

## The Origins of Consciousness

Fall 2014

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### Final Examination

- Thursday, December 18
  - 7:00 – 10:00 PM
  - 245 Li Ka Shing (Near Pat Brown's Grill)
- DSP Students – Arrangements TBA Later
- 2-Hour Exam (Across 3 hours)
  - 1st Hour, Noncumulative
  - 2nd Hour, Cumulative
- Review: December 10, 9-10 AM, 50 Birge
  - Narrative Review Posted to bCourses
  - Post Questions to bCourses Discussion Board

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### Final Examination

*Closed Book, Closed Notes, in Pen*

<p><u>Noncumulative</u></p> <p><u>50 Points</u></p> <ul style="list-style-type: none"> <li>• Coma, Anesthesia</li> <li>• Sleep and Dreams</li> <li>• Hysteria, Hypnosis</li> <li>• Absorption, Daydreaming, and Meditation</li> <li>• Origins of Consciousness</li> </ul>	<p><u>Cumulative</u></p> <p><u>50 Points</u></p> <ul style="list-style-type: none"> <li>• Introspection</li> <li>• Mind-Body Problem(s)</li> <li>• Attention, Automaticity</li> <li>• Explicit-Implicit Distinction</li> <li>• Searle's <i>Mystery</i></li> <li>• Lodge's <i>Thinks...</i></li> </ul>
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### Resources for Exam

- Materials on Course Website
  - Lecture Illustrations, Supplements
  - Exam Information, Narrative Review
    - Updated Version Now Posted to bCourses
  - Past Exams (with Scoring Guide)
- Post questions to bCourses
  - By 12:00 Noon Wednesday, December 17

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### Aspects of Consciousness

- Phenomenal Experience
  - Mental States
    - “Something It’s Like”
- Intentionality
  - “Aboutness”
    - Mental States Represent Things Outside the Mind
- Meta-Consciousness
  - Personal Consciousness
  - Voluntary Control

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### Views of Development

- Phylogenetic
  - Evolution of a Trait Across Species
  - Comparative Psychology
- Ontogenetic
  - Emergence of a Trait Within Individual
  - Life-Span Developmental Psychology
- Cultural
  - Effects of Social/Cultural/Economic Development
  - Social/Cultural Psychology
    - Sociology, Anthropology, Political Science

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## Descartes

1596-1650



- Substance Dualism
  - Body
  - Mind
- Animals as Reflex Machines
- Humans with Souls
  - Mind
  - Free Will
    - Legitimized Concepts of Sin, Crime
- Humans as the Highest Stage of Development
  - Except God, Angels

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## *Origin of Species by Natural Selection*

Darwin (1859)



- Evolution by Natural Selection
- Adaptation to Environmental Niche
  - Passed on to Offspring
- Different Species Descended from Common Ancestors
- Doctrine Applied to Morphological Similarity
  - What About *Mental* Similarity?

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## *Descent of Man*

Darwin (1871)

There can be no doubt that the difference between the mind of the lowest man and that of the highest animal is immense....

Nevertheless, the difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind.

We have seen that the senses and intuitions, the various emotions and faculties, such as love, memory, attention, curiosity, imitation, reason, etc., of which man boasts, may be found in an incipient, or even sometimes in a well-developed condition, in the lower animals....

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## Descent of Man

Darwin (1871)

If it could be proved that certain high mental powers, such as the formation of general concepts, self-consciousness, etc., were absolutely peculiar to man, which seems extremely doubtful, it is not improbable that these qualities are merely the incidental results of other highly-advanced intellectual faculties; and these again mainly the result of the continued use of a perfect language....

That such evolution is at least possible, ought not to be denied, for we daily see these faculties developing in every infant; and we may trace a perfect gradation from the mind of an utter idiot, lower than that of an animal low in the scale, to the mind of a Newton.

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## Consciousness in Brutes

T.H. Huxley (1868)



"The consciousness *of brutes* would appear to be related to the mechanism of their body simply as a collateral product of its working, and to be completely without any power of modifying that working as the steamwhistle which accompanies the work of a locomotive engine is without influence upon its machinery."



"The Sloop", built 1891 (Folsom & Watson Railway, California)

(Emphasis added)

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## Animal Intelligence

George John Romanes (1882)



- Anecdotal Evidence
  - Intelligence
  - Consciousness
- Dog and Its Food Dish
- Coordinated Baboon Attack on Humans
- "Fellow-Feeling" and Sympathy in Ants

"This observation seems unequivocal as proving fellow-feeling and sympathy, so far as we can trace any analogy between the emotions of the higher animals and those of insects."

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### *Mental Evolution in Man*

Romanes (1888)

- Improbable that Body Continuous, but Mind Discontinuous
- “[There is a] very strong *prima facie* case in favour of the view that there has been no interruption of the developmental process in the course of psychological history; but that the mind of man, like the mind of animals... has evolved.”

