picture, we cannot recognize both a vase and two faces at the same time. Once we recognize either region as something, the other region becomes formless and is not perceived as a particular thing. A region which is recognized is called figure, and the other region which is not perceived in particular is called ground. This cognitive capability by which human determines figure from ground is called in various ways: the distinction, segregation, organization, alternation, perception, reversal, discrimination, reversal, alignment, relation, separation, assignment or illusion of figure and ground.

Rubin (1921, 2001) and the works following Rubin have brought to light the nature of figure and ground. He mentions the characteristic of figure and ground, summarized as in (1):

(1) figure and ground in psychology
a. What is perceived as figure and what is perceived as ground do not have shape in the same way.
b. Figure is things, and ground is substance.
c. Ground is less localized than figure.
d. In relation to ground, figure is more impressive and more dominant. Everything about figure is remembered better, and figure brings forth more associations than ground.
e. Figure is more affected than ground.

Wolfe, Kluender, Levi, Bartoshuk, Herz, Klatzy, Lederman and Merfeld (2009) list some of the principles which are at work in the assignment of regions to figure or ground as in (2):

(2) a. Surroundedness: If one region is entirely surrounded by another, it is likely that the surrounded region is the figure.
b. Size: The smaller region is likely to be figure. The cow is smaller than the field in which she stands. These letters that you are reading are smaller than the page.
c. Symmetry: A symmetrical region is more likely to be seen as figure.
d. Parallelism: Regions with parallel contours are more likely to be seen as figure.
e. Extremal edges: If a region has shading which suggests the edge of a region is curving away from the viewer (i.e. the edge is extremal), the viewer concludes that it is the figure because it must be closer.

f. Relative motion: How surface details move relative to an edge can also determine which region is figure and which is ground.

From the lists in (1-2), we can say about figure and ground in psychology as follows. First, if one region is perceived as figure, then all of the other regions at the site are perceived as ground simultaneously. This is inferred mainly from (1c) and (2a). In psychology, figure and ground are considered to be conceptions that are always perceived at the same time.

Second, it can be said that in psychology what are distinguished as figure and ground are planar regions. This is inferred from (2a) and (2b). This is quite natural if we think of the picture we dealt with in this paper. The picture is obviously planar or two dimensional. Moreover, this follows the nature of visual perception. The figure-ground distinction is conducted from the information captured on the eyes, which have two dimensional retinas. Even if we look at the three dimensional regions, the information is captured by the retina two-dimensionally.

3. The notions of Figure and Ground in linguistics

The notions of figure and ground have been adapted to linguistics since the 1970s. Talmy (1975, 2000) are principal works which apply figure and ground to linguistics. In his papers, Talmy distinguishes the linguistic notions of figure and ground by writing Figure and Ground for linguistics (the first letters are capitalized). In the following, we follow his notational customs.

Talmy defines Figure and Ground in linguistics as follows:

(1) The general conceptualization of Figure and Ground in language

The Figure is a moving or conceptually movable entity whose site, path, or orientation is conceived as a variable the particular value of which is the relevant issue.

The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure’s site, path, or orientation is characterized.

(Talmy (2000:184))

Talmy also summarizes the characteristics of Figure and Ground as follows:

(2) Figure

i. Definitional characteristics
   a. Has unknown spatial (or temporal) properties to be determined

ii. Associated characteristics
   a. More movable
   b. Smaller
   c. Geometrically simpler (often pointlike) in its treatment
   d. More recently on the scene/in awareness
   e. Of greater concern/relevance
   f. Less immediately perceivable
   g. More salient, once perceived
   h. More dependent

(3) Ground

i. Definitional characteristics
   a. Acts as a reference entity, having known properties that can characterize the Figure’s unknowns

ii. Associated characteristics
   a. More permanently located
   b. Larger
   c. Geometrically more complex in its
d. Earlier on the scene/in memory

e. Of lesser concern/relevance

f. More immediately perceivable

g. More backgrounded, once Figure is perceived

h. More independent

(Talmy (2000:315-316))

In (2-3), definitional characteristics are the characteristics which Figure or Ground always has, and associated characteristics are the characteristics which Figure or Ground tends to have.

