

Is Poker a Game of Skill?

By Howard Lederer

1. Introduction

For years poker players have tried to craft a proof that poker is a game of skill. We knew "deep down inside" that poker is a game of skill, but unless we could make a compelling argument that was simple to understand and could stand up to legal scrutiny, we would be doomed to suffering the same legal status of sports betting and games of chance.

The legal test in most states is simple but ambiguous. A game is considered to be a skill game if skill predominates over chance in determining the outcome of the game. Before we can apply this test to poker we must define a number of terms as they relate specifically to poker. These terms are: skill, chance, outcome, predominance, and game (what constitutes a game of poker?).

The central line of reasoning I will use to prove that poker is a game of skill, will allow for the narrowest definitions of these terms; definitions that, in the past, have seemingly doomed those on the skill side of the argument to try to overcome impossible obstacles.

2. Outcomes and Games

Those that have argued that poker is a game whose outcomes are predominantly determined by chance have always held that the outcome of a poker hand is simply who wins the hand. Since, the cards often do determine the winner of a poker hand this is their best definition of the term. I strongly disagree with this definition as "outcome" is really a synonym for "result". The result of a hand is clearly who won the hand, how much was won by the winner and how much was lost by all the losers of the hand.

If poker were a game where the result of the hand was simply who won the hand, then the players who win the highest percentage of hands they are dealt in, would be the biggest winners. Actually, quite the opposite is true. The better a player becomes at the game, the more selective that player becomes in the hands to play. Winning poker players tend to play fewer hands, but they win a greater percentage of hands where they make a significant investment. They also win bigger pots when they win a hand, because they are skillful in their betting.

But, poker players must be prepared to win this potential legal case even if a judge were to rule that the outcome of a poker hand was simply who won the hand. And my main argument here will accept that the outcome of a poker hand is defined as who wins the hand.

The definition of a "game" of poker has been another point of important contention. Poker players have always argued that poker players are measured over months, years and careers. If we allow for enough of an interval, say a year, truly great players are almost certain to win. Moderate advantages over short periods of time repeated night after night, will add up to an unbeatable edge. One must remember that casinos tend to have only a 1 to 2% advantage on each bet made on their gambling floors, yet over the course of weeks and months their positive

revenues are guaranteed, allowing them to build multi-billion dollar hotels to attract more customers.

People on the chance side of the argument have argued that the interval should only be one hand. I again think this is unfair and does not account for the way the game is played. Baseball is not played over the course of one pitch or one at-bat. Golf is not played over one swing or one hole. Likewise, poker is almost always played for at least an hour and usually for a few hours. However, for the main part of my argument I will accept that skill in poker can be proven over the course of one hand. In fact, the line of reasoning will not gain much by looking over a longer period of time.

3. Chance and Skill

The question at hand is whether "chance" or "skill" predominates in determining the outcomes of poker hands. We must clearly define these two terms before we can gather any evidence to settle the question. There has been little controversy in the definition of chance in poker. Both sides of the argument seem to agree on this one. The chance elements that contribute to the outcome of a poker hand are simply the cards and how they are dealt. The cards introduce a chance element into the game and sometimes the dealing of the cards will clearly determine the winner of a hand. Sometimes when a hand is over two or more players will then compare their cards, which were randomly dealt, to determine who wins the hand.

Skill has been a bit more difficult to define in poker. For years, poker players have made a fundamental mistake. They have confused skill with advantage. We know that certain poker players apply the skill of the game better than others. This leads to an advantage, which leads to profit over reasonable periods of time. But, how does one's edge determine the outcome of a poker hand? It is hard to say, and as long as we make this error, will be doomed to losing this argument in court.

Skill is not about one's advantage or even a player's skillful play. It should simply be defined as the elements of the game that can be applied skillfully. The skill elements in poker are the actions that are completely in the control of the players; the bets, calls and folds. Every time a player acts in a hand, they must either check, bet, call or fold. There is no chance element that forces a player to take any of these actions. A player reads the actions of his opponents (the skill elements) and the cards (the chance elements) and then tries to apply skill to making his own action (another skill element).

It might help to look at skill in another game to understand this concept better. When a golfer hits his drive 50 yards into the water, his skill (or lack of skill) did that. There is chance in golf (imperfections on the green and gusts of wind), but this particular swing was all about a lack of skill leading to a bad result. The skill elements in golf are the elements that are completely in the control of the players; swings, club selection, aim. Skill elements don't have to be applied skillfully to be skill elements. They simply must be the part of any game to which the players try to apply their skill. It would be absurd to say that Tiger Woods is playing a skill game, but a duffer playing at the country club is not. Tiger Woods is simply better at applying the skill elements of the game than the duffer.

