

Notes



Science and philosophy rest on the achievements of thousands of precursors, and for a book as wide-ranging as this one, a really complete list of references would go on for hundreds of pages. Since most readers of this book will not be professional philosophers or scientists, I've used a different approach. In the notes, I've directed the reader to at least one source for each empirical fact I've talked about in the book. I've also tried to refer to review articles that will give the reader a big picture of lots of experiments and data. And I've tried to flag books that I think are particularly significant or helpful.

INTRODUCTION

- 1 Encyclopedia of Philosophy: Edwards 1967; Craig 1998.
- 2 “*evolutionary psychology*”: Pinker 1997; Barkow et al. 1994.
- 3 *Babies’ brains seem to have*: For some reviews of brain development findings see Huttenlocher 2002a, b; Johnson et al. 2002; Dawson and Fischer 1994.
- 4 *They involve the prefrontal cortex*: For a review of prefrontal cortex development see Krasnegor et al. 1997.
- 5 “*inhibition*”: Diamond 2002.
- 6 *plastic frontal lobes*: Shaw et al. 2006.

1: POSSIBLE WORLDS

- 1 “counterfactuals”: Lewis 1986.
- 2 *Who is more upset?*: Tversky and Kahneman 1973.
- 3 *bronze medalist or the silver?*: Medvec et al. 1995.
- 4 *standard baby toy*: This ring task, and the rake task that follows, were adapted from Uzgiris and Hunt 1975. See Gopnik 1982; Gopnik and Meltzoff 1986.
- 5 *right kinds of information*: Willatts 1999.
- 6 *little evidence that chimpanzees*: Povinelli et al. 2000.
- 7 *smart birds like crows*: Bluff et al. 2007.
- 8 *success of Homo sapiens*: Byrne 2002.
- 9 *psychologist Paul Harris*: Harris’s book (Harris 2000) is by far the best review and discussion of children’s pretense and imagination.
- 10 *English countryside story*: Harris et al. 1996.
- 11 *if you put them in order*: Sobel 2002, 2004.
- 12 *eighteen months old or even younger*: Belsky and Most 1981; Lillard 2002; Leslie 1987.
- 13 *use tools in an insightful way*: Gopnik 1982; Gopnik and Meltzoff 1986.
- 14 *you’ll need a broom*: Harris 2000.
- 15 “just pretend”: Lillard and Witherington 2004.
- 16 *not the pretend one*: Woolley and Wellman 1990, 1993.
- 17 *cat just by thinking about it*: Wellman and Estes 1986.
- 18 *gingerly moved away from the box*: Harris 2000.
- 19 *they still wouldn’t drink it*: Rozin et al. 1990.
- 20 *causal knowledge and counterfactual thinking*: Lewis 1986.
- 21 *make that future real*: The idea that causality can be understood in terms of interventions has been articulated most persuasively and extensively by James Woodward in Woodward 2003.
- 22 *Piaget*: Piaget 1954.
- 23 *good logical explanations all the same*: Hickling and Wellman 2001.
- 24 *invisible germs make you ill*: Gelman 2003.
- 25 *their understanding of life and death*: Inagaki and Hatano 2006.
- 26 *knowledge to discriminate possibilities*: Schult and Wellman 1997.
- 27 “cognitive maps”: Tolman 1948; O’Keefe and Nadel 1979.
- 28 *complex causal relations among events*: Gopnik et al. 2004.
- 29 *draw all these consequences*: Inagaki and Hatano 2006; Gelman 2003.
- 30 *give a mathematical account*: Spirtes et al. 1993.

- 31 *that scientific experts make*: Pearl 2000.
- 32 *counterfactual predictions*: Gopnik et al. 2001.
- 33 *same experiment in a different way*: Schulz and Gopnik 2004.

