ANNUAL REVIEWS

Annual Review of Anthropology

Human–Animal Communication*

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Annu. Rev. Anthropol. 2017. 46:357–78

First published as a Review in Advance on August 7, 2017

The *Annual Review of Anthropology* is online at anthro.annualreviews.org

https://doi.org/10.1146/annurev-anthro-102116-041723

*This article is part of a special theme on Human–Animal Interaction. For a list of other articles in this theme, see **http://www.annualreviews.org/doi/full/10.1146/annurev-an-46-themes**

Keywords

animal studies, animal communicators, animal training, ape language, companion species, ethics, pets

Abstract

Since the demise in the 1980s of research by psychologists who attempted to teach human language to apes, a range of other perspectives has arisen that explore how humans can communicate with animals and what the possibility of such communication means. Sociologists interested in symbolic interactionism, anthropologists writing about ontology, equestrian and canine trainers, people with autism who say they understand animals because they think like animals, and a ragbag of sundry New Age women who claim to be able to converse with animals through telepathy have started discussing human–animal communication in ways that recast the whole point of thinking about it. This review charts how interest in human–animal communication has moved from a concern with cognition to a concern with ethics, and it discusses the similarities and differences that exist among the range of writing on this topic.

THE SCOPE OF THIS REVIEW

The poster child for research on human–animal communication[1] used to be ape-language research, but that field self-combusted by the middle of the 1980s. By the end of that decade, only one ape-language project (involving Kanzi the bonobo and his half-siblings) was still publishing results, and the spotlight that earlier had been occupied by the apes moved to shine on an African gray parrot named Alex.

And then Alex died.

The researchers who conducted both the ape-language projects and the Alex project were almost without exception psychologists, and the goal of trying to teach language to animals was to discover something about cognition and the evolution of human language. Those discussions have not completely died out, but the past two decades have seen the rise of perspectives that differ dramatically from the concerns that animated the era of research on ape, parrot, and dolphin language (another topic that had its heyday 30 years ago and then fizzled out; see Hillix & Rumbaugh 2004, pp. 213–36). A range of nonpsychologists have started discussing human–animal communication in ways that recast the whole point of thinking about it. In the post ape-language era, no one cares much anymore whether animals can be taught to speak like humans; no one, in fact, expects them to. Interest has shifted from cognition and questions about how different humans are from animals, to ethics and questions about how humans can know animals on something approaching their own terms, respect them, and live together with them in nonabusive, mutually beneficial ways. The kinds of animals discussed by people who write about human–animal communication have also shifted. Exotic species like apes, parrots, and dolphins have all but disappeared from the discourse. They have been replaced by companion animals like dogs, horses, rabbits, and cats—and by elephants, who have emerged as a species of impressive intelligence and troubled inner lives.

Human–animal communication is not a field, and a review like this one—which is going to discuss new methods of equestrian training under the same rubric as psychologists diagnosing elephants, people speaking baby talk to their pets, Amazonian Indians worrying that talking to their dogs might turn them into a dog, and animal communicators asking bunnies to tell them who their friends are—is an act of probably reckless bricolage. But if the bitter demise of ape-language research has any lasting lesson to teach us, it is perhaps that human–animal communication *shouldn't* be a field. At present, it is precisely the disparate, tentative, exploratory, and in many ways sparklingly kooky nature of the various contributions to the issue of human–animal communication that makes the topic intriguing and fresh. The surest way to extinguish that spark would be to clamor for order, establish a hierarchy of dour experts, insist on double-blind tests, and imperiously ignore the batty telepathic women who write books with titles like *You Can Talk to Your Animals: Animal Communicators Tell You How* (Adams 2000).

To avoid doing any of that, this review is ecumenical and welcoming. It maps out the range of work that currently addresses the issue of human–animal communication from some perspective, however outré, and it summarizes what I think can be identified as the themes that both link the disparate directions, and differentiate them from one another. This review is not concerned with the vastly wider topic of how humans in different cultures interact with animals or how humans think about animals. Nor do I discuss how nonhuman animals communicate with one another (for summaries of work on those topics, see, e.g., Bustad 1991, Hauser & Konishi 1999, Ingold 1988, Lind 2013, Macer et al. 2005, Serpell 1996, van't Hooft & Millar 2005). The review is about how humans communicate with animals using language or some other medium (attunement to

[1]Humans, of course, are animals too and not petunias or pebbles; however, to avoid tiring readers with cumbersome formulations, I use "animals" throughout this review to denote nonhuman animals.

body movement, "energy," telepathy) that they claim establishes contact and a relationship with particular animals. The point is to highlight work that ought to be of interest to anthropologists because it addresses issues of sociality, language, relationships, and ethics and also because it is being produced by people, some of whom, themselves, are deserving of anthropological study. As Derrida has critically observed, language is the site on which Western thought has constituted the difference between "Man" and "Animal" (Derrida 1991, 2002, 2003). This suggests that a consideration of how humans and animals communicate with one another unavoidably compels us to consider the question of whether human animals are fundamentally different from nonhuman animals. The stakes of that question are high.

