Very start of poker boting.

Imagined by nefton ☺

What is poker? Means what is poker from the point of view bot engineer? Here is my model of poker:

Poker – is a game. Game is collection of rules. As well as any game – poker has not sense without players.

Poker player. When poker player make his decision he discount not only game situation (written in poker rules) but also other players history, their face expression, own state (downswing), moon phase and etc.

Consider that it is logical to divide poker player motives in to two categories. Poker situation and others.

Current poker game always has finite states. Every player has finite chip units at the start of each deal. Deck has finite cards and every player choose a move from finite chances. (That what poker rules say).

Impotent question. Can player choose mixed move? Example 45%-fold 55%-call. In terms of life – why not? In terms of poker bot engineer – we must model anything as natural as we can. Does a player often choose random moves? – YES!

Finite problem. If player can choose mixed move – he can choose infinites moves! How can we work with something infinite? I show it some later.

Poker player model. Let's imagine that player sit at table, recall known history of each opponent, measure own state and moon phase. Than dealer deal everybody pocket cards and preflop starts. STOP. Freeze this moment. At this moment player discount all others motives but only game situation. I know that in life it is not true. Player can change his minds throw the deal. But just imagine. Let`s call all his future decisions based on game situation – his poker strategy. It is just collection of rules in what condition what move he moves.
It does not matter what is in players had. Brains or sawdust or any algorithm. His strategy reduced to LUT with answers. And if we can present player move as a number – poker strategy is simple number. When several players sit at the table, choose their strategy, post ante and start to deal cards – they can't escape their fate. Each of them has expected profit. Plus or minus.

Finite problem. Now I has enough definitions to prove that it is not problem.
1st. Infinite, where it comes from? Fractional percent – is product of inflamed brain. In life it means that I planned to play some equal hands. And some of them I plan to fold, some – to call. Infinite - is my decision to play infinite hands!
2nd. Imagine that you seat at table with some others players with their own strategies. What profit are you expect? Example if you call – your profit = 40$. If you fold your profit = -10$. And if you mix your move (40%-call 60%-fold) your profit = 0.4*40 + 0.6*(-10) = +10$. It`s easy to prove that if mixed move will change a little - than expected profit also change a little. It means that it is not infinite problem, but only problem of accuracy.
(But that's all. Someone can inspire and try to apply this prove to others like continuous play parameters. Like own start stack for example. Someone can imagine that it is not big difference between 854$ and 855$ start stack with blinds 1$/2$. But it is lie! You cannot prove it! For example it means that 665$ and 666$ start stack is like same. But if one of your opponents is Mormon and folds once he saw this number? In this case some difference of stack cause unpredictable change of expected profit)