Focus of Scores in Disc Golf

(Another New Statistic)

By

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Description and Method

Sloppiness

A good disc golf hole would not give out scores that are way too high or way to low. That would be sloppy.

Standard Deviation has often been suggested as a good measure of the Sloppiness of scores. However, in my view, a score that is, say, 1 larger than the mean affects the results by 1 throw.   I prefer to use the absolute value of the difference between actual scores and estimated scores. This gives us an easily interpretable statistic. If the Sloppiness of a hole is 1.00, it indicates the players got scores which were 1.00 throw higher or lower than their estimated score, on average.

If each player had several rounds of data on a particular hole, we could estimate their expected score using that player's average score. However, there is often only one or two rounds of data. I want a statistic that can be applied to a single round of data for a few players. I used a linear fit of each player's hole scores to the total score for each player in the round.

> **Estimate each player's estimated score by fitting hole scores to total round scores.**
>
> **For each player-round score, find the absolute value of the difference between actual score and the estimated score.**
>
> **Take the average of the results across all players.**

A value of 0.00 means the hole only gave out scores that were exactly equal to the estimated scores. Since most estimated scores will not be integers, this is very unlikely. However, values nearer to zero indicate that the scores given out are nearer to estimated. Which should be good.

Comparison to Other Statistics

I computed several statistics for 1,307 holes with at least 50 rounds of MPO data from big events (mostly from 2019) to compare with Sloppiness.

Compared to Correlation to Other Holes

Because Sloppiness uses the scores from all the holes in the course to compute the estimated score, and then measures the distance of each actual score to this estimate, one might expect it to be the same as Correlation to Other Holes.
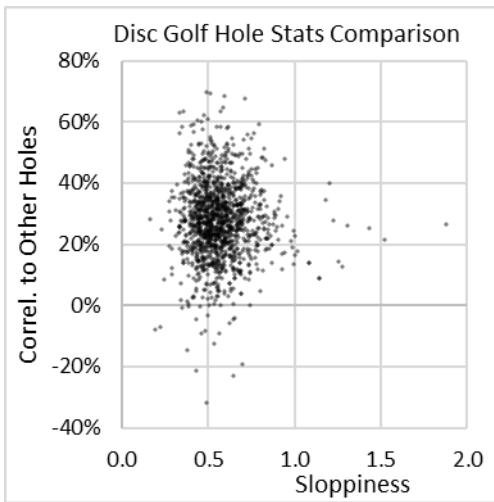
In fact, there is no relationship. Sloppiness sort of measures everything else but correlation. For example, the hole shown below has the highest Correlation, but just average Sloppiness.
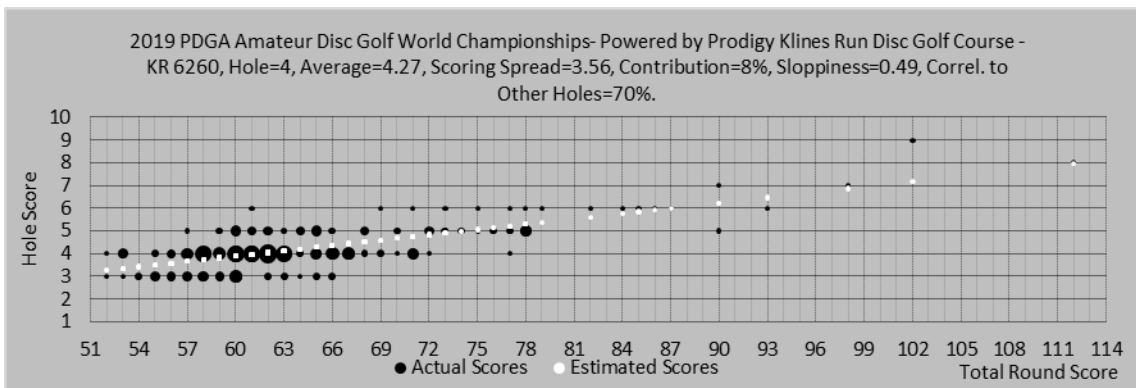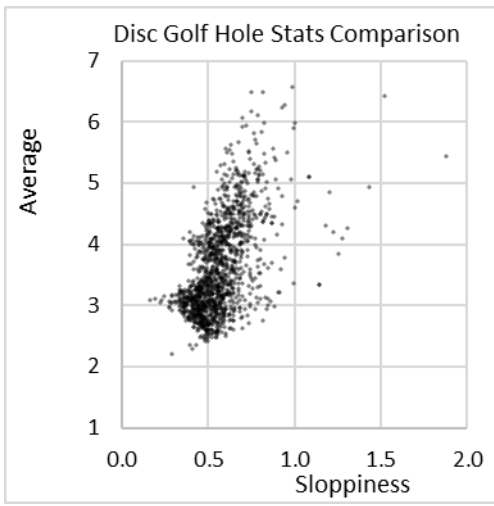

