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Speed in music

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Abstract

This dissertation investigates musical speed: what it is, how it is perceived, and how it can be explored within compositional, improvisational, and performance practice. Drawing on several decades of work as a composer, flutist, and improviser, I argue that speed in music is far richer and more nuanced than tempo alone suggests. I propose a working definition of speed as the rate of perceptual events in time, functioning across multiple, independent yet concurrent timescales, and co-constructed by the music, performer, environment, and listener. Rather than a single parameter such as tempo or rhythmic grid, speed emerges through the interaction of simultaneous rates, including pulse, event density, grouping, and musical change.

The dissertation builds this framework through five interlocking perspectives. The first examines thresholds of speed through creative reworkings of Beethoven's *Ninth Symphony* at radically different speeds, demonstrating how temporal compression and expansion transform musical identity at boundaries where rhythm becomes pitch, gesture becomes texture, and structure becomes instantaneous gestalt. The second addresses temporal resolution, exploring the biological limits of perception and their implications for musical hearing. The third investigates density and motion, showing that numerical note density cannot be equated with perceived speed. It is the rate of change in density, together with the distribution, grouping, and shaping of events, that most strongly affects the perception of musical motion. The fourth strand engages with smooth and striated time. Drawing on Pierre Boulez, Gilles Deleuze and Félix Guattari, and Gérard Grisey, it proposes that temporal modes operate along a continuum rather than as a binary opposition. The fifth draws on Michelle Phillips' Listener-Environment-Musical Stimulus-Interaction (LEMI) model and Donna Haraway's theory of situated knowledge to frame speed as a relational phenomenon that arises from shifting constellations of embodied, environmental, cognitive, and material conditions.

These conceptual foundations are then applied through three focused investigations. An examination of tuplets (subdivisions of the beat) shows them to be tools for shaping perceived speed within the notated grid: by altering subdivision, they can reshape the identity of musical material, and in nested tuplet writing (tuplets within tuplets), they can paradoxically generate an impression of smooth time from extreme striated precision. The second investigation extends into polytempo music, where my compositions *Building Music*, *For Bob*, and *Sydney Polypulse* serve as laboratories for examining how multiple concurrent temporalities are constructed and negotiated in performance, with particular attention to the role of haptic metronomes and the management of controlled asynchrony. Finally, the dissertation presents a case study of my solo flute piece *Torrent*, which originated as a maximal-speed improvisation and was later fixed through transcription. In this case study I propose a "speed of creation" framework that treats improvisation and composition as points on a continuum of decision-making speed and reflective latitude rather than as opposed categories.

The dissertation integrates artistic creation, theoretical reflection, scientific literature, and situated performance experience. It demonstrates that musical speed is relational, arising through interactions between musical events, bodily motion, cognition, and context. By reframing speed as both form-bearing and meaning-bearing, the research offers practical and theoretical insights for composers, performers, teachers, scholars, and technology developers, and it argues for recognizing speed as a central dimension of musical life.