constant seem to induce an effect analogous to the Broca-Sulzer effect. The linearity of the function with respect to period, however, argues that changes of temporal pattern, rather than frequency, are responsible.

A current model developed by de Lange, Kelly, and Levinson (*2*) regards the visual system as selectively attenuating the high-frequency components of intermittent stimulation. Such a treatment relies on the linearity implied by the "steady-state" brightness of the Talbot-Plateau law. The data presented in this paper clearly indicate the limited generality of such a model (*3*).

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Differential Acuity of the Two Eyes and the Problem of Ocular Dominances

Abstract. While it has long been thought that no relationship exists between the eye of greater visual acuity and the eye favored in sighting, the data collected suggest the need for a re-examination of this issue. Sighting-dominance and acuity-dominance were associated. In addition, most individuals tested showed acuity-dominance of the left eye.

In a systematic discussion of types of ocular dominance, Walls (*1*) differentiated between two which are commonly considered to be independent, namely, sighting-dominance (one eye is consistently aligned with a near point when sighting or pointing at a far point) and acuity-dominance (one eye has greater visual acuity than the other). In this laboratory both kinds of dominance were measured in a large sample of college students. This paper reports the frequency of left versus right acuity-dominance and the association of sighting-dominance and acuity-dominance.

Table 1. The association of sighting-dominance and acuity-dominance in 319 college students.

Acuity-dominance	Right sighting-dominance	Left sighting-dominance
None	66	21
Right	76	23
Left	80	53

Visual acuity was measured with a Bausch & Lomb Ortho-Rater, which measures far acuity and near acuity separately (*2*). For two subject groups one eye shows greater acuity than the other, that is, acuity-dominance. These groups consist of subjects in which (i) one eye shows greater acuity at both far and near viewing distances and (ii) the eyes show equal acuity at one distance, but differential acuity at the other distance.

In the sample, acuity-dominance of the left eye was more frequent than acuity-dominance of the right eye. This surprising finding was supported by further investigation. Bausch & Lomb, Inc., reported that in many studies in which Ortho-Rater scores were obtained the best mean acuity score has been in the left eye (*3*). Since testing of the acuity of the left eye follows testing of both eyes together and of the right eye (for both far and near conditions), the possibility of a practice effect favoring higher left eye acuity scores exists. To investigate this possibility, I tested 80 college students, with sequence changed so that the right eye tests were last in each viewing condition and, therefore, any practice effect would favor the right eye. In this sample, as in previously tested ones in which the usual order was used, mean left acuity was greater than mean right acuity, and there were more left acuity-dominant than right acuity-dominant subjects.

The question of an association between sighting-dominance and acuity-dominance was studied by Gahagan, who used a different measure of visual acuity (*4*). While he concluded that the two dominances are independent, a trend appeared in his data which could support the opposite conclusion. For those subjects showing acuity-dominance, of 63 right sighting-dominant subjects 54 percent were right acuity-dominant, and of 21 left sighting-dominant subjects 62 percent were left acuity-dominant. A re-examination of Gahagan's published data taken in conjunction with the data from my own studies suggests an association between the two ocular dominances. Table 1 presents the number of subjects showing each combination of acuity-dominance and sighting-dominance. A χ^2 test of independence was made ($\chi^2 = 9.59$; $p < .01$).

Inspection of Table 1 clarifies the finding of a prevalence of left acuity-dominance. Among right sighting-dominant subjects, right and left acuity-dominance are equally common. However, among left sighting-dominant subjects, left acuity-dominance is considerably more frequent than right acuity-dominance.

These data imply that to the extent that a sample consists of left sighting-dominant subjects, left-acuity would occur in more than half the sample. Further, the data imply that in studies in which there is monocular viewing with the possibility of acuity being relevant, an index of the differential acuity of the two eyes should be obtained, since it can no longer be assumed that left and right acuity-dominance will be equally distributed. In order confidently to generalize from these results it is suggested that (i) populations other than college students be sampled, and (ii) indices of acuity other than Ortho-Rater scores be obtained.

The clear demonstration of a bias favoring left acuity-dominance related to sighting-dominance may assist in the development of a valid conceptualization of ocular dominances and related perceptual events. The basic question of the origin of ocular dominances remains unanswered, and can be expected to remain so barring developmental studies.

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