

# Top-down and bottom-up characterisations of shape and space

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## Abstract

This paper explores methods for establishing an integrated analysis for the description of shape and spatial properties. Its aim is twofold: first, to test the analytic methods against shapes of simple and moderate complexity. Second, to account for ways in which shape patterns are revealed during spatial experience. The analysis quantifies syntactic properties of shape perimeter focusing on the measures of connectivity and integration. These are studied in two levels: the level of configuration seen as a static notion and the level of configuration as a dynamic notion unfolding through time. It is proposed that syntactic regularities of shape can be described as regularities in the patterns of sequential information, or otherwise as regularities in the temporal structure of information transmission.

## Keywords

time, movement,  
shape perimeter,  
rhythm

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“Almost instantly, I saw it – the garden of forking paths was the chaotic novel; the phrase ‘several futures (not all)’ suggested to me the image of a forking in time, rather than in space. A full rereading of the book confirmed my theory. In all fictions, each time a man meets diverse alternatives, he chooses one and eliminates the others; in the work of the virtually impossible - to disentangle Ts’ui Pen, the character chooses - simultaneously - all of them...Unlike Newton and Schopenhauer your ancestor did not believe in a uniform and absolute time...”

Jorge Luis Borges, ‘The Garden of Forking Paths’, Fictions, Penguin Books 1998.