I would like to introduce an elegant solution for fighting collusion, multi-accounting, and bot operation for decentralized poker that is based on game theory and free market dynamics. Although this solution was theorized for decentralized poker, it can also be used for numerous decentralized applications such as competitive gaming. Such a system could be used anywhere that collusion/cheating/multi-accounting can have a negative economic impact on an ecosystem (maybe a DEX because of insider trading, or an economy where price fixing could occur.)

There exists two tokens: an immutable token and a mutable token.

Only the immutable tokens can be used to buy into games. These immutable tokens are locked up for 90 days in a smart contract when a player joins a game.

Players cashing out (or finishing ITM) of a game are paid out in mutable tokens which are autonomously converted to immutable tokens after a 90 day probationary time period.

Players can sell their mutable tokens for immutable tokens on a market like eBay or Localbitcoins.

Both buyers and sellers can leave star ratings and written reviews so each can garner pseudo-anonymous reputations.

Buyers of the mutable tokens are incentivized to do so by charging a vig.

If a majority of stakeholders agree that collusion or bot operation did occur, then the mutable tokens affected that are still in their probationary time period can be distributed back to the victims.

Since the tokens that the incentivized parties are buying are mutable if the stakeholders spot collusion, multi-accounting, or bots… the purchasers are incentivized to police the games for collusion, multi-accounting, and bots since their mutable tokens can be seized.

Average star reviews (to get a general overview) and recently written reviews (in case an account has been recently compromised) will be used to assess the risk of purchasing mutable tokens from a user, along with an analysis of their recent gameplay (which can be mostly automated like modern online poker rooms).

To reduce the effects of Sybil attacks, computationally extensive identities can be leveraged, along with the more traditional web of trust schemes.

Noobs will pay a higher vig (aka. rake) because they have not garnered a reputation for honest gameplay, and buying their mutable tokens is riskier. Regulars will pay less vig (aka. rake) because they have garnered a reputation for honest gameplay, and buying their mutable tokens is less risky.

Since buyers of mutable tokens (which are effectively the security division of an online poker room distributed autonomous corporation) compete on the free market as to how much vig they charge, the vig (aka. rake) will eventually become as low as economically feasible. Factor in that gameplay is automated, and that there are no server hosting expenses in such a distributed network, and as a result rake should theoretically be much smaller than traditional poker sites.