

The Rewards system utilizes the power rating system (PRS), as described in the book *The Hidden Game of Football* (1978), to help it determine a rating for each team. Only teams recognized as participating in "Division 1-A" are individually rated, and any games that are played against "other teams" are all lumped into the generic team "NON\_DIV1A" in these ratings. To eliminate any question about teams "running up the score", margin of victory is ignored, and only wins and/or losses contribute to a team's rating, so the PRS will eventually be executed on scores where each team only wins by 1 point (referred to as PRS\_1 from now on).

The Rewards approach attempts to objectively determine which team has had the best overall season according to the teams they have defeated, etc. The ratings which are derived by Rewards should be used solely to order teams, thereby determining a ranking of which teams have played well; the Rewards system should not be used for predicting games since it ignores each game's final score, which, as several articles have pointed out, significantly improves a rating system's ability to foresee the future.

Once the PRS\_1 ratings have been determined for each team, those ratings are normalized so that the top team's rating is just under 1, and the worst team's rating is slightly greater than 0. Then, the PRS\_1 rating for each opponent that has been defeated is sorted into descending order for each team, and each rating is weighted so that an average rating for those defeated can be computed. (For NCAA football, each opponent's rating is worth 2 times larger than the teams rating below it, in descending order, and for NCAA basketball, each subsequent rating is 1.4 times larger, respectively as you move from the lowest rated opponent to the highest.)

For fairness reason, only a fixed number of games (call it G) will be used for each team, to prevent a team that plays K more games from appearing to be better only because they played more games. (The fixed number is the smallest number of games played by any individual Division 1A team.) If a team has played more than G games, then the wins over the weakest opponents will be ignored (or for a really bad team, the losses to the best teams will be ignored).

If a team has won W games, and lost L games (where  $G=W+L$ ), then the average weighted win is then multiplied by W, and for each loss, the penalty subtracted from this rating is (1 - the opponent's rating). This comprises the final Rewards rating for each team.

So, in essence, wins against teams that are rated highly by PRS\_1 will generate a very high weighted rating, per win, for a team, even if they have played many weaker teams. This prevents a team from being penalized by playing in a "weak" conference, as long as they have defeated some strong teams (from other conferences perhaps) indicating their own level of success.