PSY2301 – Psychology of Judgment and Decision Making
Sensor guide
Bedømmings og beslutningspsykologi
Sensorveiledning, eksamen 23.11.21

The candidates will have to answer 3 out of 4 tasks in 4 hours. The tasks are taken from a list of 52 questions. These questions were given to the students after the lectures and are thus known to them before the exam. This means that we naturally place higher demands on the students' answers than if they had not known the tasks in advance. However, since it is a home exam and they have access to the curriculum/internet/notes, most assignment texts are slightly different from those on the list (students were told early in the semester that this was a possibility).

The questions have to be answered based on the relevant lecture slides (attached) and two books:
Hardman, D. (2009). *Judgment and decision making. Psychological perspectives.* Blackwell.
Hastie, R., & Dawes, R. M. (2010). *Rational choice in an uncertain world. The psychology of judgment and decision making* (2nd ed.). Sage.
For exemplars of these books, please contact jasmin.richter@psykologi.uio.no

If three tasks have not been answered, the student fails the exam. If a task has been answered but the answer is insufficient (failed), an overall assessment must be made as to whether or not to fail the student, depending on how good the other two answers are. The tasks should be weighted evenly. Students will not get extra points for answering four questions. They were told to only answer three questions.

The assignments are expected to be answered based on the curriculum and lectures. If candidates show knowledge that goes beyond the curriculum, this must be rewarded. The tasks are graded according to the extent to which relevant factors (see below) are included in the student's response, but also on *the basis of the presentation of the response,* i.e., with what understanding the material was written. When grading, the examiner must take into account the general requirements of the Department of Psychology for the various grades, as formulated here:

https://www.uio.no/studier/eksamen/karakterskala/fagspesifikk-karakterbeskrivelse/sv-psi-201104.pdf

About the use of sources: The exam in PSY2301 is "actually" a school exam where students sit at home and get an extra hour because it's a special situation. It is quite common for students on the school exam to mention the names of researchers and refer to lecture scripts and curriculum. Students have been notified that in psychology, the so-called APA formatting rules are used when referring to a source, see e.g., this link: https://innsida.ntnu.no/wiki/-/wiki/Norsk/Bruke+referansestilen+APA (links to an external page.) However, there is no requirement for an APA format and responses are not downgraded for not including the names of all the researchers who conducted the described studies or suggested a theory. It is much more important that students describe the studies and theories correctly and that the studies/theories are relevant to the respective task. However, we recommend that students get familiar with the most important names and sources, which is also a little easier if you are sitting at home.

Students may want to quote from the pensum books, lecture slides, or additional source they may have read. Students were told to use quotes should be used sparingly and in an appropriate way, and integrate quotes in their texts when using them. If students use quotes, quotes have to be indicated by quotation marks and have to be accompanied by the reference to the source "in an understandable way" - but students don't have to follow APA format in doing this. Students were given several examples of how they could quote from different sources:

- Hastie and Dawes (2010) define judgment as "the human ability to infer, estimate, and predict the character of unknown events." (p. 46).

- According to Gigerenzer and Kurz (2001) "Heuristics […] derive their rationality through a match with the structure of the environment, not with the laws of logic or probability." (as cited in lecture 1 [25.08.2021], slide 39).

- Montague and Berns (2002) argue that the "idea of a common scale can also be used to value both predictions and rewards." (as cited in Hardman, 2009, p. 72)

1. **Describe Kahneman & Tversky's Prospect theory in general, and particularly the main features that makes it a better descriptive model of human decision making than the Subjective Expected Utility (SEU) theory.**

   Redegjør generelt for Kahneman & Tverskys prospektteori (Prospect theory) og spesielt for hovedtrekkene ved denne teorien som gjør at den gir en bedre deskriptiv modell av beslutningstaking enn Subjective Expected Utility SEU-teorien.

