



1a)

Methods used to study decision making:

1. Process tracing

↳ Explanation: In process tracing subjects are asked to explain their thought process ~~are~~, for example, they are doing an experiment. This means that while the subject solves the issue or tries to make a decision, he or she also either writes down or tells the experimenter the steps and how he or she thinks during the process. This method can be used for several types of decisions, for example, how a subject choose between a certain payoff and a risky payoff with a higher expected value. The problem is that the subject may not be aware

2. Interviews

of how he or she thought of it or that the thought

3. Observation

process is ruined by saying everything he/she thinks.

4. "Brain-scanning" (fMRI)

↳ Explanation: Many experimental economists would like to see how the brain responds to different stimuli and to



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#### 4. "Brain-scanning" (fMRI)

↳ Explanation: ... where the blood flows in the brain. After the invention of the fMRI we are able to examine the brain in a whole new way. An example of this is Lindström's (2010) study of smokers reaction to cigarette warning labels. He gave different smokers cigarette warning labels from all over the world for about an hour. The result was unexpected. From the fMRI he saw blood flow to the part of the brain that indicates "cravings", implying that the warning labels might have the opposite effect. The problem with the study is that different parts of the brain have several functions and no conclusive statement can be made.

#### 5. Use of archival data/historical transcripts

#### 6. Experiments (Field/lab)



1b)

In order to explain the choice and matching task I would like ~~to~~ to use the example of the new traffic program from the government in Israel.

The subjects first gets a choice between program X and program Y. The two variables the subjects need to take into account is expected casualties and cost.

	Exp. casualties	cost
X	570	\$ 12 m
Y	500	\$ 55 m

This is the choice, either X or Y. A large majority of the subjects choose program Y. They focus on the most important or the most prominent goal (prominence effect) which is the number of casualties. 68% of the subjects chose program Y in the choice part.

Next in order to force the subjects to think about cost as well, they are given a new problem, a matching task.



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	Exp. casualties	cost
X	570	\$12m
Y	500	\$ ?

In the matching part, the subjects are now asked to give a cost for program Y so that it is equally desirable as program X. We now see a shift of preferences since many of the subjects answered that it should be less than \$55.



1c) Typical characteristics of experiments used by experimental economists are in the laboratory or real-world field experiments. They argue that testing or experimenting inside the lab under controlled environments is justified since the theories are assuming controlled environments.

Many experimental economists do not like hypothetical scenarios. They prefer to give real payoffs (typically money) to real people. This is because they believe that people might act differently if for example hypothetical money is involved and there are no actual consequences for the subjects.

There exists a lot of such experiments, and one that comes to mind is Bernoulli's St. Petersburg paradox. In this experiment the subjects are asked what they are willing to pay for a gamble. The gamble ~~is~~ consists of flipping a coin and the game is over when a tail is flipped. The payoff for flipping heads are the following:

Heads	Payoff	P	EV
1	\$2	1/2	\$1
2	\$4	1/4	\$1
3	\$8	1/8	\$1
⋮			



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This is called a paradox because before the expected utility theory solved it the expected value was infinite and people should pay an infinite amount to play.

If I recall correctly, from experiments people or subjects are generally willing to pay \$6-\$8 to participate in this gamble.



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2a)

When making a ~~the~~ decision to buy a product or service, this product may have several attributes that are important. When comparing alternatives, then some of the products may be better on some aspects like quality and choice while other alternatives may be better on aspects like price and color.

When deciding what product we should choose we can use one of several decision strategies. One of these is the compensatory strategy. In this strategy ~~an~~ a product can still be chosen, even if it score very low on some aspects, as long as the other aspects are so good that they compensate for the attributes that are not so good. A product can still be chosen, meaning it gives the highest utility, even if it scores bad in some aspects. An example of a strategy like this is a 'full' MAUT (Multi-attribute utility theory).

Following from the ~~an~~ compensatory strategy we also have non-compensatory strategies. In these strategies a bad attribute on a product cannot be fully compensated by other attributes.



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We generally have three non-compensatory decision strategies, here are two of them.

1. Conjunction: In this strategy you set a lower limit for all aspects. This is done typically to secure a certain control of quality.

