ABSTRACT - Performance and Perception of “Phase-Shifting”

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Phase-shifting is a key-concept in the work of Steve Reich, and can also be regarded as an important archetype in minimalist music, as it is a simple, minimal principle through which extensive compositions can be created. Although the concept of phase-shifting is simple, it is challenging for performers to master the technique. Also for (uninformed) listeners, the sounding result is often puzzling. The use of phase-shifting creates a kind of illusion in the mind of the listener: at one hand, the musical material seems to continue in an unaltered manner, while - concurrently - things seem to change, in an almost un-perceptible process.

We wanted to take a more detailed look at the performance and perception of phase-shifting. In a first phase, eight pianists were invited to perform Reich’s “Piano Phase” on a MIDI-keyboard, along with a computer-generated accompaniment. The performance data were recorded and analyzed, allowing a detailed study of timing and dynamics in the process of phase-shifting. It was found that the pianists (who were all professional players and had previously performed “Piano Phase”) occasionally skip ‘phases’, especially phases close to the - crucial - unison passages. In some cases we even find that the process is temporally reversed (accelerating instead of slowing down, or vice-versa). Another finding is the common use of ‘overshooting’: speeding-up or slowing-down slightly too much before reaching the next coordination-phase.

In a second phase of this research project, (a selection of) the recordings are presented to both naïve and expert listeners. In this listening test, both aesthetic aspects and lower-level perception (e.g. at which points changes are actually perceived) are investigated, simultaneously evaluating the perceptual effectiveness of the distinctive illusory value of phase-shifting.