

ADVANCED METRICS IN TWENTY20 CRICKET

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Second Bayesian Young Statisticians Meeting (BAYSM 2014)
Vienna, September 18–19, 2014

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Abstract

This project considers player evaluation and the determination of optimal team lineups in Twenty20 cricket. An empirical Bayes procedure is proposed to infer batting and bowling characteristics of players taking into account the impact of game situations (i.e. overs and wickets remaining). Via simulation, these characteristics are used to assess the quality of given players and given lineups using enhanced metrics that address true value. The Twenty20 simulator we have constructed works on a ball-by-ball basis and accounts for game situation as well as the individual batting and bowling records. When real game lineups are used, actual results are found to be well within the distribution of simulated results. Lineups are then optimized over a vast combinatorial space via simulated annealing. As a by-product of the methodology, we obtain an "all-star" lineup selected from international Twenty20 cricketers.

Keywords: Cricket ; Markov chain Monte Carlo ; Relative value statistics ; Simulated annealing