

Optimal Strategy and the Spectacle of Poker: A Possible Tendency

By Catalin Barboianu

Games of chance are played for money, but also for the sensations players get from playing, and both these elements made such games spectacular.

Every game has its degree of spectacle, whether it is a game with no opponents or a game like poker, to which opponents and risk are essential.

Of course, poker is the pinnacle of such games, and I think the main elements that contribute to its position are:

a) **the permanent interaction with opponents**

Through the betting dialogue, a player can cause his or her opponents to take actions in a desired direction. For example, folding after an aggressive raise.

b) **the existence of a second chance**

By the technical process of the game, a player may improve his or her hand with replacements (as in draw poker) or by relying on community cards (as in Hold'em and other variants).

c) **the power of one single card changing the hand hierarchies**

One single card (either a replacement or a community card) can significantly change the odds of an expected hand and the hierarchy of the hands at that moment.

Besides these elements, which are strictly related to the technical process of a poker game, there is one external element that contributes to the joy of poker:

d) **the need to improve playing skills and the search for optimal strategies**

The interests of a poker player extend beyond the poker table. Because this skill has its place in poker, a player will seek out professional information, read books, even study some mathematics and psychology, and will take lessons and advice from successful players and adapt them to his or her personal criteria of play. All this extra effort just to find an optimum strategy to achieve his or her playing goals; in other words, to become a professional player. The existence of both professionals and beginners at a poker table keeps the game spectacular with respect to winnings – in fact, somebody's profit means somebody else's ruin.

There has been much talk lately about the role of mathematics in poker skills. In my opinion, there is no role in the sense that a player isn't required to study mathematics to see how the game of poker can be modeled and how odds are taken into account in a probability-based strategy. This is the mathematician's job—to apply theory and get practical results. As to an optimum strategy, these results revert to a finite set of rules. Players must know and apply the rules, but they need not know all the mathematics behind those rules.

The same is true for the psychology of poker. Reading your opponents and their behaviors means applying a finite set of rules without being a psychologist, you just need to know their profiles.

Always playing by an optimum strategy means being a professional player, and all players aim to be professionals.

Mathematics can prove that an optimum strategy exists in theory; it just hasn't been built yet. Psychology is mainly responsible for this delay because psychology is still a statistical science, not a deterministic one (in sense that all its patterns and deductions are made through statistics methods and observations). When psychology can quantify all

the deterministic elements to provide accurate predictions for individual behaviors, construction of an ideal strategy will become possible, with the help of probability theory, optimization and decision theory.

Until then, good strategies that approximate the ideal are available. For practical reasons, we will call *optimum* the one most practiced from these approximations.

This optimum strategy is not fixed. It changes with your opponents because it takes into account their profiles, whether known or unknown.

Now imagine all players have become professionals over time. They start playing poker and soon learn the set of rules for the optimum strategy.

When this happens, you will always sit at a poker table facing only pros.

This is not an unreal scenario. It is actually beginning to be seen, but we do not know how long it will take. Let us say five years.

At that moment, the optimum strategy you applied five years ago will be outdated and will be replaced by a new strategy. This new strategy must be adapted to a table full of professionals. That means all the players' profiles are known because they are all using the same optimum strategy.

The question is, Will poker lose something of its spectacle at the end of this hypothetical scenario?

My answer is, No. Elements a), b), c), which relate to the technical process of the game, remain the same, and the same is true of d).

As the strategy continues to change, the players continue to search for new information. The first to acquire it become the new professionals, while the players still searching and learning remain beginners aspiring to become professionals. The cycle starts again and no spectacularness is lost.

In other gaming conditions, here is a similar hypothetic example in lottery games:

Most players avoid playing the variant 1, 2, 3, 4, 5, 6 in the 6/49 lottery system.

Their argument comes from a false intuition: It is impossible for the first six numbers to be drawn.

Indeed, it is almost impossible, in the sense that the probability of drawing that variant is $1/13983816$.

Still, this probability remains the same for any played variant (assuming the technical procedure of drawing is absolutely random).

There are no preferential combinations, so that particular variant has not at all an inferior status from point of view of possibility of occurrence.

Moreover, if someone won by playing that variant, the amount won would be much higher than in the case of other played variant, because the winning fund will be divided (eventually) among fewer players.

This can be called an optimum strategy for that moment.

Of course, this decision remains optimal as long as most players are unaware of this information.

In the hypothetical scenario, all players, or at least most of them, start applying this strategy by playing the variant 1, 2, 3, 4, 5, 6. They reach a moment when this is the variant played most frequently. Now, in case this particular winning variant is drawn, the players who played it will receive much less cash than was available during the previous

playing period, when players avoided it. It is time for them to change the strategy and play other variants. The cycle is running.

Of course, this scenario will never happen. It is just an illustrative example to help readers understand the poker scenario described earlier.

Both scenarios are theoretical and are worked out in idealized conditions, so these situations would seldom occur in reality. Still, in poker this tendency exists. Most new players soon skip the training stage and go on to play by the pros' rules. This happens because there is plenty of information surrounding gambling strategies, especially on the Internet. But there is nothing to worry about: poker will still be a spectacular game, even in a world filled with pros.