Higher order Markov chain approach in modeling Cricket Scores.

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The Markov chain models are applied in a wide range of topics such as physics, chemistry, medicine, music, game theory and sports. In this research work, higher order Markov chain model that accounts for scores of an innings of a limited-over cricket match (T20) which is based on the assumption that the runs scored and wicket occurred follow a higher order Markov chain. Therefore two models, first order and second order Markov chains are considered in this research. Parameter estimation is carried out using the data available online for T20 innings. Parameters were estimated for Sri Lanka and India teams considering fifteen T20 matches for each team between 15/06/2006 to 07/09/2014. The probabilities depend on the batsmen, the bowler, the number of wickets lost, the number of balls bowled and the innings. Simulated results give evidence to the validity of the model. Some statistical tests were used to investigate the significance of the results. The model may be used for forecasting purposes and find the effect when order of Markov chain increased. The model can be improved by taking into considerations the other factors that affect the scoring of an innings. For example, home-ground advantage, weather condition, pitch, team which they are playing against, batsman's performance, bowler's performance etc. And also the model can be extended to find the effect between the wicket occurring rate and scoring rate.

Key Words: Markov chain, Frist order, Second order

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