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**Franklin H. J. Kenter\*** ([franklin.h.kenter@rice.edu](mailto:franklin.h.kenter@rice.edu)). *An Analysis of the Basketball Endgame: When to Foul When Trailing and Leading.*

A common tactic near the end of a basketball game is for the trailing team to foul in order to gain an advantage by forcing the opponent to shoot free throws. While this tactic is widely used at almost all levels of play, deeper investigation into if and when a team should foul is nearly absent. In this paper, we model basketball as a combinatorial game to provide, for the first time, a well-supported quantitative description of when to foul. The results are surprising: not only should trailing teams foul earlier and more often than they actually do, but also, the leading team should foul more often than the trailing team. Using play-by-play data from NBA games, we illustrate the potential impact of this model. (Received September 22, 2015)