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Daniel Irving Bernstein and **Seth Sullivant*** (smsulli2@ncsu.edu). *Combinatorial properties of hierarchical models.*

Hierarchical models are widely used statistical models for analyzing discrete data. To each simplicial complex we associate a vector configuration and corresponding toric variety, whose intersection with the probability simplex is the hierarchical model. We describe combinatorial results on these toric varieties including a classification of which simplicial complexes produce unimodular toric varieties and results on operations on the simplicial complexes that preserve normality of the toric varieties. (Received September 15, 2015)