While the hole shown below has the lowest Correlation, but also an average Sloppiness.
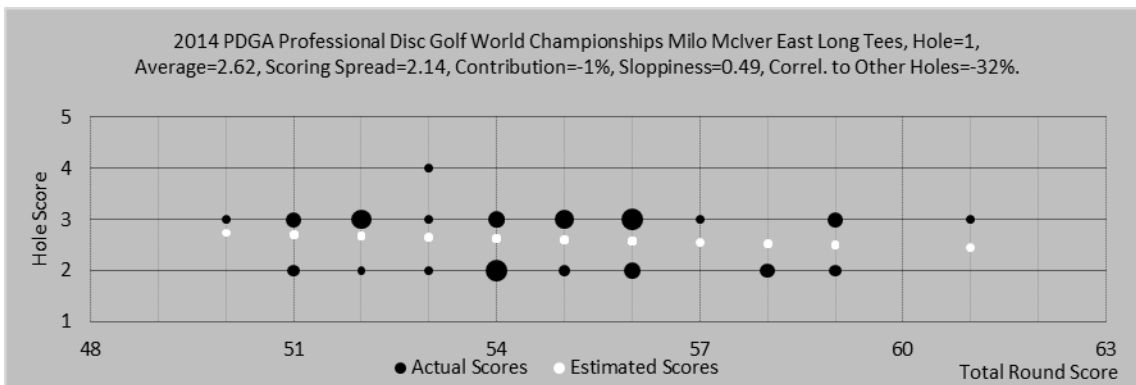
*Compared to Average Score*

As would be expected, holes with higher scores have more chance at being sloppy, but there is a range of Sloppiness across most average scores.


