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Fabio Rapallo* (fabio.rapallo@mf.n.unipmn.it), Department DISTA, University of Eastern Piedmont, viale Teresa Michel 11, 15121 Alessandria, Italy. *Study of diagonal-effect models as toric and mixture models.*

In this talk we present several types of diagonal-effect models for two-way square contingency tables in the framework of Algebraic Statistics. We use both toric models and mixture models to encode the different behaviour of the diagonal cells with respect to the independence model. We compute the invariants of these models and we explore their geometrical structure. This class of models has major applications, from social mobility analysis to rater agreement analysis and some results in Algebraic Statistics for this kind of models have already been discussed in previous works.

The main aim of this talk is to discuss the geometric structure of the diagonal-effect models, showing the differences between toric models and mixture models. In particular, we compute the invariants of these models, and we show that the toric and mixture models differ not only on the boundary of the probability simplex but also in its interior, also when the models have the same invariants.

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