
Bibliography

- ACKLEY, D., & M. LITTMAN. 1992. Interactions between learning and evolution. In Langton *et al.* (1992), 487–509.
- , & ———. 1994. Altruism in the evolution of communication. In Brooks & Maes (1994), 40–48.
- ANDERSEN, H. 1973. Abductive and deductive change. *Language* 40.765–793.
- BÄCK, T. 1994. Selective pressure in evolutionary algorithms. In *Proceedings of the First IEEE Conference on Evolutionary Computation*, ed. by Z. Michalewicz, J. D. Schaffer, H. P. Schwefel, D. B. Fogel, & H. Kitano, volume 1, 57–62. Piscataway, NJ: IEEE Press.
- BALDWIN, D. A. 1991. Infants' contribution to the achievement of joint reference. *Child Development* 62.875–890.
- 1993a. Early referential understanding: Infants' ability to recognise referential acts for what they are. *Developmental Psychology* 29.832–843.
- 1993b. Infants' ability to consult the speaker for clues to word reference. *Journal of Child Language* 20.395–418.
- BATALI, J. 1994. Innate biases and critical periods: Combining evolution and learning in the acquisition of syntax. In Brooks & Maes (1994), 160–171.
- 1998. Computational simulations of the emergence of grammar. In Hurford *et al.* (1998), 405–426.
- 2002. The negotiation and acquisition of recursive grammars as a result of competition among exemplars. In Briscoe (2002), 111–172.
- BATES, E., & J. ELMAN. 1996. Learning rediscovered. *Science* 274.1849–1850.
- BELEW, R., J. MCINERNEY, & N. N. SCHRAUDOLPH. 1992. Evolving networks: Using the genetic algorithm with connectionist learning. In Langton *et al.* (1992), 511–547.
- BEVER, T. G., & D. T. LANGENDOEN. 1971. A dynamic model of the evolution of language. *Linguistic Inquiry* 2.433–463.
- BICKERTON, D. 1981. *Roots of Language*. Ann Arbor, MI: Karoma.

- 1984. The language bioprogram hypothesis. *Behavioral and Brain Sciences* 7.173–221.
- 1990. *Language and Species*. Chicago, IL: University of Chicago Press.
- 1998. Catastrophic evolution: the case for a single step from protolanguage to full human language. In Hurford *et al.* (1998), 341–358.
- 2000. How protolanguage became language. In Knight *et al.* (2000), 264–284.
- 2002. Foraging versus social intelligence in the evolution of protolanguage. In Wray (2002), 207–225.
- BLOOM, P. 2000. *How Children Learn the Meanings of Words*. Cambridge, MA: MIT Press.
- , & L. MARKSON. 1998. Capacities underlying word learning. *Trends in Cognitive Sciences* 2.67–73.
- BOYD, R., & P. J. RICHESON. 1985. *Culture and the Evolutionary Process*. Chicago, IL: University of Chicago Press.
- , & ———. 2000. Memes: Universal acid or a better mousetrap. In *Darwinizing Culture: The Status of Memetics as a Science*, ed. by R. Aunger, 143–162. Oxford: Oxford University Press.
- BRIGHTON, H. 2000. Experiments in iterated instance-based learning. Technical report, Language Evolution and Computation Research Unit.
- 2002. Compositional syntax from cultural transmission. *Artificial Life* 8.25–54.
- , S. KIRBY, & K. SMITH. forthcoming. Situated cognition and the role of multi-agent models in explaining language structure. In *Adaptive Agents*, ed. by D. Kudenko, E. Alonso, & D. Kazakov. London: Springer.
- BRISCOE, E. 2000a. Evolutionary perspectives on diachronic syntax. In *Diachronic Syntax: Models and Mechanisms*, ed. by S. Pintzuk, G. Tsoulas, & A. Warner, 75–108. Oxford: Oxford University Press.
- 2000b. Grammatical acquisition: Inductive bias and coevolution of language and the language acquisition device. *Language* 76.245–296.
- (ed.) 2002. *Linguistic Evolution through Language Acquisition: Formal and Computational Models*. Cambridge: Cambridge University Press.
- BROOKS, R., & P. MAES (eds.) 1994. *Artificial Life 4: Proceedings of the Fourth International Workshop on the Synthesis and Simulation of Living Systems*. Cambridge, MA: Addison-Wesley.
- BROWN, R. 1973. *A First Language*. Cambridge, MA: Harvard University Press.
- BUCKLEY, C., & J. STEELE. 2002. Evolutionary ecology of spoken language: co-evolutionary hypotheses are testable. *World Archaeology* 34.26–46.

