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# Do sports and statistics constitute a 'dream team'?

**By Lynne Peeples***Special to the Harvard News Office*

Many argue it's the reason the curse was finally reversed. A few say it has revolutionized the game. "Sabermetrics" — the statistical analysis of baseball data — pervades sports conversation today. But how many people are aware that analytical statistics can make powerful contributions to other sports, like say, pingpong? Well, for a start there are the more than 100 statisticians and sports enthusiasts — in this case, often one and the same — who came together at the Harvard University Science Center Sept. 29 for the first "New England Symposium on Statistics in Sports" (NESSIS).

As Mark Glickman, a visiting associate professor of statistics at Harvard and co-founder of the event, pointed out in his welcoming speech, the timing for the symposium could not have been better. Talk of a winning season for the Celtics pervades local sports shows. The Patriots stand undefeated three Sundays (and one Monday) into their schedule. And Red Sox fans are celebrating their newly clinched AL East title.

Still, there was plenty to talk about besides Boston's teams: Are NFL coaches acting rationally when choosing an equal number of passing and running plays? Is there evidence for racial discrimination among NBA referees? What is the fairest ranking system for college football and hockey? How can we best quantify fielding ability in baseball? Like more traditional fields of academic research, the answers to these questions posed at NESSIS will continually evolve.

Ben Alamar, editor of the Journal of Quantitative Analysis in Sports (JQAS), has helped this growing field become more visible in the research community. "Sports statistics are quickly becoming less of a hobby and more of a research line," he said. Alamar founded the journal in 2004 after realizing that despite widespread interest, academics did not have a place to publish their quantitative work on sports. Nor did sports teams have access to the tools he and his peers had been devising.

Scott Evans, NESSIS co-founder and researcher at the Harvard School of Public Health, recognized the same possibilities and challenges. "In recent years, there has been an increasing awareness of the value of statistics to evaluate players and game strategies, and to address other interesting sports-related questions," he said. "However, academics were often isolated and unsupported in developing methods for sports applications, and sports organizations had limited access to statistical expertise." JQAS and NESSIS share the same mission: to bring researchers and practitioners from sports organizations together with academic statisticians.

Because baseball is an inherently "discrete" game, a Ph.D. in statistics was not necessary for an early sabermetrician's success. However, today, models of player evaluation and game strategy are becoming more complicated than simple ratios of hits-to-misses or balls-to-strikes. And other sports pose their own challenges. Basketball, for instance, is a more "continuous" game and, with the exception of counting points and rebounds per game, is more difficult to quantify. Valuable "picks," "help defense," or "spreading the court," do not yet have a home in the box scores or highlight reels. Collaboration between academia and team management could prove especially valuable in beginning to analyze these more elusive data.

The "Harvard Sports Statistics Collaborative," an undergraduate student group led by senior Rohit Acharya, proved to symposium attendees that even students can make important contributions to this emerging field. With the help of their prominent sports-obsessed statistics professor, Carl Morris, Acharya and Haibo Lu '08 calculated park factors (PF) for the 30 major league ballparks. A park factor measures the extent to which a given ballpark is a batter's or a pitcher's park. So, accurate park factor assessments lead in turn to more accurate assessments of batter and pitcher performance. The new student-calculated set is arguably an improvement over prior PFs.

From systematically assessing a golf swing to improving predictions in horse and motorcycle racing, symposium participants showed how individual sports maintain their own numerical challenges and possibilities. A. James O'Malley, an associate professor of health care policy (statistics) in the Department of Health Care Policy

at Harvard Medical School, described how his tennis formula might be used to improve the probability of beating a particular opponent. Using basic probability, he illustrated that a better tennis player should play a five-set match rather than three in order to optimize his chances of winning. O'Malley also created a table of situational odds that could improve media coverage of tennis in much the same way that sabermetricians have brightened baseball color commentary.

One popular individual sport, however, missed landing on the table for discussion at NESSIS: table tennis. The game was highlighted, though, in a recent issue of JQAS. So, the odds are reasonably good that the next NESSIS will include new analytical tactics for the sport. Still, even after all the numbers have been crunched, sports teams — and pingpong players — will only win an average of 50 percent of their games. The most complicated and powerful new models will never change that statistic. Unless you're a Boston fan, that is.

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