For the purpose of this review, I have organized the unruly literature on human–animal communication into six somewhat overlapping categories. The categories are based on the kind of connections that different authors suggest exist between humans and animals—connections that motivate or subtend their approach to human–animal communication. The six categories are as follows:

1. The cognitive connection, i.e., the research on ape, dolphin, and parrot language.
2. The psychic connection, which includes work by New Age women who explain how we can all converse with animals through telepathy (both living animals, and animals who, in a euphemism favored in this literature, have transitioned into nonphysical form).
3. The psychological connection, which asserts that animals have subjectivity, sentiments, and emotions and suffer traumas, as humans do. The literature in this category consists of three relatively unrelated types: (*a*) books by people with autism who claim an affinity with animals, and studies of autistic children and animals; (*b*) research by sociologists who work in the tradition of symbolic interactionism and who examine interactions between humans and animals to rethink core social psychological concepts like "mind" and "self"; and (*c*) scholarship about trauma in elephants.
4. The interactional connection, which includes work that examines human–animal communication in order to say what conversations with sentient beings who cannot talk back tell us about the nature of communication and the structure of interaction. Work in this area is done by Communication Studies scholars, canine trainers, biologists, and researchers working with Conversation Analysis.
5. The ontological connection. This is the only wholly anthropological literature to be discussed here, and it emanates from a particular ethnographic site, namely the Amazon region of South America. This literature frames human–animal relationships in terms of "perspectivism," a concept that the scholars who use it claim captures the essence of a particular indigenous cosmology. Anthropologists who write about perspectivism argue that the kind of human–animal communication that this style of thinking facilitates has profound consequences for how we think about nature, representation, and engagement with the biosphere.
6. The ethical connection. This is the most capacious category; it crosscuts and can include much of the work that also falls into the other categories. However, the literature that I discuss specifically under "ethics" emphasizes what biologist and science studies scholar Donna Haraway calls a "becoming-with," which is to say, "an ethics and politics committed to the flourishing of significant otherness" (Haraway 2003, p. 3). The main point of studying human–animal communication here is to explore and extend the grounds for respectful engagement with animals in ways that do not either reduce animals to anthropomorphic projections, or claim them to be fundamentally unknowable aliens whom we can continue to exploit because we can never know what, or even if, they think.

We start this tour of research on human–animal communication by looking briefly at the promising field that tanked: ape-language research.

THE COGNITIVE CONNECTION

Ape-language research and its demise are the subjects of several book-length assessments, as well as lengthy review articles and acrimonious published exchanges (Bindra et al. 1981; Hillix & Rumbaugh 2004; Patterson 1981; Savage-Rumbaugh et al. 1998, 2009; Sebeok & Umiker-Sebeok 1980; Segerdahl et al. 2005; Terrace et al. 1979; Umiker-Sebeok & Sebeok 1981; Wallman 1992).

The threadbare field left today is an alarming not-so-funhouse of intrigue, betrayal, accusation, threats, litigation, dismissals, obese apes (unsurprising when most of their signing seems to be concerned with obtaining food rewards), dead apes,[2] mass resignations, and even, inevitably, sex: In the mid-2000s, two former employees sued Francine "Penny" Patterson's Gorilla Foundation over sexual harassment, claiming that Patterson had pressured them to show their nipples to Koko, the signing gorilla. [For an overview of the most recent scandals, see Hu (2014). For sober, shameful case histories, read Linden (1986) and Hess (2008), and watch Marsh (2011). For fresh updates, see the *TMZ* of the "ape community," Dawn Forsythe's blog, *Chimp Trainer's Daughter*)].

Because the rise and fall of ape-language studies has been so well documented, this summary can be brisk: From at least the beginning of the 1900s, individuals have tried to teach apes to talk, with minimal success. In the 1950s, for example, two psychologists, Keith and Catherine Hayes, succeeded in getting a home-raised chimpanzee named Vicki to say "papa," "mama," "cup," and, perhaps, "up." That accomplishment took six and a half years. It took a surprisingly long time for anyone to realize apes would never be taught to speak because their tongues and vocal tracts are shaped in a way that does not permit them to form the contrastive sounds that make up human languages. Once this difference was finally appreciated, apes began to be trained to use sign language (Washoe and Lucy, both chimpanzees; Koko, the gorilla; Chantek, the orangutan), and, later, plastic chips that bore no resemblance to their referent (Sarah, the chimpanzee), and then geometric symbols on a computer-based keyboard, known as lexigrams. The chimpanzees Nim Chimpsky, Lana, Austin and Sherman, and the bonobos Kanzi and Panbanisha are the most famous apes who were trained to communicate using lexigrams.