- BULLOCK, S. 1997. An exploration of signalling behaviour by both analytic and simulation means for both discrete and continuous models. In *Husbands & Harvey (1997)*, 454–463.
- BURLING, R. 1992. *Patterns of Language: Structure, Variation, Change*. London: Academic Press.
- CAMPBELL, D. T. 1965. Variation and selective retention in sociocultural evolution. In *Social Change in Developing Areas: A Reinterpretation of Evolutionary Theory*, ed. by H. R. Barringer, G. I. Blanksten, & R. W. Mack, 19–49. Cambridge, MA: Schenkman.
- 1975. On the conflicts between biological and social evolution and between psychological and moral tradition. *American Psychology* 30.1103–1126.
- CANGELOSI, A. 1999. Modelling the evolution of communication: From stimulus associations to grounded symbolic associations. In *Floreano et al. (1999)*, 654–663.
- , & D. PARISI. 1998. The emergence of a ‘language’ in an evolving population of neural networks. *Connection Science* 10.83–97.
- CANN, R. 1993. *Formal Semantics: an introduction*. Cambridge: Cambridge University Press.
- CHENEY, D., & R. SEYFARTH. 1990. *How Monkeys See the World: Inside the Mind of Another Species*. Chicago, IL: University of Chicago Press.
- CHOMSKY, N. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.
- 1971. *Problems of Knowledge and Freedom*. London: Fontana.
- 1972. *Language and Mind*. New York, NY: Harcourt, Brace and World, enlarged edition.
- 1975. *Reflections on Language*. New York, NY: Pantheon.
- 1980. *Rules and Representations*. London: Basil Blackwell.
- 1986. *Knowledge of Language: its nature, origin and use*. London: Praeger.
- 1988. *Language and Problems of Knowledge*. Cambridge, MA: MIT Press.
- 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- 2002. *On Nature and Language*. Cambridge: Cambridge University Press. Edited by A. Belletti and L. Rizzi.
- CHRISTIANSEN, M. H., & C. M. CONWAY, 2002. The importance of hierarchical learning: A computational study of sequential learning in human and non-human primates. Presented at the 4th International Conference on the Evolution of Language.
- CLARK, E.V. 1988. On the logic of contrast. *Journal of Child Language* 15.317–335.
- 1990. On the pragmatics of contrast. *Journal of Child Language* 17.417–431.
- 1993. *The lexicon in acquisition*. Cambridge: Cambridge University Press.

- CORBALLIS, M. C. 2002. *From Hand to Mouth: The Origins of Language*. Princeton, NJ: Princeton University Press.
- CROFT, W. 2000. *Explaining Language Change: an evolutionary approach*. London: Longman.
- DARWIN, C. 1859/1964. *On the Origin of Species*. Cambridge, MA: Harvard University Press, a facsimile of the first edition. Original published by John Murray, London.
- DAWKINS, R., & J. R. KREBS. 1978. Animal signals: Information or manipulation? In *Behavioural Ecology: An Evolutionary Approach*, ed. by J. R. Krebs & N. B. Davies, 282–309. Oxford: Blackwell.
- DE BOER, B. 2000. Self-organization in vowel systems. *Journal of Phonetics* 28.441–465.
- 2001. *The Origins of Vowel Systems*. Oxford: Oxford University Press.
- DEACON, T. 1997. *The Symbolic Species*. London: Penguin.
- DI PAOLO, E. A., J. NOBLE, & S. BULLOCK. 2000. Simulation models as opaque thought experiments. In *Artificial Life VII: Proceedings of the Seventh International Conference on Artificial Life*, ed. by M. A. Bedau, J. S. McCaskill, N. H. Packard, & S. Rasmussen, 497–506. Cambridge, MA: MIT Press.
- DOR, D., & E. JABLONKA. 2000. From cultural selection to genetic selection: a framework for the evolution of language. *Selection* 1.33–55.
- DUNBAR, R. 1996. *Grooming, Gossip and the Evolution of Language*. London: Faber and Faber.
- ELMAN, J.L. 1993. Learning and development in neural networks: The importance of starting small. *Cognition* 48.71–99.
- EVANS, C. S., L. EVANS, & P. MARLER. 1993. On the meaning of alarm calls: Functional reference in an avian vocal system. *Animal Behaviour* 46.23–38.
- FITCH, W. T. 2000. The evolution of speech: a comparative review. *Trends in Cognitive Sciences* 4.258–267.
- FLOREANO, D., J. D. NICOUD, & F. MONDADA (eds.) 1999. *Advances in Artificial Life: Proceedings of the 5th European Conference on Artificial Life*. Berlin: Springer.
- FROMKIN, V., & R. RODMAN. 1988. *An Introduction to Language*. London: Holt, Rinehart and Winston, 4th edition.
- FUTUYMA, D. J. 1998. *Evolutionary Biology*. Sunderland, MA: Sinauer Associates, 3rd edition.
- GENTNER, D. 1982. Why nouns are learned before verbs: Linguistic relativity versus natural partitioning. In *Language development*, ed. by S. A. Kuczaj, volume 2. Hillsdale, NJ: Erlbaum.

