An attempt to introduce Geodesign thinking into urban design practices – Form Syntax method

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Abstract

This poster presents Form Syntax, a method capable of quantitatively analyzing urban form's spatial vitality, and therefore assisting urban design through Geodesign thinking. Geodesign has emerged as a useful approach for incorporating geographical analyses into the landscape and urban planning domain. However, current geodesign approaches cannot effectively assist urban design since they cannot provide sufficient understanding of the urban form from the perspective of urban designers. Specifically, urban designers understand urban form as streets, buildings, functions, etc., while normal geographical analyses represent urban form based on cells or agents. Herein, the Form Syntax attempts to combine geographical analysis with designers' understandings. It uses Geographical Information System (GIS) to integrate three design-oriented tools – Space Syntax, Space-matrix, and Mixed-use Index – in measuring street network integration, building density, and land-use mix, respectively. These three components can be quantified and combined to represent essential elements of urban form, thereby providing a classification of various degrees of urban spatial vitality from a morphological perspective. As a core goal of urban design, the urban spatial vitality can now be quantitatively assessed and expected from a morphological perspective, which can thereby help design practitioners to propose spatial strategies for enhancing vibrant urban places and test the what-if question of producing spatial vitality in design practices. The capacity of Form Syntax has been tested by the density of residents' optional activities through GPS tracking. Preliminary tests in European cases have shown positive results. To enhance its appeal among urban design practitioners, a GIS add-in has been developed to improve the traditional site analysis, idea evaluation, and solution evaluation phases of the urban design process by using Form Syntax.

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