Likewise, we have professionals in poker who apply skill extremely well and casual amateurs who don't. But they are playing the same skill game and apply the same skill elements in an effort to play skillfully. What the law asks is do the elements of skill or the elements of chance predominate in determining the outcomes of poker hands? With these definitions of skill and chance, I think we can actually answer that question.

4. Predominance

But first, I would like to address the legal definition of predominance. I have heard said many times that predominance is not clearly defined, in a legal sense. I find this nonsensical. If we are testing the predominance of two things and one of those things is determined to be 60% and the other 40% of an outcome, then it makes no sense to say that the thing that is 40% is predominant over the thing that is 60%. Therefore, as long as we can prove that skill is 51% over chance in determining the outcomes of poker hands, we should satisfy the legal test of predominance.

5. Luck Hold 'Em

To make my argument clear, I would like to invent a new, bastardized version of hold 'em. This game we will call Luck Hold 'Em. I would like to make it clear that this is not a legitimate version of poker, as all forms of poker have betting and folding as integral parts of the game. Luck Hold 'Em, is played very much like the casino game Baccarat. Nine players sit down at the table and bet an equal amount. Once the betting is complete, the dealer will deal each player a two card hold 'em hand. It doesn't matter whether these cards are dealt up or down as there will be no skill element applied to determining the winner. The dealer will then produce the flop of 3 community cards, followed by the 4th up card and the final (5th) community card. The dealer, will then, look at all nine hands and determine, using standard poker hand rankings, who wins the pot.

Clearly, this is a game of pure chance. The only thing that determines the outcome is the cards. And there can be no skill elements applied to influencing either the cards or the outcomes they produce. Within the game of Luck Hold 'Em, the winner of each hand, can be referred to as the "Luckiest Hand". I will use this term later in this document when looking at regular poker outcomes. It will refer to the hand that would have if we were playing Luck Hold 'Em.

6. Rules Used to Determine Poker Outcomes

In regular poker, there are two basic ways to win a hand of poker. The first is to be the last player left in the hand. If at any time during a hand, all the players, but one, have folded their cards, the pot will be awarded to the one remaining player. The other way a player can win is by having the best hand of the remaining players once the betting is complete and all the cards have been dealt. This is called winning at showdown and only happens if two or more players are still in at the conclusion of the hand. Please note, that in Luck Hold 'Em, since there can be no folding, a player only wins a hand by having the best cards, of the nine remaining players, during the showdown portion of the pot.

7. No Showdown

Let's first look at hands that are determined without a showdown. Our data shows that overall, approximately 60% (actual numbers will be generated) of all online poker hands played for real-money end because all the players, except for the winner, folded their cards. The pot is then awarded to that player for one reason and one reason only; the skill elements as applied by the players in the hand led to an outcome where only one player stayed in thus producing a winner. Each player who lost the hand decided to apply the skill element of folding to eliminate themselves from the hand. And, the winner decided to apply the skill elements of calling and betting to influence his opponents to fold their cards, which resulted in the pot being awarded to him. At no time were cards compared to determine a winner.

Can the cards influence the betting? Certainly. But, it is the bets themselves that actually determine the outcome of a hand that does result in a showdown. A lot of factors lead different players to do different things in the same situation. A player's experience, mood, reading ability, his cards, and his stack size are just some of the many factors that can influence betting. But, since an opponent's cards are not shown during the betting, all a player is really doing is trying to interpret an opponent's bets to figure out what that player has. That betting can be influenced by what he actually has, or he could be bluffing. The fact remains that if a player is still in a hand, he can choose what action to take. And any of those actions could either lead to winning or losing the hand. To say that a certain card hitting the flop caused a player to either call or fold is complete hearsay. That the player still had complete control over his betting. There is no random element that makes a player bet or fold. But it is those bets and folds that usually lead to a clear winner with no cards being shown.

The beauty of the game is any hand can win under the right circumstances. This is a clear distinction from gambling games like sports betting and casino games. The outcome of those games is almost always a definitive result produced by a final score or the conclusion of a random chance event. The winner is determined by who correctly predicted the right outcome.

