

# SOCIAL COGNITION

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Social learning

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# SO FAR...

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- Social cognition as a study about each other
- Humans and non-human primates not so different in terms of cognition
- The differences are more quantitative
- Humans may have evolved because of cultural transmission (ratchet effect)
- Language evolution is a combination of biology and cultural transmission
- Theory of mind development may depend on language input
- Non-human primates show certain aspects of theory of mind



# THIS WEEK

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Social learning: what makes it possible to learn from each other and about each other?



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# LEARNING

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- Think about at least three things you personally have learned or can learn
- Go to [menti.com](https://menti.com) (code: 4894106) and submit your answers
- Pair up with someone and choose 3 submissions that is NOT your own
- Discuss:
  - the steps it takes to achieve such a learning
  - which of these steps do involve social learning?



# LEARNING TYPES

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- Habituation/sensitization
- Associative learning
  - Operant conditioning
  - Classic (Pavlovian) conditioning
  - Observational learning
- Episodic learning
- Procedural learning
- Declarative (rote) learning
- Active learning
- Communicative learning

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# IMPLICIT VS. EXPLICIT LEARNING

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- Procedural learning (implicit)
  - you are not aware of the learning process, it's unconscious (e.g. learning to walk, learning grammar)
- Declarative (explicit)
  - you are well aware of the learning process, it's conscious (e.g. learning new words)



# OBSERVATIONAL LEARNING

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Learning about

- Places – gaze following
- Objects
- Actions – imitating actions
- Agents



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# OBSERVATIONAL LEARNING (2)

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- Classic conditioning/association learning
  - fear of snake
- Operant learning
  - similar effect of social and monetary rewards -> remember to be nice 😊
- Gaze following
  - agent recognition -> orientation towards the agent's eyes -> the target of the agent's gaze -> belief in positive outcome
- Mirroring
  - through mirror neurons
  - emotional contagion





# THE BENEFITS OF OBSERVATIONAL LEARNING

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Learning through observation is:

- more successful
  - learning through someone else's errors 😊
- more adaptive
- serves the long-term interests of the group (but also self-interest)
- more pro-social
  - covert mimicking -> we tend to like the person who mimicks us
  - overt mimicking - > high discomfort, no pro-social
- more rewarding



# SWITCHING TO NON-SOCIAL LEARNING

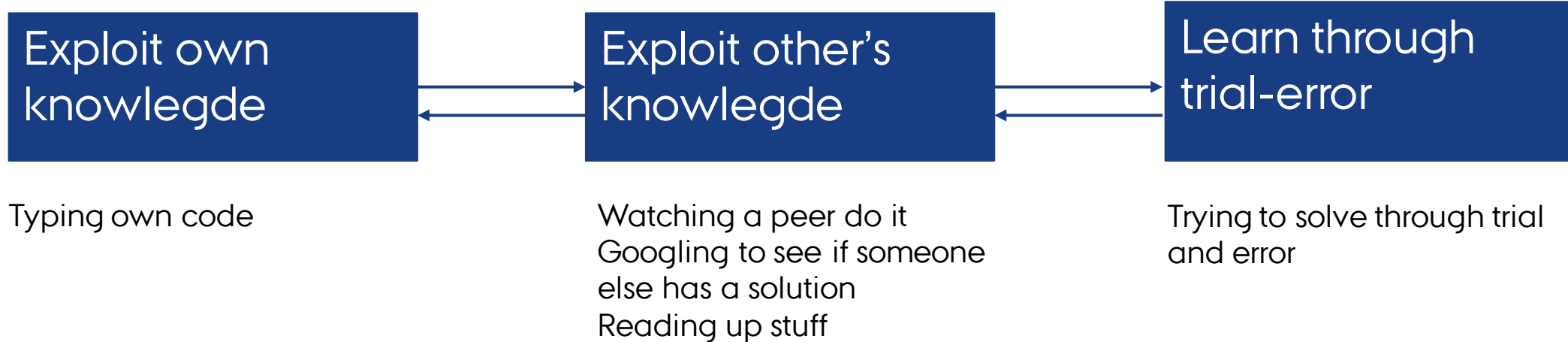
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# EXERCISE