- GESCHWIND, N. 1964. The development of the brain and the evolution of language. In *Monograph series on language and linguistics*, ed. by C. I. J. M. Stuart, volume 17. Washington, DC: Georgetown University Press.
- GIBSON, E., & K. WEXLER. 1994. Triggers. *Linguistic Inquiry* 25.355–407.
- GOLDIN-MEADOW, S., & C. MYLANDER. 1990. Beyond the input given: The child's role in the acquisition of language. *Language* 66.323–355.
- GOPNIK, M. 1994. Impairments of tense in a familial language disorder. *Journal of Neurolinguistics* 8.109–133.
- , & M. B. CRAGO. 1991. Familial aggregation of a developmental language disorder. *Cognition* 39.1–50.
- GOULD, S. J., & R. C. LEWONTIN. 1979. The spandrels of San Marco and the Panglossian program: A critique of the adaptationist programme. *Proceedings of the Royal Society of London* 205.281–288.
- , & E. S. VRBA. 1982. Exaptation – a missing term in the science of form. *Paleobiology* 8.4–15.
- GRAFEN, A. 1990. Biological signals as handicaps. *Journal of Theoretical Biology* 144.517–546.
- GREENBERG, J. H. 1966. *Universals of language*. MIT Press, 2nd edition.
- GREENFIELD, P. M. 1991. Language, tools, and brain - the ontogeny and phylogeny of hierarchically organized sequential behavior. *Behavioral and Brain Sciences* 14.531–550.
- HAEGEMAN, L. 1994. *Introduction to Government and Binding Theory*. Oxford: Blackwell, 2nd edition.
- HAIMAN, J. 1980. The iconicity of grammar: Isomorphism and motivation. *Language* 56.515–540.
- (ed.) 1985. *Iconicity in Syntax*. Amsterdam: Benjamins.
- HARE, M., & J. L. ELMAN. 1995. Learning and morphological change. *Cognition* 56.61–98.
- HARNAD, S. 1990. The symbol grounding problem. *Physica D* 42.335–346.
- HARRIS, J. W. K. 1983. Cultural beginnings: Plio-pleistocene archaeological occurrences from the Afar, Ethiopia. *African Archaeological Review* 1.3–31.
- HARTL, D. L., & A. G. CLARK. 1997. *Principles of Population Genetics*. Sunderland, MA: Sinauer Associates, 3rd edition.
- HASHIMOTO, T. 1998. Dynamics of internal and global structure through linguistic interactions. In *Multi-Agent Systems and Agent-Based Simulation*, ed. by J. S. Sichman, R. Conte, & N. Gilbert, 124–139. Berlin: Springer-Verlag.
- HASPELMATH, M. 1989. From purposive to infinitive — a universal path of grammaticalization. *Folia Linguistica Historia* 10.287–310.

- HAUSER, M. D. 1996. *The Evolution of Communication*. Cambridge, MA: MIT Press.
- , N. CHOMSKY, & W. T. FITCH. 2002. The faculty of language: What is it, who has it, and how did it evolve. *Science* 298.1569–1579.
- HAWKINS, J. A. 1990. A parsing theory of word order universals. *Linguistic Inquiry* 21.223–261.
- HAZELHURST, B., & E. HUTCHINS. 1998. The emergence of propositions from the co-ordination of talk and action in a shared world. *Language and Cognitive Processes* 13.373–424.
- HEWES, G. W. 1973. Primate communication and the gestural origin of language. *Current Anthropology* 14.5–24.
- HINTON, G., & S. NOWLAN. 1987. How learning can guide evolution. *Complex Systems* 1.495–502.
- HOCKETT, C. F. 1960a. Logical considerations in the study of animal communication. In *Animal sounds and communication*, ed. by W. E. Lanyon & W. N. Tavolga, 392–430. Washington, DC: American Institute of Biological Sciences.
- 1960b. The origin of speech. *Scientific American* 203.88–96.
- HOLLOWAY, R. L. 1995. Evidence for POT expansion in early *Homo*: A pretty theory with ugly (or no) paleoneurological facts. *Behavioral and Brain Sciences* 18.191–193. Commentary on Wilkins and Wakefield (1995).
- HOLM, J. 1988. *Pidgins and creoles*, volume 1. Cambridge: Cambridge University Press.
- HUDSON, G. 2000. *Essential Introductory Linguistics*. Oxford: Blackwell.
- HURFORD, J. R. 1987. *Language and number: the emergence of a cognitive system*. Oxford: Basil Blackwell.
- 1989. Biological evolution of the saussurean sign as a component of the language acquisition device. *Lingua* 77.187–222.
- 1999. Language learning from fragmentary input. In *Proceedings of the AISB'99 Symposium on Imitation in Animals and Artifacts*, ed. by K. Dautenhahn & C. Nehaniv, 121–129. Society for the Study of Artificial Intelligence and the Simulation of Behaviour.
- 2000. Social transmission favours linguistic generalization. In Knight *et al.* (2000), 324–352.
- 2002a. Expression/induction models of language evolution: dimensions and issues. In Briscoe (2002), 301–344.
- 2002b. The roles of expression and representation in language evolution. In Wray (2002), 311–334.
- , M. STUDDERT-KENNEDY, & C. KNIGHT (eds.) 1998. *Approaches to the Evolution of Language*. Cambridge: Cambridge University Press.

