



## **Ranking from Dyadic Encounters: Bradley-Terry Model, Extensions and Application**

David Firth

University of Warwick, Coventry, United Kingdom – d.firth@warwick.ac.uk

The Bradley-Terry(-Luce) model, in which the odds for the outcome of a pair-comparison or ‘contest’ are simply the ratio of so-called ‘ability’ parameters, is by now a very standard statistical device for ranking objects on a common scale. This talk will survey some recent developments, including: the use of weak prior pseudo-data to reduce bias and to stabilize estimation; a specialized version of the lasso; the use of quasi-variances to drive an informative presentation of results; and elaboration of the model to accommodate certain systematic departures from the Bradley-Terry assumption. Applications discussed will include sports, and the ranking of academic journals based on cross-citation data.

**Keywords:** pair comparisons; Bradley-Terry model; bibliometrics; ranking.