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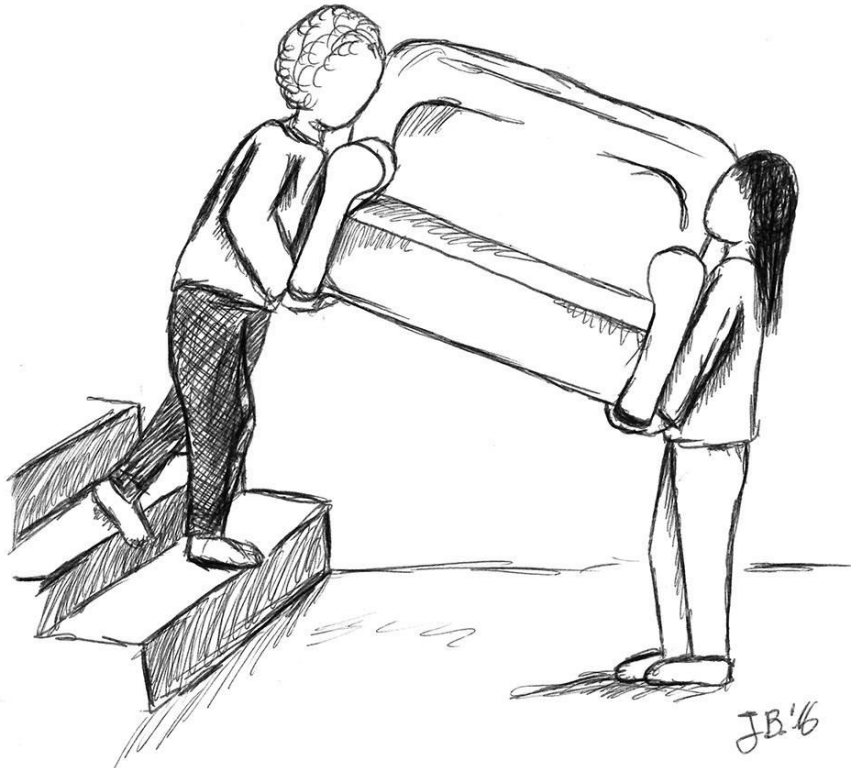
- Turn to the person next to you and think of real-life situations where you go through the steps described



# ALIGNMENT

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- Speaking like our interlocutor (pitch, speech rate, complexity, etc.) -> enhances communication
- Aligning posture and movements (joint action)



Vesper et al. 2017

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# LEARNING ABOUT GROUPS

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- Stereotypes and prejudices (already developed at age 3)
- In-group cohesion, out-group hostility
- Over-imitation (as a pro-social and not a learning act)



# LEARNING ABOUT OTHER MINDS

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Procedural & association learning

- Stereotyping
- Learning about trustworthiness
- Learning faces and predicting behaviours from it
- Learning about spatial locations of others
- Creating and learning about reputation



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# TRACKING

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- Mental states
- Point of view
- False beliefs