2: IMAGINARY COMPANIONS

- 1 *“Machiavellian intelligence”*: Byrne and Whiten 1988.
- 2 *psychologist Marjorie Taylor*: Marjorie Taylor’s wonderful book (Taylor 1999) is the source for much of this chapter.
- 3 *imaginary friend was Charlie Ravioli*: Gopnik 2002.
- 4 *theory of the mind*: This has become an enormous area of research. For good reviews see Astington 1993; Flavell 1999; and Wellman 2002.
- 5 *broccoli and Goldfish crackers*: Repacholi and Gopnik 1997.
- 6 *raw broccoli or Cheerios*: Wellman et al. 2000.
- 7 *there are pencils in there!*: Wimmer and Perner 1983. For a meta-analysis see Wellman et al. 2001. Some recent work may show that even younger children can do this.
- 8 *children’s everyday explanations*: Bartsch and Wellman 1995.
- 9 *they are also better liars*: LaLonde and Chandler 1995.
- 10 *the same thing in experiments*: Sodian et al. 1991; Talwar and Lee 2002.
- 11 *“executive control”*: Carlson and Moses 2001; Carlson et al. 2004.
- 12 *“delay of gratification” experiments*: Mischel et al. 1989.
- 13 *people with autism*: Grandin 1995; Gopnik et al. 2005.
- 14 *the Dog in the Night-Time*: Haddon 2004.
- 15 *theory of other people’s minds*: Baron-Cohen 1995; Baron-Cohen et al. 2005.
- 16 *what pretend play is all about*: Baron-Cohen et al. 2005.
- 17 *Henry James*: James 1909.
- 18 *engineers of human souls*: Škvorecký 1999.
- 19 *Lord of the Rings*: Auden 1956.
- 20 *changes in inhibition*: e.g., Diamond 2002.

3: ESCAPING PLATO’S CAVE

- 1 *Plato’s Republic*: Plato translated by Jowett 1888.

- 2 *learning techniques that scientists use*: Carey 1985; Gopnik 1988; Wellman and Gelman 1992.
- 3 *David Hume*: Hume 2007. Originally published 1748.
- 4 *actually learn about the world*: Spirtes et al. 1993; Glymour et al. 1988; Scheines et al. 1998.
- 5 *Reverend Thomas Bayes*: Bayes 1963; Griffiths et al. 2008. Also see Wikipedia on Bayes for a good brief explanation of Bayesianism.
- 6 *The famous Turing test*: Turing 1950.
- 7 *rocks on Mars*: Ramsey et al. 2002.
- 8 *turns a genome into an organism*: e.g., Helman et al. 2004 (there are many more).
- 9 *causes monsoons in India*: Steinbach et al. 2003.
- 10 *sensitive to statistical patterns*: Saffran et al. 1996.
- 11 *the beginning of music appreciation*: Saffran et al. 1999.
- 12 *often see a window nearby*: Kirkham et al. 2002; Aslin et al. 1998.
- 13 *some important statistical ideas*: Xu and Garcia 2008.
- 14 *two and a half, and probably earlier*: Sobel and Kirkham 2006.
- 15 *make genuinely causal inferences*: Gopnik et al. 2001; Sobel et al. 2004.
- 16 *the detector than the first one*: Kushnir and Gopnik 2005.
- 17 *probability of causes and effects*: Sobel et al. 2004.
- 18 *results than observation alone*: Eberhardt and Scheines 2007.
- 19 *happy because the experiment succeeds*: Papousek et al. 1987.
- 20 *to make the mobile move*: For a review of many of these mobile studies see Rovee-Collier and Barr 2001.
- 21 *Piaget described this kind*: Piaget 1952a, b.
- 22 *the gear toy*: Schulz et al. 2007.
- 23 *to figure out causal problems*: Schulz and Bonawitz 2007.
- 24 *Christine Legare*: Legare et al. 2008.
- 25 *directed toward particular goals*: Woodward 1998.
- 26 *and actions of other people*: Meltzoff and Moore 1977, 1983.
- 27 *results of those actions*: Meltzoff 1988.
- 28 *using your head instead*: Gergely et al. 2002.
- 29 *dumbbell, as Meltzoff did*: Meltzoff 1995.
- 30 *perform the experiments themselves*: Schulz et al. 2007.
- 31 *Barbara Rogoff studied Mayan*: Rogoff 1990.
- 32 *to differentiate people and things*: Watson 1972.

- [33](#) *psychologist Susan Johnson*: Johnson et al. 2007a, b, 2008; Shimizu and Johnson 2004.
- [34](#) *the blicket detector*: Schulz and Gopnik 2004.
- [35](#) *act similarly in those situations*: Zimbardo 2007.
- [36](#) *to test what was wrong*: Weinberg and Tronick 1996; Gusella et al. 1988.
- [37](#) *mimicking everything that the baby did*: Meltzoff 2007.
- [38](#) *IQ and verbal tests*: Ruffman et al. 1998; Sulloway 1996.
- [39](#) *the minds of others*: For a review and meta-analysis see Milligan et al. 2007.
- [40](#) *until they are eight or nine*: Peterson and Siegal 1995.
- [41](#) *Jennie Pyers*: Pyers 2005.

4: WHAT IS IT LIKE TO BE A BABY?

