Tate Huffman

1/10/20

Sports Strategy Adoption

Literature Review

**BUNTING**

*The Book* (2006), by Tom Tango, Mitchel Lictman, Andrew Dolphin, asks is sacrifice bunting ever the optimal strategy? And if so, at what point and by whom? Because this was published in 2006, looking at the years since by reproducing their analysis could be really useful for the purposes of this paper.

After adjusting for the lower quality of non-pitcher bunters relative to the average hitter, bunting on the whole nevertheless reduces a given inning’s run expectancy (how many runs are expected to score in the remainder of that half-inning) by about 0.175 runs. Even if the run-scoring environment is low – runs are harder to come by – and the game is late and close, bunting reduces win probability, as the drop in possibility of a big inning outweighs the greater likelihood the given runner scores. However, bunt attempts themselves are substantially better than sacrifice hits; i.e., the attempt itself leads to much better overall outcomes than a guaranteed runner advancement/out batter, due to potential defensive misplays.

This previous analysis, though, is looking at run/win expectancy before and after successful bunt attempts (sacrifices) – when taking all attempts into account, it can actually be advantageous to bunt as a means of sacrificing early in a game or late when it’s close, assuming a low-run scoring environment (four runs per game as the typical example). All else equal, this should occur with a low-on base hitter on deck, but all previous analysis is trumped when there’s a slow hitter or poor bunter at the plate: barring exceptional circumstances, these hitters should never be allowed to sacrifice.

Pitchers are the one group of players that do often see value when bunting, depending on their own hitting abilities. Overall, there are many complex results with limited marginal gains, but of this category of potential bunters, there should essentially never be sacrifice bunt attempts with one out, and with no outs, whether or not one bunts is dependent on their hitting skill relative to other pitchers (except for first and second, no out, where there should almost always be a sacrifice bunt attempt). Similar analysis holds for count-specific bunt attempts: in pitcher-favorable counts, only the best-hitting pitchers should swing away, but in 3-2 counts, even the worst-hitting pitchers should refrain from bunting – the value of a walk or potential hit is much greater than what could be provided from even a successful sacrifice bunt.

Switching to a new source, [a blog post](https://blogs.fangraphs.com/were-the-yankee-sac-bunts-in-the-8th-inning-correct/) by Lichtman in 2009 delves further into the game theory aspect of bunting, using a Yankees-Angels ALCS game as a case study. He points out that the only time bunting is unequivocally a better strategy than swinging away/a typical plate appearance is when it has a higher win expectancy, even with the defense playing all the way in and expecting a bunt 100% of the time. Of course, the same goes in reverse, now with the defense playing all the way back and expecting the batter to swing away each and every time. Barring these two scenarios,