

FIGURE 12-16  
 (a) Both observers on the sidewalk hear the same frequency from the firetruck at rest. (b) Doppler effect: observer toward whom the firetruck moves hears a higher-frequency sound, and observer behind the firetruck hears a lower frequency.

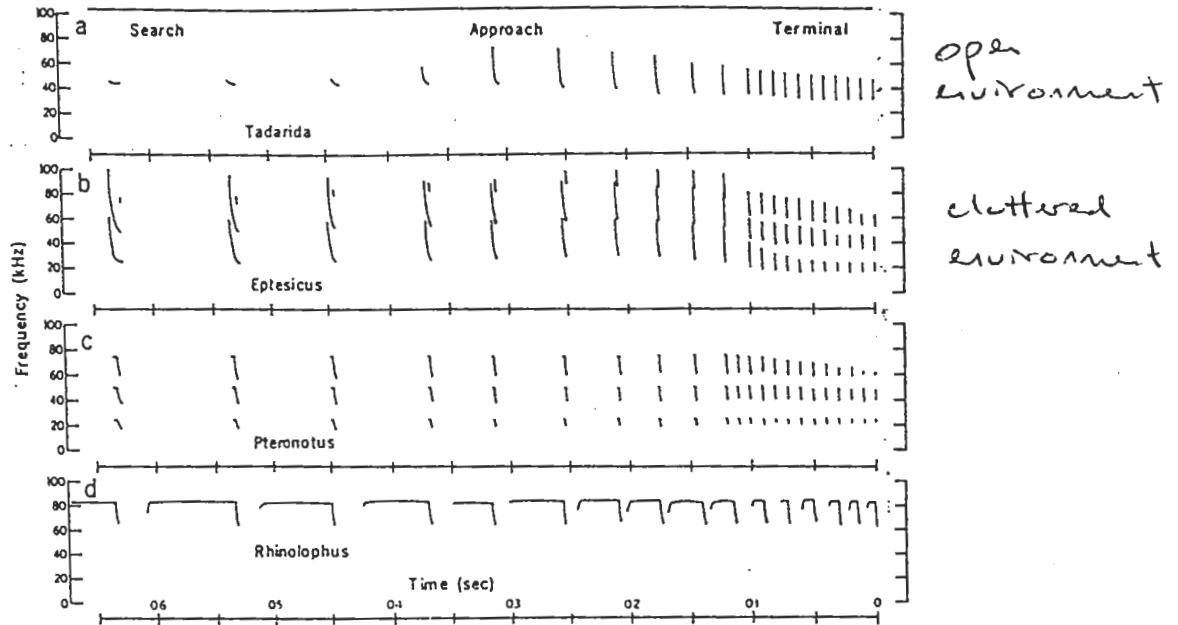


Fig. 1. Sound spectrograms representing sonar signals of (a) *Tadarida brasiliensis*, (b) *Eptesicus fuscus*, (c) *Pteronotus personatus*, and (d) *Rhinolophus ferrumequinum* during search, approach, and terminal stages of pursuit of prey. The entire detection, identification, and tracking process usually takes place in less than 1 second. The time scale is reversed and counts down to the time of capture. These spectrograms illustrate four distinct patterns of orientation sounds for hunting and reveal differences in the information-gathering strategies of the bats correlated with differences in the acoustic environments.

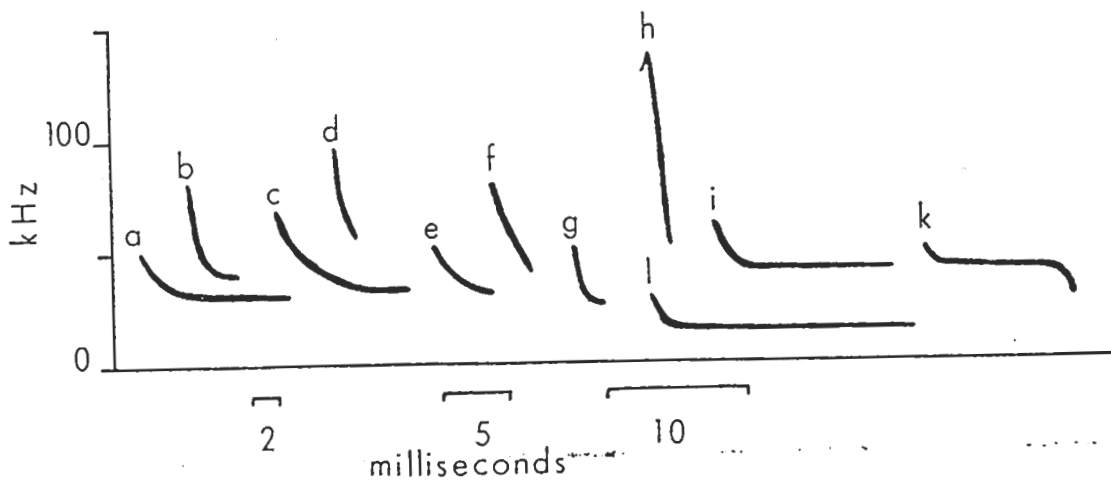


FIG. 3.—Patterns of frequency change over time in search phase echolocation calls of bats from Arizona: *Lasiurus cinereus* (a), *Myotis colans* (b), *Eptesicus fuscus* (c), *Pipistrellus hesperus* (d), *M. thysanodes* (e), *M. californicus* (f), *Antrozous pallidus* (g), *M. auriculatus* (h), *Tadarida brasiliensis* (i)—echolocation calls, k—echolocation call with honk, and *T. macrootis* (l). For additional data on these calls refer to Table 1.