

Origins of Mind (Umeå)

Assessment & Essay Questions

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On this course your assessment will comprise two components:

- for 15% of the marks : EITHER portfolio of daily tasks OR a 750-word mini-review
- for 85% of the marks : 3000-word (max) essay

Completing the *portfolio of daily tasks* can only be done during the course. It involves mini-essays, peer reviews and revisions; as well as writing an essay plan. This can be regarded as preparation for the 3000-word (max) essay. Details of what the portfolio involves will be provided during the course.

You may produce a *750-word mini-review* instead of the portfolio of daily tasks. Select any paper cited in lecture slides, on a handout or in the readings below. Write a critical review in no more than 750 words. The mini review should answer the following questions:

1. What question is the paper intended to answer?
2. What method or methods are used to reach an answer?
3. What is the answer reached by the authors?
4. What objections or further questions arise from all of this?

The *3000-word (max) essay* should address one of the question set below. You may alternatively negotiate your own question with me: this requires my explicit, written agreement. Time permitting, I am happy to correspond about the plan for your essay and to suggest readings tailored to your interests. Remember that concision is a virtue; there is no penalty for writing fewer words, and all other things being equal, the fewer words the better.

For any of the essay questions below, your answer may focus on a particular domain, such as core knowledge of objects or of number. You are not required to provide a comprehensive survey.

The readings suggested below are to get you started. Further reading can be found on the lecture handouts. I encourage you to discuss readings with me in relation to your essay plan.

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Physical Objects

What do four-month-old infants know of objects they are not perceiving?

—Reading

Renée Baillargeon. 1987. "Object permanence in 3.5- and 4.5-month-old infants". *Developmental psychology* 23 (5): 655–664

Jeanne Shinskey and Yuko Munakata. 2001. "Detecting transparent barriers: clear evidence against the means-end deficit account of search failures". *Infancy* 2 (3): 395–404

Elizabeth Spelke. 1998. "Nativism, Empiricism, and the Origins of Knowledge". *Infant Behavior and Development* 21 (2): 181–200

Andréa Aguiar and Renée Baillargeon. 2002. "Developments in young infants' reasoning about occluded objects". *Cognitive Psychology* 45:267–336

Eric P. Charles and Susan M. Rivera. 2009. "Object permanence and method of disappearance: looking measures further contradict reaching measures" [in en]. *Developmental Science* 12 (6): 991–1006. doi:10.1111/j.1467-7687.2009.00844.x

Sarah McCurry, Teresa Wilcox and Rebecca Woods. 2009. "Beyond the search barrier: A new task for assessing object individuation in young infants". *Infant Behavior and Development* 32, no. 4 (): 429–436. doi:10.1016/j.infbeh.2009.07.002

M. Keith Moore and Andrew N. Meltzoff. 2010. "Numerical Identity and the Development of Object Permanence". In *Neoconstructivism: The new science of cognitive development*, edited by Scott P. Johnson, 61–83. Oxford: Oxford University Press

Elizabeth Spelke. 1990. "Principles of Object Perception". *Cognitive Science* 14:29–56

Elizabeth Spelke and Susan Hespous. 2001. "Continuity, Competence, and the Object Concept". In *Language, Brain, and Cognitive Development*, edited by Emmanuel Dupoux. Cambridge, Mass.: MIT

Causation

What do 6-month-olds know about physical objects' causal interactions?

—Reading

Elizabeth Spelke and Gretchen Van de Walle. 1993. "Perceiving and reasoning about objects". In *Spatial representation: problems in philosophy and psychology*, edited by Naomi Eilan, Rosaleen McCarthy and Bill Brewer. Oxford: Oxford University Press

Bruce Hood, Susan Carey and Sandeep Prasada. 2000. "Predicting the Outcomes of Physical Events: Two-Year-Olds Fail to Reveal Knowledge of Solidity and Support". *Child Development* 71 (6): 1540–1554

Elizabeth S. Spelke et al. 1992. "Origins of knowledge". *Psychological Review* 99 (4): 605–632. doi:10.1037/0033-295X.99.4.605

Alan M. Leslie and Stephanie Keeble. 1987. "Do six-month-old infants perceive causality?" *Cognition* 25:265–288

Bruce Hood, Victoria Cole-Davies and Melanie Dias. 2003. "Looking and Search Measures of Object Knowledge in Preschool Children". *Developmental Science* 29 (1): 61–70

Laurie R. Santos, David Seelig and Marc D. Hauser. 2006. "Cotton-Top Tamarins' (*Saguinus oedipus*) Expectations About Occluded Objects: A Dissociation Between Looking and Reaching Tasks" [in en]. *Infancy* 9 (2): 147–171. doi:10.1207/s15327078in0902_4

Marshall Haith. 1998. "Who Put the Cog in Infant Cognition? Is Rich Interpretation Too Costly?" *Infant Behavior and Development* 21 (2): 167–179

Rachel Keen. 2003. "Representation of Objects and Events: Why Do Infants Look So Smart and Toddlers Look So Dumb?" *Current Directions in Psychological Science* 12 (3): 79–83

Core knowledge

What is core knowledge and what role, if any, could it play in explaining the transition from being unable to know things to being able to know things?

