

Philosophy of non-human minds

Coordinators: Miguel Segundo Ortin & Annemarie Kalis

Tutorial instructor: Miguel Segundo Ortin

Number of sessions: 6

Length of the sessions: 1.45 hours (15.00 to 16.45)

Location: Drift 23 – 0.13

Session 1	October 12th, 2022
Session 2	October 19th, 2022
Session 3	October 26th, 2022
Session 4	November 2nd, 2022
Session 5	November 9th, 2022
Session 6	November 16th, 2022

Rationale of the tutorial

One fundamental question of the bounds of cognition regards which organisms have it. The aim of this tutorial is to introduce the students to the contemporary debates in the philosophy of cognitive sciences regarding the applicability, or not, of cognitive predicates to non-human organisms. This field is known as the philosophy of comparative cognition. Questions to be discussed include: How can we study the behavior of non-human organisms in order to decide if they are cognitive or minded creatures? Can we find evidence of intelligence or cognition in “lower” organisms (e.g., plants, bacteria)? Are our theories of cognition appropriate to study the cognitive status of non-human organisms? Remarkably, the answers we give to these questions have important implications for how we conceive of ourselves and others, and for how we relate to non-human organisms ethically. Because of this, I believe that this tutorial will be an important addition to the curriculum currently offered in the RMA.

This tutorial will start by analyzing what approaches to cognition work better to face the question of cognition in non-human organisms. After this, students will deal with the specific problems of the comparative approach in cognitive science. Then, they will read and discuss texts by different authors (both philosophers and scientists) that critically analyze the presence of canonical cognitive traits in non-human organisms, moving from animals to so-called “lower” organisms such as plants and bacteria. Finally, the students will reflect on the potential ethical consequences of attributing cognition to non-human organisms.

Format of the tutorial

The tutorial will have 6 sessions of 1.45 hours each. This tutorial will have a seminar format, where the students will be required to read and work over the texts and will be encouraged to present

and discuss their conclusions at the sessions. Below, I have included a brief description of each session, including some suggested readings.

Tutorials will have the following structure:

- 1) Everyone reads all articles and prepares critical comments/questions beforehand.
- 2) Designated students will make a short presentation of the papers (10 to 15 minutes each). It is expected that students will reconstruct the main argument(s) in the text, as well as formulate questions/critiques to be discussed later.
- 3) Inventory of everyone's questions and comments. After each presentation, everyone is expected to contribute with specific questions/commentaries.
- 4) Group discussion.

Readings

The requested readings sum 245 pages (including references), divided by 16 articles/book chapters. The average reading per week is 41 pages. It is expected that each student presents at least 2 requested readings along the six tutorials (preferably not on the same week).

Evaluation method

Students will have to write an essay between **3000 and 4000 words**, including references. Given the length of the essay, students are expected to focus on one specific question. Students can work around the questions that we have discussed during the tutorial sessions but will have the freedom to come up with their own research questions if they want. Nonetheless, they'll have to inform and discuss about their decision with the coordinator of the tutorial (Miguel Segundo Ortin). For their essay, students are expected to combine the requested readings with other academic articles, but they don't need to stick to the complementary readings suggested here.

Students are expected to send a first draft where they indicate their research question, the thesis they will be defending, the structure of the essay, and the list of references. Once this first draft is approved, they can proceed to write the full essay.

Description of the sessions

In what follows, I offer a brief description of the content of each session, including the required readings. In addition, I provide a list of additional resources (optional) that students can access if they want to focus on specific issues or questions.

Session 1 – The study of non-human minds and its problems I

This session will introduce the students to the specific philosophical problems that the scientific study of non-human minds possesses as a multidisciplinary endeavor. In particular, students will reflect upon the different argumentative strategies commonly used to attribute cognition or mentality to non-human organisms (inference to the best explanation, argument from analogy, etc.) and the different biases that can emerge from this study. The most important

questions are: How can we decide whether non-human animals have minds? Are we anthropomorphizing non-human animals when we study them from a cognitive point of view? Is it possible to get rid of such biases in comparative cognition? How do the different kinds of explanations for animal behavior (e.g. biological, evolutionary, psychological, cognitive) relate to each other?

