

READINGS IN COGNITIVE EVOLUTION

Becca Caughlin & Brian Hare Spring, 2003

Background References

- Cartwright, J. (2000). *Evolution and Human Behavior*. Cambridge, MA: The MIT Press.
- Cheney, D.L. & Seyfarth, R.M. (1990). *How Monkeys See the World*. Chicago: University of Chicago Press.
- Shettleworth, S.J. (1998). *Cognition, Evolution, and Behavior*. New York: Oxford University Press.
- Tomasello, M. & Call, J. (1997). *Primate Cognition*. New York: Oxford University Press.
- Hauser M. (1996). *The evolution of communication*. Cambridge, MA: MIT Press.
-

Historical Perspectives

I. Founders of Psychology

- Machiavelli, N. 1532. *The Prince*. Translated by W.K. Marriot 1916. The Macmillan Company.
- James, W. 1890. *Principles of Psychology*, 2 vols.: (1890).
- Piaget, J. 1952. *The origins of intelligence in children*: (1952). xi, 419pp.
- Skinner, B. F. 1957. *Verbal behavior*: (1957). x, 478pp.
- Chomsky, N. 1959. A review of B. F. Skinner's "Verbal behavior". *Language*, 35(1), 26-58.
- Lorenz, K. 1963. *On aggression*: Harcourt, Brace and World: New York. (1963).

Skinner, B. F. 1974. *About behaviorism.*: (1974). 256pp.

II. Founders of Primate Cognition

Romanes, G. J. 1892. *Animal Intelligence*. New York: D. Appleton and Company.

Yerkes, R. M. 1916. The mental life of monkeys and apes: a study of ideational behavior., **4**, 1-145.

Koehler, W. 1924. *The Mentality of Apes.*: (1924).

Kummer, H. (1995). *In quest of the sacred baboon*. Princeton, NJ: Princeton University Press.

Theoretical Perspectives

I. Theories / Approaches in Cognitive Sciences

Cognitive Revolution:

Dennett, D. C. 1983. Intentional systems in cognitive ethology: The "Panglossian paradigm" defended. *Behavioral & Brain Sciences*, **6**, 343-390

Searle, J. 1985. *Minds, Brains and Science*. Cambridge, MA: Harvard University Press.

Grice, H.P. 1957. Meaning. *Philosophical Review*, **66**, 377-388.

Harris, P. 1991. The work of imagination. In A. Whiten (Ed.), *Natural theories of mind* (pp. 283-304). Oxford: Blackwell.

Gopnik, A. & Wellman, H. M. 1992. Why the child's theory of mind really is a theory. *Mind & Language*, **7**, 145-171

Language Development & Evolution

Hauser, M. D., Chomsky, N. & Fitch, W. T. 2002. The faculty of language: What is it, who has it, and how did it evolve? *Science*, **298**, 1569-1579.

Tomasello, M. 1999. *The Cultural Origins of Human Cognition*. Cambridge, MA: Harvard University Press.

Modularity, Nativism, Evolutionary Psychology

Fodor, J. 1986. The modularity of mind. In: Pylyshyn, Zenon W. (Ed); Demopoulos, William (Ed). (1986). *Meaning and cognitive structure: Issues in the computational theory of mind. Theoretical issues in cognitive science.* (pp. 3-18). xi, 264pp.

Spelke, E. S., & Newport, E. L. (1998). Nativism, empiricism, and the development of knowledge. In R. M. Lerner (Ed.), *Handbook of child psychology* (5th ed., Vol. 1: Theoretical models of human development, pp. 275-340). New York: John Wiley & Sons, Inc.

Cosmides, L., & Tooby, J. (1994). Beyond intuition and instinct blindness: Toward an evolutionarily rigorous cognitive science. *Cognition*, 50(1-3), 41-77.

Silverman, I. et al. (2000) Evolved mechanisms underlying wayfinding: further studies on the hunter-gatherer theory of spatial sex differences. *Evolution and Human Behavior* 21; 201-203

Stone V, Cosmides L, Tooby J, Kroll N, Knight R (2003). Selective impairment of reasoning about social exchange in a patient with bilateral limbic system damage. 99, 11531-11536.