Initial enthusiasm for the ape-language projects, and apparent initial success in getting the apes to do things such as sign and even generate novel words (a frequently cited example is Washoe's signing of "water bird" when she first encountered a swan) began to be questioned as soon as critics started examining the evidence. It turned out that the claims disseminated in publications and divulged to journalists and donors were not supported by data. Actually, though, the relationship between the supposed advances and the data was difficult to determine, since most researchers did not release transcripts or films of the unedited raw data used to document their claims. The claims that they made about the ape's linguistic abilities were thus impossible to confirm or replicate. Whenever the available data were examined, they turned out to be either anecdotal or seriously methodologically flawed, and the apes' linguistic achievements appeared to be consistently overinterpreted and inflated.

The issue came to a head in 1979 when psychologist Herbert Terrace, the psychologist who led the Nim Chimpsky project, published a coauthored article in *Science* in which he concluded that there was no evidence in any of the ape-language studies to suggest that apes could actually create a sentence. "Apes can learn many isolated symbols (as can dogs, horses, and other nonhuman species)," the article determined, "but they show no unequivocal evidence of mastering the conversational, semantic, or syntactic organization of language" (Terrace 1979, p. 901).

[2] Panbanisha, Kanzi's half-sister and "the most advanced of all the bonobos" (Segerdahl et al. 2005, p. 211), died of pneumonia in 2012, several months after 12 staff members at Great Ape Trust had filed a formal complaint expressing "deep concern regarding the immediate safety of the seven bonobos living there" (Beucher et al. 2012, p. 3).

Terrace's article in *Science* is acknowledged by everyone in the field as the blow from which ape-language research never recovered. Most existing projects were discontinued after that, and the apes involved were shipped off to a variety of mostly deplorable fates (Hess 2008, Linden 1986). Of the two ape-language projects that still exist today, Patterson's Koko project has published virtually nothing about language. Information on the Gorilla Foundation's website reveals that the most recent summary of Koko's linguistic achievements, titled "Language Acquisition in Lowland Gorillas: What Project Koko Has Shown Us" is nearly 20 years old, and it appeared not in *Science* or a comparable peer-reviewed journal but in a publication titled the *Russian Journal of Foreign Psychology* (good luck finding that!).

The bonobo language project was headed by psychologist Sue Savage-Rumbaugh for more than 30 years, until 2013, when she was either dismissed or resigned (on this topic, as with almost everything else about this project, details are difficult to come by: Conflict and scandal impact on funding possibilities; hence employees are forced to sign nondisclosure agreements and information is tightly managed). The bonobo project still produces publications. Savage-Rumbaugh and the scholars who have collaborated with her (these include both linguists and philosophers) have responded to criticism like Terrace's by attempting to shift the grounds of the argument. Instead of focusing on apes' linguistic performance, they have come to emphasize that the apes understand human language, and they argue that comprehension is truer evidence that apes have linguistic competence. Savage-Rumbaugh and her collaborators also call into question linguists', psychologists', and philosophers' definitions of language in order to ask how such scholars can maintain that apes do not have language (Savage-Rumbaugh et al. 1998). And since the 1990s, Savage-Rumbaugh has developed the idea that Kanzi and his siblings are not even really apes anymore: They are products of a hybrid "*Pan*/*Homo* culture" ("Pan" being the first part of the Latin name for bonobo, *Pan paniscus*) that was generated at Georgia State University's Language Research Center, where Kanzi and the others grew up surrounded by humans and heard English spoken around them all the time (Savage-Rumbaugh et al. 2005, Segerdahl 2012, Segerdahl et al. 2005).

The collapse of scholarly scrutiny and debate about ape language appears to have emboldened Savage-Rumbaugh and her associates to make increasingly extravagant assertions about the capabilities of the supposedly hybrid, bicultural bonobos, who since 2004 have lived in Des Moines, Iowa. This group now claims that the apes can comprehend complex English-language grammar and that they can speak, make stone tools, and write (Savage-Rumbaugh et al. 2001). The apes can also co-construct conversations (Pedersen & Fields 2009), "talk about things present, in the past, and of the future" (Savage-Rumbaugh et al. 2005, p. 321), and contribute to scholarly and activist debates: One article lists three bonobos as Savage-Rumbaugh's coauthors because, she writes, the apes "have contributed directly, through conversation, to important aspects of this [article] . . . . They are not able to write, but they are able to speak, to use lexigrams, and to answer questions. After receiving an explanation of the nature of the endeavor, they voluntarily agreed to participate in a dialogue about 'what bonobos need'" (Savage-Rumbaugh et al. 2007, p. 17).

