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Abstract

Title: Where is this heading? - Notable differences in the long-term behaviour between deterministic and stochastic traffic assignment models

Evaluation of proposed urban planning strategies involve various tools, one of the most important being day-to-day dynamic traffic assignment models. These models translate travel demand through the network, observed over a sequence of time points, into flows and travel times on the individual routes and links in the system. Day-to-day dynamic traffic assignment models come in two varieties. On the one hand, we have deterministic models where the modelled properties remain the same if the starting conditions are unchanged. On the other hand, we have the stochastic version of these models where these properties can vary widely even under equal initial conditions.

Deterministic traffic assignment models are more widely used due to their computational efficiency and the relative ease with which properties of the network can be determined. As a consequence of their popularity, these models are well studied while the properties of their stochastic counterparts are considerably less well understood. To this end we aim to investigate how model properties, such as the prediction of future flow patterns, can differ between deterministic and stochastic traffic assignment models.

In this talk we will learn about when the two traffic assignment models present vastly different stories- with the deterministic version being at best counter-intuitive . An increased interest in using stochastic traffic assignment models would have important implications for network control where the aim is to direct traffic systems towards desirable states.