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### *Introduction to Comparative Psychology*

C. Lloyd Morgan (1894) -- a Student of Romanes!

- Double Induction
  - Objective
  - Subjective
- “Lloyd Morgan’s Canon”
  - Instincts
  - Trial-and-Error Learning



- Always interpret behavior in terms of the lowest psychological process....
- A human process is scientifically interesting to the extent that it can be studied in animals.

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### John B. Watson

*Psychology as a Behaviorist Views It* (1913)  
*Psychology from the Standpoint of a Behaviorist* (1919)

- Consciousness and Intelligence Play No Role in Animal Behavior
  - Reflex
  - Instinct
  - Conditioned Response



Animals Don't Have Consciousness  
-- and Humans Don't, Either!

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## The Paradox of Continuity

Darwin vs. Descartes

- Everybody Agrees on Evolutionary Continuity of Mind
- Romanes: Extend Intelligence Down to Nonhuman Animals
- Thorndike, Watson: Extend Reflexes and Instincts *Up* to Humans!
- Morgan Segregates Some Capacities as Exclusively Human

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## *The Animal Mind*

Margaret Floy Washburn (1908)

1st Woman  
PhD in Psychology  
(Cornell, 1894)

2nd Woman  
President of APA  
(after Mary Whiton Calkins)



### • Problem of Other Minds

- Inference from Words and Actions
- Assumption that All Human Minds “Built on the Same Pattern”

“The mind of each human being forms a region inaccessible to all save its possessor....”

“If my neighbor’s mind is a mystery to me, how great is the mystery which looks out of the eyes of a dog, and how insoluble the problem presented by the mind of... an ant or a spider?”

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## Mentalistic Comparative Psychology

Washburn (1908)

“[A]ll psychic interpretation of animal behavior must be on the analogy of human experience....”

Our acquaintance with the mind of animals rests upon the same basis as our acquaintance with the mind of our fellow-man; both are derived by inference from observed behavior.”

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## Criteria for Attributing Mind to Animals

- Unsatisfactory Criteria
  - Behavioral Response to Stimulation
  - Approach/Avoidance Behavior
  - Behavioral Adaptation to a Goal
  - Variability of Behavior
- Dual Criterion
  - Anatomical Resemblance to Humans
  - Rapid Learning
    - Past Recalled as “Idea or Mental Image”

Arguably, Washburn was the Direct Target of Watson (1913) 19

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## Self-Recognition: Darwin's Test

Darwin (1871, 1872)

- Orangutans in London Zoo
- Three Stages of response
  - Surprised, Alarmed, Curious
  - Kisses, Grimaces
  - Ignored Object
- But What's *Really* Going On?
  - Reacting to Image as if Another Ape?
  - Noting What They Themselves Look Like?



Franz de Waal

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## Repeating Darwin's Test

Gallup (1970)

- Chimpanzees
  - Initially, Explored Mirror
    - React to Image As If Another Animal
  - Later, Explored Self (Hidden Parts of Body)
    - React to Image As If a Representation of Self
      - Grooming Otherwise Invisible Body Parts
      - Picking Food from Teeth While Watching Image
      - Visually Guided Manipulation of Anal/Genital Areas
      - Nose-Picking After Inspection of Image



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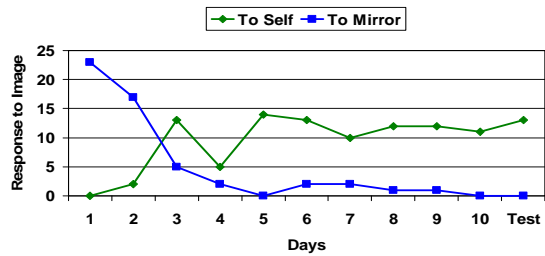
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## Reactions to Mirror by Chimpanzees

Gallup (1970)



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## Mirror-Recognition Experiments

Gallup (1970)

- Anesthetize Chimpanzees
  - Prior Experience with Mirror
- Apply Odorless Paint to Foreheads
  - Odorless
  - No Tactile Sensation
- Awaken in Cage with Mirror Present
  - Mirror-Directed Behaviors
  - Self-Directed Behaviors
  - Touching of Marked Spot
- Control: No Prior Experience with Mirror<sup>23</sup>




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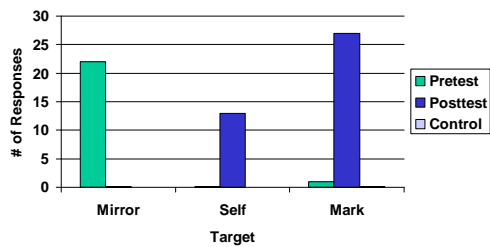
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## Self-Recognition Behavior

Gallup (1970)



