AN EXPERIMENTAL INVESTIGATION OF SOME PARAMETERS AFFECTING INDIVIDUAL DIFFERENCES IN PERCEPTION

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TABLE OF CONTENTS

SUMMARY

The initial experiment was concerned with an examination of subliminal perception. Critics of this concept have attributed the effect to two main sources biasing response processes; (a) fragments of the stimulus, and (b) uncontrolled situational cues which convey the experimenter's intentions. However, neither of these explanations is altogether satisfactory, so an attempt was made to re-examine some of the questions associated with the perception of subliminal stimulation.

This approach proved disappointing, and the research programme was therefore directed towards a more fundamental concern with the conditions of discrimination. From this three main determinants of perceptual organisation were identified: (1) *inspection time* λ, governing the rate of accumulation of sensory data, (2) *noise* in the visual system s_D, and (3) *the degree of caution* adopted as a criterion for responding. The development of the theoretical recognition of these variables is traced, and an index of noise suggested, which is closely related to traditional psychophysical measures, being distinguished by the detailed conditions under which it is obtained.

Results suggest that 100 msec provides an approximate estimate of λ, while measures of noise are higher than estimates obtained from the data of earlier experiments. Values, however, are of an order expected on the basis of the proposed rationale, having regard for the different conditions

applying to the work of previous authors. The mean overall latency of responding L appears to provide a satisfactory indirect index of caution. The index of noise s_D is sensitive to increased anxiety, even though this does not produce consistent or significant changes in heart rate, or in the degree of caution adopted by O. Differences between individuals in the descriptors λ, s_D, and L, together with an index of the use made of *immediate memory* δ, are compared with personality, measured by the M.A.S. and the E.P.I. Results confirm the independence of λ, s_D, L and δ as indicators of individual differences. The relationships between these measures and scores on the personality scales are clear, but not always straightforward. They are examined in terms of interactions between the processes underlying the measures. The perceptual indices developed appear to be stable and consistent descriptors of performance.

Consistent support is found for a model of the perceptual decision process, which proposes that O *accumulates* statistical information over time concerning the state of the discriminanda, in accordance with an *optional stopping* strategy for examining the sensory data. Results from a final experiment support the proposal that this model might be extended beyond simple psychophysical judgements, to account for the more complex perceptual phenomena of *emergence* and *alternation* in ambiguous figures.

The final chapter outlines further applications of these perceptual indices of performance, particularly in the areas of intellectual retardation and vocational rehabilitation. The concept of subliminal perception is re-evaluated in the light of this new approach to discrimination, and an explanation of some effects associated with this concept sought in terms of the optional stopping accumulator process.