

Colour harmony: from dualism to living perception

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ABSTRACT

The period from about 1700 to the beginning of the 20th century saw a succession of remarkable inventions in the systematic ordering of colours, often accompanied by theories of their harmonies combinations. This development came to a climax when Albert Henry Munsell and Wilhelm Ostwald almost simultaneously published their colour order systems, later editions of which contained detailed instructions on colour harmony. Munsell and Ostwald were preceded by an impressive lineage of scientists and philosophers writing on colour harmony. Many artists, particularly at the turn of the 19th and 20th centuries, became interested in what scientists had to say about the aesthetics of colour. Interest towards concepts of harmony among artists has waned markedly since the 2nd World War, but among scientists it remains stronger than ever. However, today's colour scientists express their ideas in the form of algorithms, which has further alienated artists from the subject. This paper explores why present-day concepts of colour harmony fail to motivate artists and designers and suggests some alternative directions for research in this important subject.

1. INTRODUCTION

Only a few artists have ever aimed at totally harmonious art in the sense of the conventional theories of harmony (Georges Seurat being a famous exception). The function of art is to stir our emotions, intellect and imagination. To have this effect, it needs to deviate from the expected, from the 'normal'. Harmony is very much in the comfort zone of normality, whereas contemporary art and design aim at being mostly out of it. To have any useful meaning for artists and designers today, a theory of colour harmony needs to address at least the following issues: 1) Harmony has lost its status as a universal concept in art and needs to be re-examined, 2) Art and design have become alienated from the formalistic ideas of visual coherence that dominated modernism, 3) Colour should not be regarded separately, but in relation to all the sensory, cultural and conceptual factors constituting an artwork, 4) Rather than being passive reception, colour perception is a matter of involvement, interaction with the world, 5) The history and intentionality of the subject influences his/her colour experiences. This also undermines the validity of rigid universal colour theories. These are big challenges, but to leave them unanswered is to turn a blind eye to reality.

1.1 Colour dualism

Harmony was a central issue of aesthetic theory in the visual and other arts until the rise of Modernism from around 1860 onwards. For centuries harmony of proportion and colouration were important criteria of aesthetic judgement of both art and design objects; and aesthetic judgement was a key factor in evaluating artistic quality and worth. Other criteria included the ability of the art work to enlighten the viewer or reader and to cultivate moral and aesthetic sensibility and a sense of the sublime. Classical theories of

harmony in architecture, sculpture, music and poetry had their models in the extant works of ancient art, such as Classical greek ruins, sculptures, utility objects, poetry and their Roman copies and reinterpretations. For theories of colour harmony in painting and the other plastic arts, there was very little to lean on. It had to be construed or inferred from the other, better known or preserved arts and sciences. Two concepts – that are interwoven in many colour theories – have dominated colour harmony from Antiquity to this day: the concept of a systematic ordering of colour relationships, and the concept of an analogy between colour relationships and musical consonance. There is a third, less direct, concept and tradition that continues to influence colour harmony; the Pythagorean idea of fixed mathematical proportions determining the movements and distances of the sun, the planets and the stars orbiting the earth was linked to musical consonance to form a Harmony of the Spheres. These traditions have contributed to the continuation of a metaphysical and dualistic model of colour harmony. This model presupposes the existence of an ideal and sublime harmony that is only indirectly sensed by mortals.

1.2 The music analogy

The notion of a parallel between colour harmony and musical harmony can be traced as far back as Pythagoras (ca. 570–490 BC) and its history has been thoroughly discussed in Kemp (1990), Gage (2001), Gage (1999) and in von Maur (1999). The comparison of the wave theory of light with the vibration frequencies of sound became very popular in the latter part of the 19th century (von Maur 1999) and persists in recent ideas of colour harmony (Brougher et al. 2005). Some supporters of this idea have linked it with the phenomenon of synesthesia. Among the most common forms of clinical synesthesia is colour-hearing, the spontaneous firing of visual sensations by auditory stimuli or vice versa. Synesthesia is a real experience, but at the same entirely private and subjective. No two synesthetes have been known to link colours and sounds in exactly the same way. (See Cytowic 2002). There are many and very interesting metaphorical and cultural parallels in, for example, the arts of painting and music, but so far there is no evidence, either physical or neurological, of an objective connection between auditory pitch and perceived colours.

1.3 The beguiling beauty of colour order

If colour harmony is regarded as a system of unity, coherence and continuity, then the rules are relatively simple. Linear samplings from any colour system that is based on a visually logical order will automatically yield smooth sequences of hue, saturation, lightness, whiteness, etc., as well as well-balanced complementaries. Harmony rules that are derived from perceptual colour systems will have strong predictive power when applied to applications of colour that are similar to the system: two-dimensional, with colour areas of uniform texture, size and shape. In this sense they are self-predictive and there is no need for mathematics to prove it. Such models are less successful when applied to colours in other modes of appearance. Reasons for this are numerous. As Josef Albers stated in *Interaction of Color* (Albers 2013):

Usually, illustrations of harmonis color constellations which derive from authoritative systems look pleasant, beautiful and thus convincing. – – When applied in practice, these harmony sets appear changed. In addition to quantity, form and recurrence, wider aspects exert still more changing influences. These are: Changed and changing light – and even worse, several simultaneous lights; reflection of lights and colors; direction

and sequence of reading; presentation in varying materials; constant or altering juxtaposition of related and unrelated objects.” (Albers 2013: 41–42)

