

CLPS1280F Dual Systems in Human Cognition

Spring 2012

Distinctions between cognitive systems that support different kinds of processing have been proposed to explain how people reason and make decisions. The most common distinction is between systems that support what correspond at least roughly to deliberation and intuition. In this seminar, we will weigh the evidence for and against this kind of dual processing proposal. We will focus on how the systems interact as well as the role of affect and emotion in the two kinds of processing and how to represent the distinction computationally. Evidence will come from behavioral studies and cognitive neuroscience. Implications for cognitive science, philosophy, and social policy will be discussed.

Eligibility and Enrollment:

Enrollment is limited to 20 advanced students. To be considered, please come to the first class. Instructors will determine eligibility based on students' capacity to benefit from and contribute to the class and the well-roundedness of the class's composition. More senior students will be given priority.

Upon acceptance, students will be given TWO DAYS to accept or decline the offer and register. After two days, the slot will be given to the next student on the waiting list.

Instructors:

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Readings:

- Readings will be made available on the course's canvas website. There will be 3 readings per week.

Course Requirements:

1. Show up physically and mentally. You will be expected to keep up with the readings and to participate in class.
2. Thought papers: To facilitate discussion and participation you will write short notes (up to 300 words, hopefully less) taking positions or raising questions or issues for discussion or clarification that pertain to one of the topics of that day's class. These will be required from Weeks 2 on. Be prepared to present your idea in class. These notes must be

submitted to the online discussion board at least 2 hours prior to each class. They may respond to a previous note by another student **but they may not repeat the content of a previous note**. Hence, the early bird gets the worm. Along with participation, they will comprise 40% of your grade. You will be given 2 weeks grace; i.e., 2 weeks in which you don't have to write a thought paper.

3. Presentation: A presentation that integrates and elaborates on one or more of the readings for that day. You will be expected to construct an argument depending as much as possible on empirical support for a clearly stated position. Do not simply summarize the reading but rather use the readings and any other material to argue for a thesis of your own. Further literature review beyond the assigned reading IS expected. Presentations should last approximately 15 min. followed by 30 min of discussion with the class. The presentation will account for 30% of your grade. There will be 3 presentations per class, so we will have to enforce strict time limits.
4. Paper: Each student will produce a paper of between 2500-4000 words (excluding references). Like the presentation, the paper will argue for some thesis closely related to the topic of the course, based as much as possible on empirical evidence. The topic and thesis may be the same or different from those of the presentation. The paper should be as concise and compelling as possible while demonstrating familiarity with the relevant literature. The paper will comprise the remaining 30% of your grade. Papers will be due 5/9.

Readings

Jan 24: Introduction

No readings assigned

Jan 31: Reasoning

- Sloman, S. A. (1996). The empirical case for two systems of reasoning. *Psychological bulletin*, 119(1), 3.
- Reverberi, C., Pishedda, D., Burigo, M., & Cherubini, P. (2011). Deduction without awareness. *Acta psychologica*.
- DeWall, C. N., Baumeister, R. F., & Masicampo, E. J. (2008). Evidence that logical reasoning depends on conscious processing. *Consciousness and cognition*, 17(3), 628-645.

Feb 7: Categorization

- Ashby, F. G., & O'Brien, J. B. (2005). Category learning and multiple memory systems. *Trends in cognitive sciences*, 9(2), 83-89.
- Lakoff, G. (1986). Classifiers as a reflection of mind. *Noun classes and categorization*, 7, 13-51.
- Leslie, S. J. (2008). Generics: Cognition and acquisition. *Philosophical Review*, 117(1), 1-47.

Feb 14: Judgment and Decision Making

- Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research*, 177, 1333-1352.
- Denes-Raj, V., Epstein, S., & Cole, J. (1995). The generality of the ratio-bias phenomenon. *Personality and Social Psychology Bulletin*, 21(10), 1083-1092.
- Kahneman, D., & Frederick, S. (2002). Representativeness revisited: Attribute substitution in intuitive judgment. *Heuristics and biases: The psychology of intuitive judgment*, 49-81.