Brain Evolution

Schultz AH (1941) Relative size of the cranial capacity in primates. *Am J Phys Anthropol* 28:273-287.

Rilling JK, Insel TR (1999) The primate neocortex in comparative perspective using magnetic resonance imaging. *J Hum Evol* 37:191-223.

Wrangham R, Pilbeam D, & Hare B. (in prep). Convergent Cranial Paedomorphosis in Bonobos, Domesticated Animals and Humans? The Role of Selection for Reduced Aggression.

Kruska D (1988) Mammalian domestication and its effect on brain structure and behavior. In Jerison HJ, Jerison I (eds), *Intelligence and Evolutionary Biology*, pp 211-250. New York: Springer-Verlag.

Holloway, R. (1966). Cranial capacity, neural reorganization, and hominid evolution: a search for more suitable parameters. *American Anthropologist*, 68, 103-121.

Holloway, R. (1968). The evolution of the primate brain: some aspects of quantitative relationships. *Brain Research*, 7, 121-172.

Jerison, H. (1973). *Evolution of brain and intelligence*. New York: Academic

- Press.
- Gould, S. 1977. *The Ontogeny and Phylogeny*. Cambridge: Harvard University Press.
- Lashley, K. S. (1951). The problem of serial order in behavior. In L. A. Jeffress (Ed.), *Cerebral mechanisms in behavior: The Hixon symposium*. New York: John Wiley & Sons, Inc.
- Smolensky, P. (1988). On the proper treatment of connectionism. *Behavioral and Brain Sciences*, 11, 1-74.
- Wrangham, R., Pilbeam, D., & Hare, B. Convergent cranial paedomorphosis in bonobos, domesticated animals and humans? The role of selection for reduced aggression. Unpublished manuscript.
- Klein, R. 1999. *The human career: Human biological and cultural origins*. Chicago: University of Chicago Press.
- Dunbar, R. 1993. Coevolution of neocortical size, group size and language in humans. *Behavioral & Brain Sciences*, **16**, 681-735.

II. Theories / Approaches in Primate Cognition

Learning Theory

- Rescorla, R & Wagner, A (1972). A theory of Pavlovian conditioning: Variations in the effectiveness of reinforcement and nonreinforcement. In A. H. Black & W. F. Prokasy (Eds.), *Classical conditioning II: current theory and research* (pp. 64-99). New York: Appleton-Century-Crofts.
- Garcia, J. & Koelling, R.A. (1966). Relation of cue to consequence in avoidance learning. *Psychonomic Science*, **4**, 123-124.

Cognitive Ethology

- Griffen, D.R. 1978. Prospects for a cognitive ethology. *Behavioral and Brain Sciences*, **4**, 527-538.
- Rumbaugh, D.M. & Pate, J.L. (1984). The evolution of cognition in primates: A comparative perspective. In H.L. Roitblat, T.G. Bever, & H.S. Terrace (Eds.), *Animal cognition* (pp. 569-587). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Milton, K. 1988. Foraging behaviour and the evolution of primate intelligence. In: *Byrne, Richard W (Ed); Whiten, Andrew (Ed) (1988) Machiavellian intelligence: Social expertise and the evolution of intellect in monkeys, apes, and humans (pp 285-305) xiv, 413pp.*

Byrne, R. W. & Whiten, A. 1988a. Machiavellian intelligence: Social expertise and the evolution of intellect in monkeys, apes, and humans. (1988). xiv, 413pp.

Heyes, C. 1998. Theory of mind in nonhuman primates. *Behavioral & Brain Sciences*, **21**, 101-134.

Empirical Approaches

I. Seminal Developmental Psych Papers

Ontogeny of Human Physical Cognition

Baillargeon, R. 2000. How do infants learn about the physical world? In: *Muir, Darwin (Ed); Slater, Alan (Ed) (2000) Infant development: The essential readings Essential readings in development psychology (pp 195-212) xxviii, 369pp.*

Baillargeon, R. 2001. Infants' physical knowledge: Of acquired expectations and core principles. In: *Language, brain, and cognitive development: Essays in honor of Jacques Mehler* (Ed. by Dupoux, E.), pp. 341-361. Cambridge, MA: The MIT Press.