- [1](#) *Thomas Nagel*: Nagel 1974.
- [2](#) *“blindsight”*: Christensen et al. 2008; Weizkrantz 2007.
- [3](#) *smooth, unbroken visual field*: Dennett 1992.
- [4](#) *Peter Singer*: Singer 1976.
- [5](#) *endogenous attention*: Posner 2004.
- [6](#) *associated with attention*: e.g., Polich 2003; Knight and Scabini 1998.
- [7](#) *“inattentional blindness”*: Mack and Rock 1998; Simons and Chabris 1999.
- [8](#) *particular kind of chemical*: For a review of the role of neurotransmitters in attention see Robbins et al. 2004.
- [9](#) *Merzenich and his colleagues*: e.g., Polley et al. 2006; Recanzone et al. 1992a, b.
- [10](#) *cholinergic transmitters*: e.g., Metherate and Weinberger 1989; Blake et al. 2002.
- [11](#) *their capacity for attention*: For reviews on infant attention see Ruff and Rothbart 1996; Colombo 2004; Richards 2004. John Colombo provided very helpful information for this discussion.
- [12](#) *give children a memory task*: Hagen and Hale 1972.
- [13](#) *anesthetics act on these neurotransmitters*: Taylor and Lerman 1991; Lerman et al. 1983.

- 14 *young animals' cells changed*: Zhang et al. 2001; de Villers-Sidani et al. 2007.
- 15 *quite early in infancy*: Colombo 2004.
- 16 *Rafael Malach*: Goldberg et al. 2006; Golland et al. 2007.
- 17 *prune more connections*: Huttenlocher 2002a, b; Johnson et al. 2002.
- 18 *philosophically intriguing results*: Flavell et al. 1995a, b, 1997, 1999, 2000.
- 19 *"flow"*: Csíkszentmihályi 1992.
- 20 *"beginner's mind"*: Suzuki and Brown 2002.
- 21 *meteoric showers of images*: James 2001.

5: WHO AM I?

- 1 *sea slugs have that kind*: Rankin et al. 1987.
- 2 *episodic or autobiographical memory*: For a review see Tulving 2002.
- 3 *his initials as H.M.*: Scoville and Milner 1957; Corkin 2002.
- 4 *Challenger disaster shortly after*: Neisser and Harsch 1992.
- 5 *creating false memories*: Loftus 1997a, b.
- 6 *abducted by aliens*: Clancy 2005.
- 7 *occurred to them in the past*: Fivush et al. 1987.
- 8 *into a continuous narrative*: Nelson and Fivush 2004.
- 9 *free recall*: Ornstein et al. 2006.
- 10 *trouble with sources*: Shimamura and Squire 1987.
- 11 *where their beliefs come from*: Gopnik and Graf 1988; O'Neill and Gopnik 1991.
- 12 *their understanding of sources*: Giles et al. 2002.
- 13 *"false belief" experiment*: Gopnik and Astington 1988; Gopnik and Slaughter 1991.
- 14 *philosopher John Campbell*: Campbell 1994.
- 15 *recognize themselves in the mirror*: Brooks-Gunn and Lewis 1984.
- 16 *Teresa McCormack*: McCormack and Hoerl 2005, 2007.
- 17 *more dramatic experiment*: Povinelli et al. 1999.
- 18 *Cristina Atance*: Atance and Meltzoff 2005; Atance and O'Neill 2005.
- 19 *philosopher Jerry Fodor*: Fodor 1998.
- 20 *what the Flavells did*: Flavell et al. 1997.
- 21 *couldn't tolerate the delay*: Mischel et al. 1989.

- 22 *aboriginal communities in Canada*: Chandler and Proulx 2006.
- 23 *irrational unconscious bias*: Wegner 2002.
- 24 *notably Daniel Dennett*: Dennett and Weiner 1991.
- 25 *Paul and Patricia Churchland*: Churchland 1995, 2002.
- 26 *John Searle and David Chalmers*: Searle 1992; Chalmers 1996.
- 27 *experience those changes themselves*: For a more extended philosophical discussion of this point see Gopnik 1993.

6: HERACLITUS' RIVER AND THE ROMANIAN ORPHANS

- 1 *What should she do?*: Parfit 1984, p. 145.
- 2 *Romanian orphanages*: The most extensive, exhaustive, and masterful work on the fate of the Romanian orphans has been done by Michael Rutter and his colleagues. See, e.g., Rutter et al. 2004, 2007; Beckett et al. 2006. Also see Rutter 2006 for an excellent review of the interplay of genes and environments.
- 3 *"heritability"*: For heritability and twin and adoption studies see Plomin 1994.
- 4 *alcoholism is heritable*: Dick and Beirut 2006.
- 5 *Eric Turkheimer*: Turkheimer et al. 2003.
- 6 *The Bell Curve*: Herrnstein and Murray 1994.
- 7 *although our genes have remained the same*: This is known as the "Flynn effect." See Flynn 1987; Dickens and Flynn 2001.
- 8 *experience stressful events*: Kendler and Prescott 2006.
- 9 *cases of abuse*: For a recent review see Cicchetti and Valentino 2006.
- 10 *list of other ills*: For good reviews of this literature see Rutter 2006; Kendler and Prescott 2006.
- 11 *poor children's early experiences*: For a readable recent review of the effects of early preschool interventions see Kirp 2007.

