

Game Integration

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1 Definition of Money

We can establish relative utility.

If I want to know if you value tea or coffee more I can ask you. If I want to know if you value coffee or milk more I can ask you. Suppose you tell me that you value tea more than coffee and that you value coffee more than milk.

I can then compare the difference in value that you assign to tea over coffee Δ_{TC} and the difference in value that you assign to coffee over milk Δ_{CM} .

Von Neumann suggested that I can ask you if you would rather have a guaranteed coffee or if you would rather have a 50% chance of tea and a 50% chance of milk.

If you want coffee, you think Δ_{TC} is less than Δ_{CM} .

If you want the 50/50 deal, you think Δ_{TC} is greater than Δ_{CM} .

I noticed that I could also ask you if you know whether Δ_{TC} is greater, equal,

or less than Δ_{CM} .

I also noticed that all of these definitions of money require honesty. If a person doesn't tell you what they believe things are worth, this seems to lead to power imbalance through a general phenomenon I call theft.

2 Minimax Alternative

In 2 player games, another strategy beside Von Neumann minimax approach is minimizing the other player's lost first, and then secondly minimizing your loss. This strategy gives you a perfect reputation.

3 Minimax Physics Application

An application of minimax outside of social engineering is the following. You are entering a building with a push door, and can't recognize if the door swings open from the left or from the right. As high torque can cause injury, the minimax solution is to push on the middle.

4 Game Integration Concept

I am interested in real world and virtual world game integration.

The following are examples:

5 2D to 3D safety

Spending a lot of time on the 2D phone or computer screens makes it difficult to navigate 3D space as safely.

6 Rubik's Cube Portal

The Rubik's cube is a portal from a 2D world to a 3D world.

7 Team Exercise

When you play a video game, your player has stats, like speed, power, defense, etc. Try to make a list of 5 to 10 features, and then draw a stats chart for each of your friends.

8 First Open Problem

If I wanted a phone app to rank users based on where (points for geographical range) they picked up and disposed of litter and variety of items they disposed of (points for rare litter types), how could I give users points fairly?

100 points for chewing gum:

use a stick to pick it up

200 points for covering sharp objects before placing them in the trash

100 points for nets or dangerous tangles:



100 points for plastic:

Animals choke on plastic, esp. thin sheets.

Century prize:

Get the sharps out of the dumps.

9 Bugs Bunny Yosemite Sam savings account

I invented a beautiful game. It's called the Bugs Bunny Yosemite Sam savings account. You just take turns sending your partner money in cashapp. The only rule is you have to send them more than they sent you last time. It's about trust and a shared future. The game is ideal in the sense that the most important thing isn't who put the most money in, you can only lose as much as you add, not as much as you send. The game is ideal in the sense that the most important thing is trust.

10 Social Engineering Heuristics

Here are some heuristics to experiment with:

1) multiple agent optimization algorithm

An approach for reducing the loss within a community is to try to reduce loss in a small local neighborhood, and then progress to larger regions of community. This can be used under the source theory model given next

2) social optimization tool

Like Erdos and graph theory, source theory can also be used to optimize social networks. (alexglandon.com/source.theory)

Consider people as atoms and communities as collections.

3) avoid guessing

In statistics, there is a concept of tradeoff between mean and variance. For a detector this is called sensitivity and specificity. For an estimator this is called accuracy and precision. The current wisdom says the two goals are opposed. A more correct approach is to be sure the mean is correct first, and then reduce the variance. This is because it doesn't help to be sharp until you know you are going in the right direction. A heuristic that emerges is always avoid guessing if possible.

4) linear system psychology In linear systems theory there is a duality called controllability and observability. The matrix equations that govern these properties are symmetric. As a human, we can operate as fully observable (transparent) and fully controllable (cooperative). This is similar to the minimax alternative

from earlier.

5) accuracy before confidence

It seems accuracy should be improved before confidence.

See conjecture 1.

(https://alexglandon.com/math_lectures/conjectures.html)

See proof and notes about accuracy as validation rather than cross entropy loss. (https://alexglandon.com/math_lectures/loss_functions_seminar.pdf)

6) trust quantification

A way to gauge trust is the following experiment. How low of a probability event would you believe from a trusted person? For example, if you believe the probability that an meteor strikes in your neighborhood is $1/10000$, and someone tells you an asteroid struck, would you believe them?

I am planning to study information theory to combine predictions from people of different trust levels in addition to prior confidence for use in decision theory.

7) challenging an idea

If someone tells you something, and you don't believe it, never tell them that you don't believe them until you have made every attempt to check the truth of their statement.