

Attention and Perception

Lecture 0: Attention Intro

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Transition from 215H

- ▶ In several papers we saw in Econ 215H, the human's prior **before** receiving AI advice was their belief after looking at an image
- ▶ In Agarwal et al. (2023), this belief was explicitly based on a “mental signal” s_{ih}^H

$$s_{ih}^H \Rightarrow \pi_h(\omega_i = 1 | s_{ih}^H) \Rightarrow s_i^A \Rightarrow \pi_h(\omega_i = 1 | s_i^A, s_{ih}^H)$$

- ▶ In Econ 278H, we will take a deep dive into the process of forming and updating on mental signals
 - ▶ We will start by following cognitive science in assuming Bayesian updating
 - ▶ As noted by Ortoleva (2024), it is plausible that the updating over *mental* signals is Bayesian even if the updating over *external* signals is not!
- ▶ **Key thread:** Our subjective **perception** of the state of the world is influenced strongly by the **attention** we pay to available information

Attention

- ▶ What is **attention**?
- ▶ Merriam-Webster:
 - ▶ The act or power of carefully thinking about, listening to, or watching something
 - ▶ Notice, interest, or awareness
- ▶ In cognitive psychology, filled with debate and disagreement
 - ▶ “Everyone knows what attention is” (James 1890)
 - ▶ “No one knows what attention is” (Pashler 1998)
- ▶ Posner & Boies (1971) suggest three components: orienting to sensory events, detecting signals for focal processing, & maintaining a vigilant or alert state
- ▶ Agreement: *selectivity* and *capacity limitation*

Overview

Different approaches to limited attention in economics

Review: *Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?* (Handel & Schwartzstein 2018)

1. Limited attention from *mental gaps*

- ▶ Ignore low-salience information (Chetty, Looney & Kroft 2009)
- ▶ Ignore readily available information (DellaVigna & Pollet 2009, Lacetera, Pope & Sydnor 2012)

2. Limited attention from *information frictions*

- ▶ Consideration sets (Caplin, Dean & Martin 2011, Manzini & Mariotti 2014)
- ▶ Rational inattention (Sims 2003, Matějka & McKay 2015)

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