

Title	Mechanism of seeing with especial reference to brightness
Sub Title	
Author	宇野, 善康(Uno, Yoshiyasu)
Publisher	三田哲學會
Publication year	1957
Jtitle	哲學 No.33 (1957. 3) ,p.A9- A11
JaLC DOI	
Abstract	
Notes	Abstract
Genre	
URL	<a href="https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00150430-00000033-0180">https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00150430-00000033-0180</a>

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

# Mechanism of Seeing with especial Reference to Brightness

*Yoshiyasu Uno*

What is discussed with emphasis in this article may be summarized as follows:

Preface—The symbolic meanings of objects we perceive play such an important role in our actual life that the perception which is value-oriented by “cognitive contexts” should not be ignored in the study of perception. The cognitive contexts mentioned here may be taken as equivalent to the “Stream of thought, of consciousness or of subjective life” of W. James.

On investigating these matters the underlying mechanisms of visual perception which have been known must be thoroughly considered.

I. From the study of visibility to the study of perceiving concrete objects—Fundamental facts in the visual acuity and visual resolving power are discussed, referring to S. Hecht's contributions to sense-physiological studies. Hecht's main concern in these studies may be stated “unidimensional” in the sense that he did not take into consideration the process of the spatial organization explicitly. However, the concept of spatial organization is of importance in K. Koffka's theory of spatial perception. From K. Koffka's point of view the spatial organization should still exist even in such strictly controlled conditions as in Hecht's experiments though it might be in a latent state. Whenever visual stimuli have some structure in spatial pattern the visual field is divided into figure and ground as a result of spatial organization process.

The figure appears on the ground as a more organized part of the visual field and one of the important phenomena observed between the figure and the ground is the contrast.

II. A survey of the studies of contrast phenomena and discussions there-to—As to the present state of the study of contrast, it may be said that progress from describing the phenomena to their explanation has just taken place. Several examples of conditions which influence the phenomena are enumerated and Mach's phenomenon, a special case of the subjective enhancement of brightness, is discussed in detail historically and also physiologically.

Among the studies of the contrast phenomena, K. Motokawa's recent works conducted by a physiological method are worthy of attention. The new operational concepts, for instance, "Contrast effect" defined in terms of the measures employed in his method seem to have cast a light to the explanation of contrast. The more important is that these concepts seem to provide an electrophysiological frame-work which enables us to explain diversity of process in the retina in a unified way.

III. Tension in the field of visual perception—K. Koffka once called our attention to a special property of "coherence" inside of a contour line on a homogeneous plane. There are, indeed, some differences in the value of the threshold and in the after-effects between the outside and the inside of the contour line. These phenomena are named, 'Tension' in this article and some examples of tension are mentioned. W. Köhler's theory of electric current by which the phenomena like these are explained under a term, "Satiating", also explains the process of differentiating the figure from its ground by applying the law of Kirchhoff. But, his theory stands in part on the hypothesis concerning the ion concentration and thus the action of electric currents in the optic nervous sectors. Its experimental proof is urgently called for.

IV. A problem in the study of visual perception—When objects are perceived they are given some meanings, symbolic or illusional, by the eyes, so to speak, of the cognitive contexts. With reference

to the character of these cognitive contexts, we have a problem which is suggested in the preface and this chapter.

Optical illusions may be adequately divided into two types as illustrated by W. James. Although it does not seem impossible to give an explanation in terms of Gestalt theory to the phenomena which belong to the first class, there seems to be no such theory that provides us with a satisfactory explanation of the phenomena which belong to the second.

In conclusion, we should distinguish three levels in the study of visual perception. The first level consists in the microscopic analysis of visual sensation and Hecht's studies previously referred to may be good examples. As seen in the figure-and-ground phenomenon the influence of spatial organization becomes conspicuous in the second level. And also it can be observed in this level that a certain meaning spontaneously arises from the 'Gestalt' which we perceive in accordance with the law of 'Prägnanz'. In the third level, it is necessary to investigate the perception which is directed somehow and to explore the nature of the cognitive contexts as they participate in the perception.

## **La théorie des fonctions récursives primitives et générales et ses applications**

*Akira Oide*

Cet article a le but d'exposer brièvement une partie de la théorie des fonctions récursives primitives et générales qui se concerne particulièrement des études métamathématique et métalogue. Les matières contenues sont suivantes.

Introduction. (supprimée)

Chapitre Premier. Les fonctions récursives primitives.

§1. Définition et exemples.