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Road traffic models using Petri nets and minplus algebra. (English) [Zbl 1161.90332](#)

Appert-Rolland, Cécile (ed.) et al., Traffic and granular flow '07. Selected papers based on the presentations at the international conference (TFG 2007), Orsay, France, June 20–22, 2007. Berlin: Springer (ISBN 978-3-540-77073-2/hbk). 281-286 (2009).

Summary: We present in this paper a traffic model based on Petri nets and minplus algebra. A Petri net is represented by two matrices one in standard algebra and the other in minplus algebra. Then a system point of view is developed based on a matrix product combining these two algebras. Introducing inputs and outputs on transitions and places we can link two Petri nets by associating outputs with inputs of the two systems. This linking corresponds to a contraction operator. Combining elementary systems with this contraction operator we can build large systems. This point of view is used to define the traffic dynamics of a regular town from three elementary Petri nets.

For the entire collection see [\[Zbl 1162.90001\]](#).

MSC:

- [90B20](#) Traffic problems in operations research
- [90C35](#) Programming involving graphs or networks
- [68Q85](#) Models and methods for concurrent and distributed computing (process algebras, bisimulation, transition nets, etc.)

Cited in 1 Document

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