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## Self-Recognition by Chimpanzees

Gallup (1970); Suarez & Gallup (1981)

- No Such Recognition in Other Primates
  - Stump-Tailed Macaques
  - Rhesus Monkeys (14 days, 12 hours/day)
  - Crab-Eating (Cynomolgus) Macaques (250 hours)
- Self-Awareness
  - Match Experience with Representation of Self
- Implies Concept of Self

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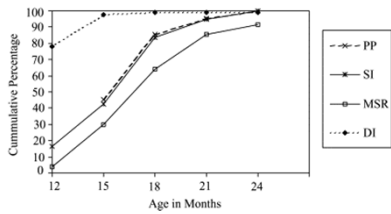
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## Mirror Self-Recognition in Human Infants

Nielsen & Dissanayake (2004)

- Pretend Play
- Synchronic Imitation
- Mirror Self-Recognition
- Deferred Imitation



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## Critique of Mirror Self-Recognition

Heyes (1994, 1995, 1998)

- Artifact of Ambient Face-Touching
  - Anesthesia Depresses Face-Touching
  - Increases Reflect Recovery from Anesthesia
- Response
  - Examine Marked and Unmarked Areas



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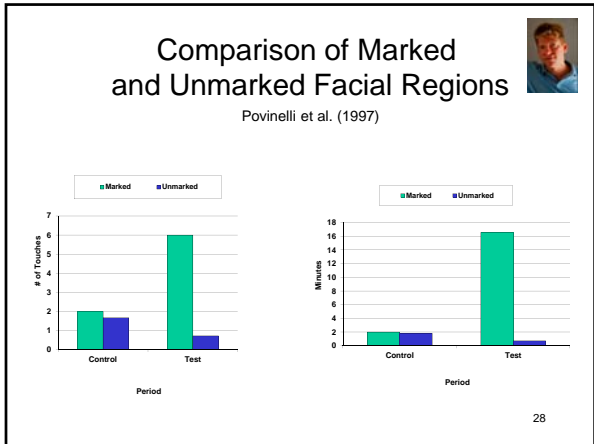
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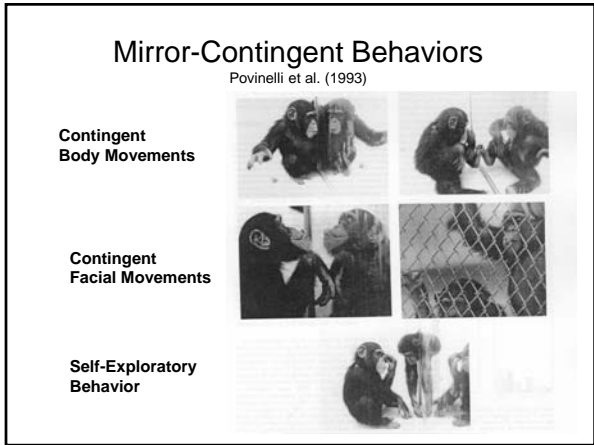
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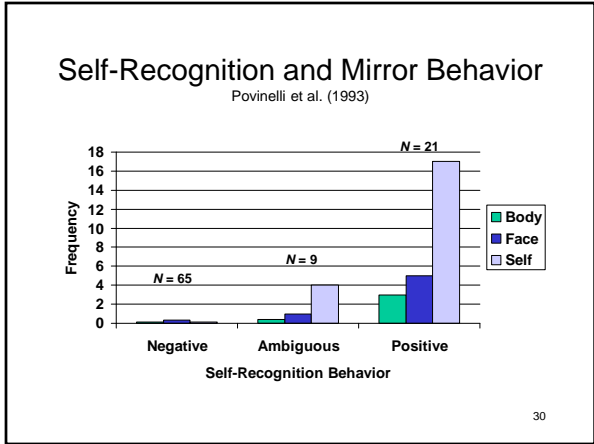
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### Differences in Self-Recognition

<u>Recognition</u>	<u>No Recognition</u>
<ul style="list-style-type: none"> <li>• Chimpanzees               <ul style="list-style-type: none"> <li>– Aged 4-15</li> <li>– Raised in Groups</li> <li>– Prior Mirror Experience</li> </ul> </li> <li>• Orangutans</li> <li>• Bonobos</li> <li>• Human Infants               <ul style="list-style-type: none"> <li>– Aged 18-24 months</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Chimpanzees               <ul style="list-style-type: none"> <li>– Aged &lt; 4 or &gt;16</li> <li>– Raised in Isolation</li> <li>– No Mirror Exposure</li> </ul> </li> <li>• Gorillas?               <ul style="list-style-type: none"> <li>– Koko's Double-Take                   <ul style="list-style-type: none"> <li>• "Me, Koko!"</li> </ul> </li> </ul> </li> <li>• Baboons</li> <li>• Monkeys</li> <li>• Non-Primates</li> </ul>

