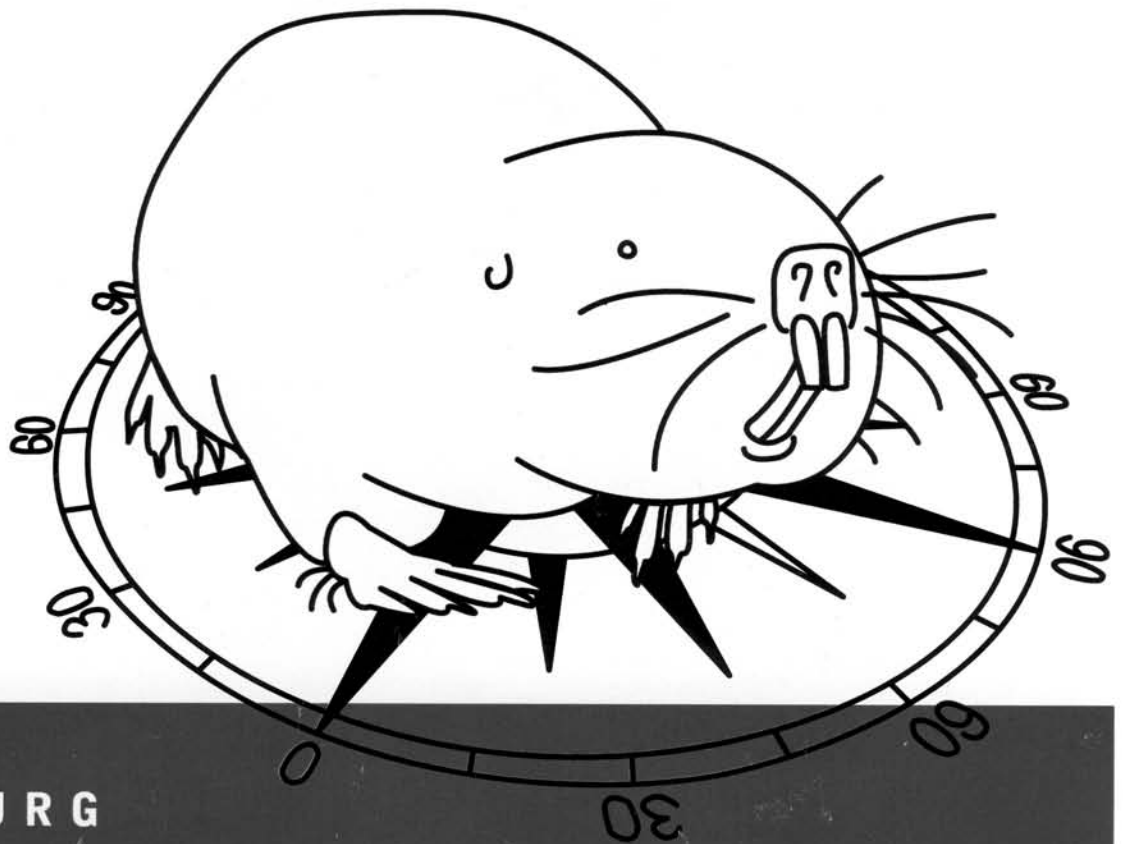


Book of Abstracts

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These behaviors however, are not free of cost and results in a reduction of Signal-to-Noise Ratio and other sensory features. In my talk I will discuss some of these trade-offs, which might be general to many sensory systems.

Keywords: bats, echolocation, active sensing, beam steering

Unmatched vocal and morphological ontogenesis in the piebald shrew (*Diplomesodon pulchellum*)

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In most mammals, an ontogenetic growth of sound-producing structures results in lower-frequency calls of adults compared to juveniles. In June-August 2011, we examined 39 piebald shrews from 11 litters, kept in Moscow Zoo, for ontogeny of body and acoustic variables from birth to maturity at 24 days, i.e. the age of separation from their mothers. Body mass, body measures and acoustic recordings (Fostex FR-2LE with Sennheiser K6-ME64, frequency range up to 24 kHz and ultrasonic Pettersson D 1000X, frequency range up to 350 kHz) were taken each two days. With Avisoft SasLab Pro we analysed spectrographically 3689 calls, taken uniformly for litters and ages. In addition, we analysed 640 calls from 25 adults, recorded during male-male, male-female and female-female interactions. From 1st to 24th day body mass increased from 0.94 ± 0.27 to 7.51 ± 1.29 g, body length from 25.4 ± 2.3 to 62.43 ± 3.17 mm. Vocal repertoire comprised the same 9 call types in young and in adults. All calls were audible; no ultrasonic click was found. Audible location clicks, not exceeding 15 kHz, were usual in young and very rare in adults. Contrary to expectances, the fundamental frequency of tonal squeaks was the same across ages of young and in adults. Moreover, the fundamental frequency and pulse rate of pulsed screeches even increased with age. Therefore, piebald shrews represent another mammalian species (in addition to ground squirrels, sea otters and bats), with lack of the ontogenetic decrease of frequency from pups to adults.

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Keywords: Insectivora, piebald shrew, vocal development, clicks