Baillargeon, R., Spelke, E. S. & Wasserman, S. 1985. Object permanence in five-month-old infants. *Cognition*, **20**, 191-208.

Carey, S. 1987. Theory change in childhood. In: *Inhelder, Barbel (Ed); de Caprona, Denys (Ed); et al (1987) Piaget today (pp 141-163) viii, 296pp.*

Carey, S. 1988. Reorganization of knowledge in the course of acquisition. In: *Strauss, Sidney (Ed) (1988) Ontogeny, phylogeny, and historical development Human development series, Vol 2 (pp 1-27) xxi, 158pp.*

Carey, S. 1995. On the origin of causal understanding. In: *Sperber, Dan (Ed); Premack, David (Ed); et al (1995) Causal cognition: A multidisciplinary debate Symposia of the Fyssen Foundation (pp 268-308) xx, 670pp.*

Carey, S. 1996. Cognitive domains as modes of thought. In: *Olson, David R (Ed); Torrance, Nancy (Ed) (1996) Modes of thought: Explorations in culture and cognition (pp 187-215) viii, 305pp.*

Carey, S. 2000. The origins of concepts. *Journal of Cognition & Development*, **1**, 37-41.

Spelke, E.S. 1990. Principles of object perception. *Cognitive Science*, **14**, 29-56.

- Spelke, E.S. 2002. Developing knowledge of space: core systems and new combinations. In A.M. Galaburda, S.M. Kosslyn, and Y. Christen (Eds.), *The Languages of the Brain*. Cambridge, MA: Harvard University Press.
- Ontogeny of Human Social Cognition*
- Flavell, J. H. 1979. Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, **34**, 906-911.
- Flavell, J. H., Green, F. L. & Flavell, E. R. 1990. Developmental changes in young children's knowledge about the mind. *Cognitive Development*, **5**, 1-27.
- Flavell, J. H. 1993. Young children's understanding of thinking and consciousness. *Current Directions in Psychological Science*, **2**, 40-43.
- Flavell, J. (1999). Cognitive Development: Children's knowledge about the mind. *Annual Review of Psychology*, **50**, 21-45.
- Wimmer, H. & Perner, J. 1983. Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, **13**, 103-128.
- Meltzoff, A. N. & Moore, M. 1977. Imitation of facial and manual gestures by human neonates. *Science*, **198**, 75-78.
- Meltzoff, A. & Gopnik, A. (1993). The role of imitation in understanding persons and developing a theory of mind. In S. Baron-Cohen, H. Tager-Flusberg, & D. Cohen (Eds.), *Understanding other minds* (pp. 335-366). Oxford University Press.
- Gopnik, A. 1993. How we know our minds: The illusion of first-person knowledge of intentionality. In: *Goldman, Alvin I (Ed) (1993) Readings in philosophy and cognitive science (pp 315-346) xi, 860pp.*
- Gopnik, A. & Sobel, D. M. 2000. Detectingblickets: How young children use information about novel causal powers in categorization and induction. *Child Development*, **71**, 1205-1222.
- Astington, J. W. & Gopnik, A. 1988. Knowing you've changed your mind: Children's understanding of representational change. In: *Astington, Janet W (Ed); Harris, Paul L (Ed); et al (1988) Developing theories of mind (pp 193-206) xi, 447pp.*
- Gopnik, A. & Astington, J. W. 1988. Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction. *Child Development*, **59**, 26-37.

Baron-Cohen, S., Leslie, A. M. & Frith, U. 1985. Does the autistic child have a "theory of mind"? *Cognition*, **21**, 37-46.

Charman, T., Baron-Cohen, S., Swettenham, J., Baird, G., Cox, A. & Drew, A. 2001. Testing joint attention, imitation, and play as infancy precursors to language and theory of mind. *Cognitive Development*, **15**, 481-498.