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### Self-Recognition in Gorillas

- Koko (Paterson, 1978)
  - Anecdotal
- Suarez & Gallup (1981)
  - N = 4, 80 Hours of Exposure
- Ledbetter & Basen (1982)
  - N = 2, 400 hours of exposure

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### Self-Recognition in Primate Evolution

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PRICE \$3.99 THE NEW YORKER OCTOBER 2006

## Self-Recognition in Non-Primates?

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### Elements of a Theory of Mind

Flavell (1999), after Premack & Woodruff (1978)

- Mental States are Representations
  - Not Direct Reflections of Reality
  - May or May Not Be Accurate
- Other People Have...
  - Beliefs, Knowledge, and Thoughts
    - May Be True or False
    - May Differ from Our Own
  - Feelings and Desires
    - May Differ from Our Own

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### “False Belief” Task Example

After Wimmer & Perner (1983)

- Experimenter, Child and Puppet
- Experimenter makes puppet hide ball in oatmeal container
- Puppet put away
- Experimenter and child switch ball to box
- Puppet returns: Where will it look?
- 3,4-year-olds, Box
  - “Because that’s where it is”
- 4,5-year-olds, Oatmeal Container
  - “Because that’s where he *thinks* it is”

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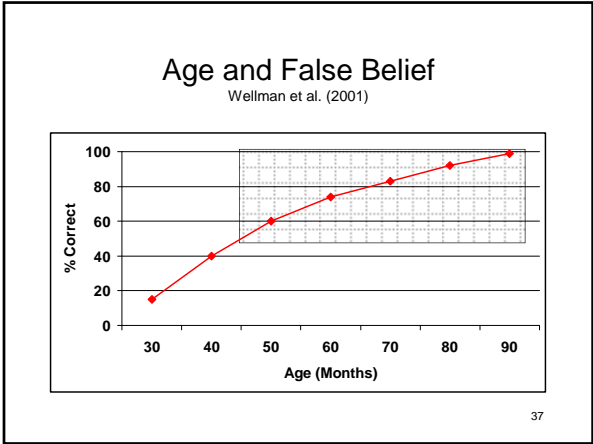
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- ### The “Theory of Mind” as *Mindreading*
- Baron-Cohen (1995)
- The Ability to Infer  
the Contents of Someone Else's Mind
- Elements of Mindreading
    - Intentionality Detector
    - Eye-Direction Detector
    - Shared-Attention Mechanism
    - Theory-of-Mind Mechanism
  - Cognitive Modules
    - Brain Modules
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- ### The Theory of Mind in the Brain
- Saxe & Kanwisher (2003)
- Adult fMRI Study
  - Read Stories
    - True and False Beliefs
      - Boy Making *Papier Mache* Goes to Store for Glue
      - Mother Throws Out Newspaper Strips While Gone
    - Mechanical Inference
      - Teakettle Left Boiling on Stove All Night
      - No Water Left in the Morning
    - Human Action (No True/False Beliefs)
      - Woman Walking to Work
      - Detours to Avoid Crane
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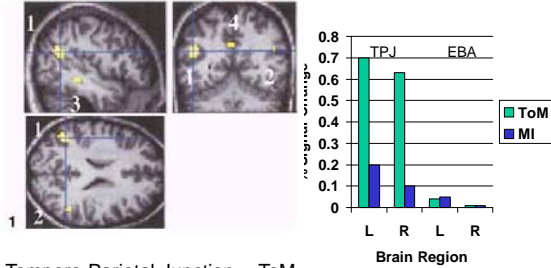
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## Brain Activation During Theory-of-Mind Reasoning

Saxe & Kanwisher (2003)



Temporo-Parietal Junction -- ToM  
Extra-Striate Body Area -- Human Body

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## Do Infants Have a Theory of Mind?

- Apparent Contradiction
  - Mirror Self-Recognition by Age 2
  - Pass False Belief Test by Age 5
- Clements & Perner (1994)
  - 2- and 3-year olds
    - Say Where the Puppet Will Look
      - Incorrectly Identify New Location
    - Look Where the Puppet Will Look
      - Correctly Identify the Old Location
  - Understanding Not be Expressed Verbally
    - Competence vs. Performance Distinction



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## Do Infants Have a Theory of Mind?

