Ranking Players

How to value players in a poker room

Goal

- A hand has just been played
- The generated rake is $10
- 4 players were sitting at the table :
  - Marc
  - Michael
  - Phil
  - Dany
- **We do not care** who actually played the hand

- What's the player's contribution to the generated rake?

Definitions

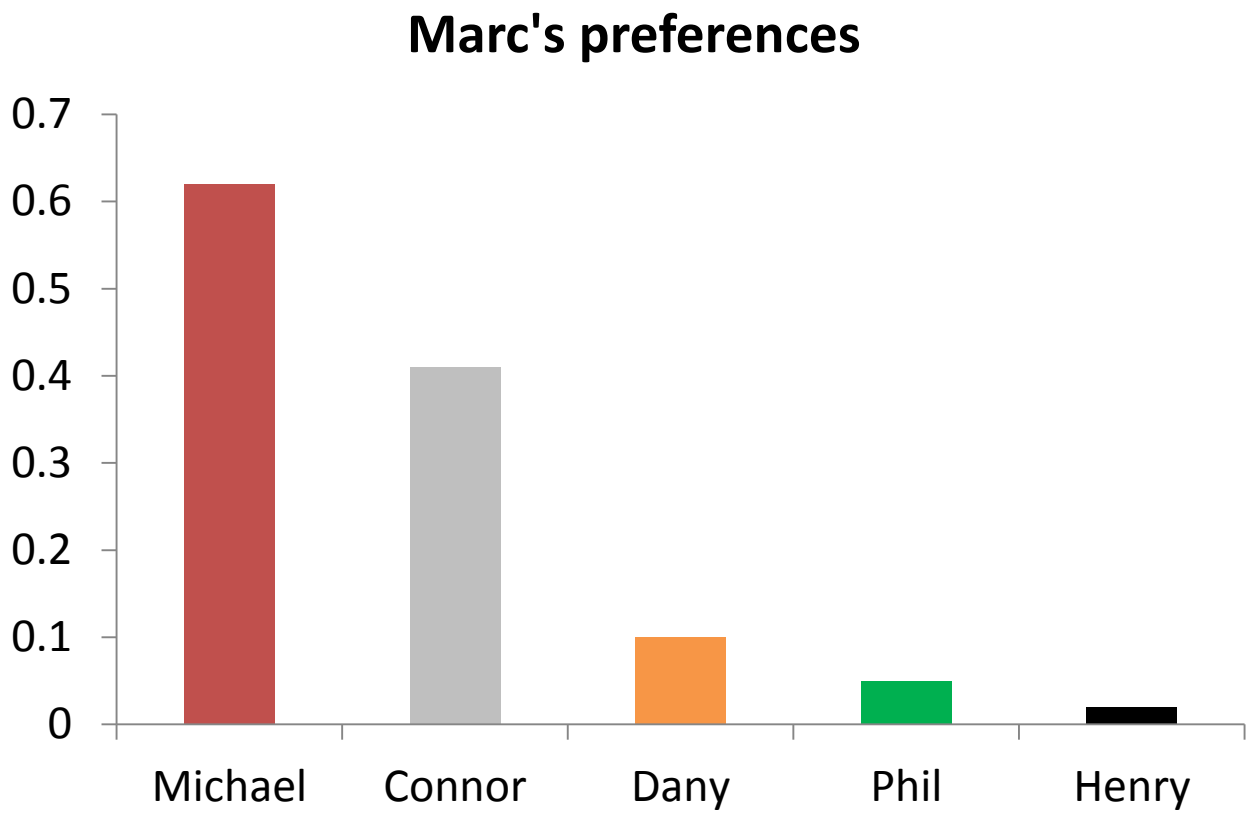
- h_a = Number of hands in which A sat at a table
- $h_{a,b}$ = Number of hands in which A and B sat the same table
- $Rake^{[h]}$ = generated rake for hand h

The notion of *player's preferences*

- Each player has his favourite opponents
- Preference of player A for player B = P_A^B
- $P_A^B = h_{A,B} / h_A$

- **Exemple :**
  - $P_{Marc}^{Michael} = 0.62$
  - 62% of hands played where Marc was at the table, Michael was also there
  - Marc seems to like playing with Michael

