Meeting 9:
Problem discussion

Newcomb's problem

You are exposed to two "boxes".

In Box 1 you can see that there is an amount of $1000.
You cannot see what is in Box 2, but you are told that it is either nothing or
$1 000 000.

You are offered to make one the following two choices:
- A1: Take <u>both</u> boxes
- A2: Take Box 2

<u>Before</u> you make your choice, a prediction expert will predict which choice you
will make.
If her prediction is that your choice will be A2, $ 1 000 000 will be put in Box 2
If her prediction is that your choice will be A1, nothing will be put in Box 2.

The prediction expert's accuracy is 99%, i.e. she has been right in 99% of her
predictions.

 What should you do?

The S:t Petersburg game

Assume a casino is offering you the following game:

Toss a coin until it lands "head up" for the first time. If n tosses are required, you will win 2^n dollars.

- How much would you be <u>willing to pay</u> to play that game?

- How much would the casino charge you for playing that game?

The prisoner's dilemma

Assume two perpetrators of two crimes (one serious, one less serious) are arrested.

They are put in different cells and cannot communicate with each other

The prosecutor gives each of the perpetrators the following information:

- "If you both deny, you will each get two years in prison for the less serious crime."
- "If one of you denies and the other confesses, the former will get 20 years in prison, and the latter will get 1 year in prison (*thanks for confessing*)."
- "If you both confess, you will both get 10 years in prison."

How would each perpetrator reason?

Do the rational decisions lead to the best consequence for any of them?