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Comparative Study of Sound Localization and its Anatomical Correlates in

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One of the fundamental features of hearing is the ability to localize the sources of sounds, particularly brief sounds, which

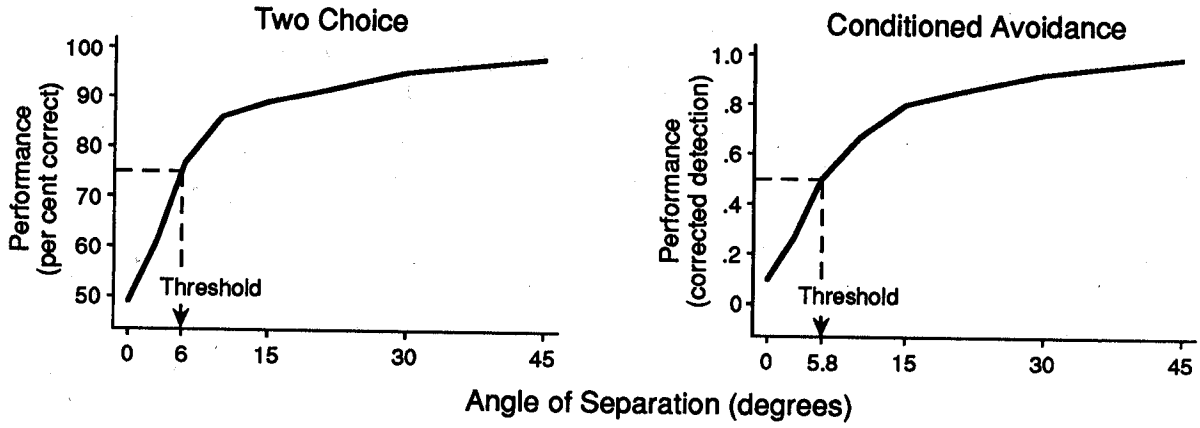
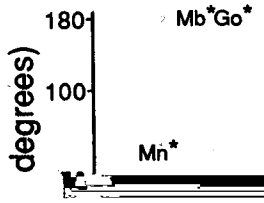


