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STREAKS IN SPORTS

 There is no better playing field to draw conclusions about data than sports. Athletic achievements are something that most people understand intuitively, whether it is a winning or losing streak, or a consecutive shots made or missed. In basketball, the UCLA Bruins had an 88-game win streak in the early 1970s. NBA player Michael Williams made a record 97 consecutive free throws in 1993. In 1997, NFL rusher Barry Sanders went over 100 rushing an amazing 14 straight games. But there is no greater “streak” talked about and debated around water coolers and watering holes than New York Yankee great Joe DiMaggio’s 56-game hitting streak in 1941. DiMaggio is only one of a few players who famous record stands – in any sport. Hall of Fame worthy Pete Rose hit in 44 consecutive games in 1978 and Hall of Famer Paul Molitor had a 39-game hitting streak in 1987, but their streaks fall far short of DiMaggio’s record. The phenomenon of streaks raises the question, ‘Did these feats results from super-human talent and ability, or are they simply flukes, resulting from chance?’ In his article, *“The Triumph of the Random,”* author Leonard Mlodinow argues DiMaggio’s hitting streak did not result from some “extraordinary causes,” but rather another factor – the factor of chance, or luck. Mlodinow provides other examples of streaks from business and cites other studies to support his position. But DiMaggio’s feat cannot be explained by randomness or the result of a small number of trials. Hitting a baseball is the hardest feat in sports. You have to have pure ability to be a talented hitter, to see the ball spinning, curving, dipping and dropping on different planes and at different speeds, and then to make contact with it. DiMaggio’s steak was due to his pure ability to hit the ball. He is considered one of the greatest hitters of all time. In fact, after his 56-game hitting steak ended, eight years later, in 1949, he safely hit in 34 consecutive games. And, before joining the Yankees, he set a Pacific Coast League record by hitting in 61 games in a row. Mere chance or luck, I think not. DiMaggio was a pure hitter; that’s why he batted .325 and has one the highest lifetime batting averages in baseball. It was no fluke that he hit safely in 56 consecutive games. I’ve played baseball before and know that when you have a hot bat it continues for a while. In his case, it continued for 56 straight games. And, while Mlodinow might be able to argue a 56-game streak had elements of chance and luck, his argument belies the fact DiMaggio had a 61-game streak in the minor leagues and two more hitting streaks of 30 or more games in his career. You can compare it to basketball, as Mlodinow did. In basketball, players get the “hot hand.” They can make 10 consecutive shots or 97 consecutive free throws. This can be part luck, for sure, but also pure confidence resulting from practice, practice and more practice. Once a player makes a couple of shots his confidence goes up and he concentrates more on his shots; he doesn’t hesitate. Also, at the free throw line, it’s the same thing. You get on a streak and your confidence is boosted. Michael Williams made 97 consecutive foul shots because he worked on free throw shooting his entire life. While he might have caught a lucky bounce along the way, he had a gift that he developed and perfected that allowed him to achieve an extraordinary feat.

 In his book “*The Drunkards Walk,”* Mlodinow discusses a situation involving two baseball players who are trying to break Babe Ruth’s home run record of 60 in a single season. Mickey Mantle and Roger Maris were in a race to see who would top his record first. Maris outdueled Mantle and hit 61 home runs, while Mantle hit *just* 54. Everyone thought Mantle would be the one to break it. After all, Maris broke the record despite never hitting close to 61 home runs again. In fact, he never hit more than 40 in a season after breaking Ruth’s record. College professors theorized that Maris got lucky; his feat was due to a chance process. In other words, he was in the right place at the right time, with the right pitchers, in the right stadium and with perfect conditions. It is debatable whether Maris broke the record out of pure chance, or just the God given ability to play major league baseball. The statistical approach does not capture situations like that in baseball. A batter could get hot in a second.

 I believe DiMaggio’s 56-game hitting streak will be broken one day – after all, records are made to be broken, as the cliché goes – but who knows when. When DiMaggio played, pitchers did not have the same kind of arms and pitches they have today, due to their training, conditioning – and the available of supplements and medical treatments that aid recovery. It was a lot easier when DiMaggio played than it is today to break the record, but I believe some player in the future will have the killer instinct to break the so-called unbeatable record, even though no player has come close to breaking it in 68 years. The chances might be unlikely, but I don’t believe that chance played a large part in DiMaggio’s streak. The same people say DiMaggio’s record will never be broken are the same people who once said Ruth’s single-season home run record would never be broken. They were wrong. The players in baseball are getting better each year. Each year, new technology and training is being developed for the hitters; the result, players today are bigger, strong and faster.

 There are many human elements that are not accounted for by the probability model. They include what stadium are you playing in, are the fences long or short, how big are the outfields, are you playing in a dome or outdoors, what role does weather play and how hard are the baseballs. These are just some of the factors. For instance, wind affects the baseball in Yankee Stadium more than other parks. It’s like a wind turbine, as some would call it – the baseball travels farther. Yankee Stadium also has a short right field fence, similar to the Green Monster in Boston’s Fenway Park, providing an advantage to left-handed batters. Other factors include what pitcher are you facing, what position in the lineup are you – and whether other hitters in the lineup are hot, what bat are you using and what is the weather like, rainy or a perfectly sunny day. All these elements have a great affect on the outcome on the game and, more important, the players. These elements matter in the long run because you get use to the places you are playing, you get use to the same pitchers. Also the longer you play the game, the more likely you are to get better, like DiMaggio. Even though he didn’t have a steak of 56 straight game, he still had another streak of 34 games eight years later in his career. Notably, that streak also ranks in the top 15 records for consecutive hits in game. These are some, but not all of the elements that are not accounted for in the probability model.

 Human beings underestimate the likelihood of streaks because they are difficult to predict. A great hitter can go cold for a couple games, then get hot for 15. You can’t predict how often and when a streak will occur. You can take a wild guess and predict, or you can do a stat model – but chances are you will be wrong. In basketball, for example, the Cleveland Cavaliers went on a 13-game win streak leading up to the all-star game break. Most fans thought the streak would continue based on the stats and how they were playing. Then, they acquired an all-star forward and promptly embarked on a three-game losing streak. You can’t predict if they are going to continue the streak or lose three straight based on some model. It’s just a guessing game.

 Streaks in sports happen. They happen every year, in every sport. It’s just how the game is played. The streaks cannot be based on the results of a box model. It’s too unlikely they will be correct. A team or player can get hot or cold on any given day. Joe DiMaggio had one of the greatest seasons in baseball history in 1941. You could not base the probability of him breaking the record based on a box model or even chance process. There is a huge chance for error. Many factors, as previously mentioned, play a huge part in the process of breaking and setting records, or getting on streaks. You have to be in the right place at the right time, in the right setting. In baseball, you can predict the Yankees and Red Sox will be in the World Series every year based on there past performances – and player payroll. You can predict in basketball the Lakers will compete for the NBA championship every year. You can predict of the past stats that the teams have had, but there is a lot of error that can contribute. A player gets hurt and that’s the season of the team. The box model does not have this factor played into it. Chance process and the box model cannot play part in predicting streaks, because the chances of them being correct are slim.