

## Colour Perception Between Psychology and Art

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### Abstract

The poster refers to important contributions of psychological research on colours. Special emphasis is given to the fundamental classification proposed by David Katz, who strongly influenced subsequent studies; e.g., those by Karl Bühler and Gaetano Kanizsa. In particular, the opposition between diaphanic and epiphanic colours is discussed and applied to two recent paintings of a contemporary experimental artist.

**Keywords:** diaphanic colours; epiphanic colours; simultaneous chromatic contrast; chromatic constancy; Kanizsa Archives.

The most important perceptual psychologists have entered the field of colour phenomena with experimental observations, classifications, and theories. A crucial step in the analysis of chromatic qualities has been *The World of Colour* (1911/1935) by David Katz, originally published at the beginning of the twentieth century, a few years before the start of the First World War. His contribution about ‘the modes of appearance of colours’ is fundamental.

Being the pupil of Georg Elias Müller in Göttingen – yet repeatedly accused of being at the same time too susceptible to Husserl’s teaching, which he heard when still in Göttingen and which was hinged on the concept of *Ding* – Katz proposed an epoch-making phenomenological classification of colour that no one would be able to ignore.

Certainly, as for instance Paolo Bozzi (1991) reminded us, some anticipatory traces are to be found in Goethe’s *Farbenlehre* (‘Theory of Colours’, 1810), in Renaissance treatises on painting – as the one written by Leonardo and particularly studied by the Gestaltists – or even in Pseudo-Aristotle’s *De coloribus*.

But it is Katz’s research programme the one that sets a milestone for an accurate and innovative phenomenological analysis of colours. In fact, there are the *epiphanic* colours, distinguished from the *diaphanic* ones, but also the *volumetric* and finally the *transparent* colours, these being particularly difficult and enigmatic (Katz 1911).

A very significant evidence of the influence exerted by Katz’s book on the relevant literature is represented by Bühler’s publication (1922), which should have been a first essay included in a wider encyclopaedic project eventually never realised; its title contained the first part of Katz’s title, *Die Erscheinungsweisen der Farben* (‘The modes of appearance of colours’), which in its entirety included the following: *und ihre Beeinflussung durch die individuelle Erfahrung* (‘and their modification by individual experience’).

By distinguishing three generations of first-class experimenters and theorists – i.e., those of Helmholtz, Hering, and Katz – Bühler himself acknowledged them as the very peak in the history of research on chromatic perception, a peak which will have a lot of influence on the approach of future studies, including Bühler’s one.

Being very rich in ideas and intuitions which in turn became classical, these latter studies, as Cesare Musatti (1953) among others reminded us, focused their attention on the phenomena concerning chromatic contrast and on those concerning chromatic constancy. These are two testing grounds: the first consists in the fact that a surface (whether chromatic or not) adjacent to an inducing one shows a component complementary to the colour of the latter; the second in the fact that surface colours do not change (or change very little) despite large variations of observable illumination conditions. There are numberless experiments and demonstrations ingeniously set up for a thorough examination of such problems.

Still around the mid-Sixties of the last century Wolfgang Metzger – who was then the director of the Psychology Institute at the University of Münster and the coordinator of a *Handbuch* whose contributors included Gaetano Kanizsa – called on Kanizsa himself to deal, in his essay about colour, with a subject the manual was lacking and which the Triestine scholar completely mastered. It was a question of showing the mutual effects between figural organisation and colour, with particular attention to the contrast dependency on the most complex Gestalt conditions, by referring to Benary, Koffka, and many others. Otherwise Metzger himself should have swallowed the bitter pill («so müsste ich den sauren Apfel beißen»<sup>1</sup>) and insert a (not really relevant) part in his chapter on the Gestalt laws.

Still from the over twenty-year-long correspondence between the Triestine scholar and Metzger, one can deduce how much the latter was interested in Kanizsa’s research and experimental production; works on colour always hold a distinguished place: from colour contrast and equalization to perceptual transparency, from the colour differentiation of homogeneously stimulated fields to phenomenological studies of texture and figural structure (Kanizsa 1979).

Either alone or with his assistants, Metzger analysed the new experiments and the original drawings of his Italian colleague, whom he frequently asked for clarification and comments.

<sup>1</sup> Quotations from Metzger are taken from the correspondence preserved at the Kanizsa Archives (University of Trieste, Department of Life Sciences).

At the beginning of the Sixties of the last century Metzger sent a very significant letter to Kanizsa, in which he informed him that a contributor of the volume on perception – which was edited by Metzger himself and should have contained a chapter entitled *Erscheinungsweisen der Farben* in the sense of Katz – had left. Therefore Metzger had thought about Kanizsa as the only possible substitute, since no one else in the world had recently conducted so many researches in this field: «*Ich weiss nun auf der ganzen Welt keinen Menschen der in letzter Zeit irgend etwas Neues auf diesem Gebiet gearbeitet hat, ausser Ihnen*» ('Al momento non conosco nessuno al mondo che in tempi recenti abbia presentato tante novità in questo campo quanto lei').

Moreover, it is interesting to note how the study of the modes of appearance of colour contributes to classifying not only the shapes and the structures of ordinary vision, but also the set-ups of two-dimensional representations, from painting to photography. The opposition indicated by Katz between diaphanic (film) and epiphanic (surface) colours is particularly perspicuous: the first are characterised by a reduced colour consistency and by the penetrability to the gaze up to a point, without any excessive compactness; the latter, on the contrary, are typical of spatially localised objects, whose material structure they express.

By way of example, I discuss in the poster two acrylic paintings by a contemporary artist, the Triestine Elisabetta Bacci, who after various experiences in London and New York has specialised at the *Accademia Ligustica di Belle Arti* in Genoa. She regularly works with chromatic effects and plays of colour.

One painting gives a rough indication of the possible structure of the space and the objects placed in it. In fact, the wider surfaces above and under the horizon are accessible and almost penetrable to the gaze, whereas the underlying structure appears to be more homogeneous and occluding. However, this latter structure lacks a specific material character, therefore it lends itself at least to a double reading: a cut-off pyramid or a jetty. Epiphanic colours, on the contrary, have a compact and impenetrable surface structure. In the middle of another painting we see – lied down, almost floating, under the horizon line – a precious, slightly scratched golden box: a *Golden Tebah* on diaphanic backgrounds.

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