Note that when a hole only gives out 3s, it has low Sloppiness. This is reminiscent of the pattern of Scoring Spread. The hole shown below has the lowest Sloppiness I've found among courses with at least 50 rounds of data. The cause seems to be that the hole just doesn't want to give out many different scores.
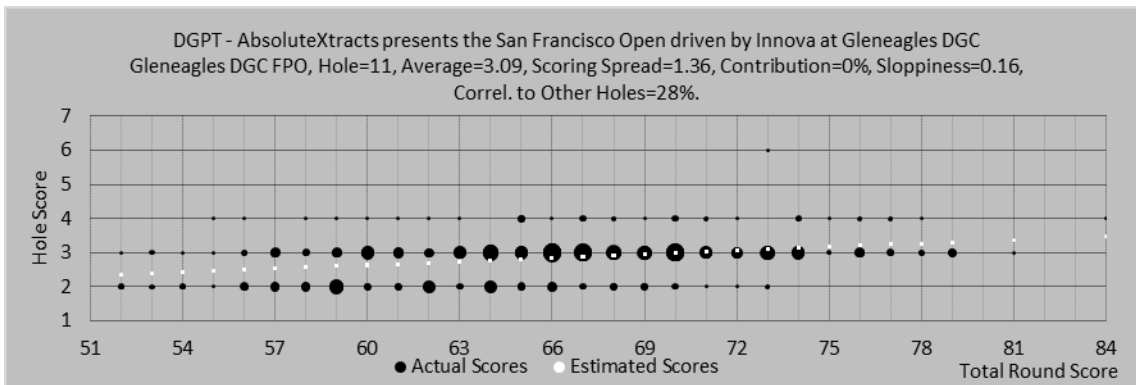
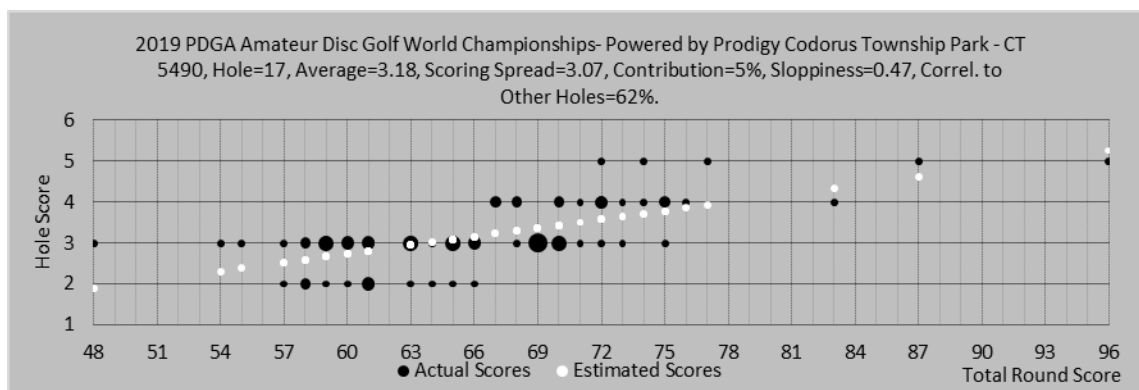The hole below has a low Sloppiness but a high average score.
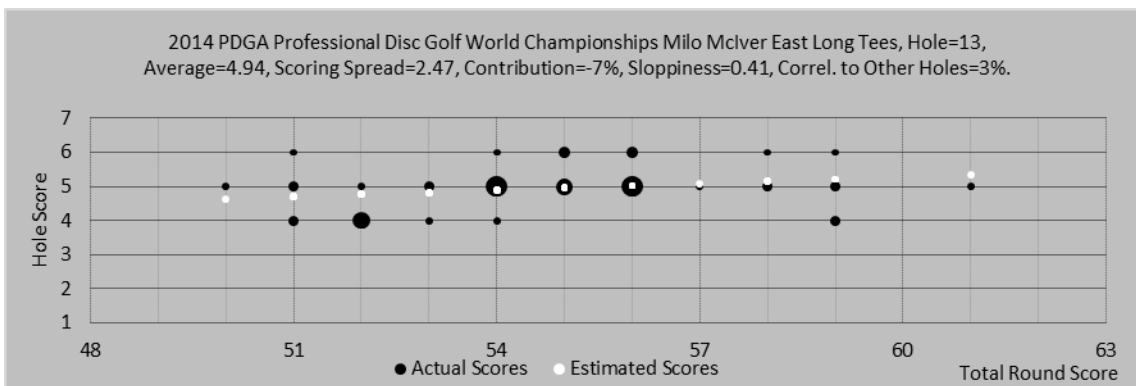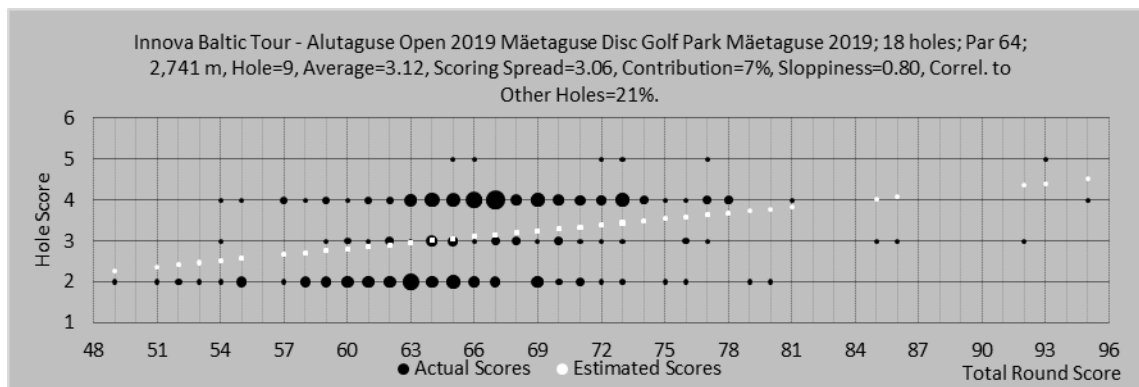
Comparison to Scoring Spread
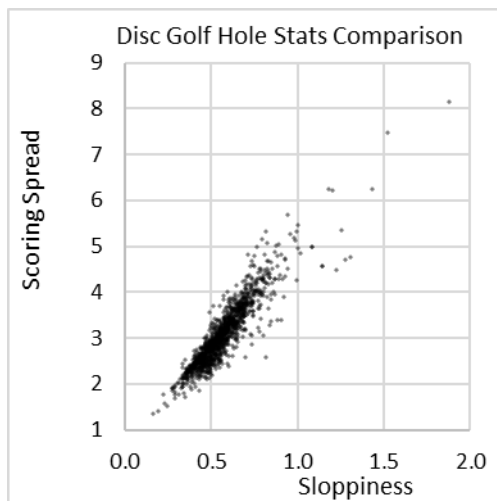
As expected, a wide Scoring Spread would make it more difficult to have compact scores. Scoring Spread shows the number of different scores given to all players (along the vertical axis in the charts below), while Sloppiness shows how far the actual scores are from each player's expected score (the gap between the black dots and the white dots). It would seem that having a wide Scoring Spread and little Sloppiness would be good.
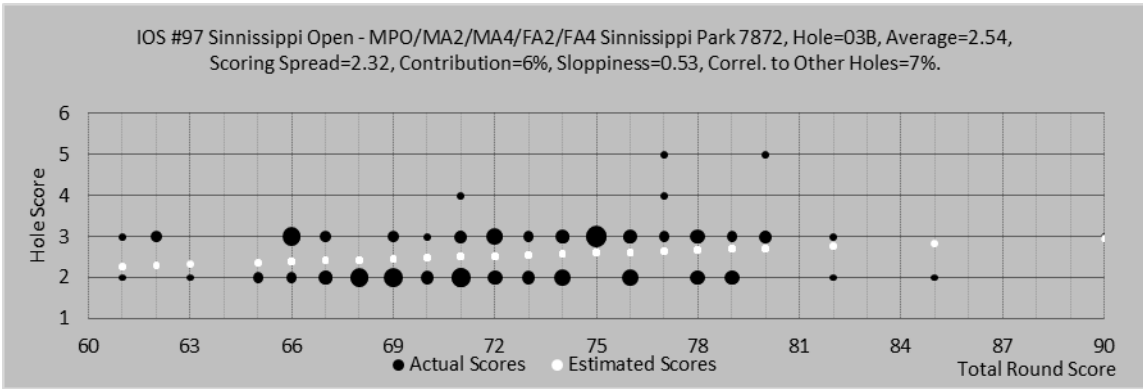
The hole shown below has an average Scoring Spread and a lower than average Sloppiness. Most scores bracket the estimated scores tightly, so the Sloppiness is only .47.
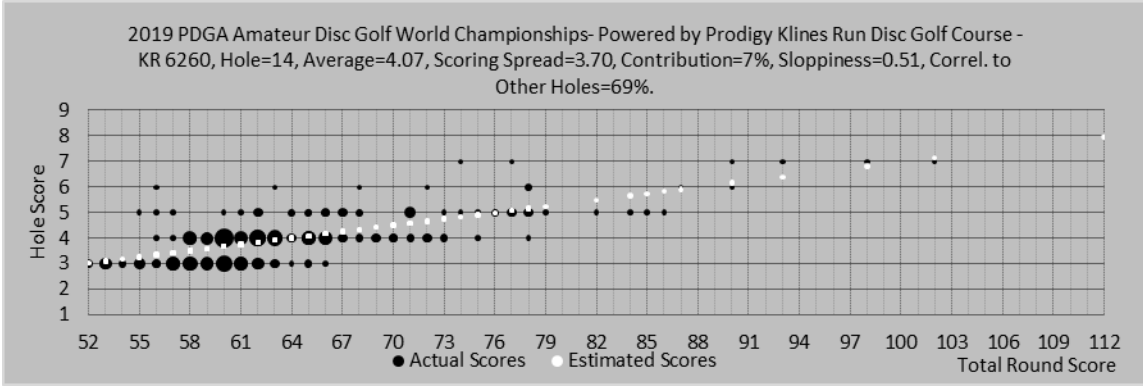