7: LEARNING TO LOVE

- 1 *leave them and then return*: The classic reference is Ainsworth et al. 1978. There have been hundreds of other studies since.
- 2 *mother's face and voice*: DeCasper and Fifer 1980; Field et al. 1984.
- 3 *the statistics of love*: Ainsworth 1993.

- 4 *Romanian orphans*: Rutter et al. 2004, 2007.
- 5 *not all babies learn the same things*: Ainsworth et al. 1978.
- 6 *inside the babies are miserable*: Spangler and Grossman 1993.
- 7 *cultural differences*: Van Ijzendoorn and Kroonenberg 1988.
- 8 *“Disorganized” babies*: Main and Solomon 1986.
- 9 *“internal working models”*: Bowlby 1980; Main et al. 1985.
- 10 *based on the evidence*: Ainsworth 1993; Blehar et al. 1977.
- 11 *different theories of love*: Johnson et al. 2007a.
- 12 *at five or six*: Main et al. 1985.
- 13 *poet Robert Hass*: From “Dragonflies Mating,” Hass 1996.
- 14 *theories in many ways*: For a recent review of adult attachment see Mikulincer and Shaver 2007.
- 15 *loved ones at the airport*: Fraley and Shaver 1998.
- 16 *Serena Chen*: Chen et al. 1999; Chen 2003.
- 17 *expecting their first baby*: Benoit and Parker 1994.
- 18 *thirty or forty years*: For a good review of these studies see Grossman et al. 2005.
- 19 *social monogamy*: See, e.g., Reichard and Boesche 2003.
- 20 *allomothering*: See Sarah Hrdy’s magisterial book for a full account of allomothers (Hrdy 2000).
- 21 *extended our life span*: Hawkes et al. 2003.
- 22 *imagine the future*: Schacter and Addis 2007.

8: LOVE AND LAW

- 1 *Piaget and Lawrence Kohlberg*: Piaget 1965; Colby and Kohlberg 1987.
- 2 *morality is innate*: Mikhail 2007; Hauser 2006.
- 3 *hardwired emotional responses*: Haidt 2007.
- 4 *Newborns imitate facial expressions*: Meltzoff and Moore 1983.
- 5 *imitate emotional expressions*: Field et al. 1982.
- 6 *feel the accompanying emotion*: Levenson et al. 1990.
- 7 *so-called mirror neurons*: See, e.g., Iacoboni and Dapretto 2006; for rebuttals of the mirror neuron idea see Gopnik 2007.
- 8 *perceive anger in others*: Dodge and Cole 1987.
- 9 *to help someone else*: Warneken and Tomasello 2006, 2007.

- [10](#) *Judith Smetana*: Smetana 1981, 1984, 1985, 1989; Smetana et al. 1984, 1993; Song et al. 1987; Smetana and Braeges 1990. For a theoretical review see Turiel 1983.
- [11](#) *psychopaths*: Blair et al. 2005.
- [12](#) *“trolley problem”*: Foot 2002; Thomson 1976; Greene 2003.
- [13](#) *about 150 people*: Dunbar 1996.
- [14](#) *“minimal groups”*: Tajfel 1982 and many studies since then.
- [15](#) *Zimbardo*: Zimbardo 2007.
- [16](#) *are most like them*: Dunham et al. in press.
- [17](#) *completely arbitrary groups*: Dunham 2007; Fawcett 2008.
- [18](#) *particularity of our moral life*: Williams 1985.
- [19](#) *“over-imitate”*: Lyons et al. 2007.
- [20](#) *the way we do things around here*: Gergely and Csibra 2004.
- [21](#) *understand the basic structure of rules*: Wellman and Miller in press; Núñez and Harris 1998; Harris and Núñez 1996.
- [22](#) *based on their intentions*: Kuhlmeier et al. 2003; Behne et al. 2005.
- [23](#) *about good and harm*: Núñez and Harris 1998; Harris and Núñez 1996.
- [24](#) *too small for a whole roast*: Gergely and Csibra 2004.
- [25](#) *the Garcia effect*: Garcia and Koelling 1966.
- [26](#) *may lead to food taboos*: Fessler and Navarrete 2003.

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