What should be noted first is that both Figure and Ground have a certain nature of physical entity. Both Figure and Ground need to be expressed by words in a sentence. Because they are explicitly expressed by words, even Ground comes to have a certain property of entity.

As shown in (2), Figure has unknown spatial (or temporal) properties to be determined. As shown in (3), Ground acts as a reference entity or an anchor, having known properties that can characterize the Figure’s unknowns. This means, by definition, that Ground determines Figure’s unknown spatial (or temporal) properties.

Talmy explains these characteristics of Figure and Ground by presenting actual English sentences, for example, the sentences in (4):

(4) a. The bike is near the house.

b. #The house is near the bike.

(Talmy (2000:183), the # mark added)

Talmy argues that one could have expected these sentences in (4) to be synonymous on the grounds that they simply represent the two inverse forms of a symmetric spatial relation, but the obvious fact is that they do not have the same meaning: The house is to be used as a fixed reference point by which to characterize the bike’s location. That is, the house is Ground and the bike is Figure.

The oddity of (4b) is a matter of pragmatics, not grammar, because the sentence is nothing wrong with the grammar of English. It comes from the mismatch between reality and cognition. The house is usually more permanently located than the bike. The house is usually larger than the bike. The house is more likely to follow the characteristics of Ground and the bike is more likely to follow the characteristics of Figure. Hence the house is likely to be Ground and the bike is likely to be Figure.

Here, note that the sentence in (4b) is not always unacceptable. In the situation where kids are playing with a toy bike and a toy house, they can say (4b) and the sentence is totally acceptable. It can be said that language has a device to distinguish Figure from Ground and also the reality can affect the acceptability of a sentence. Language first specifies Ground and then by making Ground act as a reference entity it specifies Figure.

4. Differences in determining figure and ground in psychology and Figure and Ground in linguistics

As it turns out, there is a difference in determining figure and ground in psychology and Figure and Ground in linguistics. As we discussed above, in psychology, the notions of figure and ground are used for distinguishing two regions. If a certain region is perceived as figure, the rest of the other regions are all perceived as ground simultaneously. On the other hand, in linguistics, Ground is a reference object and unknown properties of Figure are determined in accordance with Ground. That is, by definition, Ground needs to be perceived first. Without it being determined, Figure cannot be perceived.

In psychology, a certain region is perceived as figure, the rest of the other regions are all perceived as ground. This is shown in the following situation. If one is asked to see a picture, which various things such as a cat, a dog,
a tree, a building and a bicycle are in, one finds something one by one. One cannot find all of the objects shown in the picture at once. Moreover, if one finds a cat in the picture, all of the other things, including a dog, a tree, a building and a bicycle become ground.

In linguistics, a certain entity is determined as Ground first, then another entity is perceived as Figure. This is explained by the examples in (1).

(1) a. John's bicycle is in the park.
   b. *John's bicycle is in.
   c. In the park is John's bicycle.

In (1a), the park is Ground and John's bicycle is Figure. We cannot omit the park as in (1b). This is because Ground needs to be determined in language, contrary to a ground in psychology. As in the locative alternation sentence in (1c), we can overtly express the determination of Ground by preposing the locative prepositional phrase.

5. Conclusion

In this paper we have discussed the definitional differences of figure and ground in psychology and Figure and Ground in linguistics. In psychology, if a certain region is perceived as figure, the rest of the other regions are all perceived as ground simultaneously. On the other hand, in linguistics, Ground is a reference object and unknown properties of Figure are determined in accordance with Ground. By presenting situations and sentences, we have shown the possible evidence for the difference.

ACKNOWLEDGEMENT

My thank goes to Masaharu Shimada for his comments, and to Neil David Parry for acting as an informant.

REFERENCES

3) Rubin, op.cit.
4) Ibid.
5) Ibid.
7) Talmy L. Figure and Ground in Complex Sentences, Proceedings of the First Annual Meeting of the Barkeley Linguistics Society. 1975:1:419-430.