The syntactical image of the city:
A reciprocal definition of spatial elements and spatial syntaxes

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Abstract
This paper presents a study of the relationship between city elements, as defined by Lynch, and the spatial descriptors commonly used in space syntax research, leading to a proposed relationship between the hitherto unrelated concepts of intelligibility and imageability. The paper starts by demonstrating how each of Lynch's five city elements (the node, path, district, edge and landmark) may be redefined using a selection of spatial notations, primarily the axial line and the isovist. Furthermore, by precisely defining the relationship between the axial line and the isovist, it can be shown that all of Lynch's elements may be redefined using a single, coherent family of tightly-related spatial entities. A case study of Boston, circa 1950, is used to test an application of these redefinitions and the relationships between the various spatial descriptors and Lynch's elements. In turn, this leads to a hypothesis concerning the relationship between the concepts of intelligibility and imageabilty, concepts that were previously considered to be independent. Finally, the paper concludes by building upon the relationship between intelligibility and imageabilty to conclude that this relationship provides strong evidence for an underlying cognitive basis to space syntax.

Keywords
intelligibility, imageability, legibility, city design, "Boston", edges in wayfinding, landmarks, district,nodes, paths

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