ACOUSTICS2008/1278 Sequential integration in the perception of tone sequences

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The seminal book of Albert Bregman on Auditory Scene Analysis had not yet appeared at the time of my dissertation research (1970-1975). One of the major difficulties that I had was to come at grips with the concept of a sequence of tones that form a 'gestalt' of tones 'belonging' together. This Sequential Integration, as coined by Bregman, has not received as much attention as the 'Differentiation' aspect. A number of experiments show that this sequential integration process is characterised by a resonance process with a broad peak near 2 Hz. This resonance process can explain several phenomena such as subjective rhyhmisation, the data on tapping along polyrhythms and the histogram of musical tempi. Confronting these findings with the measurements of the Temporal Cohence Boundary may indicate where pitch movement detectors may play a role. Recent publications have linked this resonance with a movement control process.