THE GAME POLITICS

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Why was John von Neumann so excited about his poker game? Is that because he could earn a lot by winning? We can't say for sure, but we'll definitely figure it out!

Playing poker involves strategic thinking and making decisions in the face of uncertainty. It's like Sherlock Holmes trying to solve a mystery, and your opponents are the suspects. You have to piece together the clues (your cards) and try to figure out what your opponents are up to, while also being on the lookout for potential bluffs.

In short, analyzing the strategies for dealing with critical situations where the payoff depends on the decision that you will make is called the game theory. If we put this boring definition aside strategies are the heart of game theory. But what is strategy? if we say. It's the action or step you take in a game.

When two or more entities are involved in a decision-making game, and whatever one gains, the other loses, so the total result stays the same,John and Oskar Morgenstern at first coined this concept as "Zero-sum game" (one of the foundation concept of game theory)

Assuming , win= +1 Lose= -1
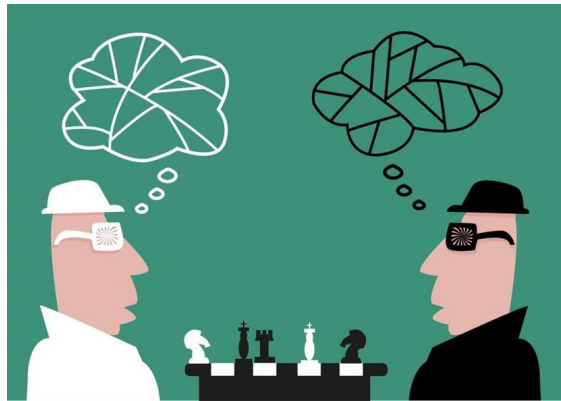
Think of it like playing a game of chess, where you have to predict your opponent's next move. If you make a successful move, it helps you get closer to winning, while a wrong move can put you in a tough spot. In this way, the person who makes the right decision the highest number of times wins. Basically, when one player wins, the other player loses. So, if you add up the wins [+1] and losses[-1], it equals zero[1+(-1)=0]. And if it's a tie, nobody gets any points and the result is still zero[0+0=0]. That's the idea behind zero-sum theory.

In poker, players bet on their hands, and the winner takes the pot. Again, any gain made by one player is at the expense of the other players, making it a zero-sum game.

		Opponent	
		Good Hand	Bad Hand
You	Good hand	Increase your wins through playing better hands	Opponent makes mistake by calling*
	Bad Hand	Opponent makes mistake by folding	Increase your wins by picking on weaker opponents

We can minimize overall loss or maximize the profit with nash theory and Minimax theory which deals with the stability, efficiency, and fairness of the decisions but we won't go any further on this topic.

Let's attempt to solve our inquiry (designed by me) by employing the principles of game theory.

This game consists of a group of five individuals working at a company

Consider a meeting where individuals B, C, D, and E are reconsidering their current positions.The position of A can't be altered and he can't vote for someone only he can do is suggest. The following rules apply to the voting process:
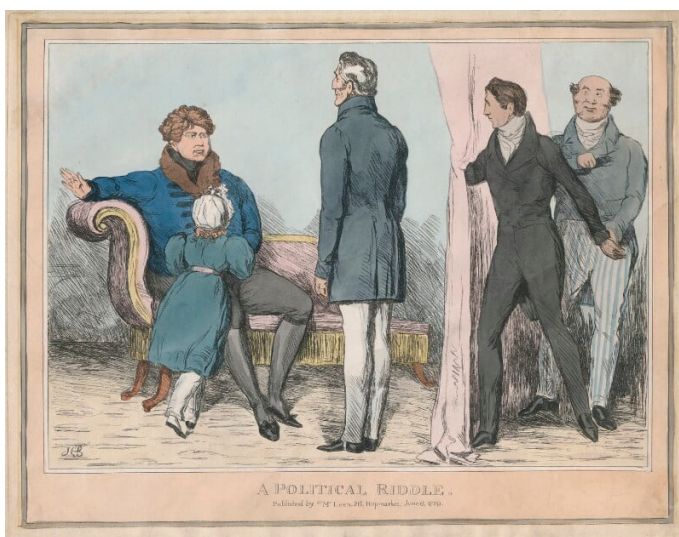
POSITION	
CEO	A
Managing DIrector	B
General Manager	C
Manager	D
Assistant Manager	E

1.An individual can vote for everyone except themselves & for the position they currently serving.
2. For a position change to occur, the individual seeking the change must receive approval of 50% or a group of at least 2 individuals.
3.If someone is removed from their position, they must be nominated for another position through a vote, or they cannot be replaced.
4. Individuals A,B wish to see E become the new General Manager , which is an open secret
5. Individual D seeks to claim the position of General Manager .
6. Informal discussions can be initiated.
7. The voting process is anonymous.