The hole below also has an average Scoring Spread, but a higher than average Sloppiness. The hole doesn't give out too many different scores, but they tend to be 2s and 4s.   You can see many scores are about a full throw away from the estimated scores, so the Sloppiness is 0.80.
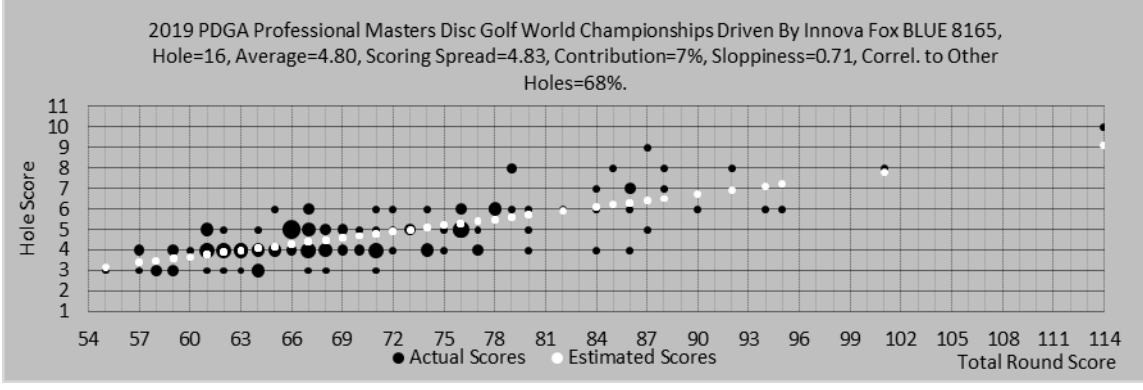

