

## THE AESTHETICS OF COMPOSITION: A STUDY OF MONDRIAN

I. C. McMANUS

B. CHEEMA

J. STOKER

*University College, London*

### ABSTRACT

Subjects carried out a paired comparison experiment in which they were asked to make a preference judgement between a computer facsimile of an original Mondrian painting, and a modified version of the same picture in which the proportional relations of the compositional lines had been modified by a relatively small amount. Subjects were significantly better than chance expectations in their preference for the original Mondrians, suggesting that these paintings may encapsulate some universal principle of compositional order which can be detected by subjects.

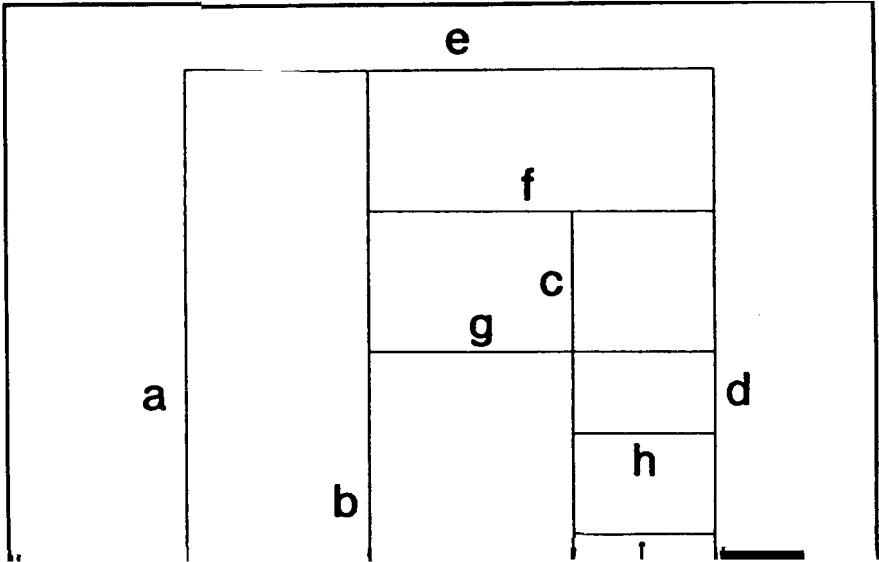
### INTRODUCTION

In principle, it is easy to paint a picture; as Gombrich put it, it is a matter of “framing and filling”—the delineation of a pictorial area followed by its filling with pigment [1]. A moment’s consideration reveals however that there are many ways in which this can be done; and indeed if one considers that there are  $p$  pixels within a frame, each of which is drawn from a palette of  $c$  colors, then there are  $c^p$  possible pictures. One of the problems of painting is to choose a single one of

quite clear that not only does it matter, but that to a large extent it is such choices which form the central problem of the artistic endeavour.

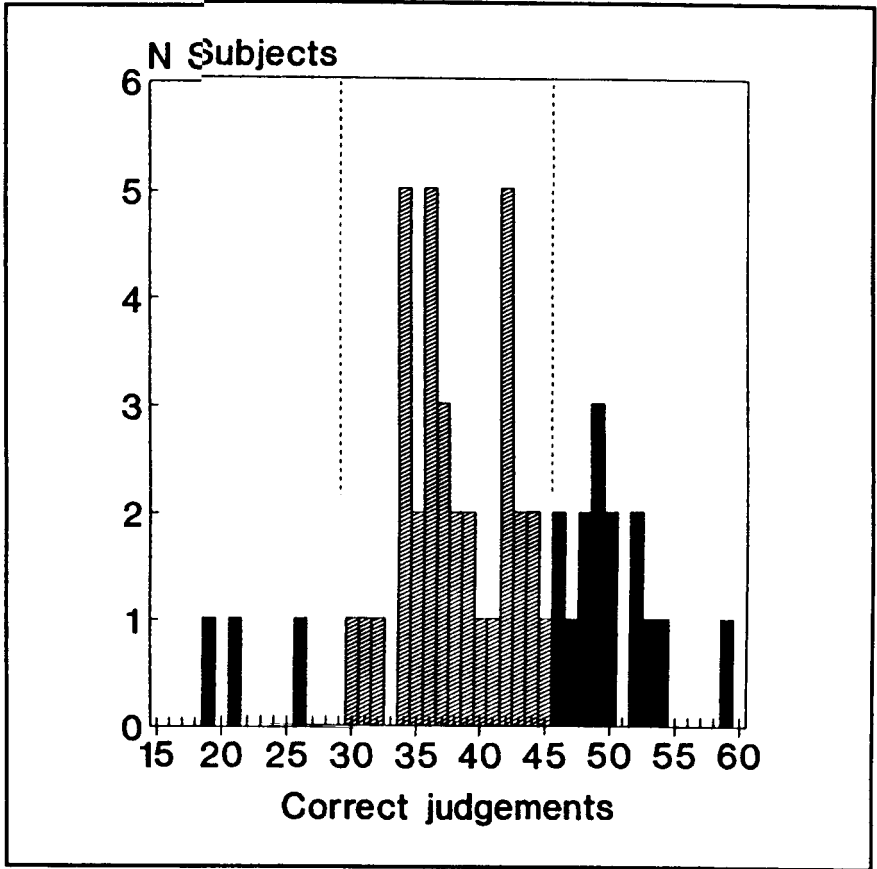
If composition is a major problem to the artist, it is also the most difficult of the problems facing the experimental psychologist interested in the nature of aesthetics and the arts, principally because of the inherent problem of devising experimental stimuli that are aesthetically convincing and at the same time

