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On the origin of statistical micro-distributions in socio-dynamical systems

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Statistical analysis of microscopic quantities detected inside of various socio-dynamical ensembles shows many common features. To be more specific, headway distributions measured among succeeding agents in such systems reflect both, a level of mutual agent repulsion/attraction and a level of stochasticity of the system investigated. To what extent are these distributions affected by the interaction rules? We will demonstrate (by means of Random Matrix Theory approaches) that a more important factor influencing the resulting statistics is a statistical nature of socio-dynamical systems. We will present a surprisingly general scheme of agent dynamics producing the same statistical micro-distributions as those being revealed in empirical data.

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