Fig. 1. Sound-localization acuity in cats determined using two-choice and conditioned avoidance test proced[illegible]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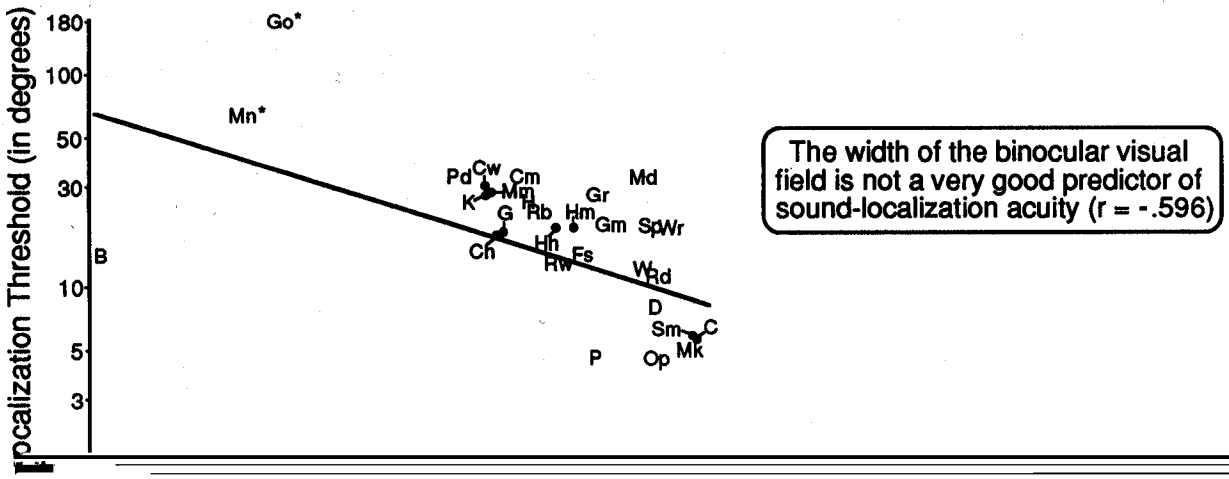
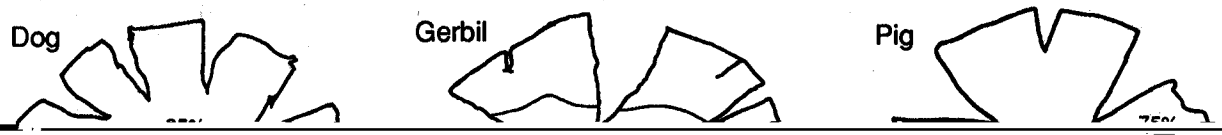
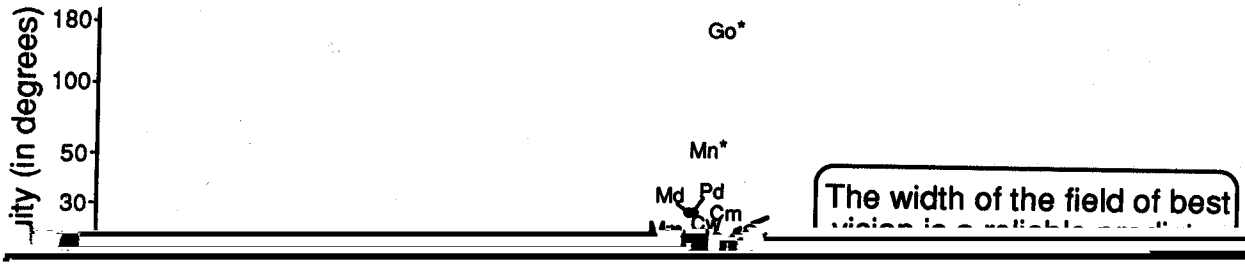


Fig. 3. The relation between binocular visual fields and sound-localization acuity among 31 species. (See Fig. 2 for key.)


Dog
Gerbil
Pig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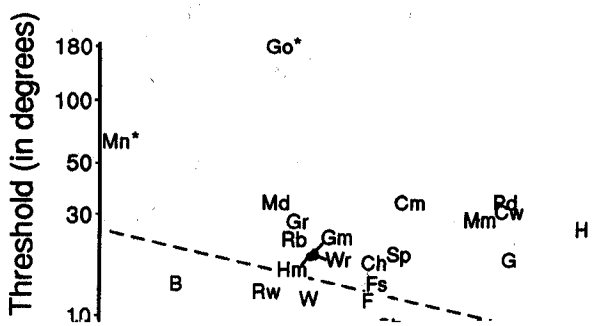

Visual acuity is not a reliable predictor of sound-localization acuity ($r = +.306$)

ACKNOWLEDGEMENT

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REFERENCES

1. Phillips DP, Reale RA, Brugge JF. Stimulus processing in the auditory cortex. In: Altschuler et al., eds. Neurobiology of hearing: the central auditory system. New York: Raven, 1991; 335–65.

Unit study of monkey frontal cortex: active localization of auditory and of visual stimuli. J Neurophysiol 1986; 56: 934–52.

13. Russo GS, Bruce, CJ. Frontal eye field activity preceding aurally guided saccades. J Neurophysiol 1994; 71: 1250–3.
14. Stein BE, Meredith MA. The merging of the senses. Cambridge, MA: MIT, 1993.
15. Thompson GC, Masterton RB. Brain stem auditory pathways involved in reflexive head orientation to sound. J Neurophysiol 1978; 41: 1183–202.
16. Whittington DA, Hepp-Reymond MC, Flood W. Eye and head movements to auditory targets. Exp Brain

17. Posner MI. The attention system of the human brain. Annu Rev Neurosci 1990; 13: 25–42.