Onishi & Baillargeon (2005)

- 15-Month-Old Infants
- Totally Nonverbal Task
  - Violation of Expectancies
    - Familiarize Child with Situation
    - Target's Behavior Violates Expectancies
    - Infants Look Longer at Counterexpectational Events

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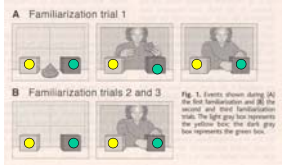
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## Familiarization Trial



- Trial 1
  - Actor Hides Watermelon
    - In Green Box
    - Not Yellow Box
- Trials 2, 3
  - Actor Returns
  - Reaches into Green box

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## Belief-Induction Trial

- True Belief Green
  - Actor Watches as Yellow Box Moves Toward Green
- True Belief Yellow
  - Actor Watches as Watermelon Moves to Yellow
- False Belief Green
  - Actor Ignorant as Watermelon Moves to Yellow
- False Belief Yellow
  - Actor Watches as Watermelon Moves to Yellow
  - Ignorant When Watermelon Moves Back to Green

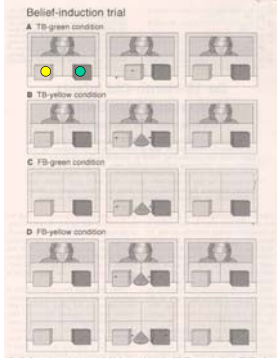


Fig. 2. Events shown during the belief-induction trial in the (A) TB-green condition, (B) TB-yellow condition, (C) FB-green condition, and (D) FB-yellow condition.

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## Test Trial

- Actor opens doors
  - Reaches into Green box
  - or
  - Reaches into Yellow box

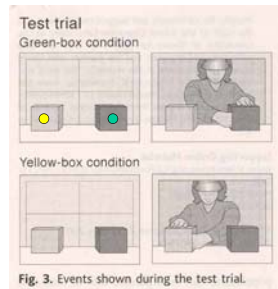


Fig. 3. Events shown during the test trial.

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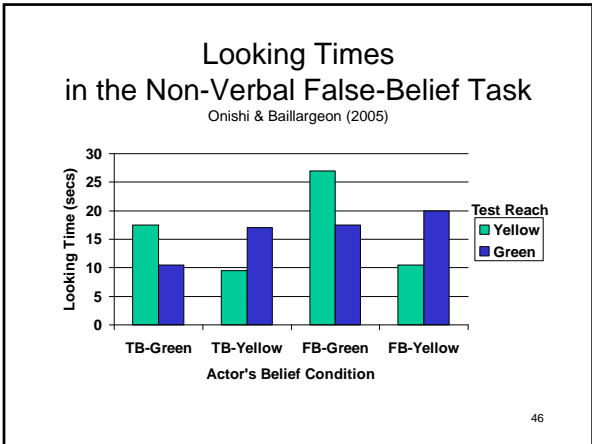
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- ### Infants Have a Theory of Mind!
- Infants Know What Others Believe
    - Might be Incorrect
    - Beliefs May Differ From Their Own
  - Infants Expect Others to Behave in Accordance With Their Beliefs
    - Surprised When They Do Not
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- ### Does the Chimpanzee Have a “Theory of Mind” as *Mindreading*?
- Chimpanzees Pass Mirror Self-Recognition
  - Do They Have a Theory of Mind?
    - Intentionality Detector
    - Eye-Direction Detector
    - Shared-Attention Mechanism
    - **Theory-of-Mind Mechanism**
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## Non-Verbal False-Belief Task

Call & Tomasello (1998)

- “Hider” Hides Reward in 1 of 2 Containers
  - In View of “Communicator”
    - Previously Shown to be Reliable
  - Invisible to Subject
- Then Communicator Leaves Room
- Hider Switches Location of Reward
  - In View of Subject
- Communicator Returns to Room
  - Marks Old Box as Correct
- Which Box Does Subject Choose?

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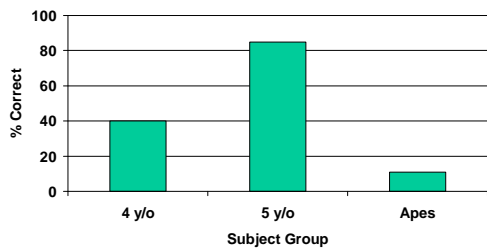
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## False-Belief Task Performance

Call & Tomasello (1998)



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## Primate Cognition Test Battery

Hermann et al. (2007), after Call & Tomasello (1997)

- Physical Skills
  - Space
    - Spatial Memory
    - Object Permanence
    - Rotation
    - Transposition
  - Quantities
    - Relative Numbers
    - Additive Numbers
  - Causality
    - Noise
    - Shape
    - Tool Use
    - Tool Properties
- Social Skills
  - Social Learning
  - Communication
    - Comprehension
    - Pointing at Cups
    - Attentional State
  - Theory of Mind
    - Gaze Following
    - Intentions

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## Comparative PCTB Performance

Herrmann et al. (2007)

- 106 Chimpanzees (*M* age = 10)
- 32 Orangutans (*M* age = 6)
- 105 Children aged (*M* age = 2.5)

