THE UNIVERSITY OF CHICAGO

Departments of Computer Science, Mathematics, Statistics and the Computation Institute

SCIENTIFIC AND STATISTICAL COMPUTING SEMINAR

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On Estimation in the Nonparametric Bradley Terry Model

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226 Jones Laboratory, 5747 S. Ellis Avenue

ABSTRACT

We consider the problem of estimating the probabilities of one team beating another after observing an instance of a league tournament where every pair of teams play each other once. Under an assiumption of transitivity commonly made in the Psychology literature, we pose this as a formal statistical estimation problem and study a natural computationally efficient estimator. We study risk properties of this estimator in detail and find interesting adaptivity properties of our estimator. We also consider the situation where we only observe only a fraction of games between all pairs of teams.