2. Lexicographic: In this strategy you focus on the most important aspect and choose the product or service that scores the highest on that attribute.

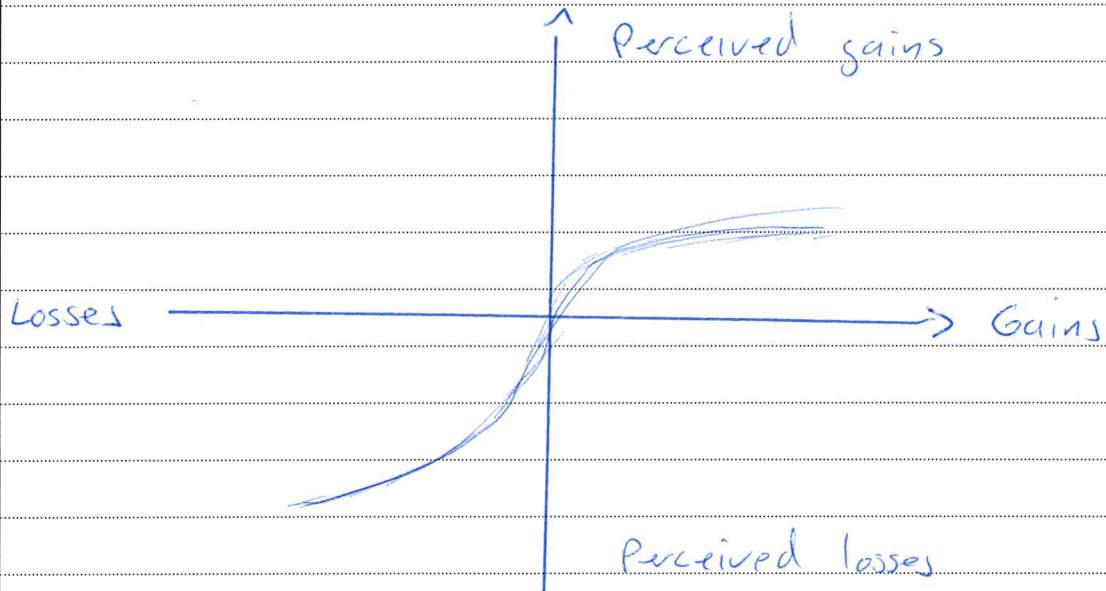
3. Elimination by aspect:





2b)

In order to explain the status-quo effect and the endowment effect I would like to mention prospect theory: Daniel Kahneman and Amos Tversky developed Prospect Theory in 1979 as an alternative to the expected utility theory where they changed the notion of 'utility' with 'Value' and gains/losses.



Endowment effect refers to the fact that our decisions and choices are affected by our endowment or what we possess. In the famous coffee-mug experiment people were shown to value the cup higher (higher WTP) when they owned it and tried to sell it, than the other group who tried to buy it (had a lower WTP). The endowment effect can be illustrated by the S-curve in the value function. Losses are perceived to be



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worse than equivalent gains.

Highly related to the endowment effect are the status-quo effect. Researches has shown that people prefer to stay where they are or keep what they own rather than to change. The important spot in the value function is the origin or the subjective reference point. Deviations and changes from the reference point may be perceived as a net loss. Status-quo may also be a way to minimize regret. When making a decision we anticipate the feelings of regret and rejoice, and take these feelings into account when making a decision. Two equally bad outcomes might feel a little better if you stayed at the status-quo and got the bad outcome or if you changed and got the bad outcome.

Related to the status-quo effect is the "default".



c) A choice architect is a person who decides on the context and options in decisions. A choice architect has a lot of influence and it is important to remember that there is no such thing as a context-free decision.

From research we have seen that people prefer to stay at the default option, this could be because of things like the status-quo effect, laziness, etc. Because of this the choice architect can use this knowledge to choose a strategically default option which is the option you want people to stay with.

There are several examples of this and one of these are the organ donor option. In countries where being an organ donor is the default option, many more people are listed as organ donors ~~are~~ than in countries where you have to fill in a form and return.