- HUSBANDS, P., & I. HARVEY (eds.) 1997. *Fourth European Conference on Artificial Life*. Cambridge, MA: MIT Press.
- HUTCHINS, E., & B. HAZELHURST. 1995. How to invent a lexicon: the development of shared symbols in interaction. In *Artificial societies: the computer simulation of social life*, ed. by N. Gilbert & R. Conte, 157–189. London: University College London Press.
- JACKENDOFF, R. 2002. *Foundations of Language: Brain, Meaning, Grammar, Evolution*. Oxford: Oxford University Press.
- JANIK, V. M. 2000. Whistle matching in wild bottlenose dolphins *Tursiops truncatus*. *Science* 289.1355–1357.
- , & P. J. B. SLATER. 1997. Vocal learning in mammals. *Advances in the Study of Behavior* 26.59–99.
- JOHNSON-LAIRD, P. N. 1990. Introduction: What is communication? In *Ways of communicating*, ed. by D. H. Mellor, 1–13. Cambridge: Cambridge University Press.
- JONES, S., M. MARTIN, & D. PILBEAM (eds.) 1992. *The Cambridge Encyclopedia of Human Evolution*. Cambridge: Cambridge University Press.
- KAGAN, J. 1981. *The second year*. Cambridge, MA: Harvard University Press.
- KATZ, J., & P. POSTAL. 1964. *An integrated theory of linguistic descriptions*. Cambridge, MA: MIT Press.
- KEGL, J., & G. A. IWATA. 1989. Lenguaje de Signos Nicaraguense: A pidgin sheds light on the “creole?” ASL. In *Proceedings of the Fourth Meeting of the Pacific Linguistics Conference*, ed. by R. Carlson, S. DeLancey, S. Gildea, D. Payne, & A. Saxena, 266–294. Eugene, OR: University of Oregon.
- , A. SENGHAS, & M. COPPOLA. 1999. Creation through contact: Sign language emergence and sign language change in Nicaragua. In *Language Creation and Language Change*, ed. by M. DeGraff, 179–237. Cambridge, MA: MIT Press.
- KELEMEN, J., & P. SOSÍK (eds.) 2001. *Advances in Artificial Life: Proceedings of the 6th European Conference on Artificial Life*. Berlin: Springer-Verlag.
- KIRBY, S. 1999. *Function, selection and innateness: the emergence of language universals*. Oxford: Oxford University Press.
- 2000. Syntax without natural selection: how compositionality emerges from vocabulary in a population of learners. In Knight *et al.* (2000), 303–323.
- 2001. Spontaneous evolution of linguistic structure: an iterated learning model of the emergence of regularity and irregularity. *IEEE Journal of Evolutionary Computation* 5.102–110.
- 2002. Learning, bottlenecks and the evolution of recursive syntax. In Briscoe (2002), 173–203.

