Modelling container distribution with fuzzy logic

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During the last decades, we have witnessed an increasing refinement of logical models in transport research, especially due to the need of a better understanding of the mechanisms underlying the better transport management. Even if the relationships between transport demand and human activities are well documented in the literature and it is unanimously recognized that the transport has to be analyzed in an integrated set of decisions regarding the other human activities, the models are not fully developed, especially due to the complexity of the phenomena.

This paper focuses on the activities timetable, and the changes involved by the trip time variability on the daily activities. A delay in a trip or an early arrival can contribute to changes in the timing, location of the next activities, to the deletion / addition of some activities. The changes are related to the dimension of the time savings / delays, to the nature and location of the linked activities, and to the personal and household characteristics.

The model presented in the paper uses fuzzy logic rules for "explaining" the effect of variability in travel time on the benefits perceived by an individual with the changes, and to model different actions that the individuals take in order to re-establish the steadiness of the timetable (routine of the family activities).