Mondrian himself saw these compositions as indeed optimal is suggested by the lengthy period during which the pictures were kept in his studio, to be worked on, studied and revised, and by the existence of a small number of unfinished pictures



Stimuli were generated by an IBM PC/AT computer using EGA graphics, and





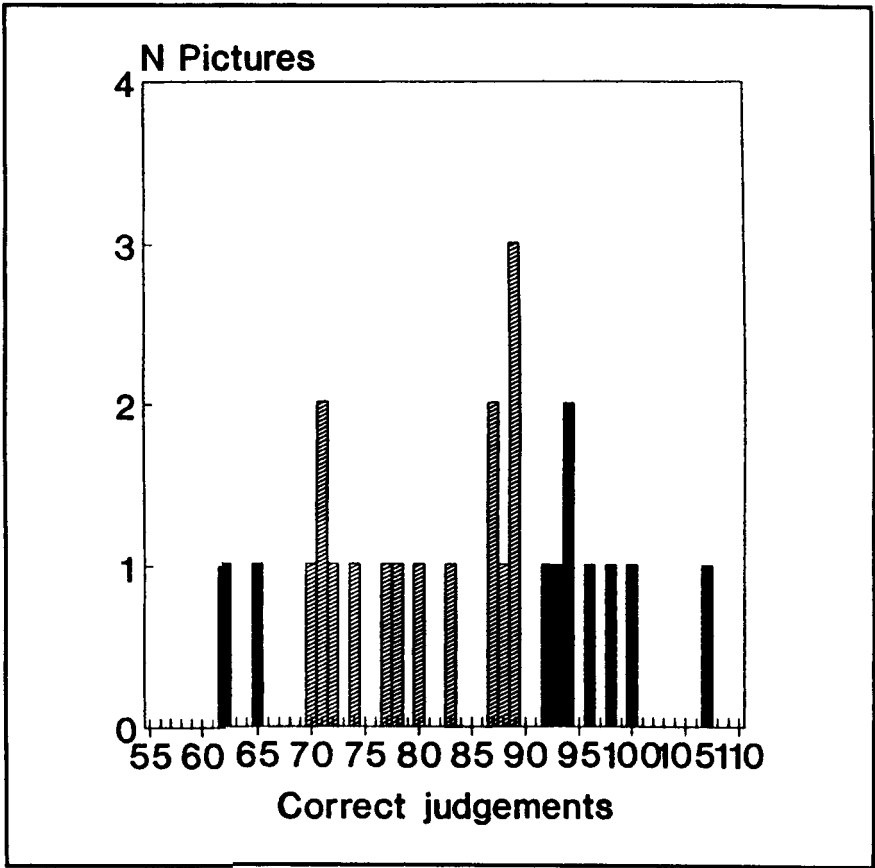


Figure 3. Number of correct judgements made by each of the pictures. The binomial distribution was used to calculate the significance of individual pictures, those shaded in dark being significantly different from the chance expectations at the 5 percent level of significance.

were judged correctly on more than ninety occasions (compared with an expected value of 2.5%). These results suggest therefore that there are particular Mondrians which can be distinguished reliably from pseudo-Mondrians.

