

# 1 Football Overtime

Overtime policy in football is non-standardized. Here are the faults of those commonly practiced:

1. Call the game a tie after regulation. A tie in sporting events is said to be like kissing your sister.
2. Flip a coin and let the winner choose whether to kickoff or receive in a sudden-death overtime (possibly ending in a tie after a prescribed amount of time). This is unfair to the loser of the coin flip.
3. Let teams take turns trying to score from a specified starting position. This removes the special teams and field position dimensions from the game, and often results in inflated final scores.

There are two easily implemented alternatives that

- Determine a winner of the game.
- Are not unfair to either team.
- Do not compromise the nature of the game.

## 1.1 Pie Rule Overtime

The *pie rule* (or *swap rule*) is a technique for fair division between two parties. Basically, one party makes the cut, and the other chooses which piece to take. Here's how it would work in football if the game is tied after regulation:

1. The visiting team chooses a starting position and direction to place the ball.
2. The home team chooses whether to start on offense or defense.
3. The game plays as usual until one team scores.

Let's illustrate with an example. Say the visiting team places the ball facing into the wind at the 18 yard line (i.e. 82 yards short of the offense's goal line). The home coach now has to decide whether to go on offense, or whether the relatively bad field position and wind factor would make it more advantageous to start on defense. Once that decision is made, the line of scrimmage is set at the 18. Each team may be granted some additional timeouts, then sudden-death play begins. No resets, switching of directions, coins, or other artificial devices are necessary.

Notice that each coach has to make a strategy decision at the beginning of overtime. No luck is involved, and neither coach can gripe about his starting position. Suppose the visiting coach has a hunch that the home team really wants to start on offense. He may place the ball in worse field position, but at the risk of the home team deferring, which forces him to take his own medicine.

## 1.2 Sealed-bid Auction Overtime

This is another way to determine the initial conditions for an overtime game.

1. The home team chooses a direction for the offense.
2. Both teams write a starting position on a piece of paper and hand it to the referee.
3. The team with the lower number (home team if there is a tie) begins on offense at that yard line.
4. The game plays as usual until one team scores.

For example, suppose the home team states that the offense goes with the wind. Now both teams want the ball, so they must pay for it with bad field position. Suppose the home team writes down 12, and the visiting team writes down 15. Then the home team is given the ball, with the line of scrimmage set at the 12 yard line (88 yards from the goal).

Again we have a fair system that involves strategy, not luck. Other forms of auctioning may also be considered.

## Additional Reading

Others have proposed similar ideas.

- <http://www.footballcommentary.com/otauctions.htm>
- <http://www.columbia.edu/~yc2271/files/publications/nflv8-31.pdf>
- <http://www.slate.com/id/2209436/>

## Addendum

Apparently, Paul Tagliabeau and others have suggested that overtime be played in continuation from wherever the 4th quarter ends. Unfortunately, this may dampen late game excitement in a tie game, since the team with the ball would not be constrained by the clock on a potential game-winning drive.

Joe Kasulis has written me and proposed another solution: let the team that scored last kick off (or choose side) to start overtime. He points out several benefits:

- A game tying FG requires that team to kick off.
- In general, it would incentivize teams to go for a win rather than a tie (e.g. by going for 2).
- With a well-defined rule, coaches could strategize about late game decisions about whether to punt, try a long FG, or go for it on 4th down.

I like Joe's solution. The only point of contention would be what to do in the rare case of a 0-0 tie. Perhaps then a Pie Rule or Auction could be utilized.

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