Tomasello, M. 1995a. Joint attention as social cognition. In: *Moore, Chris (Ed); Dunham, Philip J (Ed) (1995) Joint attention: Its origins and role in development (pp 103-130) vii, 286pp.*

Tomasello, M. 1995b. Understanding the self as social agent. In: *Rochat, Philippe (Ed) (1995) The self in infancy: Theory and research Advances in psychology, 112 (pp 449-460) xiv, 481pp.*

II. Seminal Comparative / Primate Cognition Papers

Evolution of Animal Cognition

Dawkins, R. & Krebs, J. (1978). Animal signals: information or manipulation. In J. Krebs & N. Davies (Eds.), *Behavioral ecology: an evolutionary approach* (pp. 282-309). Oxford: Blackwell.

Campbell C & Hodos W (1991). The scala naturae revisited: Evolutionary scales and anagenesis in comparative psychology. *Journal of Comparative Psychology*, **105**, 211-221.

Povinelli, D. & Cant, J (1995). Orangutan clambering and the evolutionary origin of self-conception. *Quarterly Review of Biology*, **70**, 393-421.

Hollis K, Pharr V, Dumas M, Britton G, & Field J (1997). Classical conditioning provides paternity advantage for territorial male blue gouramis (*Trichogaster trichopterus*). *Journal of Comparative Psychology*, **111**, 219-225.

Galef, B. White, D. (1998). Mate-choice copying in Japanese quail, *Coturnix coturnix japonica*. *Animal Behaviour*, **55**, 545-552.

Harcourt, A (1992) Coalitions and Alliances: are primates more complex than nonprimates? In A. Harcourt, F. deWaal (Eds). *Coalitions and Alliances in Humans and other Animals*. Oxford: Oxford University Press. pp 445-473.

MacPhail, E. (1987). The comparative psychology of intelligence. *Behavioral and Brain Sciences*, **10**, 645-695.

Cognitive Neuroethology

Ryan M, Rand A (1995). Female responses to ancestral advertisement calls in

- Tungara frogs. *Science*, 269, 390-392.
- Young L, Lim M, Gingrich B, Insel T (2001). Cellular mechanisms of social attachment. *Hormones & Behavior*, 40, 133-138.
- Clayton, N (1995). Development of memory and the hippocampus: Comparison of food-storing and non-storing birds on a one-trial associative memory task. *Journal of Neuroscience*, 15, 2796-2807.
- Causality
- Povinelli, D.J. 2000. *Folk physics for apes*. Oxford University Press: New York.
- Tomasello, M. & Call, J. 1997. *Primate cognition*. (1997). ix, 517pp.
- Visalberghi, E., Fragaszy, D. M. & Savage-Rumbaugh, S. 1995. Performance in a tool-using task by common chimpanzees (*Pan troglodytes*), bonobos (*Pan paniscus*), an orangutan (*Pongo pygmaeus*), and capuchin monkeys (*Cebus apella*). *Journal of Comparative Psychology*, 109, 52-60.
- Social Knowledge & Strategies
- de Waal, F. B. M. 1982. Chimpanzee politics. New York: Harper and Row.
- de Waal, F. B. M. & A. van Roosmalen. 1979. Reconciliation and consolation among chimpanzees. *Behavioral Ecology and Sociobiology*. 5: 55-66.
- Dasser, V. 1988. A social concept in Java monkeys. *Animal Behaviour*. 36: 225-230.
- Cheney, D & Seyfarth, R. (1995). The responses of female baboons to anomalous social interactions: Evidence for causal reasoning? *Journal of Comparative Psychology*, 109, 134-141.
- Cooperation
- Crawford, M. 1937. The cooperative solving of problems by young chimpanzees. *Comparative Psychology Monographs*, 14, 88.
- Watts, D. P. & Mitani, J. C. 2001. Boundary patrols and intergroup encounters in wild chimpanzees. *Behaviour*, 138, 299-327.
- Boesch, C. 1994. Cooperative hunting in wild chimpanzees. *Animal Behaviour*, 48, 653-667.
- Connor, R., Smolker, R.A., & Richards, A.F. (1992). Dolphin alliances and coalitions. In A.H. Harcourt & F.B.M. de Waal (Eds.), *Coalitions and alliances in human and nonhuman animals* (pp. 415-443). New York: Oxford University Press.