Feb 21: Cognitive Control

- Ainslie, G. (1975). Specious reward: a behavioral theory of impulsiveness and impulse control. *Psychological bulletin*, 82(4), 463.
- McClure, S. M., Laibson, D. I., Loewenstein, G., & Cohen, J. D. (2004). Separate neural systems value immediate and delayed monetary rewards. *Science*, 306(5695), 503-507.
- Ochsner, K. N., & Gross, J. J. (2005). The cognitive control of emotion. *Trends in cognitive sciences*, 9(5), 242-249.

Feb. 28: Dual process morality

Guest: Joshua Greene, Harvard University

- Cushman, F., & Greene, J. D. (2012). Finding faults: How moral dilemmas illuminate cognitive structure. *Social neuroscience*, 7(3), 269-279.

Greene, J. D., Nystrom, L. E., Engell, A. D., Darley, J. M., & Cohen, J. D. (2004). The neural bases of cognitive conflict and control in moral judgment. *Neuron*, 44(2), 389.

Chapter from book? Something else Josh recommends?

Mar. 7: Critiques of dual process morality

Guest: Jon Baron, University of Pennsylvania

Chapter to be provided by JB

Kahaene

Moll?

Mar. 14: Reinforcement learning (and working memory?)

Guest: Michael Frank, Brown University

Cushman action/outcome MS

Whatever Michael recommends

Something on MB/MF by Daw or Dayan; something on WM

Something on goals and implementation intentionsd

Mar. 21: Automaticity, Consciousness and Confabulation

Haidt, J. (2001). The emotional dog and its rational tail: a social intuitionist approach to moral judgment. *Psychological Review*, 108(4), 814.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*; *Psychological Review*, 84(3), 231.

Wegner, D. M., & Wheatley, T. (1999). Apparent mental causation: Sources of the experience of will. *American Psychologist*, 54(7), 480.

Apr. 4: The Self and the Will

Knobe, J., & Nichols, S. (in press). Free will and the bounds of the self. In *Oxford Handbook of Free Will*, ed. Robert Kane.

Baumeister, R. F. (2002). Ego depletion and self-control failure: An energy model of the self's executive function. *Self and Identity*, 1(2), 129-136.

Mijović-Prelec, D., & Prelec, D. (2010). Self-deception as self-signalling: a model and experimental evidence. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1538), 227-240.

Apr. 11: Implicit and Explicit Attitudes

Guest: Andy Baron, University of British Columbia

Whatever Andy says

Zajonc?

Apr. 18: The function of controlled processes

Baumeister, R. F., & Masicampo, E. J. (2010). Conscious thought is for facilitating social and cultural interactions: How mental simulations serve the animal-culture interface. *Psychological Review*, 117(3), 945.

- Newell, B. R. & Shanks, D. R. (in press). Unconscious influences on decision making: A critical review. *Behavioral and Brain Sciences*.
- Persaud, N., McLeod, P., & Cowey, A. (2007). Post-decision wagering objectively measures awareness. *Nature neuroscience*, 10(2), 257-261.

Apr. 25: Controversies: Dualism and Normativity

- De Neys, W. (2012). Bias and Conflict. *Perspectives on Psychological Science*, 7(1), 28-38.
- Stanovich, K. E., & West, R. F. (2000). Individual differences in reasoning: Implications for the rationality debate? *Behavioral and brain sciences*, 23(5), 645-665.
- Stanovich, K. E. (2010). *Rationality and the reflective mind*. Oxford University Press, USA. Chapter 2: Differentiating the algorithmic mind and the reflective mind.

May 2: Are there two systems?

- Keren, G., & Schul, Y. (2009). Two Is Not Always Better Than One A Critical Evaluation of Two-System Theories. *Perspectives on Psychological Science*, 4(6), 533-550.
- Kruglanski, A. W., & Gigerenzer, G. (2011). Intuitive and deliberate judgments are based on common principles. *Psychological review*, 118(1), 97.
- Sloman, S. A. (in press). Two systems of reasoning, an update. In Sherman, J., Gawronski, B., & Trope, Y. (Eds.). Dual process theories of the social mind. Guilford Press.

