

# THE BREATHING OF TIME IN(TO) MUSIC

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## Background

Music takes time to unfold and modulates the time that it occupies. Various factors that influence our perception of musical time have been proposed by researchers in different fields, usually presented in abstract form.

## Aims

Factors that have an effect on our perception of time in music include density of information; presence or absence of pulse, beat, metre, and other periodicities; specific tempo and its modulation; expectation and its thwarting; and the role of memory. The current paper explores ways in which these ideas can be given concrete form, and to what extent their effect on time perception could be calculated.

## Main Contribution

Atonal, unmetred, irregular- and multi-metred passages of twentieth-century and non-Western music present structures which can be appropriately examined in terms of density of activity. The degree, rate, and frequency of contrast become significant and can be thought of

in terms of information density, a factor influencing time perception. The role of memory, whereby a musical figure stirs a recollection of other material from the same or a different work, indicates that we often employ a non-linear listening. Another influence arises from the listener's changing focus from one temporal level of activity to another. Configurations maximizing such influences can be written into a composition and are also affected by performance.

## Implications

From a composer's point of view, learning how to "speed up" and "slow down" the listener's time tracking mechanism would provide a powerful shaping tool for a composition's formal structure. Researchers in the cognitive sciences could benefit from considering a wider variety of musical structures as material for testing some of the hypotheses suggested in this paper.