# COSTS AND BENEFITS OF LEARNING ABOUT OTHER MINDS

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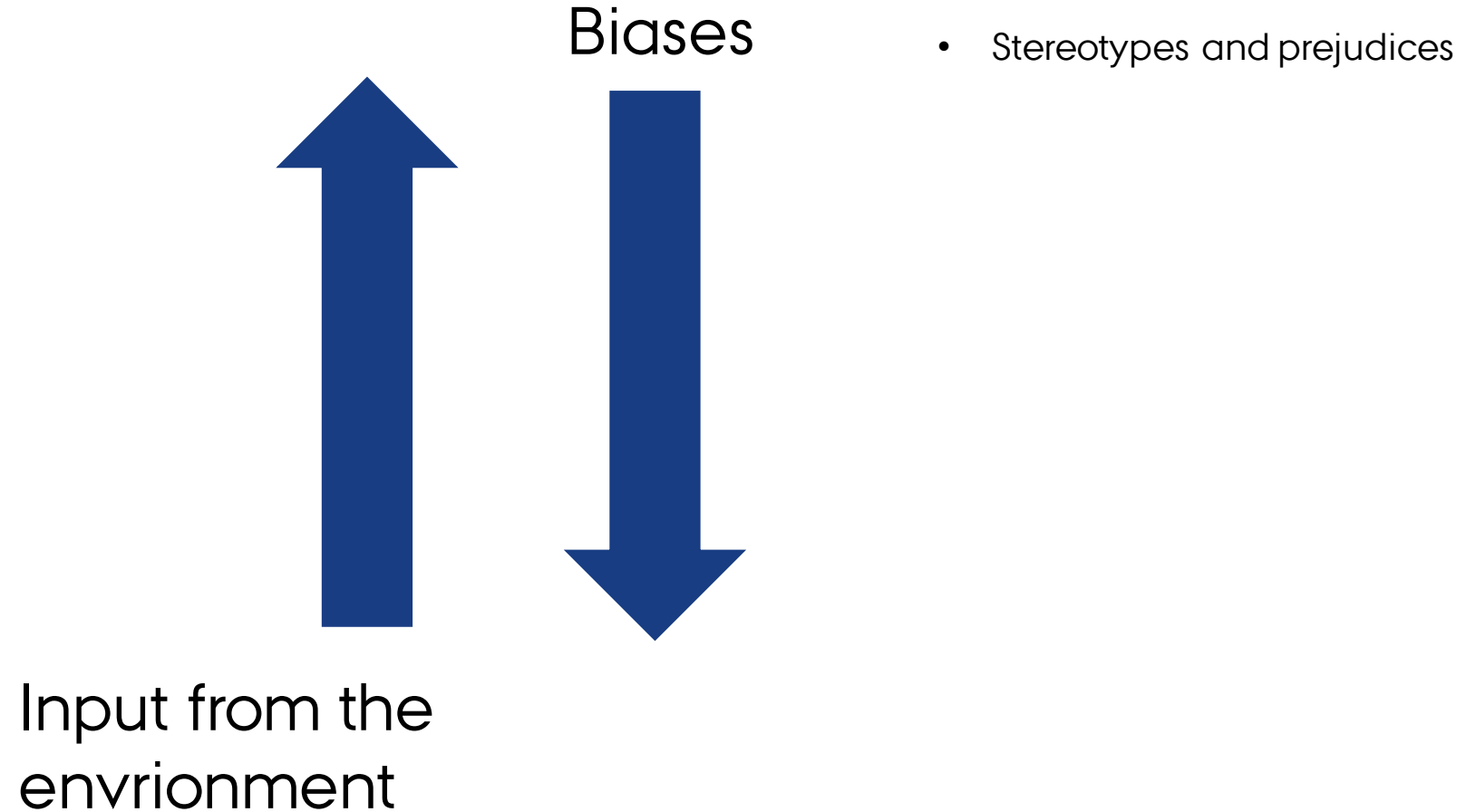
- Anti-social behaviour
- Helping behaviour
- Mutual trust





# BOTTOM-UP AND TOP-DOWN PROCESSES

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# COMMUNICATIVE FORMS OF SOCIAL LEARNING

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- Verbal instruction
- Teaching
  - shared intention
  - bilateral
- Reflective discussion
  - metacognitive



# METACOGNITION

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- Self-knowledge
- “Cognition about cognition”
- Examples of being dissociated from reality or inaccurate
- Verbal reports: where is the line between objective and subjective?
- Self-knowledge deficit in individuals with frontal lobe injuries



# METACOGNITION MEASUREMENT METHODS

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Prospective: before the task

Retrospective: after completing the task

Judgment of learning: how successful recall will be during learning

Feelings of knowing: when one doesn't know the answer, they predict whether they will be able to recognize it from a list of alternatives

- tip-of-the-tongue states



# CHOICE BLINDNESS



# METACOGNITION MEASUREMENT

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- Go to [menti.com](https://menti.com) and follow the instructions



# EXERCISE

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- Divide into two groups

Group 1: Find, read and understand the following paper

Adank, P., Hagoort, P., & Bekkering, H. (2010). Imitation improves language comprehension. *Psychological Science*, 21(12), 1903-1909.

Group 2: Kovács, Á. M., Téglás, E., & Endress, A. D. (2010). The social sense: Susceptibility to others' beliefs in human infants and adults. *Science*, 330(6012), 1830-1834.



# WHEN READING THE PAPER, IMPORTANT QUESTIONS TO LOOK ANSWERS FOR

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- What is the hypothesis/what question(s) are the researchers trying to answer?
- What methodology did they use?
- What are the main findings?
- What is the take-home message?





# FINAL QUESTIONS FOR THE DAY

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- How can the reading material for today's session help you for your exam paper?
  - Finding a topic?
  - A useful reference for a topic you have already decided about?
- How can the papers from the previous exercise help you for your exam paper?
  - Finding a topic?
  - A useful reference for a topic you have already decided about?
- Spend 3-5 minutes thinking about the questions and write down the answers of yourselves

