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## Max-linear models on graphs

*Joint with Nadine Gissibl and Moritz Otto*

We consider a new structural equation model, where all random variables can be written as a max-linear function of their parents and independent noise terms. We assume that the dependence structure of the corresponding vector can be modeled by a directed acyclic graph. We show that the multivariate distribution is max-linear and characterize all max-linear models, which are generated by a structural equation model. We investigate the properties of our new model like minimal representations. We also discuss various applications and statistical estimation procedures.

References:

- [1] Gissibl, N. and Klüppelberg, C. (2015) Max-linear models on directed acyclic graphs. Available at: <http://arxiv.org/pdf/1512.07522v1.pdf>
- [2] Gissibl, N., Klüppelberg, C. and Otto, M. (2016) Tail dependence of max-linear models on directed acyclic graphs. In preparation.
- [3] Gissibl, N. and Klüppelberg, C. (2016) Maximum-likelihood estimation of max-linear models on directed acyclic graphs. In preparation.