Effect of Regular Offset on the Reversals of the Wheatstone-Necker Cube

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ABSTRACT

The investigation reported was the second in a program aimed at investigating the conditions under which the Wheatstone-Necker Cube fluctuates. A standard cube in which each face was ten inches square was altered so that the squares would overlap 1.5, 3.0, and 5.0 inches in both the left and right directions. Each of the six drawings was presented to the subject who sat six feet away, under neutral and inhibiting instructions counterbalanced in the order: free, hold, hold, free.

An analysis of variance was carried out on the 480 scores, four per subject, per drawing, for ten male and ten female volunteers from the social science classes at the University of Oklahoma. The data were transformed by the fourth root function to satisfy the requirements of the analysis of variance. Direction of offset, degree of offset, and sex proved insignificant. However, instruction was very highly significant, and the instruction x sex interaction significant at about the .05 level. This interaction was interpreted as evidence for the greater "guardedness" of females in our culture.

The transformation resorted to, raises questions concerning the proper units for future cube experimentation. A reanalysis of the 1200 scores of the previous experiment on distance and angle of view (Reported in Proc. Oklahoma Acad. Sci. 33:271. 1953) indicates that a square root transformation does not completely remove the heterogenity of variance present. The indication is however, that angle of view is no longer significant. This seems to indicate that instructions, distance (or indirectly size), and the instruction x sex interaction are the only determinants we have so far uncovered which influence the number of reversals.

These two experiments point up the need for a study of cube fluctuations through time under the two instructional conditions so that the unit of measurement may be ascertained free of the bias of other experimental conditions. Present indications are that such a measure will be the fourth root of our scores plus one-half. The one-half is defensible on the continuity assumption; a case for the fourth root itself can be built, since it is known that many perceptual judgments seem to be describable by a power rule.