Hardman pp. 69-70; Hastie & Dawes pp. 203-206; pp. 272-281; L7

A general explanation of Prospect Theory (PT):

PT aims to describe decision making under uncertainty. According to PT, a decision-making process contains two stages: The editing stage and the evaluation stage. At the editing stage, decision makers translate possible outcomes (=prospects) of the decision situation into gains and losses by comparing them to a reference point, often the current situation. At the evaluation stage, prospects are entered into a value and a weighting function. The S-shaped value function describes the subjective value of each outcome's consequence. The reverse S-shaped weighting function describes the impact a valued consequence has on the decision based on its probability. Finally, subjective values and multiplied by their decision weights and the weighted values of each prospect are summed.

(We expect students to mention the general aim of PT, the two stages of decision making, the value and the weighing function.)

Which main features make PT a better descriptive model of decision making than the SEU theory?

(We expect students to mention and explain the three, underlined main features of the PT. Nice, if they also give some reasons why these features provide a better description of human decision making.)

While SEU assumes that people should compare the final outcomes of their decision options relative to their current situation, PT assumes that outcomes are represented as gains and losses relative to a reference point that can refer to existing assets, but also to expected or aspired assets. Due to this <u>flexibility in the reference point</u>, PT can describe more accurately than SEU how people integrate their assets and prospects and can explain the "isolation effect".

Moreover, PT's flexible reference point can explain why people prefer two small gains relative to receiving their sum and the sum of two small losses relative to two separate losses. SEU cannot explain this because the final outcomes in each case are identical and dividing these should not affect people's preferences.

PT's S-shaped <u>value function</u> has a convex shape for losses and a concave shape for gains with the zero coordinate being defined as the reference point for assessing the subjective value of consequences. The curve for losses is steeper than the curve for gains. Therefore, PT, as SEU, can explain why losses have more impact on decision making than gains. Yet, the PT, unlike the SEU, assumes that the law of diminishing marginal returns applies not only to gains but also to losses. Therefore, the PT can explain that a first loss has more impact on decision-making than further losses of the same size.

Moreover, the separate functions for gains and losses can better describe how people react to uncertainty. While the SEU assumes that people are generally risk-averse, the PT can accurately

describe that people prefer sure gains over uncertain gains but uncertain losses over certain losses (as long as the uncertainties are not too high).

Based on its reverse S-shaped <u>decision weighting function</u>, PT translates probabilities of consequences into decision weights, while SEU weights subjective values of consequences with their objective probabilities. PT's weighting function can describe that people overweight outcomes with small probabilities and underweight outcomes with medium-to-large probabilities in decision-making. The latter feature can explain the "certainty effect" or Allais paradox, respectively, which SEU cannot explain.

Since for most probabilities, PT's weighting function is flat, PT can describe that people are barely sensitive to large changes in outcome probabilities in this range.

2. **What is meant by overconfidence and how can overconfidence be investigated?**
    Hva menes med overkonfidens, og hvordan kan overkonfidens studeres?

Hardman, Chapt. 9 + 10; Hastie & Dawes Chapt. 6; (Hardman, Chapt. 1 + Hastie & Dawes Chapt. 1 + 2); L9

Here, we expect students to include that we overestimate more often than we underestimate, and that this applies, for example, to degrees of probability and security (external and internal probability), our statements about the future (forecasts, predictions), our statements about the past (looking back), in statements about things (what we know and believe), and what we believe about ourselves (or a case in focus) compared to "others". We also expect them to address the fact that there are both motivating explanations (self-interest, defense of self-esteem) and cognitive explanations (limited capacity, selective access to information, selective attention) for overconfidence. Nice when they mention "Overkonfidensens tre ansikter" (Moore & Healy, 2008: "The trouble with overconfidence"), which describes three different types of overconfidence: I) Overestimation/Overestimater (stating too high probabilities) "I am 100% sure that Norway wins". II) Overprecision/Overpresisjon (assuming that one's beliefs/estimates are more accurate than they are; people report too narrow confidence intervals/margins of error around their estimates) "It is recorded between ..... and .... Corona cases daily". III) Overplacement/Overplasseringer (of a "protagonist" as relative to the reference group) "Tom belongs to the ... % best in class"/"Better-than-average". In all these cases, we have to compare the estimates with "objective" values or frequencies. Overconfidence occurs when the estimated probability exceeds objective frequencies and values.