- , & J. R. HURFORD. 1997. Learning, culture and evolution in the origin of linguistic constraints. In *Husbands & Harvey* (1997), 493–502.
- , & J. R. HURFORD. 2002. The emergence of linguistic structure: An overview of the iterated learning model. In *Simulating the Evolution of Language*, ed. by A. Cangelosi & D. Parisi, 121–147. Springer Verlag.
- KNIGHT, C. 1991. *Blood Relations: Menstruation and the Origins of Culture*. New Haven, CT: Yale University Press.
- , C. POWER, & I. WATTS. 1995. The human symbolic revolution: a Darwinian account. *Cambridge Archaeological Journal* 5.75–114.
- , M. STUDDERT-KENNEDY, & J. R. HURFORD (eds.) 2000. *The Evolutionary Emergence of Language: Social Functions and the Origins of Linguistic Form*. Cambridge: Cambridge University Press.
- KOLEN, J. F., & J. B. POLLACK. 1990. Back propagation is sensitive to initial conditions. *Complex Systems* 4.269–280.
- KRAMER, S. N. 1963. *The Sumerians: Their History, Culture and Character*. Chicago, IL: University of Chicago Press.
- KREBS, J. R., & R. DAWKINS. 1984. Animal signals: mind-reading and manipulation. In *Behavioural ecology: an evolutionary approach*, ed. by J. R. Krebs & N. B. Davies. Oxford: Blackwell Scientific Publications.
- KRIFKA, M. 2001. Compositionality. In *The MIT Encyclopaedia of the Cognitive Sciences*, ed. by R. A. Wilson & F. Keil. Cambridge, MA: MIT Press.
- KVASNIČKA, V., & J. POSPÍCHAL. 1999. An emergence of coordinated communication in populations of agents. *Artificial Life* 5.319–342.
- LABOV, W. 1966. *The social stratification of English in New York City*. Washington, DC: Center for Applied Linguistics.
- LAI, C. S. L., S. E. FISHER, J. A. HURST, F. VARGHA-KHADEM, & A. P. MONACO. 2001. A forkhead-domain gene is mutated in severe speech and language disorder. *Nature* 413.519–523.
- LALAND, K., F. J. ODLING-SMEE, & M. W. FELDMAN. 2000. Niche construction, biological evolution, and cultural change. *Behavioral and Brain Sciences* 23.131–175.
- LANGACKER, R. W. 1977. Syntactic reanalysis. In *Mechanisms of Syntactic Change*, ed. by C. N. Li, 57–139. Austin, TX: University of Texas Press.
- LANGTON, C., C. TAYLOR, J. FARMER, & S. RASMUSSEN (eds.) 1992. *Artificial Life 2: Proceedings of the workshop on Artificial Life held February, 1990 in Santa Fe, New Mexico*. Reading, MA: Addison-Wesley.
- LASS, R. 1980. *On explaining language change*. Cambridge: Cambridge University Press.

- LEPAGE, R. B., & A. TABOURET-KELLER. 1985. *Acts of identity*. Cambridge: Cambridge University Press.
- LEVIN, M. 1995. The evolution of understanding: a genetic algorithm model of the evolution of communication. *Biosystems* 36.167–178.
- LIEBERMAN, P. 1984. *The Biology and Evolution of Language*. Cambridge, MA: Harvard University Press.
- 2000. *Human Language and Our Reptilian Brain: the Subcortical Bases of Speech, Syntax and Thought*. Cambridge, MA: Harvard University Press.
- LIGHTFOOT, D. 1979. *Principles of Diachronic Syntax*. Cambridge: Cambridge University Press.
- 1999. *The Development of Language: Acquisition, Change, and Evolution*. Oxford: Blackwell.
- LIVINGSTONE, D., & C. FYFE. 1999. Modelling the evolution of linguistic diversity. In Floreano *et al.* (1999), 704–708.
- , & ——. 2000. Modelling language–physiology coevolution. In Knight *et al.* (2000), 199–215.
- LYN, H., & S. SAVAGE-RUMBAUGH. 2000. Observational word learning in two bonobos (*Pan paniscus*): ostensive and non-ostensive contexts. *Language and Communication* 20.255–273.
- MACLENNAN, B., & G. BURGHARDT. 1993. Synthetic ethology and the evolution of cooperative communication. *Adaptive Behaviour* 2.161–187.
- MACNAMARA, J. 1972. The cognitive basis of language learning in infants. *Psychological Review* 79.1–13.
- 1982. *Names for things: a study of human learning*. Cambridge, MA: MIT Press.
- MAŃCZAK, W. 1980. Laws of analogy. In *Historical Morphology*, ed. by J. Fisiak, 283–288. The Hague: Mouton.
- MARKMAN, E. M. 1989. *Categorization and naming in children: problems of induction*. Cambridge, MA: MIT Press.
- 1992. Constraints on word learning: speculations about their nature, origins, and domain specificity. In *Modularity and Constraints in Language and Cognition: the Minnesota Symposium on Child Psychology*, ed. by M. Gunnar & M. Maratsos, volume 25, 59–101. Hillsdale, NJ: Erlbaum.
- , & G. F. WACHTEL. 1988. Children’s use of mutual exclusivity to constrain the meaning of words. *Cognitive Psychology* 20.121–157.
- MARLER, P. 1957. Specific distinctiveness in the communication signals of birds. *Behaviour* 11.13–39.
- MARTIN, R. 1992. Primate reproduction. In Jones *et al.* (1992), 86–90.

