Book Review


In 2004, the first book written by a linguist on the question of whether any nonhuman communication system exhibit properties of human language and on the history of “ape language” studies appeared (Anderson, 2004). Besides dealing with semantics (including “referential signaling” by nonhumans) and pragmatics, Anderson provided an excellent introduction to linguistic syntax, and agreed with Hauser et al. (2002) that syntax—especially recursion—distinguishes language from all known nonhuman systems. Two years earlier, the linguist Ray Jackendoff (2002) started his monumental Foundations of Language by devoting a full 10 pages for analyzing the phonological, syntactic, semantic/conceptual, and spatial structure, and the connections among these levels, of the simple sentence “The big star’s beside a little star”. His introductory chapter ended thusly (p. 18):

“Any adequate theory of language must begin with the fact that even the simplest sentence contains at least this rich a structure. . . if one wishes to join the conversation about the nature of language, one must recognize and acknowledge this complexity.”

Despite its main title, Animal Bodies, Human Minds deals almost entirely with nonhumans and language, as its subtitle indicates. Jackendoff’s statement thus confronts Hillix and Rumbaugh, but contrast it with their definition of a “basic language” (p. 21):

“Language is an agreed-upon system of signals that represent things, events, feelings, ideas, intentions, and actions on the environment or on other organisms. The signals must symbolize something beyond themselves and fulfill a useful (pragmatic) function by coordinating the activities of organisms. The meanings of the signals comprising a language are shared, at least in part, by the individuals in the group using the language.”

As this comparison indicates, Animal Bodies, Human Minds is not the converse of Anderson’s—that is, it is not a book on nonhuman animals and language by a psychologist involved in “ape language” research that engages with linguistics and gives the complexity of language its due (Rumbaugh is a psychologist with a distinguished record of research on animal cognition, including two “ape language” projects; Hillix is a historian of psychology). Nor is it really a book about human minds, or, for the most part, those of nonhumans. The authors include some comparisons of great ape, human, dolphin, and parrot neurobiology, but ignore the rich literature on the development of children’s abilities to attribute psychological states to others, on how attributional abilities may be related to language, and to what extent great apes have such abilities, although bringing this literature to bear on the “ape language” studies could be fruitful. Certainly Hillix and Rumbaugh do not
claim that the bodies of their nonhuman animal subjects contain human minds, although, in summarizing Premack’s work on chimpanzee cognition, they state (p. 121) “... if we accept this view [that the minds of nonhumans are altogether inferior to human minds], we have jumped to the wrong conclusion.” The crucial word “altogether” allows them to engage in a kind of cognitive relativism (e.g., bottlenose dolphins have specialized acoustic information processing mechanisms that humans lack), but this begs questions about qualitative differences (e.g., the apparent absence of any equivalent of recursive abilities in nonhumans; Hauser et al., 2002) regardless of whether we consider these as indications of inferiority.

What, then, is *Animal Bodies, Human Minds*? First, it is an extensive history of research on whether nonhumans can learn to produce and/or comprehend what we might arguably call language, starting with Garner in 1896 and leading up to Alex, the gray parrot. Along the way, it surveys most of the major projects, including those in which researchers have tried to teach American Sign Language for the Deaf (actually, a pidginized version of ASL; Anderson, 2004) to great apes (the Gardners and then Fouts with chimpanzees; Patterson with Koko, the gorilla; Miles with Chantek the orangutan); Premack’s work, using plastic “lexigrams”, with Sarah, the chimpanzee; Rumbaugh’s own work, with Sue Savage-Rumbaugh, using a computerized system to teach “Yerkish” to chimpanzees; and Savage-Rumbaugh’s famous project with the bonobo Kanzi, and eventually with other bonobos and several chimpanzees. (Perhaps unsurprisingly, the authors give less than a page to Terrace’s ASL project with Nim the chimpanzee; Terrace became the *bête noire* of “ape language” researchers because of his vigorous criticisms of his own and others’ work.) The authors also include chapters on bottlenose dolphins, on Schusterman’s work with sea lions, and on Pepperberg’s work with Alex, plus a chapter by Tetsuro Matsuzawa that briefly summarizes his research on chimpanzee cognition and provides a useful reference list. As they consider each project, Hillix and Rumbaugh introduce what they see as the major issues, summarize some of the related debates, and provide their own critiques of, and at times defenses of, research methods and results.

Much of the critique is neither new nor profound, however. Hillix and Rumbaugh largely steer away from the thorny issue of syntax, which has formed the basis for the most serious criticism of “animal language” research (e.g., Anderson, 2004). Instead, in keeping with the definition quoted above, they argue that semantics is crucial and that the focus should be on reference and symbol use. However, despite repeated assertions about symbol use by nonhumans (e.g., bee dances “contain symbolic information”; p. 26), they never define “symbol”, nor do they review the literature on referential signaling by nonhuman primates (such signals are “indexes”, not symbols; Deacon, 1997). On pp. 137–140, they usefully summarize how the chimpanzees Sherman and Austin learned to use lexigrams symbolically, but Deacon (ibid.) gave a more sophisticated account of what was at stake and what the research showed. In reviewing Rumbaugh and Savage-Rumbaugh’s earlier summary of their own and others’ work, the authors state (p. 149) that “Chomsky’s transformational grammar is such an attempt [to identify as many cognitive operations underlying grammar as possible], but the operations he suggests seem too complex to underlie primitive language.” So much for taking up Jackendoff’s challenge. Great apes have learned language, but actually language is too complex to provide a model for what they have learned. Where does this leave us?