[Your answer may focus on a single domain, such as knowledge of objects.]

—Reading

Susan Carey and Elizabeth Spelke. 1996. "Science and Core Knowledge". *Philosophy of Science* 63:515–533

Elizabeth S. Spelke et al. 1992. "Origins of knowledge". *Psychological Review* 99 (4): 605–632. doi:10.1037/0033-295X.99.4.605

Elizabeth Spelke and Katherine D. Kinzler. 2007. "Core Knowledge". *Developmental Science* 10 (1): 89–96

Susan Carey. 2009. *The Origin of Concepts*. Oxford: Oxford University Press

Mindreading

What is the puzzle about when humans can first represent others' beliefs? How might the puzzle be resolved?

—Reading

Kristine H. Onishi and Renée Baillargeon. 2005. "Do 15-Month-Old Infants Understand False Beliefs?" *Science* 308 (8): 255–258

Ágnes Melinda Kovács, Ernő Téglás and Ansgar Denis Endress. 2010. "The Social Sense: Susceptibility to Others' Beliefs in Human Infants and Adults". *Science* 330 (6012): 1830–1834. doi:10.1126/science.1190792

Renée Baillargeon, Rose M. Scott and Zijing He. 2010. "False-belief understanding in infants". *Trends in Cognitive Sciences* 14 (3): 110–118

Stephen A. Butterfill and Ian A. Apperly. 2013. "How to Construct a Minimal Theory of Mind". *Mind and Language* 28 (5): 606–637

Peter Carruthers. 2013. "Mindreading in Infancy" [in en]. *Mind & Language* 28 (2): 141–172. doi:10.1111/mila.12014

Jason Low et al. 2016. "Cognitive Architecture of Belief Reasoning in Children and Adults: A Primer on the Two-Systems Account" [in en]. *Child Development Perspectives* 10 (3): 184–9. Accessed 22nd July 2016. doi:10.1111/cdep.12183

Knowledge of colour

At birth humans do not know this lime fruit is green whereas that tomato is red. How could some humans come to be in a position to know this?

Hint: you should discuss categorical perception of colour and its relation to knowledge. There was a lecture on this topic; the handout includes many references.

—Reading

Kurt Kowalski and Herbert Zimiles. 2006. "The Relation between Children's Conceptual Functioning with Color and Color Term Acquisition". *Journal of Experimental Child Psychology* 94:301–321

Anna Franklin et al. 2005. "Color term knowledge does not affect categorical perception of color in toddlers". *Journal of Experimental Child Psychology* 90 (2): 114–141

Anna Franklin, Michael Pilling and Ian Davies. 2005. "The nature of infant color categorization: Evidence from eye movements on a target detection task". *Journal of Experimental Child Psychology* 91 (3): 227–248

J. Alison Wiggett and Ian R. L. Davies. 2008. "The effect of stroop interference on the categorical perception of color". *Memory & Cognition* 36 (2): 231–239

The Teleological Stance

Is it true that ‘when taking the teleological stance one-year-olds apply the same inferential principle of rational action that drives everyday mentalistic reasoning about intentional actions in adults’?

—Reading

György Gergely and Gergely Csibra. 2003. “Teleological reasoning in infancy: the naive theory of rational action”. *Trends in Cognitive Sciences* 7 (7): 287–292

György Gergely et al. 1995. “Taking the Intentional Stance at 12 Months of Age”. *Cognition* 56:165–193

Amanda L. Woodward. 1998. “Infants Selectively Encode the Goal Object of an Actor’s Reach”. *Cognition* 69:1–34

Dorota Green et al. 2016. “Culture Influences Action Understanding in Infancy: Prediction of Actions Performed With Chopsticks and Spoons in Chinese and Swedish Infants”. *Child Development* 87 (3): 736–746. Accessed 14th November 2016. doi:10.1111/cdev.12500. <http://onlinelibrary.wiley.com/doi/10.1111/cdev.12500/abstract>

Moritz M. Daum et al. 2012. “Actions Seen through Babies’ Eyes: A Dissociation between Looking Time and Predictive Gaze”. *Frontiers in Psychology* 3 (). Accessed 20th October 2014. doi:10.3389/fpsyg.2012.00370

Corrado Sinigaglia and Stephen A. Butterfill. 2016. “Motor Representation in Goal Ascription”. In *Foundations of Embodied Cognition 2: Conceptual and Interactive Embodiment*, edited by Yann Coello and Martin H. Fischer, 149–164. Hove: Psychology Press

Gergely Csibra and György Gergely. 2007. “Obsessed with goals’: Functions and mechanisms of teleological interpretation of actions in humans”. *Acta Psychologica* 124 (1): 60–78

Action

How and why are infants' abilities to perform actions linked to their abilities to track the goals of others' actions?