The hole shown on the next page has average Sloppiness, but a narrow Scoring Spread.
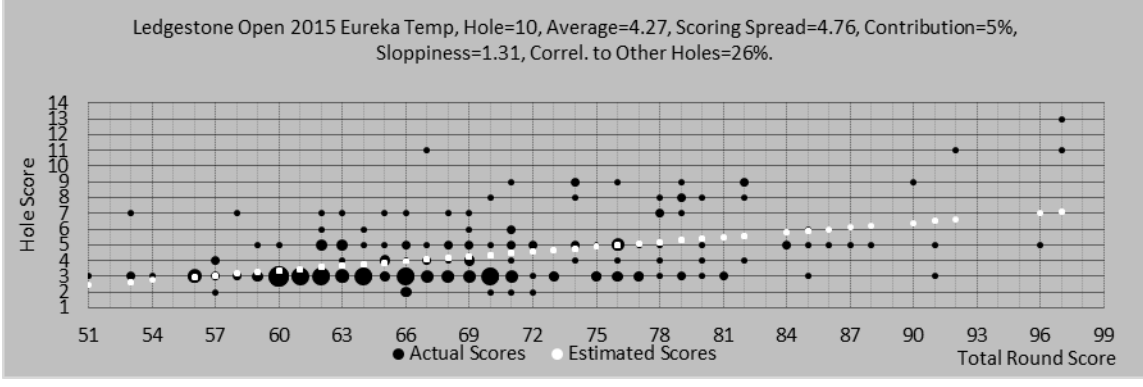
IOS #97 Sinnissippi Open - MPO/MA2/MA4/FA2/FA4 Sinnissippi Park 7872, Hole=03B, Average=2.54, Scoring Spread=2.32, Contribution=6%, Sloppiness=0.53, Correl. to Other Holes=7%.