The outcome should be that E is appointed as a General Manager most optimally.

Case 1:
         As C is currently holding a position, he is ineligible to vote for E to take over that role. More-over, C intends to continue as General Manager, and therefore, D will not support E's candidacy for that position, as D also aspires to hold that role.

         As a result, their position remains unchanged, which is not the expected outcome.

A POLITICAL RIDDLE.

Case 2:
         If B and C vote for D to become the Assistant Manager, B and E vote for C to become the Manager, this will not assist E in obtaining the position of General Manager. This is because it is necessary for D to vote for E as the General Manager.

         Therefore, D will become the Assistant Manager, and the position of C remains unchanged [as per rule no 3], which was not the anticipated outcome.

CASE 3:

In this scenario, it is necessary to consider Rule No. 4, which states that Individuals A and B desire to see E become the new General Manager. The following two discussions are relevant:

1.A plans to hold a discussion with D about the prospect of D becoming the Managing Director, with E being appointed as General Manager. This arrangement would ensure that only D would be motivated to vote for E as the General Manager. A then advised D to cast a vote in favor of C assuming the position of Assistant Manager, assuring D that B will support E for the role of General Manager (as per rule 4) and would therefore also vote for C to become Assistant Manager. Additionally, A suggested that as E is getting promoted, he would remain unbiased while voting for B to become Manager. As per rule 4, which states that B intends to replace C (open secret), C could also be persuaded to vote for B to become the Manager for such activities and will support D to allay any concerns regarding potential replacements (as per rule no. 3)

	B	C	D	E	
UP VOTE			2 [FROM C,D] FOR THE POST OF MANAGING DIRECTOR	2 [FROM B,D] FOR THE POST OF GENERAL MANAGER	VOTING OVERVIEW BY INDIVIDUAL "D"
DOWN VOTE	2 [FROM C,E] FOR THE POST OF MANAGER	2 [FROM B,D] FOR THE POST OF ASSISTANT MANAGER			

2.During the second discussion, A, B, and C reached an agreement. However, they suspected that D had ambitions to take over B's or C's position (as per discussion 1 & rule no 5) and discussion 1 was a test to clarify, which prompted A to provoke C and take action against D. B and C subsequently cast their votes for D to assume the position of Assistant Manager (demotion), A also proposed for E to become the Manager, to allay any concerns regarding potential replacements (as per rule no. 3)

	B	C	D	E	
UP VOTE			2 [FROM B,C] FOR THE POST OF ASSISTANT MANAGER	2 [FROM B,C] FOR THE POST OF MANAGER	VOTING OVERVIEW BY INDIVIDUAL "C"
DOWN VOTE					

After announcing the result, it is apparent that E, C, and D have been appointed to the positions of General Manager, Manager, and Assistant Manager, respectively. The roles of B, however, remain unaltered.

	B	C	D	E
UP VOTE				2+1 [FROM B,D] FOR THE POST OF GENERAL MANAGER [FROM C] FOR THE POST OF MANAGER
DOWN VOTE		2 [FROM B,E] FOR THE POST OF MANAGER	2 [FROM B,C] FOR THE POST OF ASSISTANT MANAGER	

FINAL RESULT

However, due to D's lack of cooperation and overly ambition for a higher position, C did not engage in any discussions, The greed and ire of C and D could not have been taken advantage of by A and B. As a result, the positions of C and D could have remained unchanged.

So, in this political game,we can assume E gets two points while C and D each lose one point. If you add up the results, it equals zero, which makes it a zero-sum situation.[+2-1-1=0]

I hope from reading this you now can see Mathematics is truly amazing as it goes beyond just numbers and patterns. By applying mathematical principles, we can even influence someone's decision-making process and **make them believe they have autonomy over their own thoughts. However, in game theory, we see that this sense of autonomy is just an illusion.**

In conclusion, we just figured out the reason behind the excitement of
John von Neumann

References:
https://www.youtube.com/watch?v=9uDUv1TpGxI
https://www.youtube.com/watch?v=ewu_7Dmj_18
https://www.youtube.com/watch?v=UkXI-zPcDIM

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