—Reading

Amanda L. Woodward. 2009. "Infants' Grasp of Others' Intentions". *Current Directions in Psychological Science* 18 (1): 53–57. Accessed 13th November 2016. doi:10.1111/j.1467-8721.2009.01605.x. pmid: 23645974. <http://cdp.sagepub.com/content/18/1/53>

Jessica A. Sommerville, Amanda L. Woodward and Amy Needham. 2005. "Action Experience Alters 3-Month-Old Infants' Perception of Others' Actions". *Cognition* 96 (1): B1–B11. Accessed 25th May 2011. doi:10.1016/j.cognition.2004.07.004. <http://www.sciencedirect.com/science/article/pii/S0010027704001507>

Jessica A. Sommerville, Elina A. Hildebrand and Catharyn C. Crane. 2008. "Experience Matters: The Impact of Doing versus Watching on Infants' Subsequent Perception of Tool-Use Events." *Developmental Psychology* 44 (5): 1249–1256. Accessed 14th November 2016. doi:10.1037/a0012296. <http://0-dx.doi.org.pugwash.lib.warwick.ac.uk/10.1037/a0012296>. <http://0-search.proquest.com.pugwash.lib.warwick.ac.uk/docview/614501978/abstract/F967B4D417054930PQ/1>

Ettore Ambrosini et al. 2013. "Looking Ahead: Anticipatory Gaze and Motor Ability in Infancy". *PLOS ONE* 8 (7): e67916. Accessed 14th November 2016. doi:10.1371/journal.pone.0067916. <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0067916>

Anne Melzer, Wolfgang Prinz and Moritz M. Daum. 2012. "Production and Perception of Contralateral Reaching: A Close Link by 12 Months of Age". *Infant Behavior and Development* 35 (3): 570–579. Accessed 10th January 2016. doi:10.1016/j.infbeh.2012.05.003. <http://www.sciencedirect.com/science/article/pii/S0163638312000549>

Corrado Sinigaglia and Stephen A. Butterfill. 2016. "Motor Representation in Goal Ascription". In *Foundations of Embodied Cognition 2: Conceptual and Interactive Embodiment*, edited by Yann Coello and Martin H. Fischer, 149–164. Hove: Psychology Press

Gergely Csibra and György Gergely. 2007. "Obsessed with goals': Functions and

mechanisms of teleological interpretation of actions in humans". *Acta Psychologica* 124 (1): 60–78 György Gergely and Gergely Csibra. 2003. "Teleological reasoning in infancy: the naive theory of rational action". *Trends in Cognitive Sciences* 7 (7): 287–292

Joint action

What is joint action? Could there be a role for joint action in explaining the developmental origins of knowledge?

—Reading

Michael E. Bratman. 2009. "Modest Sociality and the Distinctiveness of Intention". *Philosophical Studies* 144 (1): 149–165

Henrike Moll and Michael Tomasello. 2007. "Cooperation and human cognition: the Vygotskian Intelligence Hypothesis". *Philosophical Transactions of the Royal Society B* 362 (1480): 639–648

Malinda Carpenter. 2009. "Just How Joint Is Joint Action in Infancy?" [In en]. *Topics in Cognitive Science* 1 (2): 380–392. doi:10.1111/j.1756-8765.2009.01026.x

Michael Tomasello and Malinda Carpenter. 2007. "Shared Intentionality". *Developmental Science* 10 (1): 121–5

Deborah Tollefsen. 2005. "Let's Pretend: Children and Joint Action". *Philosophy of the Social Sciences* 35 (75): 74–97

Stephen A. Butterfill. 2012. "Joint Action and Development". *Philosophical Quarterly* 62 (246): 23–47

Referential Communication

What underpins one-year-olds' abilities to produce and comprehend pointing actions?

—Hint

You may consider this view as a target for discussion:

'infant pointing is best understood—on many levels and in many ways—as depending on uniquely human skills and motivations for cooperation and shared intentionality, which enable such things as joint intentions and joint attention in truly collaborative interactions with others (Bratman, 1992; Searle, 1995).' (Tomasello, Carpenter and Liszkowski 2007, p. 706)

'to understand pointing, the subject needs to understand more than the individual goal-directed behaviour. She needs to understand that by pointing towards a location, the other attempts to communicate to her where a desired object is located; that the other tries to inform her about something that is relevant for her' (Moll and Tomasello 2007, p. 6).