The notion of *player's preferences*



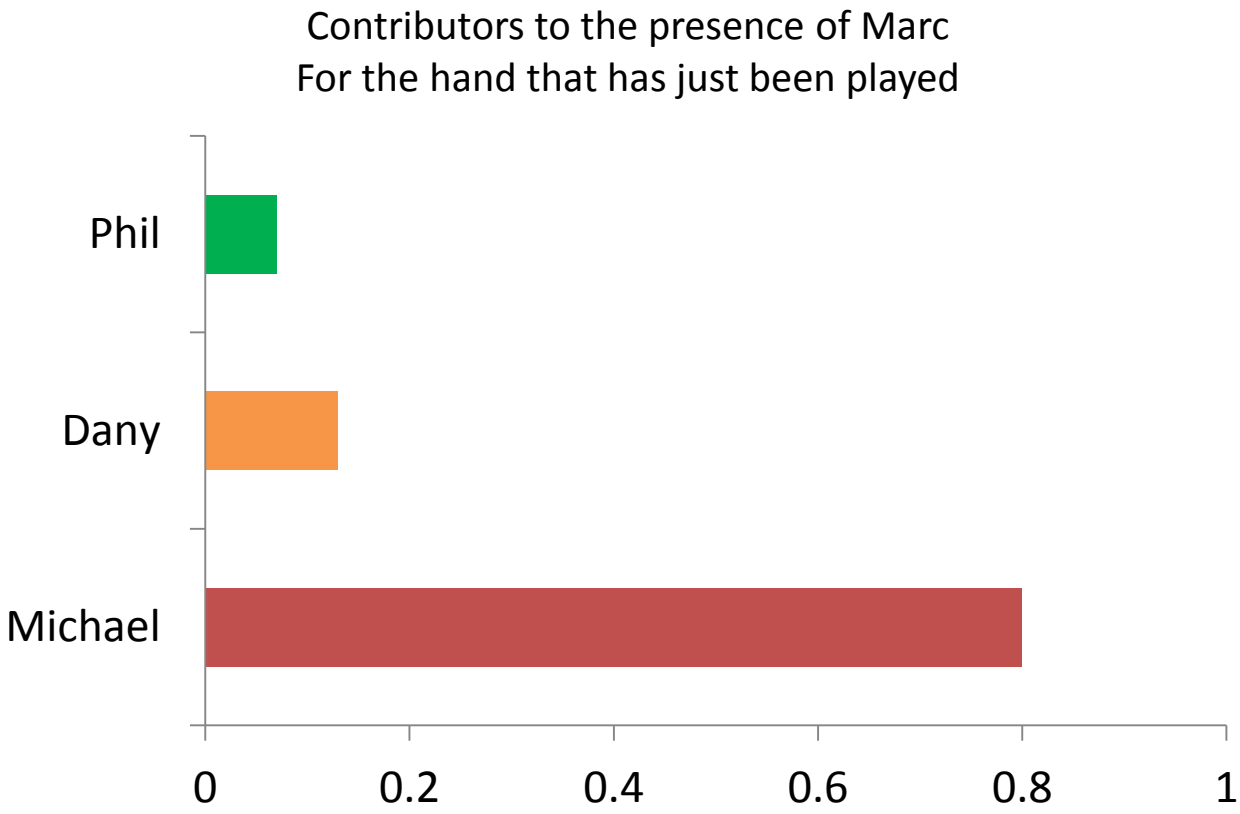
*Please note that the sum of Marc's preferences **is not** necessarily equal to 1 since a table can contains >2 players*

The notion of *contribution to the presence*

- A hand has just been played
- The table contains Marc, Michael, Phil, Dany
- What is the contribution of Michael to the presence of Marc at the table, $C_{Michael}^{Marc}$?
- $C_{Michael}^{Marc} = P_{Marc}^{Michael} / P_{Marc}^{Michael} + P_{Marc}^{Phil} + P_{Marc}^{Dany}$