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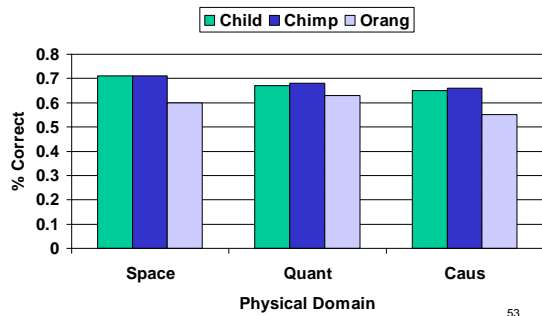
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## Comparative Performance on PCTB

Herrmann et al. (2007)



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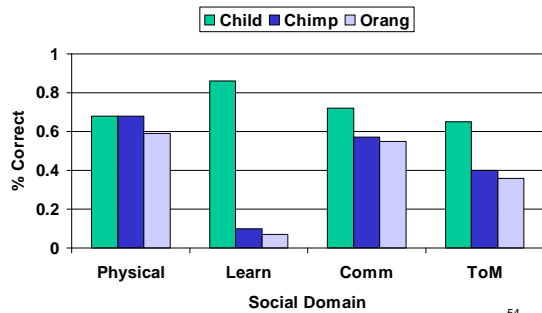
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## Comparative Performance on PCTB

Herrmann et al. (2007)



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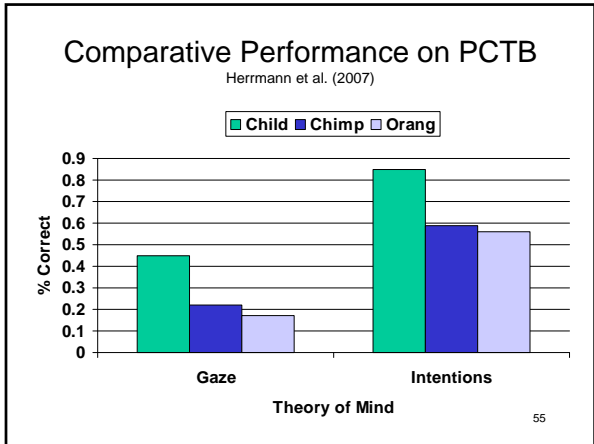
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- ### Critique of Primate Social Cognition
- De Waal et al. (2008); Herrmann et al. (2008)
- **Confounds**
    - With Parents vs. Confined Alone
    - Laboratory vs. Field Studies
    - Verbal vs. Nonverbal Instructions
    - Experimenter: Conspecific or Not
  - **Conclusions**
    - Plenty of Social Learning from Other Apes
    - Apes May Have a Theory of the Ape-Mind!
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- ### Chimpanzee Psychology
- Call & Tomasello (2008)
- **Cognition Goes Beyond Behavioral Rules**
  - **Have Perception-Goal Psychology**
    - Understand Others' Perception and Knowledge
    - Understand Others' Goals and Intentions
  - **Lack Belief-Desire Psychology**
    - Others Have Beliefs About World
    - Beliefs Determine Actions Even When Wrong
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### If Consciousness Entails a Theory of Mind

- Adult Humans Have It
  - And Young Children Have It
- Even Infants Might Have It
  - Or At Least the Beginnings Of It
- Autistic Children Might Not Have It
  - Or Maybe Not Too Much Of It
- Apes Don't Seem To Have It
  - At Least As Far As We Can Tell

**But Have We Always Had It?**

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### The Cultural-Historical Perspective

- Humans Have a Theory of Mind
  - Differentiates Us from Other Animals
- But Did We Always Have It?
  - Part of Phylogenetic Heritage
- Or Did it Develop in Historical Time
  - Over Cultural History of Our Species

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### *The Origins of Consciousness in the Breakdown of the Bicameral Mind*

Jaynes (1976)

- Reading Homer's *Iliad*
  - No Evidence of Consciousness
    - Nobody Makes Decisions
    - Nobody Introspects
    - Nobody Reminisces
  - Gods Tell Men What To Do
    - Men Go Out and Do It



***Not Merely a Poetic Device***

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## The Rage of Achilles

Homer, *The Iliad*

Rage -- Goddess, sing the rage of Peleus' son Achilles,  
murderous, doomed, that cost the Achaeans countless  
losses, hurling down to the House of Death so many sturdy  
souls, great fighters' souls, but made their bodies carrion,  
feasts for the dogs and birds, and **the will of Zeus was  
moving toward its end.**

Begin, Muse, when the two first broke and clashed,  
Agamemnon lord of men and brilliant Achilles.