The hole below has average Sloppiness, but a wide Scoring Spread.

2019 PDGA Amateur Disc Golf World Championships- Powered by Prodigy Klines Run Disc Golf Course - KR 6260, Hole=14, Average=4.07, Scoring Spread=3.70, Contribution=7%, Sloppiness=0.51, Correl. to Other Holes=69%.

The hole below has the most unexpectedly low Sloppiness, for its huge Scoring Spread.

2019 PDGA Professional Masters Disc Golf World Championships Driven By Innova Fox BLUE 8165, Hole=16, Average=4.80, Scoring Spread=4.83, Contribution=7%, Sloppiness=0.71, Correl. to Other Holes=68%.

The hole below has the most unexpectedly high Sloppiness, compared to what would be expected for its Scoring Spread.

Ledgestone Open 2015 Eureka Temp, Hole=10, Average=4.27, Scoring Spread=4.76, Contribution=5%, Sloppiness=1.31, Correl. to Other Holes=26%.
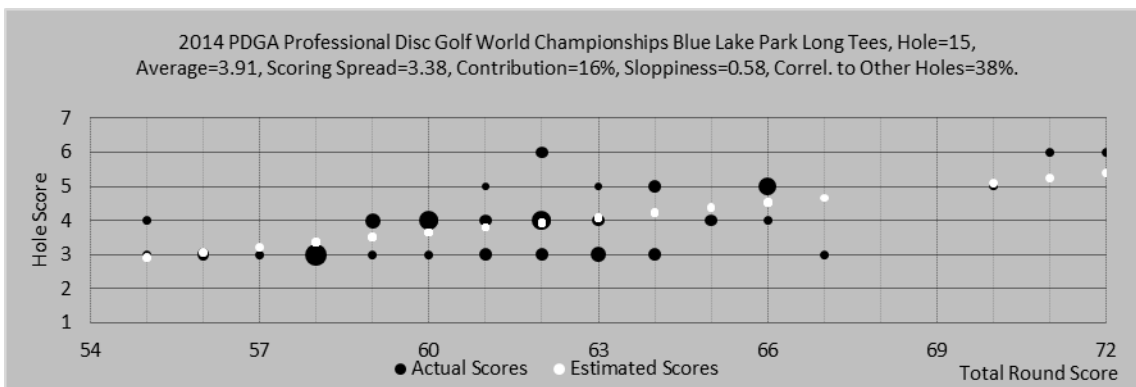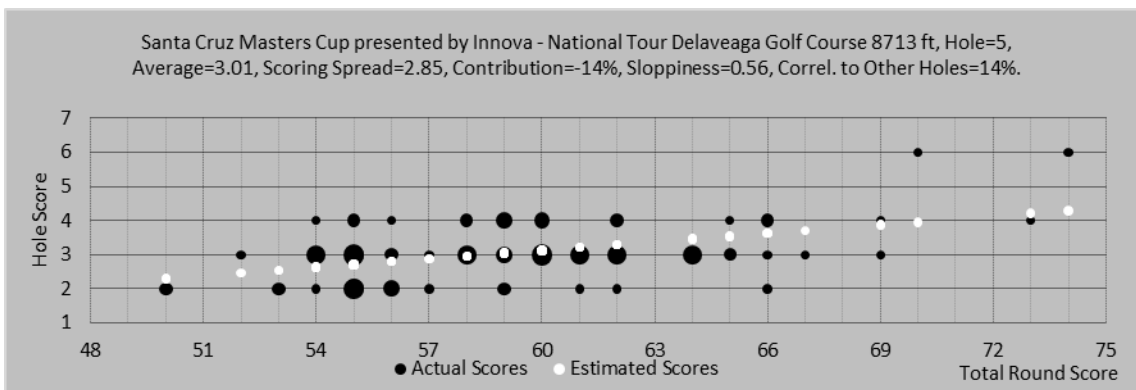
Compared to Contribution