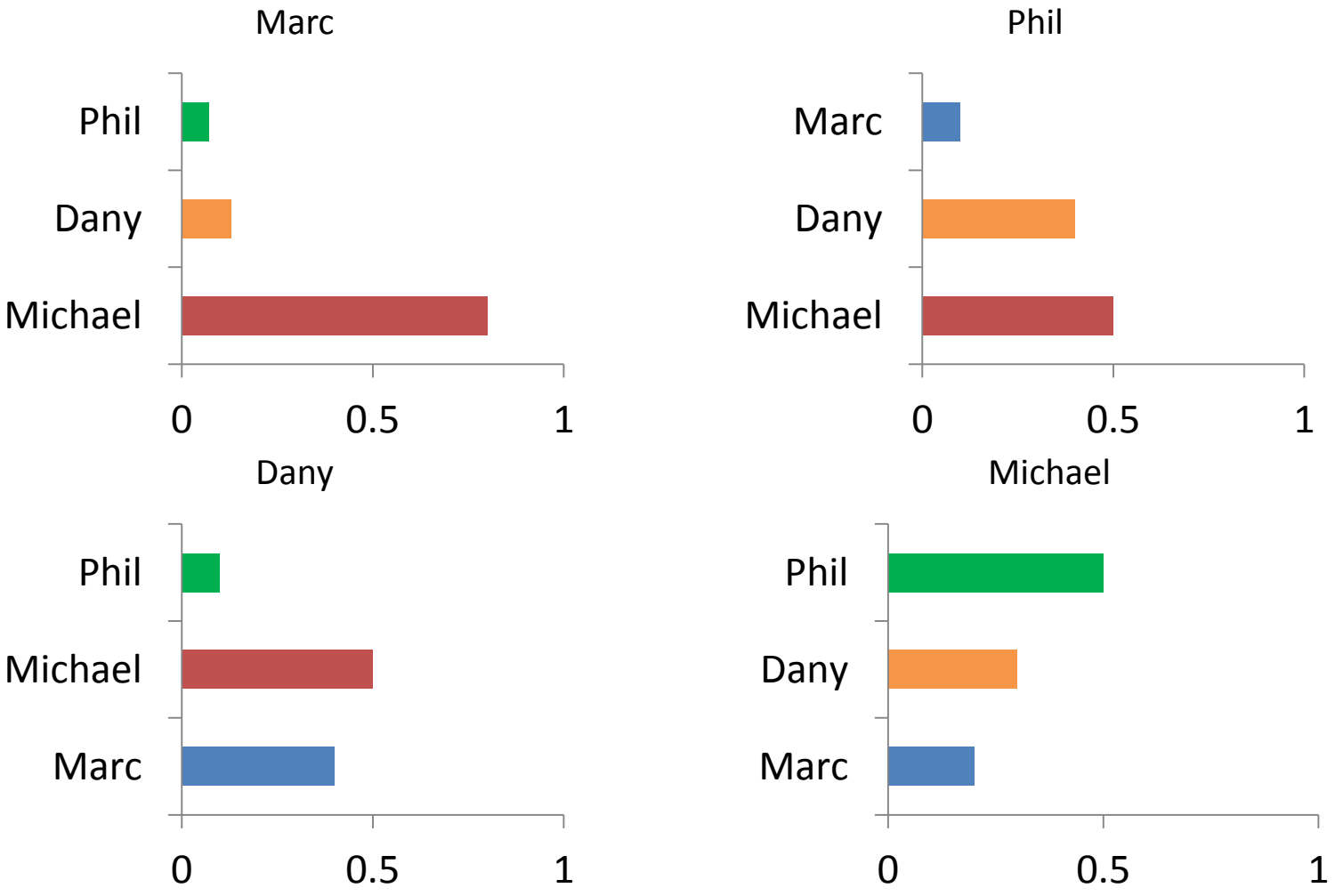
- Marc's presence contributors :
  - $C_{Michael}^{Marc} = 0.62 / (0.62 + 0.05 + 0.1) = 0.8$
  - $C_{Phil}^{Marc} = 0.05 / (0.62 + 0.05 + 0.1) = 0.07$
  - $C_{Dany}^{Marc} = 0.1 / (0.62 + 0.05 + 0.1) = 0.13$

The notion of *contribution to the presence*



*This time, the sum of the contributions **equals to 1***

The notion of *contribution to the presence*

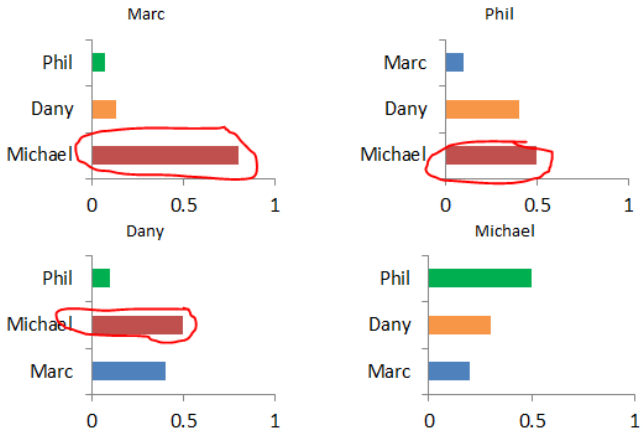


The contributors of the presence of each players

The notion of *responsible for a played hand*

- A hand has just been played
- How responsible is this player for this played hand?
- Responsibility of Michael for this played hand, $R_{Michael}^{[hand]}$
- $R_{Michael}^{[hand]} = \Sigma_j C_{Michael}^{j} / \Sigma_i \Sigma_j C_i^j$

- In others words, $R_{Michael}^{[hand]}$ is
  - the sum of **red areas** over all the areas



The notion of *player's value*

- Who is important for the room?
- V_A is the Value of player A
- $V_A = \Sigma_h R_A^{[h]} * Rake^{[h]}$

- In other words, the value of player A depends on:
  1. The number of played hands *when he was sat*
  2. His responsibility in the played hands *when he was sat*
  3. The generated rake of the played hands *when he was sat*

Why is it good?

- **The recreational player**
  - Some players only sit if the recreational player is there
  - Which means, he is the preference of those players
  - In such case, he will be highly responsible for the played hand
  - Therefore, his value is high

Why is it good?

- **The pro player**
  - The pro player is the preference player of almost nobody (except the other pros maybe)
  - Therefore he will not be highly responsible for the played hands
  - But he plays a lot of hands
  - Therefore, at the end of the day, his value is high

Why is it good?

- **The bumhunter**
  - The bumhunter is rarely a high preference for anybody
  - Therefore he will not be responsible for the played hands
  - He does not play a lot of hands
  - His value is low