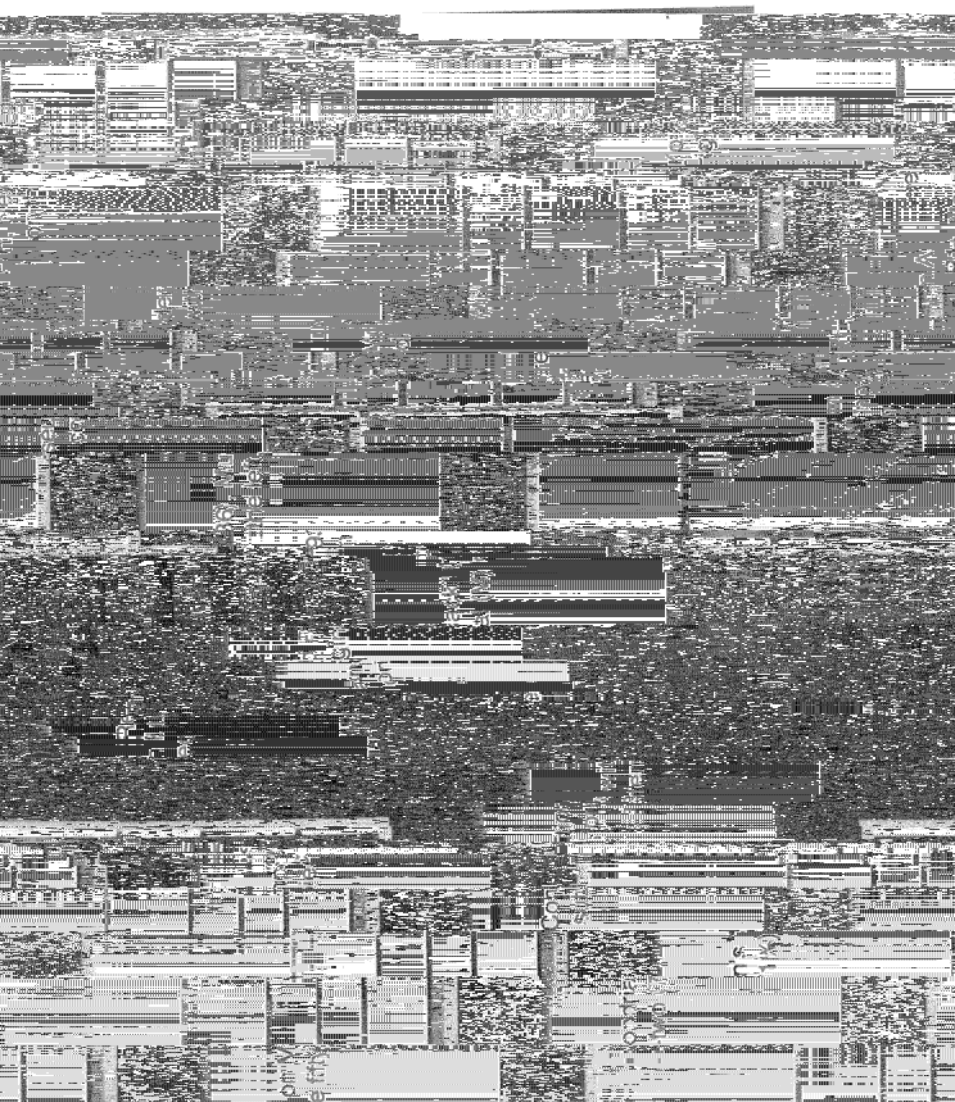
Comparison of M vs P1, M vs P2, and P1 vs P2 pairs found that subjects were equally likely to be correct with M vs P1 pairs ( $722/1293 = 55.8\%$ ) and with M vs P2 pairs ( $712/1298 = 54.9\%$ ) but were less likely to be correct with P1 vs P2 pairs ( $672/1300 = 51.7\%$ ). Taken overall the psychology students were more likely to be correct ( $861/1495 = 57.6\%$ ) than the Foundation Arts students ( $1245/2396 = 52.0\%$ ).

