

Pokerstars

Value Players

Team, definition

- Team t :
 - A team is a set of players that play continuously together on a given period (life)
 - {john, patrick, larry, patricia}
 - The team has racked rake_t amount of money during his life

Data

- Dataset with two columns : teams_t ; rake_t
 - {john,patrick,larry,patricia} ; 410
 - {john,jerome,larry,patricia} ; 21
 - {ivey,durrrr} ; 55
 - {john,patrick,larry,ivey} ; 88
 - {john,ivey,larry,patricia} ; 14
 - {ivey,durrrr} ; 110

Who's the best player for the room?

- Intuition :
 - The player that make other players play,
 - Which means make them rake the most
- How to identify him?
 - Compute Shapley's values!

Who's the best player for the room?

- **Shapley's value** for player i :
 - Represent how much player i should be retributed for all the rake generated

$$\varphi_i(v) = \frac{1}{\text{number of players}} \sum_{\text{coalitions excluding } i} \frac{\text{marginal contribution of } i \text{ to coalition}}{\text{number of coalitions excluding } i \text{ of this size}}$$