Lecture 14: Biases in Decision Making

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1 Introduction

In this lecture, we continue our exploration of biases in decision making, building on the previous discussion about the framing effect and prospect theory. We will examine various cognitive biases, their implications, and potential explanations for their occurrence.

2 Recap of Previous Lecture

We previously discussed rational analysis as a framework for cognitive modeling, focusing on optimal behavior in decision-making scenarios. We explored how human behavior often deviates from rational models, particularly in decisions under uncertainty.

2.1 Cognitive Bias

A cognitive bias is defined as a deviation from optimal, normatively correct behavior based on logic or probability. For instance, preferring a bet with a lower expected gain exemplifies a cognitive bias.

3 Cognitive Biases

We will explore several cognitive biases, including the framing effect, representative bias, availability bias, and base rate neglect.

3.1 Framing Effect

The framing effect illustrates how the presentation of information influences decision-making. For example, when presented with joint bets framed in terms of gains or losses, individuals may choose non-optimal options based on how the information is framed.

3.2 Representative Bias

The representative bias occurs when individuals judge the likelihood of an event based on how closely it resembles a typical case. An example involves a description of a person named Bill, where participants incorrectly assess the probability of him being an accountant who plays jazz as more likely than him simply playing jazz.

3.3 Base Rate Neglect

Base rate neglect refers to the tendency to ignore prior probabilities when making judgments. In a scenario involving cabs of different colors, participants often overlook the base rate of green cabs, leading to incorrect conclusions about the likelihood of a cab's color based on witness testimony.

3.4 Availability Bias

The availability bias occurs when individuals overestimate the probability of events that are easily recalled from memory. For instance, people may overestimate the likelihood of plane crashes due to their frequent media coverage, while underestimating the more common occurrence of car accidents.

4 Examples and Applications

We discussed various examples to illustrate these biases, including:

- The conjunction fallacy, where individuals incorrectly assess the likelihood of two events occurring together as more probable than one event alone.
- The Watson card selection task, which highlights difficulties in logical reasoning and the tendency to seek information that confirms rather than falsifies a hypothesis.

5 Conclusion

In summary, today's lecture examined several cognitive biases that affect decision-making processes. We explored how these biases arise from various factors, including cognitive limitations, framing effects, and the availability of information. Understanding these biases is crucial for recognizing the limits of rational behavior in decision-making contexts.

6 Further Reading

For those interested in exploring these concepts further, the book *Thinking, Fast and Slow* by Daniel Kahneman is highly recommended. It provides a comprehensive overview of cognitive biases and the dual systems of thinking.