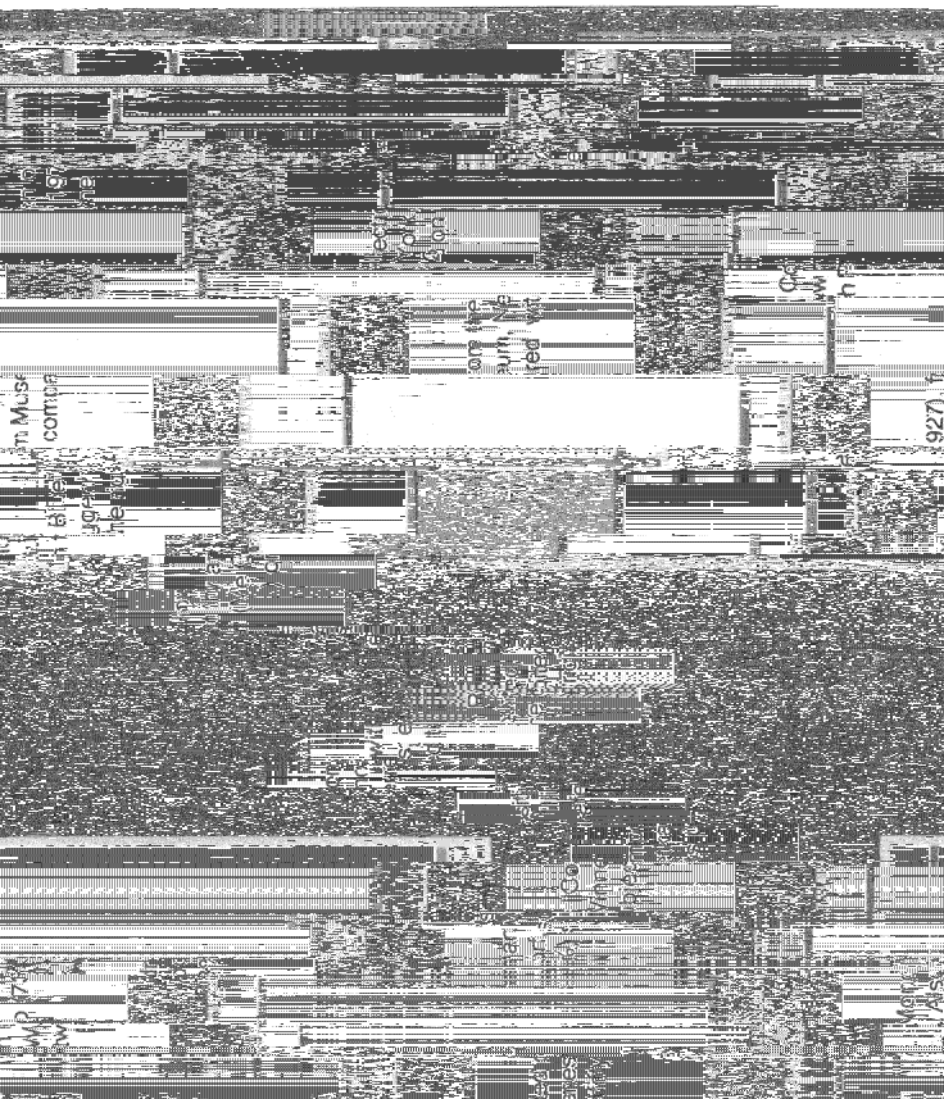
Figures 4 and 5 show <sup>r</sup>monochrome reproductions of two pairs of images, as seen by the subjects. Figure 4 shows an original Mondrian to the left and a pseudo-Mondrian (P1) to the right; 71 percent of fifty-two subjects preferred the original Mondrian. Figure 5 shows an original Mondrian to the right and a pseudo-Mondrian (P2) to the left; 73 percent of fifty-two subjects preferred the original Mondrian.

A repeated measures of analysis of variance of the number of preferences for

the original Mondrian out of a total of twenty-five, with the three types of stimulus







No further details were given, although the computer program for generating the stimuli has been published Vaughan [13].

This current study has taken a large number of Mondrians, modified to only a moderate degree, so that the original structure is retained, and shown that ordinary subjects can reliably distinguish the originals from the pseudo-Mondrians. There are also suggestions in the data that some subjects are rather better at the task than

others and that some pictures are easier than others. Additionally, although

## REFERENCES

1. E. H. Gombrich, *The Sense of Order. A Study in the Psychology of Decorative Art*, Phaidon, Oxford, 1979.
2. G. T. Fechner, *Vorschule der Aesthetik*, Breitkopf und Härtel, Leipzig, 1876.
3. I. C. McManus, The Aesthetics of Simple Figures, *British Journal of Psychology*, 71, pp. 505-524, 1980.
4. I. C. McManus, A. L. Jones, and J. Cottrell, The Aesthetics of Colour, *Perception*, 10, pp. 651-666, 1981.
5. I. C. McManus, D. Edmondson and I. Rodger, Balance in Pictures, *British Journal of*

*Psychology*, 76, pp. 311-324, 1985.

6. I. C. McManus, *The Golden Section and the Aesthetics of Simple Figures: A Cognitive*