- MARTINET, A. 1972. Function, structure and sound change. In *A reader in historical and comparative linguistics*, ed. by A. R. Keiler, 139–174. New York, NY: Holt, Reinhart and Winston.
- MAYNARD SMITH, J. 1978. Optimization theory in evolution. *Annual Review of Ecology and Systematics* 9.31–56.
- MCMAHON, A. 1994. *Understanding Language Change*. Cambridge: Cambridge University Press.
- MCWHORTER, J. H. 1997. *Towards a New Model of Creole Genesis*. New York, NY: Peter Lang.
- MILLIKAN, R. G. 1984. *Language, thought, and other biological categories: new foundations for realism*. Cambridge, MA: MIT Press.
- MITCHELL, M. 1996. *An introduction to genetic algorithms*. Cambridge, MA: MIT Press.
- MONTANA, D. D., & L. D. DAVIS. 1989. Training feedforward networks using genetic algorithms. In *Proceedings of the international joint conference on artificial intelligence*. Morgan Kaufmann.
- NEWMAYER, F. J. 1998. *Language Form and Language Function*. Cambridge, MA: MIT Press.
- NIYOGI, P., & R. C. BERWICK. 1997. Evolutionary consequences of language learning. *Linguistics and Philosophy* 20.697–719.
- NOBLE, J. 1998. Evolved signals: Expensive hype vs. conspiratorial whispers. In *Artificial Life 6: Proceedings of the Sixth International Conference on Artificial Life*, ed. by C. Adami, R. Belew, H. Kitano, & C. Taylor, 358–367. Cambridge, MA: MIT Press.
- 1999. Cooperation, conflict and the evolution of communication. *Adaptive Behavior* 7.349–370.
- NOLFI, S., J. L. ELMAN, & D. PARISI. 1994. Learning and evolution in neural networks. *Adaptive Behavior* 3.5–28.
- NOWAK, M. A., & N. L. KOMAROVA. 2001. Towards an evolutionary theory of language. *Trends in Cognitive Sciences* 5.288–295.
- , ———, & P. NIYOGI. 2001. Evolution of universal grammar. *Science* 291.114–117.
- , J. PLOTKIN, & D. KRAKAUER. 1999. The evolutionary language game. *Journal of Theoretical Biology* 200.147–162.
- , J. B. PLOTKIN, & V. A. A. JANSEN. 2000. The evolution of syntactic communication. *Nature* 404.495–498.
- ODLING-SMEE, F. J. 1988. Niche-constructing phenotypes. In *The Role of Behavior in Evolution*, ed. by H. C. Plotkin, 73–132. Cambridge, MA: MIT Press.

- O'GRADY, W., M. DOBROVOLSKY, & F. KATAMBA. 1996. *Contemporary Linguistics: An Introduction*. London: Longman, 3rd edition.
- OLIPHANT, M. 1996. The dilemma of saussurean communication. *BioSystems* 37.31–38.
- , 1997. Formal approaches to innate and learned communication: Laying the foundation for language. Doctoral Dissertation, University of California, San Diego.
- 1999. The learning barrier: Moving from innate to learned systems of communication. *Adaptive Behavior* 7.371–384.
- 2002. Rethinking the language bottleneck: Why don't animals learn to communicate? In *Imitation in Animals and Artifacts*, ed. by K. Deutenhahn & C. L. Nehaniv, 311–325. Cambridge, MA: MIT Press.
- , & J. BATALI. 1997. Learning and the emergence of coordinated communication. *Center for Research on Language Newsletter* 11.
- OUDEYER, P-Y. 2002. Phonemic coding might be a result of sensory-motor coupling dynamics. In *Proceedings of the 7th International Conference on the Simulation of Adaptive Behavior*, ed. by B. Hallam, D. Floreano, J. Hallam, G. Hayes, & J-A. Meyer, 406–416. Cambridge, MA: MIT Press.
- PEREIRA, M. E., & J. M. MACEDONIA. 1991. Ringtailed lemur anti-predator calls denote predator class, not response urgency. *Animal Behaviour* 41.543–544.
- PIATTELLI-PALMARINI, M. 1989. Evolution, selection and cognition: From “learning” to parameter setting in biology and in the study of language. *Cognition* 31.1–44.
- PINKER, S. 1984. *Language Learnability and Language Development*. Cambridge, MA: Harvard University Press.
- , & P. BLOOM. 1990. Natural language and natural selection. *Behavioral and Brain Sciences* 13.707–784.
- POPPER, K. R. 1977. *The self and its brain: an argument for interactionism*. New York, NY: Springer International.
- PREMACK, D. 1983. Representational capacity and accessibility of knowledge: The case of chimpanzees. In *Language and Learning: The Debate between Jean Piaget and Noam Chomsky*, ed. by M. Piattelli-Palmarini, 205–221. London: Routledge and Kegan Paul.
- PULLUM, G. K., & B. C. SCHOLZ. 2002. Empirical assessment of stimulus poverty arguments. *The Linguistic Review* 19.9–50.
- QUINN, M. 2001. Evolving communication without dedicated communication channels. In Kelemen & Sosík (2001), 357–366.
- RAEMAEEKERS, J. J., P. M. RAEMAEEKERS, & E. H. HAIMOFF. 1984. Loud calls of the gibbons (*Hylobates lar*): repertoire, organization and context. *Behavior* 91.146–189.