Requested readings (**Total 51 pp**):

- Andrews, K. (2020). Other minds. *The animal mind. An introduction to the Philosophy of Animal Cognition*, pp. 17-27 (“Arguments for other animal minds” - Section 1.3) [**10 pp**]
- Shettleworth, S. (2013). What is comparative cognition about? *Fundamentals of comparative cognition*. [**15 pp**]
- Andrews, K. (2020). Methods in comparative psychology. *How to study animal minds*. [**15 pp**]
- Andrews, K. (2020). Objectivity and bias in comparative psychology. *How to study animal minds*. [**11 pp**]

Complementary readings (optional):

- Buckner, C. (2013). Morgan’s cannon, meet Hume’s dictum: Avoiding anthropofabulation in cross-species comparisons. *Biology & Philosophy*.
- Shettleworth, S. (2009). Clever animals and killjoy explanations in comparative cognition. *Trends in Cognitive Sciences*.
- Shettleworth, S. (2010). Cognition and the study of behavior. *Cognition, evolution and behavior*.
- Figdor, C. (2017). On the proper domain of psychological predicates. *Synthese*.
- Mikhalevic, I. (2015). Experiment and animal minds: Why the choice of the null hypothesis matters. *Philosophy of Science*.
- Andrews, K. & Huss, B. (2014). Anthropomorphism, Anthropectomy, and the Null Hypothesis. *Biology & Philosophy*.
- Wynne, C. (2007). What are Animals? Why Anthropomorphism is Still Not a Scientific Approach to Behavior. *Comparative Cognition & Behavior Reviews*.
- Barrett, L. (2015). Removing ourselves. *Beyond the brain*.
- Barrett, L. (2015). The anthropomorphic animal. *Beyond the brain*.
- Andrews, K. (2020). Other minds. *The animal mind. An introduction to the philosophy of animal cognition* (2nd Edition).
- Andrews, K. (2020). Understanding animal behavior. *The animal mind. An introduction to the philosophy of animal cognition* (2nd Edition).
- Keijzer, F. (2013). The *Sphex* story. How the cognitive sciences kept repeating an old and questionable anecdote. *Philosophical psychology*.
- Abramson, C. I. (2015). A crisis in comparative psychology: Where have all the undergraduates gone? *Frontiers in Psychology*.
- Kyonka et al. (2015). Commentary “A crisis in comparative psychology: Where have all the undergraduates gone?” *Frontiers in Psychology*

Other resources (optional):

- Bekoff, M. (2020). Wise advice for overcoming biases in comparative psychology [Interview with Kristin Andrews]. *Psychology Today*.
<https://www.psychologytoday.com/ca/blog/animal-emotions/202007/wise-advice-overcoming-biases-in-comparative-psychology>
- The SpheX Wasp story [TikTok video]:
https://www.tiktok.com/@tomlumperson/video/7006058546282466565?_d=secCgYIASAHKAESPgo8DRtAhAK%2FTiiN18zTtDyXcMiXoDg3SzmFiodyInFST2tzmMt7cMPiE3T3Evmmr3Jf4HVZCAtC8ueypfADGgA%3D&checksum=a6aac4514edb2d709cdf864e9e379d824de8062fb681c7f89b0227693e1976e1&language=en&preview_pb=0&sec_user_id=MS4wLjABAAAuWfh6E9bzksdxgF-li3ZAWGjcpayMxfHa63gDXdbMD2MND8pIylEufzMQ9 WXZ&share_app_id=1233&share_item_id=7006058546282466565&share_link_id=229324e3-cb36-4fe0-ac0d-403ddc8f4fcc&source=h5_m×tamp=1632522877&u_code=di0g9m9mi84dgg&user_id=6947616736363856902&utm_campaign=client_share&utm_medium=android&utm_source=copy&r=1&fbclid=IwAR3EOxEnNKLGa8xPSZtj3x-HfrYaNafITdGzRD NkTk V2P5HYWnyU7UTyc

