

Empirical Study of Multi-Headways in Vehicular Traffic

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1 Abstract

This contribution presents empirical findings concerning the distributions of netto-time gaps among vehicles or their clusters moving in a traffic stream. Indeed, the main accent of this work is to put on the probability density (or cumulative distribution function) for the so-called time multi-clearances, i.e. distribution of clear time gaps among n successive cars. The experimental distributions are compared to the analytical predictions calculated by means of the thermodynamic socio-physical traffic model with short-ranged repulsion between particles (originally introduced in [J. Phys. A: Math. Theor. **40**, 5813 (2007)]). Moreover, the dependence of the distribution parameters on local traffic density and flux is consecutively evaluated. The obtained results are analyzed in the context of traffic theory. Within the bounds of this contribution also a substantiation for applying the socio-physical approaches to traffic modeling is discussed.

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