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2/26/10

Identifying Patterns

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Streaks in Sports

One of the big stories in sports, recently, has been the streak of 25+ point performances by Kevin Durant of the Oklahoma City Thunder. He had a streak of 29 straight games with at least 25 points, making him one of four forwards in NBA history to have accomplished this feat. But, what puzzled me as I watched the streak expand every day was: how is it that Kevin Durant is able to do this, but the best player in the game, Lebron James, isn’t? It would seem logical that the best player would record the most impressive streaks, if anyone is going to. But what very few people consider is the role of chance in professional sport streaks. Leonard Mlodinow’s article, “The Triumph of the Random”, from the Wall Street Journal, covers the interesting effect of chance in sports.

“The Triumph of the Random” begins by discussing what is considered the most impressive streak in sports. In 1941 Joe DiMaggio, of the New York Yankees, went fifty six games straight with at least one hit in every game. This unbelievable streak set the record then, and still stands to this day. Mlodinow explains that when setting a record, a player is able to have a bad day here and there, as long as they compensate for it in the future. With a streak, though, if you have one bad day, the streak will be over, end of story. With this said, Mlodinow poses an interesting question; was DiMaggio’s streak a show of his concentration, effort, and natural ability, or was it a result of chance? In this article, Mlodinow argues that randomness is the ultimate determining factor in whether a streak will occur or not. He first, explains that randomness does, in fact, show periods of order. According to him, when flipping a coin one hundred times, there is a seventy five percent chance that there will be six or more heads or tails in a row. By saying this, he eliminates the opinion that randomness is chaotic and without order, thus proving that streaks are possible when chance is the driving factor.

Once Mlodinow disproves the theory that chance is completely random and without any order, he discusses the streak of Bill Miller. Miller was a manager on Wall Street, and for fifteen straight years his funds outperformed the market. According to Mlodinow, this streak in the business world is comparable to DiMaggio’s streak. But, what was interesting about Miller’s streak was that after the streak ended, his funds underperformed due to bad investments. Because he was unsuccessful after the streak ended, it can be assumed that it was not due to superior knowledge or insider trading that Miller did well. Instead, it seems that chance played a role. A coin was flipped 15 times for Miller and every time it turned up heads, but, after fifteen heads, he began regressing back to the mean, which strongly supports the role of chance in streaks.

The Miller example helps to support the role of randomness in streaks, but, it doesn’t prove that chance is the driving factor in sports streaks. DiMaggio’s streak was impressive and has yet to be broken, but it is not like he was some no name. He had a lifetime batting average of .325. According to Mlodinow that gave DiMaggio a seventy five percent chance of getting a hit in a game. When comparing this to coin flips, it seems a little odd since a coin has a fifty percent chance of landing on heads. So, in order to account for DiMaggio’s superior hitting ability, the coin must be weighted to increase the chances of flipping to heads to seventy five percent. Thus, DiMaggio is a weighted coin. But one may ask: well if chance is a driving force and DiMaggio’s a weighted coin, is it possible that any other person could have accomplished this streak in another world/dimension? In 2005 two researchers from Cornell University designed a computer program to test for just that. The computer weighted every player from 1871 to 2005 depending on their statistics, then generating mock versions of all the years in that interval. They ran this program ten thousand times, each time representing a new world/dimension. In forty two percent of the trials, DiMaggio’s streak was either matched or broken in the 134 year interval. In 300 of the trials, Ty Cobb was the man to break the streak; indicating that his coin may be weighted more than the others tested. This computer generated representation of each year in baseball, which depicts randomness and chance, abides by Mlodinow’s theory that chance is the driving force in streaks.

Mlodinow also discusses and proves and interesting point in his discussion about basketball.. When we see an eighty percent success rate in a free throw shooter, who is one what we call a “hot streak,” we believe it’s because he has his regular outstanding shooting skills, but, also, the “touch”. Mlodinow; however, puts it in terms that make more sense. Consider the basketball player as a coin that, instead of having the normal 50 percent chance of landing on heads, is weighted with an eighty percent chance of landing on heads. Wouldn’t it make sense though that this particular coin would have a streak of a certain amount of heads in a row? Of course it does. And the same holds true for a basketball player like that. Ability makes the player more weighted, but it does not eliminate the role of chance in the situation. The player could have an “off night” at any time. It’s not that he lost his ability, but chance may not have been on his side.

Mlodinow made a strong case for chance, but one may still wonder if the human elements are accounted for in the probability model. Clearly, the human elements such as ability and skill are accounted for by the “coin” being weighted depending on that person’s skills and abilities. So in that case, you cannot say that the better player will always have the streak. However, I believe that there are human elements that cannot be factored in. A coin is weighted depending on past statistics, but, what if one game that person came down with the flu and just did not have his typical strength. This would change his weight for that game, but the probability model does not account for this. The probability model does not account for the fact that a certain batter may be facing very poor pitchers throughout his streak. There are human elements that cannot be accounted for by the model, but at some point all the pieces will fall into place. At some point a streak will occur; there is no guarantee of when, who, or where it will occur, but it will.

Why do humans mis-estimate the likelihood of streaks? Mlodinow outlines several reasons for why humans are always wrong when they describe the reasons for a streak occurring. First of all, people believe that human elements play a much larger role in determining outcomes than they actually do. To most people, the better the player the better the streak they will have. But this is not the case, as seen by the recent Kevin Durant streak. Another reason is that we do not fully understand a given situation. Mlodinow gives a good example with his red light, green light test. The red light appears twice as much in a given trial than a green light, but the pattern of red to green lights is random and without a pattern, Instead of humans recognizing this, they try to guess the pattern, where there is none, which decreases their likelihood of guessing correctly. The final, and most important, reason for humans mis-estimating the likelihood of streaks is the human desire for control. Humans don’t like the idea of not having control over every situation, with chance as the ultimate decider. This is unsettling to most, and for this reason will never truly be accepted.

After reading Mlodinow’s article, “The Triumph of the Random”, it is quite clear that we may not have as much control over certain situations as we would like to think. Chance plays a major role in not only sports, but, also, many aspects of our lives. We get disappointed when we have a bad game, or a bad financial year, but if we realized that the world runs on chance and we ultimately have little control, we may be a little happier. If we realized that we have had a bad streak, instead of us simply being inadequate in an area, we could accept the result and move on. On the other hand, if we realized that we may be on a good streak and it could come to an end at any time, we could plan for it, preventing the final outcome from being disastrous. As a result, the acceptance of chance playing an active role in everyday life would greatly change the human outlook, thus creating a better life for all.