Session 2 – The study of non-human minds and its problems II

In this session, we will introduce the topic of what cognition is, as well as different proposals to understand it. My aim is that students reflect on the applicability of different models and approaches to human and non-human organisms (mostly, orthodox cognitivism and 4E cognition). What are their main differences between these approaches regarding the comparatist project? What models allow us to appreciate better both the continuities and discontinuities of human and non-human cognition? Are classical cognitivist assumptions adequate to study non-human cognition or, by contrast, they are too anthropocentric? Do 4E approaches promote anthropocentric and anthropomorphic biases too?

Requested readings (**Total 33 pp**):

- Adams, F. (2018). Cognition wars. *Studies in History and Philosophy of Science (Part A)* (11 pp)
- Barrett, L. (2015). A better kind of continuity. *Southern Journal of Philosophy*. (22 pp)

Complementary readings (optional):

- Lyon, P. & Keijzer, F. (2007). The human stain. Why cognitivism can't tell us what cognition is and what it does. *The mind, the world, and the body*.
- Barrett, L. (2016). Why brains are not computers, why behaviorism isn't satanism, and why dolphins are not aquatic apes. *Behavior Analysis*.
- Lyon, P. (2006). The biogenic approach to cognition. *Cognitive Processing*.
- Barrett, L. (2012). Why behaviorism isn't satanism. *The Oxford handbook of comparative evolutionary psychology*.
- Allen, C. (2017). On (not) defining cognition. *Synthese*.
- Lyon, P. (2021). Reframing cognition. Getting down to biological basis. *Philosophical Transactions B*.

- Godfrey-Smith, P. (2017). Complexity revisited. *Biology & Philosophy*.
- Shettleworth, S. (2013). Comparative cognition and human uniqueness. *Fundamentals of comparative cognition*.
- Penn, D. C., Holyoak, K. J., & Povinelli, D. J. (2008). Darwin's mistake: Explaining the discontinuity between human and non-human minds. *Behavioural and Brain Sciences*.
- Simms, M. (2021). A continuum of intentionality: Linking biogenic and anthropogenic approaches to cognition. *Biology & Philosophy*.
- Wilson, A. & Golonka, S. (2013). Embodied cognition is not what you think it is. *Frontiers in Psychology*.
- Cheng, K. (2018). Cognition Beyond Representation: Varieties of Situated Cognition in Animals. *Comparative Cognition & Behavior Reviews*, 13, 1–20.
- Pritchard, D. J. (2018). Situated cognition and the function of behavior. *Comparative Cognition & Behavior Reviews*, 13, 35-39.
- Cisek, P. (2019). Resynthesizing behavior through phylogenetic refinement. *Attention, Perception & Psychophysics*.
- Buckner, C. (2015). A property cluster theory of cognition. *Philosophical Psychology*.

Other resources (optional):

- Figdor, C. (2020). What could cognition be, if not human cognition? [Online lecture]: <https://www.youtube.com/watch?v=-o2lheYXEv4>
- Barrett, L. (2021). Thinking outside the head: Cognitive ecologies and evolutionary psychology [Online lecture]: <https://www.youtube.com/watch?v=R0XIONPhJU4>
- Lyon, P. (2021). Cognition as a necessary part of biological function [Online lecture]: Moving back, to before the human-centric view <https://www.youtube.com/watch?v=SsldeopqUOE>
- Lyon, P. (2021). On the origin of minds. *AEON*: <https://aeon.co/essays/the-study-of-the-mind-needs-a-copernican-shift-in-perspective>
- Levin, M. & Dennett, D. (2020). Cognition all the way down. *AEON*: <https://aeon.co/essays/how-to-understand-cells-tissues-and-organisms-as-agents-with-agendas>

