



THE UNIVERSITY OF
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DEPARTMENT OF STATISTICS

Master's Thesis Presentation

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“is Exploring Win Determinants in the English Premier League: Insights from Poisson Mixed-Effects Modeling and Skellam Process”

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Abstract

The study utilizes a Poisson Mixed-Effects Model and Skellam process to model real-time betting odds in English Premier League (EPL) soccer matches. By analyzing correlation matrix of predictors and goals for all potential score outcomes, the paper calculates each team's expected scoring rates, which are used to determine the implied volatility of an EPL match. These expected scoring rates and the implied volatility metric are updated as the game progresses, offering a dynamic view of market expectations for the match outcome. The methodology is demonstrated through an analysis of 1520 EPL games from 2014 to 2018, showcasing the model's effective calibration to actual game outcomes.

Keywords: English Premier League, Skellam Process, Sport Statistics