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Analyzing NFL Overtime. Preliminary report.

In this talk, we consider the National Football League's rules for overtime. We use Markov chain models to represent sudden death, modified sudden death 15-minute overtime, the newly changed modified sudden death 10-minute overtime, a theoretical alternative modified sudden death where each team is required to possess the ball at least once. Through our model analysis, we find the average length of overtime and the probability of the team possessing the ball first during overtime winning the game. Furthermore, we predict how the new 10-minute overtime length may affect game outcomes. (Received September 21, 2017)