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Pictorial Relief Geometry

Natalia Iyudu*

Department of Mathematics, University of Oslo, Problemveien, Norway

Introduction

Pictorial relief is a type of visual awareness that occurs when one looks into (rather than at) a picture. It has no geometrical counterpart in the physical world. It takes into account cues identified mentally in the tonal gradients of the physical image—pigments distributed over a planar substrate. Color, pattern, texture, shape, and depth are all well-known relief characteristics. This review focuses on geometrical properties, such as depth spatial variation. Being aware of an extended quality such as relief implies the existence of a "depth" dimension, a nonphysical spatial entity that can vary smoothly in a surface like manner. Formal geometry is used to express the conceptual understanding [1].

Pictorial relief is a term that describes the sensation of looking "into" a picture, where the picture itself is a flat physical object. In this brief review, we focus on relief (a surface) rather than space (a volume), in static, monocular viewed images (no motion parallax, no disparity), and primarily in photographs or artistic renderings of natural scenes. This implies that the vast majority of the literature on depth perception in its various manifestations is purposefully ignored. Even with these constraints, the review must necessarily be limited in scope [2].

Denis' insight implies that the concept of veridicality does not apply and that pictorial relief is better defined as (controlled) imagery rather than perception itself. Pictorial relief exists only in visual awareness thus; the notion of its geometrical structure requires some operational definition (Bridgman 1927) that must be quite different from that which may apply to physical surfaces. Several operationalization in vision science have been implemented, and a few are discussed below. Different methods must be expected to produce different results a priori; such differences may be expected to produce additional insight [3].

Methods of reproduction or methods of absolute or differential judgments as ways to supplement or extend this. The more methods there are the better. The specific method must be used to index the quality measure. There is no guarantee that different methods address the same entity; for example, a length measured with a ruler may differ from the length measured by echo location. A single word (for example, length) frequently points to distinct entities. The convergence of measurements obtained using different methods indicates that one is approaching some level of so-called objectivity [4].

Description

A study by Enright (1987) on eye movements is interesting. This author demonstrated how vergence movements accompany the viewing of line drawings resembling 3D shapes. The magnitude of these movements is quite variable. This could be interpreted as a physiological sign of relief psychogenesis activity. It is unknown whether concurrent awareness of the picture surface would prevent such movements. Gregory (1968) inverts this and attempts to measure absolute depth by matching with the vergence for a superimposed mark in his Pandora's Box apparatus. There is an interesting interaction between physical and pictorial elements here [5].

Conclusion

Textural cues (for example, the canvas in a painting), the picture frame, and limited angular size all emphasise picture mode. This implies a close viewing distance and a well-lit, articulated environment. Aperture mode changes everything. As a result, isolated pictorial objects in aperture mode have no so-called locatedness with respect to the eye, whereas there is an imprecise relationship between pictorial and physical space in picture mode. This is evident from the fact that a pictorial actor occasionally breaks the picture plane (e.g., sticks a foot or hand out of the picture frame). It is critical in display mode that the observer has a sense of the environment.

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***Address for Correspondence:** Natalia Iyudu, Department of Mathematics, University of Oslo, Problemveien, Norway, E-mail: natalialyudu@gmail.com*

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