

Measuring Multimodal Transport Accessibility based on Space Syntax

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Abstract. Major cities in Korea are giving increasing focus on public transportation to reduce congestion and improve accessibility to city areas. The need for proper measurement of accessibility is now a key policy requirement for reorganizing public transportation network. However, public transport routing problems are viewed more complicated than single mode since a multi-mode travel generates different combinations of accessibility. Research efforts on measuring transport accessibility are mostly found at zone-levels. This paper presents an alternative approach to measuring public transport accessibility at a finer scale such as bus links and stops. It proposes a method to compute the optimal route choice of origin-destination pairs and measure the accessibility of the chosen modes combination based on topological configuration. In computing the journey paths of routes, we used the genetic algorithm, and for the accessibility, we employed a theory called space syntax. The resulting accessibilities of bus stops are calibrated by O-D survey data. The proposed process in the paper is tested on a CBD of Seoul using the city GIS network data.

Keywords: public transport, accessibility, connectivity, space syntax, GA