3. Explain Klein's *Recognition primed decision making* (RPD) model and how "naturalistic decision making" is understood in light of this model.
Redegjør for Kleins *Recognition-primed decision making (*RPD)-modell og hvordan "naturalistisk beslutningstaking" forstås i lys av denne modellen.

Hardman Chapt. 11; L11

Klein's Recognition primed decision making (RPD) aims to explain naturalistic (real-world) decision making of experts in high-stake situations under time pressure. (This model is for very specific situations. This should be mentioned.)

It assumes that experts have, through experience, accumulated instances of situations, actions, and outcomes in memory. When faced with an unusual situation, experts can recognize similarities to prototypical situations stored in memory and recall the prototypical instance from memory. Then they imagine what would happen if they carried through with the prototypical action by mental simulation. Only if this simulation suggest that the course of action will not be appropriate in the current situation, alternative courses of action are considered by the expert. If the course of action seems appropriate, alternative options are not considered, and the action is carried out. (Students' responses should contain the general order of processes described previously. Importantly, memory processes/recognition should be mentioned. Nice, if they also mention the following:) Thus, experts do not compare different options when faced with a high-stake situation under time pressure, they will rarely "decide" in the literal sense of the word, since they often consider only one option.

From the perspective of the RPD model, expert naturalistic decision making (under time pressure) is viewed as intuitive, in that experts make use of different heuristics to decide for a course of action. First, experts use representativeness and availability heuristic to recognize the current situation as a variant of a prototype situation. Indeed, it seems that the first option coming to mind in expert chess players is often the best. Second, experts use mental simulation and the simulation heuristics to evaluate whether the suggested course of action would lead to a desired outcome. In that sense, expertise can be seen as the application of heuristics acquired through experience.

(We expect students to name the three types of heuristics that experts make use of according to the RPD model. Nice, if they also describe their roles in more detail.)

4. **Discuss the effects of counterfactual thinking.**
    Drøft effekter av kontrafaktisk tenking.

Hardman pp. 61-62; L4

(We expect students to discuss the role of counterfactual thinking for causal judgments and the preparative and affective functions of upward and downward counterfactuals with some details of related effects.)

Counterfactual thinking describes thinking about how past events could have turned out differently.

Counterfactual thinking plays an important role in <u>causal judgments</u>. Counterfactuals affect what people perceive to be a likely cause of an event and how bad events could have been prevented. Readily available counterfactuals suggest that an event could have been anticipated and avoided. Thereby, counterfactuals also influence judgments of guilt and responsibility.

One can differentiate between <u>upward counterfactuals and downward counterfactuals</u>. Upward counterfactuals describe a way in how things could have turned out better than they did. Downward counterfactuals describe ways in which things could have turned out worse than they did. Some research on the effects of upward and downward counterfactuals has focused on exam performance. E.g., a study by Roese (1994) has shown that thinking about upward counterfactuals can increase intentions to behave in a way that may be more promising in the future than thinking about downward counterfactuals. Thinking about upward counterfactuals also increased performance on a subsequent task. (Nice, if they also mention the following details:) The latter performance benefit was, however, only visible for people who thought about how their performance could have been better if they had done something differently (additive upward counterfactuals) while people who thought about how they could have done better if they had omitted something (subtractive upward counterfactuals) performed no better than the control group. In sum, these findings suggest that counterfactuals can help to avoid the same negative outcome in the future (preparative function).

Yet, counterfactuals can also have an affective function: Roese (1994) has shown that when thinking about downward counterfactuals, participants reported a more positive mood than people engaging in upward counterfactuals about their exam performance. Relatedly, bronze winners seem to look happier than silver winners presumably because for silver winners the counterfactual of winning gold is easier to imagine than for bronze winners. Moreover, downward counterfactual thinking is related to PTSD-symptoms. Besides, people anticipate more regret for close failures because counterfactual thinking is more likely and suggests that the failure could have been avoided easily.

(Nice, if students also mention:) Counterfactual thinking can sometimes <u>reduce the hindsight bias</u>. Thinking about alternative outcomes and explaining such outcomes has been shown to reduce the hindsight bias but only if people were not asked to come up with too many alternatives.