Another example could be pension saving programs. In ~~countries~~ companies where you are ~~are~~ automatically enrolled in a pension plan like the 401(k) in the US, people are much more likely to stick with it.



3a) It is important to make good judgements of the likelihood of events when the states of the world are risky and the probabilities are known.

The normative theory of probabilistic judgements are probability theory and we have three types of probability theories

1. The frequency theory:

↳ probability are based on relative frequencies. The frequency theory works best when the number of observations are high. The theory is not always very useful, for example, its not very useful to know that it rains every 10<sup>th</sup> day.

2. The logical theory:

↳ Probability is based on the equally likely states of the world. For example if you flip a coin two times, the possible outcomes are: HH, HT, TH, TT. Each has a equal chance of 25%.

3. The personal theory:

↳ Probability is not based on an objective fact, but on personal beliefs. It could be based on the frequency theory and the logical theory or neither.



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b) In order to explain "the representative heuristic" I will use Daniel Kahneman's Tom W problem.

Daniel Kahneman created a description of a person called Tom W. where he describes Tom to be shy, likes systems ~~where~~ where each part fits in place and who is not social. Then he asks different subjects ~~to~~ if Tom W. is more likely to be a computer science major or a ~~business~~ ~~administrat~~ social science major. Most subjects think that Tom W. is a computer science major since the ~~best~~ description best 'represents' a computer science major.

The problem is that the subjects fail to take account for the fact that there are much more people in social science than computer science, they fail to consider the base rate, which is called base rate neglect. Instead of using the underlying statistics, people use a mental ~~shortcut~~ shortcut and picks the major that best represent the description.



We can use the 'gambler's fallacy' to exemplify how "the representative heuristics" influences probability judgements.

The gambler's fallacy is thinking that outcomes are independent when in fact they are not. Consider the two following coin flip experiments.

1)  $\oplus \oplus \oplus \oplus \oplus \oplus$       2)  $\oplus \oplus \oplus \oplus \oplus \oplus$

If you were to ask a subject to point out which of the experiments comes from a random trial, most subjects would probably say number 2. This is because it 'represents' more what people see when they think of a random trial and fail to take probability into account. The independence axiom is broken.

When we find systematic deviations in judgement that depart from the normative theory, we can introduce prescriptive advice for cases like this. A prescriptive advice could be something like: "Each independent experiment, has an equal chance to occur".



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c) The hindsight bias is when someone "knew something all along" after the outcome has revealed itself. Typically after major events there are always a lot of people who claim to be sure that they knew it before hand.

The hindsight bias may influence probability judgements due to the fact that people who fall to this fallacy may become overconfident in own estimation and probabilities.

The hindsight bias usually occurs because people ~~usually~~ usually remember all the times they were right and fail to remember the times in which they had false predictions.



4a)

Behavioral welfare economics is the application of behavioral economics into public policy, law and economics. Richard Thaler explains in his book "Nudge" different ways in which politicians can influence welfare in society by using concepts found in behavioral economics.

One example of an intervention that are thought to enhance welfare in society is tax incentives for environmentally friendly construction. This way, people have incentives to build in a more eco-friendly way.

Another example is <sup>extr</sup> tax on alcohol and tobacco. So that smokers and drinkers will have an incentive to reduce or quit their consumption.

Thaler gives us six guidelines for nudges:

(i) Incentives - make choices fun and relevant

Understand mappings - structure choices (NECAP = record, evaluate, compare alt. prices)

Defaults - understand and use status-quo effect.

Give feedback - give good and bad feedback

Expect error - people do make mistakes

Structure complex choices - help people understand the problem and give non-compensatory strategies





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b)

All over the world governments have created nudge units to help improve welfare. This have been extremely <sup>successful</sup> in countries like UK, where the 'nudge-unit' is privatized and the US where the nudge-team is lead by Cass Sunstein. This movement is called the "Nudge agenda" and represent the stream of welfare ~~can~~ enhancing policies being set in place all over the world.

"The nudge agenda" and the politician's use of nudges has a lot of supporters but also a lot of critics. Many people think that we should deregulate and stop governments intervening with peoples choices. Many of its critics says that people themselves knows whats best for them and that beaurocrats who makes decision for them could make it worse.