Albers here makes a case against harmony as an *a priori* system of structural relations, which exists irrespective of the condition, intentions and expectations of the viewer and independent of the above mentioned contingencies. If it is accepted that colours cannot exist as a metaphysical structure independent of a viewer, then colour relationships cannot exist in the world *a priori*, but are rather the outcome of the engagement of the human (or animal) with its environment and cultural condition. To understand the impact and meaning of colour combinations it is necessary to investigate this dynamic relationship. It may turn out that such investigation yields little or nothing in the way of universal rules of colour harmony, but rich rewards in the way of understanding the meaning and function of colour in our lives.

2. LIVING PERCEPTION

The rapid globalization of the art market has exposed artists to an increasing diversity of artistic ideas and influences. Also the focus and role of art and design has shifted from questions of aesthetic sensibility, beauty and the sublime to conceptualism, gender, political, environmental and societal issues. Colour harmony based on abstract and formal ordering, unity, balance or pleasantness has to a large extent ceased to motivate artists. (See e.g. Gage 1999: 55-56, Westland et al. 2007). This alienation of artist from formalistic concepts of harmony has left the field to cognitive and computer scientists, psychologists and neuropsychologists, who express their ideas in the form of algorithms. As a result, artists and designers have lost touch with present thinking in colour harmony.

The fact that harmony has lost its status as a universal concept in art and design does not mean that apt colour combination has ceased to be relevant. On the contrary, in today's world of electronic, printed and mass-produced colour the issue of its impact is more urgent than ever: a redefinition of colour harmony is needed. Albers spoke of the colour combinations of the old (or new) masters as “instrumentation” and in an exercise for studying these instrumentations Albers urged the students to give a general impression of the “...climate, temperature, aroma or sound of their work...” (Albers 2013). The instrumentation could of course be consonant or dissonant. What mattered was the particular sensual impression, the mood and character conveyed by the colours and forms. These impressions presuppose a living viewer in living perception, relating the experience to his/her history, culture and situation. These experiences are not private (like synaesthesia), but shared more or less universally due to our common experience and fate as humans. It is here that we must begin our search for colour universals.

James Gibson (Gibson 1986), Semir Zeki (Zeki 1999) and Alva Noë (Noë 2004) have all independently emphasized the active role of the human or animal in the formation of visual experiences. They stress that our sense of sight developed primarily for gaining information about our physical surroundings, and they emphasize the filtering of sensory information for the purpose of appropriate and relevant actions. “The visual system *hunts* for comprehension and clarity. It does not rest until the invariants are extracted. Exploring and optimizing seem to be function of the system.” (Gibson 1986: 219). Perceiving colours and their relations, then, is not a mere matter of judging their static “qualities”, but of sensing their potentiality for actions.

Colour has not only multiple layers of meaning, but is richly layered also on a perceptual level. In his principal work, *Phenomenology of Perception* Maurice Merleau-Ponty describes the multi-layered nature of visual perception:

We shall not succeed in understanding perception unless we take into account a colour function which may remain even when the qualitative appearance is modified. I say that my fountain pen is black, and I see it as black under the sun's rays. But this blackness is less the sensible quality of blackness than a sombre power which radiates from the object even when it is overlaid with reflected light, and it is visible only in the sense in which moral blackness is visible." (Merleau-Ponty 2002: 355–6).

It is this richness of experience – which cannot be quantified or measured – that a theory of colour harmony must try to embrace.

REFERENCES

- Albers, J. 2013. *Interaction of Color*. 50th Anniversary Edition. New Haven and London: Yale University.
- Brougher, K., J. Strick, A. Wiseman, J. Zilczer. 2005. *Visual music – Synesthesia in Art and Music since 1900*. New York: Thames and Hudson Inc.
- Cytowic, R. 2002. *Synesthesia: A Union of the Senses* (Second Edition). Cambridge, MA: A Bradford Book, the MIT Press.
- Gage, J. 1993. *Colour and Culture, Practice and Meaning from Antiquity to Abstraction*. London: Thames and Hudson.
- Gage, J. 1999. *Colour and Meaning: Art, Science and Symbolism*. London: Thames and Hudson.
- Gibson, J. 1986. *The Ecological Approach to visual Perception*. New York: Psychology Press.
- Kemp, M. 1990. *The Science of Art – Optical themes in western art from Brunelleschi to Seurat*. New Haven and London: Yale University Press.
- Maur, K. von. 1999. *The Sound of Paintings*. Munich: Prestel.
- Merleau-Ponty, M. 2002. *Phenomenology of Perception*. London: Routledge.
- Noë, A. 2004. *Action in Perception*. Cambridge: The MIT Press.
- Westland, S., K. Laycock, V. Cheung, P. Henry and F. Mahyar. 2007. *Colour Harmony*. *Colour: Design and Creativity* (2007) 1 (1): 1–15. Available on-line, <http://aic-colour-journal.org/index.php/JAIC/article/view/70>. Last accessed February 12, 2013.
- Zeki S. 1999. *Inner Vision – An Exploration of Art and the Brain*. London: Oxford University Press.

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