1991

Dispensable Statistics

William (Bill) H. Williams
CUNY Hunter College

Dispensable Statistics

W.H. Williams

It felt like a blind-side bodycheck to read in the "The Great Gretzky," *Chance*, Winter 1991, that, "Thus, despite his exceptional talent, despite his leadership on and off the ice, despite what he has meant to the team, Gretzky was not indispensable to the Oilers."

Holy hockey pucks! Gretzky holds virtually every career and season scoring record and is acknowledged by the hockey world (roughly between, but not including, Winnipeg and Montreal) to be the GREATEST scoring machine the game has ever known. As proof, I point out that this view has even been in the *New York Times*, QED! Ergo, it is logical, reasonable, and even easy to conclude that no player is indispensable, to any team, or ever has been for that matter! (And Edmon-

ton,[1] please note this includes Mark Messier.)

These are matters of considerable importance. What is purported in "The Great Gretzky" is that HE is not only not the GREATEST, but that HE is not even indispensable! Because, clearly, GREATEST dominates indispensable, the article demands immediate, statistically significant action. What sleight-of-hand could possibly purport to reduce the GREAT ONE from (clearly) the GREATEST to less

---

[1] In 1988 (not coincidentally, the year the GREAT ONE was traded from Edmonton to Los Angeles), a view arose in Western Canada best succinctly described by "we still have the greatest player in the world and who the hell needed HIM anyway!"

than (gosh) indispensable?

Let us look at the statistical scoreboard. Pooled, separate, two-tailed (?) t-tests were run on

1. points per game,
2. goals per game,
3. goals-against per game,
4. goal-differential per game,
5. number of wins/losses/ties (chi-square test),
6. the number of overtime games, all comparing Oiler games with and without Gretzky.

BUT, all six tests are statistically insignificant!

With all this insignificance, how could the GREAT ONE possibly have become dispensable? Indeed, it is interesting to note that five of the six variables point in a direction favorable to Gretzky, and so, had a somewhat larger

number of games been used (making the tests significant), a very different explanation would have been required. Indeed, a simple sign test on five out of six is significant.

To continue, the number of road games and the strength of the opponents played by the Oilers, with and without Gretzky, are significantly different; these (highly correlated) variables were then used separately as independent variables in regressions with each of the first four variables (above) as dependent variates. The immediate problem is that the four regressions have R^2s of 0.20, 0.14, 0.15, and 0.19, respectively. So even though all four are significant, what should we make of them? Clearly, their predictive power is very poor. The authors almost recognize the problem and state, "Generally speaking the R^2 values achieved were fairly small, and it is evident that factors other than those represented by the independent variables in our models account for the major portion of the variance in Oiler points, and game scores." So far so good, but then the authors state, "Alternately, we might say that there is a large random component in game outcomes." Random? There is little reason to believe that the missing component(s) in explaining Oiler game outcomes is very random; in fact, even an Oiler-baiting Easterner would not believe that Oiler teams win with an 80% random component! Most likely, the models are just missing a critical factor or two. Regressions with extremely low R^2 values are rarely very useful.

It is one thing to write off "hot-handed" basketball players to statistical insignificance and weak models, but it is quite another to involve the GREAT ONE. So let us be clear: WAYNE has not been demonstrated to be less than the GREATEST, nor has HE been demonstrated to be less than indispensable. What has been demonstrated is merely statistical insignificance, which looks suspiciously like it would go away with more observations and better models.

So if WAYNE's boss, Bruce, wants to take a few million back because HE is no longer indispensable, the GREAT ONE should contact a statistician, not necessarily to do more data analysis, but to point out that truth and statistical insignificance are not hard-wired.

P.S. Events occurring in New York City since October 4, 1991 are bringing about significant (a larger N you know!) reassessment of the Mark Messier remarks.