Session 3 – Cognitive traits in non-human animals

This session introduces the student to different debates regarding the presence of different cognitive traits in non-human animals such as logic, rational thinking and decision-making. Also, we will focus on the crucial debate regarding whether non-human animals have a theory of mind. Is the empirical evidence about animal cognition strong enough? How does this empirical evidence affect the view that human minds are unique? Are rational thinking, concepts, and a theory of mind explanatorily justified?

Requested readings (**Total 56 pp**):

- Andrews, K. (2020). Can animals think? *The animal mind. An introduction to the philosophy of animal cognition*. [28 pp]
- Barrett, L. (2015). The implausible nature of Portia. *Beyond the brain*. [14 pp]

- Andrews, K. (2020). Social knowledge. *The animal mind. An introduction to the philosophy of animal cognition*, pp. 172-185 (Introduction & Mindreading or theory of mind, 7.1) [14 pp]

Complementary readings (optional):

- Shettleworth, S. (2013). Comparative cognition and human uniqueness. *Fundamentals of comparative cognition*.
- Withen, A. (2021). The psychological reach of culture in animals' lives. *Current directions in psychological science*.
- Andrews, K. & Monsó, S. (2021). "Animal Cognition". *The Stanford Encyclopedia of Philosophy*.
- Andrews, K. (2020). Social knowledge. *The animal mind. An introduction to the philosophy of animal cognition*.
- Newen, A. & Bartels, A. (2007). Animal minds and the possession of concepts. *Philosophical Psychology*.
- Andrews, K. (2020). Communication. *The animal mind. An introduction to the philosophy of animal cognition*.
- Andrews, K. (2020). Culture. *The animal mind. An introduction to the philosophy of animal cognition*.
- Shettleworth, S. (2010). Social intelligence. *Cognition, evolution and behavior*.
- Shettleworth, S. (2010). Social learning. *Cognition, evolution and behavior*.
- Shettleworth, S. (2010). Communication and language. *Cognition, evolution and behavior*.
- Barrett, L. (2015). Small brain, smart behavior. *Beyond the brain*.
- Barrett, L. (2015). When do you need a big brain? *Beyond the brain*.
- Barrett, L., Henzi, P., & Barton, R. A. (2021). Experts in action: why we need an embodied social brain hypothesis. *Philosophical Transactions B*.
- Premack, D. (2007). Human and animal cognition: Continuity and discontinuity. *Proceedings of the National Academy of Sciences of the United States of America*.
- Premack, D. (2010). Why Humans Are Unique: Three Theories. *Perspectives on Psychological Science*, 5(1), 22–32.
- Nussbaum, M. (2001). Humans and other animals. *Upheavals of thought*.
- Abramson, C. I., & Wells, H. (2018). An inconvenient truth: Some neglected issues in invertebrate learning. *Perspectives on Behavior Science*.
- Monsó, S. (20220). How to tell if animals can understand death. *Erkenntnis*.

Other resources (optional):

- Balter, M. (2012). Killjoy's challenge claims of clever animals. *Science Magazine*: <https://ase.tufts.edu/cogstud/dennett/papers/killjoys.pdf>

Session 4 – What about bacteria and plants?

If the claim that non-human animals are cognitive is still contested by some authors, there is even more controversy when this claim is extended beyond animals to plants and bacteria. This is so because these are considered organisms that are 'lower' on the evolutionary scale. This

session will invite students to think about these assumptions, considering what the empirical evidence shows about the behavior of plants and bacteria.