Book 1, Lines 1-8  
(trans. Robert Fagles)

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## Some Events in the *Iliad*

- (Paris Kidnaps Helen)
- Helen on the Walls of Troy (Book II)
- Duel Between Menelaus and Paris (III)
- Achilles Returns Hector's Body to Priam (xxiv)



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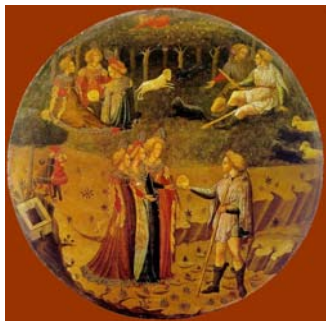
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## The Judgment of Paris

Master of the Judgment of Paris, 1430-1440  
(Museo Nazionale di Bargello, Florence)



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## The Judgment of Paris

Rubens, 1600  
(National Gallery, London)



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## The Language of the *Iliad*

- *Psyche* (Soul)
  - Life-Substance, Blood, or Breath
- *Thumos* (Emotion)
  - Motion
- *Phren* (Mind)
  - Localized in Midriff
- *Soma* (Body)
  - Corpse

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## Athena Inspires the Prince

Homer, *The Odyssey*

Sing to me of the man, Muse, **the man of twists and turns** driven time and again off course, once he had plundered the hallowed heights of Troy.

**Many cities of men he saw and learned their minds**, many pains he suffered, heartsick on the open sea, fighting to save his life and bring his comrades home.

But he could not save them from disaster, hard as he strove -- the recklessness of their own ways destroyed them all, the blind fools, they devoured the cattle of the Sun and the Sungod blotted out the day of their return.

Launch out on his story, Muse, daughter of Zeus, start from where you will -- sing for our time too.

Book 1, Lines 1-12  
(trans. Robert Fagles)  
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## Some Events in the *Odyssey*

- Odysseus with Calypso (Books V-VI)
- Odysseus with the Cyclops Polyphemus (IX)
- Odysseus with Circe (X-XI)
- Odysseus with his Mother in Hade (XI)
- Odysseus and the Sirens (XII)

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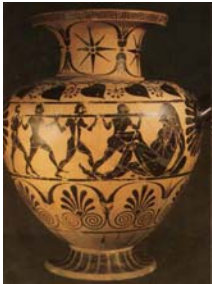
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## Intersubjectivity in the *Odyssey*

Odysseus ("Nobody") and Polyphemus (Book IX)



Amphora, Magna Graecia, 520 BCE  
Victory of Maccione



Amphora, 550-500 BCE  
Odysseus

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## Jason and King Aietes

Apollonius, *Argonautica* (3<sup>rd</sup> c. BCE)

Jason sat silent where he was, his eyes fixed on the ground before his feet, unable to speak, at a loss as to how to deal with his wretched situation. For a long time he turned over and over what he should do: it was impossible to accept with confidence, as the challenge seemed overwhelming.

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## Consciousness as Original Sin

Genesis 2:15 – 3:24 (King James Version)  
c. November 1, 4004 BCE, according to Bishop Ussher (1650)

And the LORD God took the man, and put him into the garden of Eden to dress it and to keep it. And the LORD God commanded the man, saying, Of every tree of the garden thou mayest freely eat: But of the tree of the knowledge of good and evil, thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die. . . . And the rib, which the LORD God had taken from man, made he a woman, and brought her unto the man. . . . And they were both naked, the man and his wife, and were not ashamed. . . . Now the serpent was more subtil than any beast of the field which the LORD God had made. And he said unto the woman, Yea, hath God said, Ye shall not eat of every tree of the garden? And the serpent said unto the woman, Ye shall not surely die: For God doth know that in the day ye eat thereof, then **your eyes shall be opened, and ye shall be as gods, knowing good and evil.**

And when the woman saw that the tree was good for food, and that it was pleasant to the eyes, and a tree to be desired to make one wise, she took of the fruit thereof, and did eat, and gave also unto her husband with her; and he did eat. And the eyes of them both were opened, and they knew that they were naked; and they sewed fig leaves together, and made themselves aprons.

And they heard the voice of the LORD God walking in the garden in the cool of the day; and Adam and his wife hid themselves from the presence of the LORD God amongst the trees of the garden. And the LORD God called unto Adam, and said unto him, Where art thou? And he said, I heard thy voice in the garden, and I was afraid, because I was naked; and I hid myself. And he said, Who told thee that thou wast naked? Hast thou eaten of the tree, whereof I commanded thee that thou shouldest not eat? And the man said, The woman whom thou gavest to be with me, she gave me of the tree, and I did eat. And the LORD God said unto the woman, What is this that thou hast done? And the woman said, The serpent beguiled me, and I did eat.

