ACOUSTICS2008/3362
Rate of change of Fo in performance singing

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Johan Sundberg has had a strong interest in the vocal behavior of singers of different styles and nationalities. This tribute talk emphasizes the voluntary change of rate of fundamental frequency in performance singing of ornaments and vibrato. The "taan" gestures from Northern Indian classical singing, the "pulse patterns" in Carnatic Southern Indian classical singing, and pitch change in classical western coloratura singing constitute the primary corpus for this study of Fo rate change. Rate of Fo change varied from approximately 20 to 120 ST/s for soprano pitch change, 8 to 20 ST/s for the Southern Indian pulse patterns, and 7 to 60 ST/s for the Northern Indian taan gestures. What these rates depend upon and rates from other ornaments will be discussed, as well as the relation to maximum Fo rates in the literature, performance needs, perceptual characteristics, and control.