Requested readings (**Total 18 pp**):

- Sims, M., & Kiverstein, J. (2022). Externalized memory in slime mould and the extended (non-neuronal) mind. *Cognitive Systems Research*. [10 pp]
- Segundo-Ortin & Calvo (2019). Are plants cognitive? A reply to Adams. *Studies in History and Philosophy of Science (Part A)*. [8 pp]

Complementary readings (optional):

- Smith-Ferguson, J., & Beekman, M. (2019). Who needs a brain? Slime moulds, behavioural ecology and minimal cognition. *Adaptive behavior*.
- Lyon, P. (2015). The cognitive cell: Bacterial behavior reconsidered. *Frontiers in Microbiology*.
- Lyon, P. (2007). From quorum to cooperation: Lessons from bacterial sociality for evolutionary theory. *Studies in History and Philosophy of Science (Part C)*.
- Fulda, F. C. (2017). Natural agency: The case of bacterial cognition. *American Philosophical Association*.
- Calvo, P. (2016). The philosophy of plant neurobiology. A manifesto. *Synthese*.
- Calvo, P. (2018). Plantae. In: J. Vonk & T. Shackelford (Eds.). *Encyclopedia of animal cognition and behavior*.
- Trewavas, A. (2017). The foundations of plant intelligence. *Interface focus*.
- Miguel-Tomé, S. & Llinás, R. (2021). Broadening the definition of a nervous system to better understand the evolution of plants and animals. *Plant Signalling & Behavior*.
- Abramson, C. I., & Calvo, P. (2018). General issues in the cognitive analysis of plant behavior and intelligence. In: F. Baluska, M. Gagliano, & G. Witzany (Eds.). *Memory and learning in plants*.
- Huang, L, T-L., Bich, L., & Bechtel, W. (2021). Model organisms for studying decision-making: A phylogenetically expanded perspective. *Philosophy of Science*.
- Carello, C., Vaz, D., Blau, J. C. J., & Petrusz, S. (2012). Unnerving intelligence. *Ecological Psychology*.

Other resources (optional):

- Raja, V. (2021). Moving the green. Plant behavior in the human world. *Europe Now*. <https://www.europenowjournal.org/2021/11/07/moving-the-green-plant-behavior-in-the-human-world/>
- Pondering the pea plant: Can plants learn? [YouTube clip]: <https://www.youtube.com/watch?app=desktop&v=LCvwyScn9jU&feature=youtu.be>
- How this blob solves mazes? [YouTube clip]: <https://www.youtube.com/watch?v=7YWbY7kWesI>
- Calvo, P. (2020). Cognitive science goes green. The quest for plant intelligence [Online talk]: https://www.youtube.com/watch?v=isT7aJ9_HB0

One of the most debated problems in the philosophy of mind pertains to the nature and extension of consciousness or sentience. In this session, students will discuss the presence of consciousness in non-human organisms. What are the arguments in favor of animal (and non-animal) consciousness? Can we prove scientifically the presence of consciousness in non-human organisms or is it, instead, an anthropomorphic attribution? Is the evidence for consciousness more indirect than the evidence for other cognitive faculties? Does consciousness require having a brain? How do arguments in favor of non-human animal's consciousness extend to other organisms?

Requested readings (**Total 47 pp**):

- Andrews, K. (2020). Conscious animals in comparative psychology. *How to study animal minds*. [13 pp]
- Calvo (2017). What is it like to be a plant?. *Journal of Consciousness Studies*. [23 pp]
- Debate about plant consciousness in *Trends in Plant Science*. [7 pp]

Complementary readings (optional):