—Reading

Michael Tomasello, Malinda Carpenter and Ulf Liszkowski. 2007. "A New Look at Infant Pointing". *Child Development* 78 (3): 705–722

Ulf Liszkowski et al. 2004. "Twelve-month-olds point to share attention and interest". *Developmental science* 7 (3): 297–307

Ulf Liszkowski. 2007. "Infant Pointing at 12 Months: Communicative Goals, Motives, and Social-Cognitive Abilities". In *Roots of Human Sociality: Culture, Cognition and Interaction*, edited by N. J. Enfield and S. C. Levinson, 153–178. London: Berg

Ulf Liszkowski, Malinda Carpenter and Michael Tomasello. 2008. "Twelve-month-olds communicate helpfully and appropriately for knowledgeable and ignorant partners". *Cognition* 108 (3): 732–739

Henrike Moll and Michael Tomasello. 2007. "Cooperation and human cognition: the Vygotskian Intelligence Hypothesis". *Philosophical Transactions of the Royal Society B* 362 (1480): 639–648

K. Liebal et al. 2009. "Infants use shared experience to interpret a pointing gesture". *Developmental Science* 12 (2): 264–271

compare Paul Grice. 1989. *Studies in the way of words*. Cambridge, Mass ; London: Harvard University Press, chapter 14

Dare Baldwin. 1995. "Understanding the Link Between Joint Attention and Language". In *Joint Attention : Its Origins and Role in Development*, edited by Chris Moore and Douglas Frye. Hove: Erlbaum

Gergely Csibra. 2003. "Teleological and Referential Understanding of Action in Infancy". *Philosophical Transactions: Biological Sciences* 358 (1431): 447–458

Language

Do ‘children learn words through the exercise of reason’?

The reading for this is one-sided, which makes this question difficult.

—Reading

Paul Bloom. 2000. *How children learn the meanings of words*. Learning, development, and conceptual change. Cambridge, Mass. ; London: MIT Press

Dare Baldwin. 2000. “Interpersonal Understanding Fuels Knowledge Acquisition”. *Current Directions in Psychological Science* 9 (2): 40–5

Mark Sabbagh and Dare Baldwin. 2001. “Learning Words from Knowledgeable versus Ignorant Speakers: Links Between Preschoolers’ Theory of Mind and Semantic Development”. *Child Development* 72 (4): 1054–1070

Danielle Matthews, Elena Lieven and Michael Tomasello. 2008. “How Toddlers and Preschoolers Learn to Uniquely Identify Referents for Others: A Training Study”. *Child Development* 78 (6): 1744–1759

Michael Dummett. 1993. “Language and Communication”. In *The seas of language*. Oxford: Clarendon Press

Susan Goldin-Meadow. 2003. *The resilience of language : what gesture creation in deaf children can tell us about how all children learn language*. Essays in developmental psychology. New York, N.Y.: Psychology Press

Innateness

What if anything is innate in humans?

Hint: You should be careful to examine the notion of innateness (see Samuels 2004). Otherwise the reading is divided into topics; you should not try to cover all topics. I also suggest *not* structuring your essay by topic.

—Reading

Richard Samuels. 2004. "Innateness in Cognitive Science". *Trends in Cognitive Sciences* 8 (3): 136–41

—Reading: comparative (cross-species)

Cinzia Chiandetti and Giorgio Vallortigara. 2011. "Intuitive physical reasoning about occluded objects by inexperienced chicks" [in en]. *Proceedings of the Royal Society B: Biological Sciences* 278, no. 1718 (): 2621–2627. doi:10.1098/rspb.2010.2381

Daniel B.M. Haun et al. 2010. "Origins of spatial, temporal and numerical cognition: Insights from comparative psychology". *Trends in Cognitive Sciences* 14, no. 12 (): 552–560. doi:10.1016/j.tics.2010.09.006

—Reading: syntax

Note: this is one-sided.

Jeffrey Lidz, Sandra Waxman and Jennifer Freedman. 2003. "What infants know about syntax but couldn't have learned: experimental evidence for syntactic structure at 18 months". *Cognition* 89, no. 3 (): 295–303. doi:10.1016/S0010-0277(03)00116-1

Jeffrey Lidz and Sandra Waxman. 2004. "Reaffirming the poverty of the stimulus argument: a reply to the replies". *Cognition* 93, no. 2 (): 157–165. doi:10.1016/j.cognition.2004.02.001

—Reading: replying to Fodor’s argument

Jerry Fodor. 1981. “The Present Status of the Innateness Controversy”. In *Representations*. Brighton: Harvester

Susan Carey. 2009. *The Origin of Concepts*. Oxford: Oxford University Press chapters 4, 8

(There is also an exchange between Carey and Rey forthcoming in the journal *Mind and Language*—their papers may be available by the time you read this.)