Hierarchical Bayesian Modeling for Home Run Totals in the MLB

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1 Introduction

2 Data

2.1 Source of Data

2.2 Cleaning

3 Model

4 Markov Chain Monte Carlo

Markov chains are discrete sequences of numbers such that $p(x_n|x_{n-1}, x_{n-2}, ...x_2, x_1) = p(x_n|x_{n-1})$. Markov chains are named such because they exhibit the Markov property. Derived by Russian mathematician Andrey Markov, the Markov property refers to the memorylessness of a stochastic procces. That is, the probability of state x_n is dependent on only the previous state x_{n-1}. You only need to know the current state to predict the subsequent state. Knowing the past history of states won't provide additional information regarding any future state.

4.1 Metropolis-Hastings Algorithm

5 Results

6 Conclusions

6.1 Future Modifications

Bibliography