Communication

Savage-Rumbaugh, E.S., Murphy, J., Sevcik, R.A., Brakke, K.E., Williams, S.L. & Rumbaugh, D.M. (1993). Language comprehension in ape and child. *Monographs of the Society for Research in Child Development*, 58(3-4), no. 233.

Cheney, D & Seyfarth, R. (1988). Assessment of meaning and the detection of unreliable signals by vervet monkeys. *Animal Behaviour*, 36, 477-486.

Seyfarth R, Cheney D, Marler P. (1980). Monkey responses to three different alarm calls: Evidence of predator classification and semantic communication. *Science*, 210, 801-803.

Hauser, M., Evans, C. & Marler, P. 1993. The role of articulation in the production of rhesus monkey, *Macaca mulatta*, vocalizations. *Animal Behaviour*, **45**, 423-433.

Hauser M, Teixidor P, Field L, Flaherty R (1993) food-elicited calls in chimpanzees: effects of food quantity and divisibility. *Animal Behaviour*, 45, 817-819.

Culture

Kummer, H., and Goodall, J. 1985. Conditions of innovative behaviour in primates. *Philosophical Transactions of the Royal Society of London B308*, 203-214.

Reader, S. M. & Laland, K. N. 2001. Primate innovation: Sex, age and social rank differences. *International Journal of Primatology*, **22**, 787-805.

Laland, K. N. & Reader, S. M. 1999. Foraging innovation in the guppy. *Animal Behaviour*, **57**, 331-340.

Whiten A, Goodall J, McGrew W, Nishida T, Reynolds V, Sugiyama Y, Tutin C, Wrangham R, and Boesch C. (1999). Cultures in chimpanzees. *Nature*, 399, 682-685.

Social Learning

Caro, R.M., & Hauser, M.D. (1992). Is there teaching in nonhuman animals? *Quarterly Review of Biology*, 67, 151-174.

Tomasello, M. (1996). Do apes ape? In C.M. Heyes & B.G. Galef Jr. (Eds.), *Social learning in animals: The roots of culture* (pp. 319-346). San Diego: Academic Press.

Galef, B. (1991). Information centres of Norway rats: sites for information exchange and information parasitism. *Animal Behaviour*, 41, 295-301.

Nagell K, Olguim K, & Tomasello M (1993). Processes of social learning in the

tool use of chimpanzees (*Pan troglodytes*) and human children (*Homo sapiens*). *Journal of Comparative Psychology*, 107, 174-186.

Visual Perspective Taking

Povinelli D, & Eddy T. (1996) What young chimpanzees know about seeing.

Monographs of the Society for Research on Child Development, 61, 1-191.

Hare B, Call J, Agnetta B, Tomasello M (2000). Chimpanzees know what conspecifics do and do not see. *Animal Behaviour*, 59, 771-785.

Hare B, Call J, Tomasello M (2001). Do chimpanzees know what conspecifics know?

Animal Behaviour, 61, 139-151.

Cheney, D. L. & Seyfarth, R. M. 1990. Attending to behaviour versus attending to knowledge: Examining monkeys' attribution of mental states. *Animal Behaviour*, 40, 742-753.

Deception:

Hare B, Call J, Tomasello M (submitted). Chimpanzees deceive a human competitor by hiding.

Byrne, R. W. & Whiten, A. 1988b. Tactical deception of familiar individuals in baboons. In: Byrne, Richard W (Ed); Whiten, Andrew (Ed) (1988) *Machiavellian intelligence: Social expertise and the evolution of intellect in monkeys, apes, and humans* (pp 205-210).

Ristau, C. A. (1991). Aspects of the cognitive ethology of an injury-feigning bird, the piping plover. In C. A. Ristau (Ed.), *Cognitive Ethology* (pp. 91-126). Hillsdale, NJ: Lawrence Erlbaum Associates.

Jackson, R. R., Pollard, S. D. & Cerveira, A. M. (2002). Opportunistic use of cognitive smokescreens by araneophagic jumping spiders. *Animal Cognition* 5, 147-157.