

CFB Ranking Algorithm

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October 2016

1 Methodology

The only piece of data that are directly used by the algorithm are the margins of victory (MOV) of each game a team has played and the location of the game. Instead of using the raw value of the score of a game, it is first adjusted for location. Home games are penalized by 2 points, neutral site games are unadjusted, and away games are given a 2 point boost. After adjusting for this, some games that were previously wins will now be counted as losses (a 1 point home victory, for instance, becomes a 2 point loss) and some games that were losses will now count as victories. After adjusting for location, the margin is then broken down into the number of possessions that would be required to tie or take the lead. One possession is defined as a touchdown and a 2 point try, or 8 points. In order to diminish the returns of running up the score, the natural log of the number of possessions is used instead of the raw value.

Since there is cross divisional play between the FBS and FCS schools, while the algorithm is being applied, there is a single team object that is assigned all of the results of FBS vs FCS matchups. The limitation of this is that beating a very strong FCS school counts the same as beating a weak FCS school. While not ideal, it simplifies the amount of data required to run the algorithm fully.

2 Rating Algorithm

Each team is given an initial rating of 1. Between each iteration, the values are scaled between 0 and 1. The following algorithm determines a teams (unscaled) rating after a run of the algorithm:

Variables: R = rating, M_{adj} = Adjusted MOV, W = wins, L = losses

$$R = \frac{\sum_{wins_{adj}} \ln(1 + \lceil \frac{M_{adj}}{8} \rceil) \cdot R_{opp} - \sum_{losses_{adj}} \ln(1 + \lceil \frac{M_{adj}}{8} \rceil) \cdot (1 - R_{opp})}{W + L} \quad (1)$$

This rating is then scaled between 0 and 1 and the algorithm is repeated until stabilization has occurred.

3 Strength of Schedule

After the algorithm has been run, a strength of schedule is calculated for each team. This strength of schedule is defined as the average rating of each opponent a team has faced.

4 Conference Ranks

After computing the final rating for each individual teams, each conference division is ranked against each other using a binomial weighted average.