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**Liam Solus\*** ([liam.solus@gmail.com](mailto:liam.solus@gmail.com)), KTH Royal Institute of Technology. *Combinatorial optimization in Markov equivalence of DAG models.*

A directed acyclic graphical model is a family of multivariate probability distributions that satisfy a set of conditional independence relations encoded in a directed acyclic graph (DAG). Multiple DAGs can encode the same set of conditional independence relations, and such DAGs are called Markov equivalent. From the perspective of complexity of model selection it is desirable to understand the number and size of these equivalence classes. We will see how this important question from model selection can be recast into the language of combinatorial optimization. In doing so, a pair of polynomial generating functions arise to describe the problem. We study this important statistical question by studying the complexity of computing the associated combinatorial statistics encoded by these polynomials. This is joint work with Adityanarayanan Radhakrishnan (MIT) and Caroline Uhler (MIT). (Received September 16, 2016)