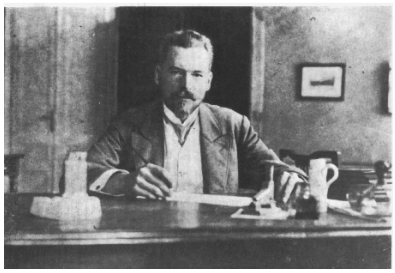

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The Price-Pareto-Gini model for evolving networks

Wednesday, 18 September 2024 12:40 (20 minutes)

We consider the Price model for an evolving network, i.e., a growing graph, in which, in every iteration, we add a new vertex and join its edges to the existing vertices based on a mixture of the preferential attachment rule and the purely accidental component. We derive the models' expected vertex degrees and show that they coincide with the order statistics from the Pareto type-2 distribution. Moreover, we can show that in such a dynamical system, the Gini index (a well-known inequality measure from economics) is invariant. We also present the application of the described model for modeling the real data from citation networks. Some of the results discussed were obtained in cooperation with Anna Cena, Lucio Bertoli-Barsotti, Przemysław Nowak and Maciej J. Mrowinski.

Primary authors: Prof. GAGOLEWSKI, Marek (Warsaw University of Technology, Faculty of Mathematics and Information Science); SIUDEM, Grzegorz (Warsaw University of Technology); Dr ŻOGAŁA-SIUDEM, Barbara (Systems Research Institute Polish Academy of Sciences)

Presenter: SIUDEM, Grzegorz (Warsaw University of Technology)

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