WEDNESDAY COMMUNIQUÉ

December 9, 2015

Statistics are used much like a drunk uses a lamppost: for support, not illumination.
– Vin Scully

According to the faculty handbook, Section D125, grades are expected to be entered and submitted using Web Grades within 48 hours after the final exam. Please make every effort to abide by the deadlines set in our faculty handbook. In order to put you in the mood for grading, check out the report cards of some famous mathematicians.

Lies, Damned Lies, and Statistics: On Nov. 27, the following Wall Street Journal headline caught my attention: "Chinese Pull Back from US Real Estate." On that same day, a New York Times headline stated: "Chinese Flood US Real Estate." The two articles on the same day got me thinking about the use and misuse of data and statistics. In the last Communiqué before the holidays, as we finalize our grades and near the start of the 2016 New Mexico legislative session, I thought it may be appropriate to reprise the discussion of the importance of data.

Data has the power to surprise us, challenge preconceived opinions, and tell stories. Data can tell a positive story about our future, despite the seemingly endless stream of bad news. Max Roser, an economist at Oxford University, describes it as follows: "Things that happen in an instant are mostly bad. It's this earthquake or that horrible murder. You're never going to have an article on the BBC or CNN that begins by saying: 'There's no famine in south London today' or: 'Child mortality again decreased by 0.005% in Botswana.' But once you turn to statistics it gets much harder to have a pessimistic story."

In some situations, as when dealing with "inherently contestable" political matters, the same data can be used to support opposite views. Such is the case, for example, when discussing mathematics education, where no amount of data can change preconceived opinions about the validity of competing approaches. In other cases, different lenses may result in completely opposite interpretations of the same data. Take the case of Kobe Bryant, who "will finish his career next April ranked No. 3 all-time in NBA scoring, with more career points than Michael Jordan and Wilt Chamberlain. Moreover, Bryant will leave the league with as many championships as Magic Johnson, and more titles than Larry Bird." The author continues: "So far, so good. Except this: Bryant *also* will finish his career with more missed shots than, well, anyone who has ever played the game."

Most interesting to me is the fact that simple massaging of the data can create correlations and apparent causations where none existed. Such is the case of Alex Jones who decided to study how the length of his employment related to his company's stock price. All this should serve as a warning as we use data to support our conclusions — doing so requires a valid reason for *how* the posited relationship comes about.

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