- Andrews (2020). Consciousness. *The animal mind. An introduction to the philosophy of animal cognition* (2nd Edition).
- Birch, J. et al. (2022). How should we study animal consciousness scientifically? *Journal of Consciousness Studies*.
- Heyes, C. (2008). Beast machines? Questions of animal consciousness. *Frontiers of consciousness. The Chichele lectures*.
- Godfrey-Smith (2016). From white noise to consciousness. *Other minds. The octopus and the evolution of intelligent life*.
- Ginsburg, S., & Jablonka, E. (2020). Consciousness as a mode of being. *Journal of Consciousness Studies*.
- Segundo-Ortin & Calvo (2021). Consciousness and cognition in plants. *WIREs Cognitive science*.
- Ginsburg & Jablonka (2021). Sentience in plants: A green red herring?. *Journal of Consciousness Studies*.
- Taiz et al. (2019). Plants neither possess nor require consciousness. *Trends in Plant Science*.
- Mallat, J. et al. (2020). Debunking a myth: Plant consciousness. *Protoplasma*
- Tomasello, M. (2022). What is it like to be a chimpanzee? *Synthese*

Session 6 – The ethical consequences of the debate about non-human minds

To finish up, the students will discuss the ethical consequences of the debate about non-human minds. What can we make of the ethical status of non-human animals if we determine that they are cognitive and sentient creatures? What are the practical consequences of the study of non-human minds? Do our moral duties towards non-human organisms change depending on the cognitive capacities of such organisms? Are non-human animals moral patients, moral subjects, or moral agents?

Requested readings (**Total 40 pp**):

- Mazor et al. (2022). The scientific study of consciousness cannot and should not be morally neutral. *Perspectives on Psychological Science*. [9 pp]
- Woodruff, M. (2019). Sentience is the foundation of animal rights. *Animal sentience*. [3 pp]
- Monsó et al. (2018). Animal morality: What it means and why it matters. *The journal of Ethics*. [28 pp]

Complementary readings (optional):

- Benz-Schwarzburg, J., et al. (2020). How dogs perceive humans and how humans should treat their pet dogs: Linking cognition with ethics. *Frontiers in Psychology*.
- Chapman & Hufmman (2018). Why do we want to think humans are different? *Animal Sentience*. (9 pp)
- Andrews, K. (2020). Moral minds. *The animal mind. An introduction to the philosophy of animal cognition* (2nd Edition).
- Terrill, E. (2021). Plants, partial moral status, and practical ethics. *Journal of Consciousness Studies*.
- Rowlands (2017). Moral subjects. *The Routledge Handbook of Philosophy of Animal Minds*.
- Rollin, B. (2017). Animal mind and animal ethics. *The Routledge Handbook of Philosophy of Animal Minds*.
- Cochrain, A. (2017). Using, owning, and exploiting animals. *The Routledge Handbook of Philosophy of Animal Minds*.
- Pouteau, S. (2014). Beyond “second animal”: Making sense of plant ethics. *Journal of Agricultural and Environmental Ethics*.
- Monsó, S. (2017). Morality without mindreading. *Mind & Language*.
- Monsó, S. (2015). Empathy and morality in behaviour readers. *Biology & Philosophy*
- Andrews, K. (2020). Naïve normativity. The social foundation of moral cognition. *Journal of the American Philosophical Association*
- Nussbaum, M. (2004). Beyond ‘compassion and humanity’: Justice for Non-human animals. *Animal rights: Current debates and new directions*.
- Monsó, S. & Andrews, K. (forthcoming). Animal moral psychologies. *The Oxford handbook of moral psychology*.
- Monsó, S. & Grimm, H. (2019). An alternative to the orthodoxy in animal ethics? Limits and merits of the Wittgensteinian critique of moral individualism. *Animals*.
- Browning, H. (2020). The natural behavior debate. Two conceptions of animal welfare. *Journal of Applied Animal Welfare Science*.
- Browning, H. (2019). What is good for an octopus? *Animal Sentience*.
- Purves, D., & Delon, N. (2018). Meaning in the lives of humans and other animals. *Philosophical Studies*.

Other resources (optional):

- Who’s a good boy? With Kristin Andrews, Sarah Brosnan, and Susana Monsó [Online debate]: <https://www.youtube.com/watch?v=gXWiTm9JKDk>