- RAGIR, S. 2002. Constraints on communities with indigenous sign languages: clues to the dynamics of language origins. In Wray (2002), 272–294.
- ROLLS, E. T., & S. M. STRINGER. 2000. On the design of neural networks in the brain by genetic evolution. *Progress in Neurobiology* 61.557–579.
- ROSENBLATT, F. 1958. The perceptron: A probabilistic model for information storage and organization in the brain. *Psychological Review* 65.368–408.
- RUMELHART, D.E., G. E. HINTON, & R. J. WILLIAMS. 1986. Learning representations by back-propagating errors. *Nature* 323.533–536.
- SAMPSON, G. 1997. *Educating Eve: The 'Language Instinct' debate*. London: Cassell.
- SAVAGE-RUMBAUGH, S., K. McDONALD, R. A. SEVCIK, W. D. HOPKINS, & E. RUBERT. 1986. Spontaneous symbol acquisition and communicative use by pygmy chimpanzees (*Pan paniscus*). *Journal of Experimental Psychology: General* 115.211–235.
- , S. G. SHANKER, & T. J. TAYLOR. 1998. *Apes, Language, and the Human Mind*. Oxford: Oxford University Press.
- SCHOENEMANN, P. T. 1999. Syntax as an emergent characteristic of the evolution of semantic complexity. *Minds and Machines* 9.309–346.
- SEYFARTH, R. M., & D. L. CHENEY. 1986. Vocal development in vervet monkeys. *Animal Behaviour* 34.1640–1658.
- SHERMAN, P. W. 1977. Nepotism and the evolution of alarm calls. *Science* 197.1246–1253.
- SINGLER, J. V. (ed.) 1990. *Pidgin and creole tense-mood-aspect systems*. Amsterdam: John Benjamins.
- SLOBIN, D. I. 1973. Cognitive prerequisites for the development of grammar. In *Studies of child language development*, ed. by C. A. Ferguson & D. I. Slobin. New York, NY: Holt, Rinehart and Winston.
- 1977. Language change in childhood and history. In *Language Learning and Thought*, ed. by J. Macnamara, 185–221. London: Academic Press.
- 1985. Crosslinguistic evidence for the language-making capacity. In *The Crosslinguistic Study of Language Acquisition*, ed. by D. I. Slobin, volume 2, 1157–1249. Hillsdale, NJ: Lawrence Earlbaum Associates.
- SMITH, A. D. M. 2001a. Establishing communication systems without explicit meaning transmission. In Kelemen & Sosík (2001), 381–390.
- , forthcoming. Intelligent meaning creation in a clumpy world helps communication. To appear in *Artificial Life*.
- SMITH, K., 1998. Learners are losers: natural selection and learning in the evolution of communication. MA Dissertation, Department of Linguistics, University of Edinburgh.