In poker, the skill elements of the betting and folding usually determine the winner. And by looking at the data, we find that over 60% of the time the cards are never consulted to determine the winner.

8. Showdown

Some might argue that if a hand is completed with two or more players left in the hand, then the chance elements are predominant in determining the winner of the hand. I disagree and I think the evidence will clearly show that this is not true. In the game of hold 'em, it is easy to look back on a completed hand that went to showdown and see who would have won if everyone had stayed in to the end. This player was defined in section 5 as having the "Luckiest Hand" in Luck Hold 'Em. It is easy to see who would win a showdown hand if the chance elements were to determine the winner of the hand. But we find that the "Luckiest Hand" only wins approximately 30% (data to be derived) of time when there is a showdown.

If the player in seat 2 was destined to win a particular pot if he had stayed in, but the player in seat 8 won the pot, there is only one explanation. Player 2 applied the skill element of folding to take himself out of contention for the hand. We don't have to then get into the messy details of

trying to figure out if player 2 played well to fold. It does not matter. When asking the question which elements predominated in determining the winner of the hand it seems quite obvious that if player 2 had not folded he would have won, and since he did not win, his fold was the predominant factor in determining that player 8 did win the pot.

Looking at the data we come to the simple conclusion that the betting and folding in a poker hand has a massive impact on who wins the hand. And, the cards seldom have the final say in the matter. In fact, less than 15% of the time (actual data to be provided), does a hand finish with two or more players left in the pot and then that pot goes to the player who would have won the hand if everyone had stayed in.

9. If Outcome Includes Pot Size

Though I feel I have proven that the skill elements predominate over the chance elements in determining who wins the pot, the task will become even easier and clearer if we can convince a judge that the outcome of a hand includes the size of the pot. As covered earlier, the betting and folding are the skill elements in the game. These elements are solely responsible for determining the size of the pot. Even if the cards determine that a certain player wins the pot, it will be his application of the skill elements that will determine how many players stay in and how much he charges them. There are no chance elements that force a player to bet in poker.

Therefore we can conclude that the pot size is 100% determined by skill. Remember, I am not saying that every pot is determined by skillful play. I am only saying that players, in an attempt to apply the skill of the game (the betting and folding), are completely responsible for how big the pot gets. Chance plays no part in this aspect of a hand's results.

I feel confident we can prevail in convincing a judge that the pot size is an important part of a hand outcome. But even if we should fail on this point, we still have a winning argument.

10. Does It Matter?

We have seen that the skill elements of the game predominate in determining the outcomes of poker hands, but can a player use those skill elements to actually win over the long run? Empirical evidence abounds to support that this is true. Poker is an endlessly fascinating game, where real learning is taking place every time someone sits down to play. Though the choice of whether to call, bet or fold seems pretty simple, doing it correctly 4 or 5 times a hand is not easy.

There are a number of studies that show that making the correct decision in poker will lead insurmountable edges over time (attach them to this document). Poker is not a game where the better player wins every hand or every night. But, the better player wins almost every month and will certainly win every year. It takes patience, guts, psychology and a keen understanding of math to succeed at the game.

Poker is a true meritocracy. Young and old, male and female, white and black, they all have an equal chance to win. The player does not have to try to overcome an unbeatable house edge to

win from a huge publicly traded corporation as when they play casino games. We all know that almost never happens.

Instead all they have to do is use their skill better than the players they are playing against. What could be fairer?

11. Conclusion

Whether poker is a skill game or not is a question every poker player has known the answer to for many years. How to win the argument in court has confounded the poker community for just as long. But by changing our angle of attack, we should be able to present the kind record before a judge that will prevail. We no longer are trying to show that a player's edge will predominate over luck in a poker hand. This actually might be impossible to prove. Instead, we have defined skill as it should be defined; the elements in the game of poker that are completely in the control of the player. And we have gone on to further prove that since the players are attempting to apply these elements skillfully (whether skillful or not), these elements end up being predominant over chance in determining the outcomes of poker hands.

Acknowledgements

This argument has been constructed by applying endless conversations I have had with a large number of poker players, academics and lawyers over the last year. It is also the result of reading the online posts of a number of very deep thinking contributors to the argument on the website www.twoplustwo.com. In particular both David Sklansky and the poster "Skallagrim" were the first people to write about some of the most important lines of reasoning that appear in this document. If poker is to eventually prevail in this argument, the game will be deeply in their debt.