Contribution measures how much the Scoring Spread of total round scores was helped by the hole. A positive number means the hole broke more ties than it caused.
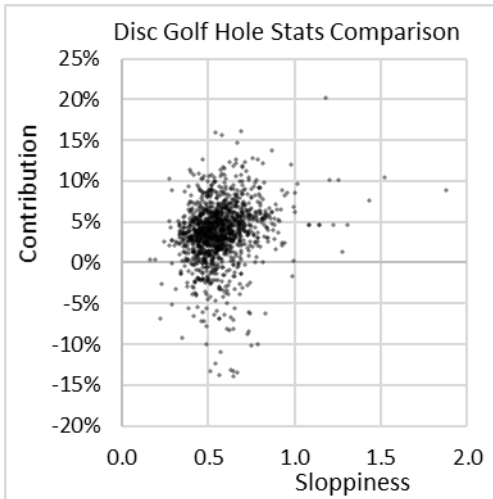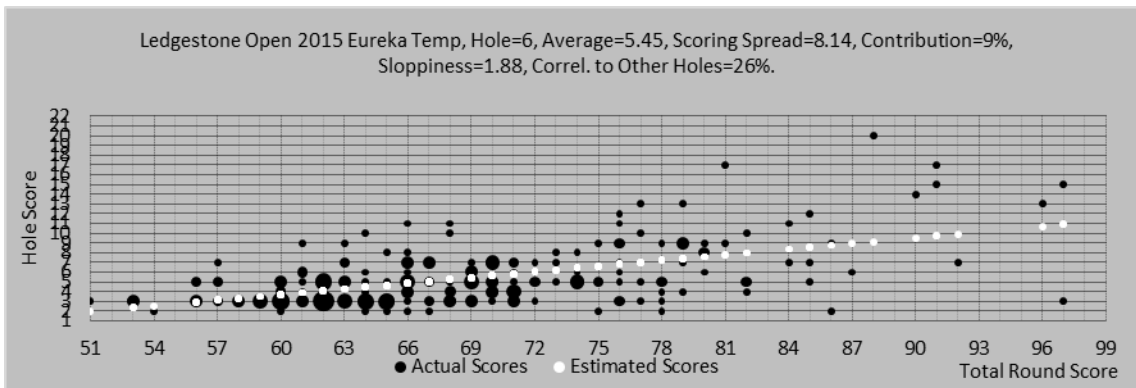

Here are two holes with nearly the same Sloppiness, but very low and very high Contributions.

Extreme

The hole in the chart below has the highest Sloppiness I've found. On average, the actual scores were 1.88 throws away from estimated scores (in white).

Focus

I've been talking about Sloppiness because it is easier to see directly on the charts. However, since I think that Sloppiness is a bad thing and I want a statistic that shows how good a hole is, I will use Focus. Focus is just the inverse of Sloppiness.

Focus as a function of Scoring Spread
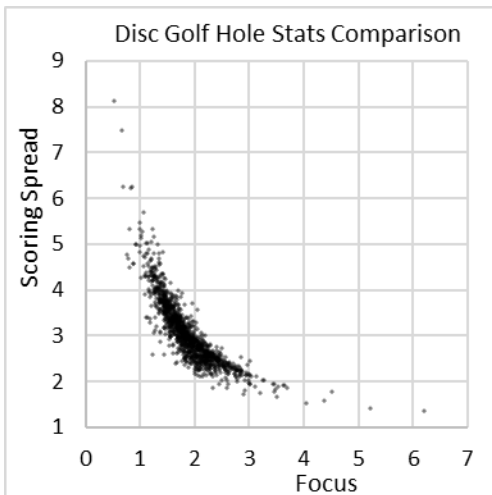
The two are inversely related, for the most part. A hole with a wide Scoring Spread will usually have little Focus and vice versa.