- 2001b. The importance of rapid cultural convergence in the evolution of learned symbolic communication. In Kelemen & Sosík (2001), 637–640.
- 2002. The cultural evolution of communication in a population of neural networks. *Connection Science* 14.65–84.
- , in press. Natural selection and cultural selection in the evolution of communication. To appear in *Adaptive Behavior*.
- , H. BRIGHTON, & S. KIRBY, submitted. Language evolution in a multi-agent model: the cultural emergence of compositional structure. Submitted to *Discrete Dynamics in Nature and Society*.
- , S. KIRBY, & H. BRIGHTON. forthcoming. Iterated learning: a framework for the emergence of language. In *Self-organization and Evolution of Social Behaviour*, ed. by C. Hemelrijk. Cambridge: Cambridge University Press.
- STEELS, L. 1997. Constructing and sharing perceptual distinctions. In *Proceedings of the European Conference on Machine Learning, ECML '97*, ed. by M. van Someren & G. Widmer, 4–13. Berlin: Springer-Verlag.
- 1998. The origins of syntax in visually grounded robotic agents. *Artificial Intelligence* 103.133–156.
- STRINGER, C. B. 1992. Evolution of early humans. In Jones *et al.* (1992), 241–251.
- TALLAL, P., & J. SCHWARTZ. 1980. Temporal processing, speech perception and hemispheric asymmetry. *Trends in neuroscience* 3.309–311.
- THOMPSON, D' A. 1961. *On Growth and Form*. Cambridge: Cambridge University Press. Abridged edition, edited by J.T. Bonner.
- TOMASELLO, M. 1990. Cultural transmission in the tool use and communicatory signalling of chimpanzees? In *“Language” and Intelligence in Monkeys and Apes: Comparative Developmental Perspectives*, ed. by S. Parker & K. Gibson, 274–311. Cambridge: Cambridge University Press.
- 1993. The interpersonal origins of self-concept. In *The perceived self: Ecological and interpersonal sources of self knowledge*, ed. by U. Neisser, 174–184. Cambridge: Cambridge University Press.
- 1996. Do apes ape? In *Social Learning in Animals: The Roots of Culture*, ed. by C. Heyes & B. Galef, 319–436. San Diego: Academic Press.
- 1997. *Primate Cognition*. Oxford: Oxford University Press.
- 1999. *The cultural origins of human cognition*. Harvard: Harvard University Press.
- , & M. BARTON. 1994. Learning words in non-ostensive contexts. *Developmental Psychology* 30.639–650.
- , J. CALL, J. WARREN, G.T. FROST, M. CARPENTER, & K. NAGELL. 1997. The ontogeny of chimpanzee gestural signals: A comparison across groups and generations. *Evolution of Communication* 1.223–259.

- , R. STROSBURG, & N. AKHTAR. 1996. Eighteen-month-old children learn words in non-ostensive contexts. *Journal of Child Language* 23.157–176.
- TRASK, R. L. 1995. *Language: The Basics*. London: Routledge.
- TRAUGOTT, E. C. 1965. Diachronic syntax and generative grammar. *Language* 41.402–415.
- TRUDGILL, P. 1972. Sex, covert prestige, and linguistic change in the urban British English of Norwich. *Language in Society* 1.179–196.
- TURKEL, W. J. 2002. The learning guided evolution of natural language. In Briscoe (2002), 235–254.
- TYACK, P. 1986. Whistle repertoires of two bottlenosed dolphins, *Tursiops truncatus*: mimicry of signature whistles? *Behavioral Ecology and Sociobiology* 18.251–257.
- VARGHA-KHADEM, F., K. WATKINS, K. ALCOCK, P. FLETCHER, & R. PASSINGHAM. 1995. Praxic and nonverbal cognitive deficits in a large family with a genetically transmitted speech and language disorder. *Proceedings of the National Academy of Science* 92.930–933.
- VENNEMANN, T. 1978. Phonetic analogy and conceptual analogy. In *Readings in Historical Phonology*, ed. by P. Baldi & R. N. Werth, 258–274. University Park, PN: Pennsylvania State University Press.
- VON FRISCH, K. 1974. Decoding the language of the bee. *Science* 185.663–668.
- WANNER, E., & L. R. GLEITMAN. 1982. Language acquisition: the state of the art. In *Language acquisition: the state of the art*, ed. by E. Wanner & L. R. Gleitman, 3–50. Cambridge: Cambridge University Press.
- WERNER, G., & M. DYER. 1992. Evolution of communication in artificial organisms. In Langton *et al.* (1992), 659–687.
- WEXLER, K., & P. W. CULICOVER. 1980. *Formal Principles of Language Acquisition*. Cambridge, MA: MIT Press.
- WILKINS, W. K., & J. WAKEFIELD. 1995. Brain evolution and neurolinguistic preconditions. *Behavioral and Brain Sciences* 18.161–226.
- WOOD, B. A. 1992. Evolution of australopithecines. In Jones *et al.* (1992), 231–240.
- WRAY, A. (ed.) 2002. *The Transition to Language*. Oxford: Oxford University Press.
- , & M. R. PERKINS. 2000. The functions of formulaic language: an integrated model. *Language and Communication* 20.1–28.
- YAMAUCHI, H. 2001. The difficulty of the Baldwinian account of linguistic innateness. In Kelemen & Sosík (2001), 391–400.
- ZAHAVI, A. 1975. Mate selection — a selection for a handicap. *Journal of Theoretical Biology* 53.205–214.
- 1977. The cost of honesty (further remarks on the handicap principle). *Journal of Theoretical Biology* 67.603–605.

- ZUBERBUHLER, K. 2001. Predator-specific alarm calls in Campbell's monkeys, *Cerco-
pithecus campbelli*. *Behavioral Ecology & Sociobiology* 50.414–422.
- , R. NOË, & R. SEYFARTH. 1997. Diana monkey long-distance calls: messages for
conspecifics and predators. *Animal Behaviour* 53.589–604.