And unto Adam he said, Because thou hast hearkened unto the voice of thy wife, and hast eaten of the tree, of which I commanded thee, saying, Thou shalt not eat of it: cursed is the ground for thy sake; in sorrow shalt thou eat of it all the days of thy life. . . . Unto Adam also and to his wife did the LORD God make coats of skins, and clothed them. And the LORD God said, Behold, the man is become as one of us, to know good and evil; and now, lest he put forth his hand, and take also of the tree of life, and eat, and live for ever. . . . Therefore the LORD God sent him forth from the garden of Eden, to till the ground from whence he was taken. So he drove out the man; and he placed at the east of the garden of Eden Cherubims, and a flaming sword which turned every way, to keep the way of the tree of life.



Michelangelo, *The Expulsion from the Garden* (1426-1427)  
Bancroft Chapel, Santa Maria del Carmine, Florence  
(Prior to Restoration and Removal of Fig Leaves)

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## “Thus says the LORD...”

Book of Amos, Chapter 1  
c. 800 BCE (Revised Standard Version)

- <sup>1</sup> The words of Amos. . . . <sup>2</sup> And he said: **"The LORD roars from Zion, and utters his voice from Jerusalem; the pastures of the shepherds mourn, and the top of Carmel withers."**
- <sup>3</sup> **Thus says the LORD:** "For three transgressions of Damascus, and for four, I will not revoke the punishment; because they have threshed Gilead with threshing sledges of iron. <sup>4</sup> So I will send a fire upon the house of Haz'ael, and it shall devour the strongholds of Ben-ha'dad. <sup>5</sup> I will break the bar of Damascus, and cut off the inhabitants from the Valley of Aven, and him that holds the scepter from Beth-eden; and the people of Syria shall go into exile to Kir," says the LORD.
- <sup>6</sup> **Thus says the LORD:** "For three transgressions of Gaza, and for four, I will not revoke the punishment; because they carried into exile a whole people to deliver them up to Edom. <sup>7</sup> So I will send a fire upon the wall of Gaza, and it shall devour her strongholds. <sup>8</sup> I will cut off the inhabitants from Ashdod, and him that holds the scepter from Ash'kelon; I will turn my hand against Ekron; and the remnant of the Philistines shall perish," says the Lord GOD.

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## “The words of the Preacher...”

Book of Ecclesiastes, Chapter 1  
c. 200 BCE (Revised Standard Version)

- <sup>1</sup> The words of the Preacher, the son of David, king in Jerusalem. <sup>2</sup> Vanity of vanities, says the Preacher, vanity of vanities! All is vanity. <sup>3</sup> What does man gain by all the toil at which he toils under the sun?  
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- <sup>12</sup> | the Preacher have been king over Israel in Jerusalem. <sup>13</sup> **And I applied my mind to seek and to search out by wisdom all that is done under heaven;** it is an unhappy business that God has given to the sons of men to be busy with. <sup>14</sup> I have seen everything that is done under the sun; and behold, all is vanity and a striving after wind. <sup>15</sup> What is crooked cannot be made straight, and what is lacking cannot be numbered. <sup>16</sup> **I said to myself, "I have acquired great wisdom, surpassing all who were over Jerusalem before me; and my mind has had great experience of wisdom and knowledge."** <sup>17</sup> **And I applied my mind to know wisdom and to know madness and folly.** I perceived that this also is but a striving after wind. <sup>18</sup> For in much wisdom is much vexation, and he who increases knowledge increases sorrow.

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## The Bicameral Mind

- Analogy to Bicameral Legislature
  - Decision-Making Part
    - Right Cerebral Hemisphere?
  - Follower Part
    - Left Cerebral Hemisphere?
- Humans were Creatures of Habit
- Stress of Decisions Led to Hallucinations
  - Interpreted as Instructions from Gods

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## Origins of the Bicameral Mind

By Invention of Writing, c. 3000 BCE

- Shift from Hunting/Gathering to Agriculture
  - Way of Controlling Large Groups of People
  - Rigidly Ordered Social Hierarchy
    - God or Idol at Top
      - Spoke Through King
    - Everyone Else: Do What You're Told



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## Breakdown of the Bicameral Mind

Beginning c. 1400 BCE

- Large, Urban Civilizations
  - Lots of Voices, Don't Agree
  - Gods Begin to Forsake Men
- Consolidated by "Golden Age" of Greece
  - c. 600 BCE
    - Solon, "Know Thyself"
    - Socrates, Plato, Aristotle
  - Elsewhere in "Axial Age"
    - Buddha (6<sup>th</sup> c. BCE)
    - Confucius (6<sup>th</sup> c. BCE)



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The Origin of Consciousness  
is the Origin of the Theory of Mind

Jaynes (1986)

“All that is most human about us, this consciousness, this artificial space we imagine in other people and in ourselves, this living within our reminiscences, plans, and imaginings, all of this is indeed only 3000 years old.

And that, ladies and gentlemen, is less than 100 generations. And from that I think we can conclude that we are all still very young.”

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Good Advice from the Thane of Cawdor

Cawdor Castle, Nairn, Scotland, c. 1398



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