

## Lecture 2: Mental Models and Sense-Making

### How Do Humans Make Sense of the World?

- Humans don't perceive reality like a camera or recording device.
- We construct simplified **mental models** of the world based on:
- **Sensation**: raw data from senses
- **Perception**: interpretation and integration
- **Attention**: filters what enters consciousness
- These models are:
- Filtered by **motivations**
- Shaped by **experience**
- Built for **survival**, not for truth

***Key Insight:** We don't record reality; we **construct** a usable version of it.*

---

### Pattern Recognition and Meaning-Making

- **Pareidolia**: seeing faces/animals in clouds or objects.
  - **Apophenia**: detecting meaningful patterns in randomness (e.g. conspiracy theories).
  - **Illusions** demonstrate perception vs. reality (e.g. duck-rabbit, two faces/goblet).
  - **Attention** is limited and spotlighted — we miss most things not in focus (e.g. gorilla basketball video).
- 

### Speed vs. Accuracy: Dual Process Model

- Humans use **two systems** to process information:

- **System 1:** Fast, intuitive, emotional, automatic
  - **System 2:** Slow, logical, deliberate, effortful
  - Names for these systems include:
    - Fast/Slow (Kahneman)
    - Heuristic/Systematic
    - Peripheral/Central
    - X-system/C-system
    - Automatic/Controlled
- 



### Examples of Biases and Heuristics

- **Availability heuristic:** what's easily recalled feels more common (e.g. shark attacks).
  - **Salience bias:** we overweight vivid, noticeable information.
  - **Stereotyping:** fast processing based on traits, e.g., “Linda the feminist bank teller.”
  - **Prospect Theory:** people fear losses more than they value gains.
  - **Bad is Stronger than Good:** negative events have stronger psychological impact than positive ones.
- 



### Scripts, Schemas, and Priming

- **Scripts:** automatic sequences of behavior (e.g. restaurant order of service).
  - **Schemas:** mental frameworks for interpreting events (e.g. using baseball schema for cricket).
  - **Priming:** subtle cues activate schemas (e.g. “Scotland” → bagpipes).
-

## Motivation Shapes Perception

- Motivation influences how we interpret the same environment:
  - Buyer sees granite countertops
  - Burglar sees entry points
  - Investor sees cash flow
  - Inspector sees foundation flaws
- 

## Cognitive Dissonance and Internal Consistency

- **Cognitive Dissonance:** discomfort from conflicting beliefs/behaviors
  - We reduce dissonance by:
    - Changing a belief
    - Changing importance
    - Adding a new cognition
  - **Examples:**
    - Smoking: “I smoke” + “Smoking kills” → “I only smoke socially” or “I exercise.”
- 

## Shared Reality and Social Construction

- Our view of reality is shaped by **group consensus**.
  - **Sherif’s Autokinetic Effect:** ambiguous visual stimulus led groups to converge on a shared “truth,” which persisted across generations.
  - **Festinger’s “When Prophecy Fails”:** cult maintained belief after failed apocalypse through rationalization and proselytizing.
-

## Final Takeaways

- We are **sense-making animals** who:
- Construct simplified, usable models of reality
- Favor fast processing unless effort is made
- Strive for inner and social consistency
- **Science** and **controlled thinking** help us update inaccurate models
- Find allies when you perceive something different — shared belief strengthens confidence