Over the course of more than three decades working with bonobos, Savage-Rumbaugh and her associates have come to see bonobos as collaborators rather than as research subjects. The questions that motivated the research in the 1970s—cognition and language—have been superseded by questions of culture. "The challenge of the future is not an ever more precise delineation of the grammatical issues," she and her colleagues now argue, "but rather a better understanding of how apes employ language with each other as members of a functioning social community" (Savage-Rumbaugh et al. 2009, p. 33).

Whereas Savage-Rumbaugh seems to have abandoned cognition as the primary focus of her research, the studies conducted by psychologists working with dolphin communication never stopped examining cognition. These studies—which, in the 1960s, involved attempts to teach

dolphins to speak English, interspecies sex, and LSD tripping at a dolphin laboratory at which anthropologist Gregory Bateson was director for a year—garnered a reputation even more notorious than that of the ape-language research (Riley 2014). They were revived more respectfully in the mid-1970s under the direction of psychologist Louis Herman, who co-founded the (now apparently defunct) Dolphin Institute in Honolulu in 1993 (for a summary of his 30 years of work with dolphins, see Herman 2010).

Like Herman's work, psychologist Irene Pepperberg's research with Alex, the parrot, always focused primarily on cognition. Pepperberg taught Alex to speak not to compare his language acquisition and use of linguistic forms with those of humans, as in the ape-language studies, but instead to communicate with him directly about his understanding of various concepts. Her concern was to establish a means of parrot–human communication that would allow her to assess his cognitive capacities (Pepperberg 1991, pp. 158–59). This emphasis on cognition and downplaying of language seem to have protected Pepperberg's studies from the sort of critical onslaught that pulverized ape-language research (Hesse & Potter 2004, Hudin 2009, Timberlake 2003).

THE PSYCHIC CONNECTION

While the debate about whether certain animals can be taught human language sputters on in the academy, a growing population of nonacademics claims to be happily already having long and meaningful conversations with all sorts of animals. These people are often called "pet psychics" by the popular press. Most people referred to by that term object to it because they think the word "psychic" sounds too mystical and has negatively charged connotations. They prefer instead to be called "animal communicators" or "interspecies communicators."

Animal communicators are people—and from the literature and the websites it seems that these people are almost invariably white, middle-class women[3]—who have developed their ability to communicate telepathically (or, some prefer to say, intuitively) with animals. Professional animal communicators do not claim to have unique mystic capabilities; on the contrary, they maintain that everybody has the ability to talk to animals. We all do this as children, they say. But this innate ability inevitably gets quashed by adults who tell us, as we grow older, that the conversations we have been having with our pets or other animals are only imagined. Only "people of indigenous cultures" maintain the ability to talk to animals throughout their lives, animal communicators say, because "to them, animals, plants, and the features of the land are relatives; every form of life has feelings, intelligence, spirit and the ability to communicate, regardless of form and species" (Williams 2003, p. xix).

Animal communicators claim that their profession is rapidly expanding, at least in the United States, which is where the overwhelming majority of them are located. The sole academic article on the topic I have found confirms that animal communication "has become a booming online business" that, in addition to personal consultations, consists of a range of seminars, workshops, and certification programs (Hafen 2013, p. 186).

Animal communicators differ from the psychologists engaged in ape-, parrot-, and dolphin-language research (as well as from most other scholars who work on anything to do with either animals or language) on three fundamental points.

[3]For example, of the 134 animal communicators who have paid to be listed on the Animal Communicator Directory, a website run by animal communicator Penelope Smith, 97% are white women (**http://www.animaltalk.net/animalcommunicatordirectory.htm**, as of 17 July 2016). My guess about class is based on the photos on this and other animal communicator websites and on the descriptions of lifestyles in the books published by animal communicators, in reference to both their own lives and the lives of their clients, virtually all of whom also appear to be other middle-class white women.

The first major difference is their understanding of what an animal is and what capacities animals have. Although communicators acknowledge that animals have physical forms and lifestyles that are not human, and therefore "cannot be expected to talk about human activities that are not applicable to them, like golf or the stock market" (Smith 2017), little else seems to distinguish different species. Like humans, animals have definite likes and dislikes on a wide variety of topics, from the suitability of their names to the behavior of their people or their guardians (note, *not* their "owners"). Animals have favorite colors, they have friends, they are offended by rudeness, they can have their feelings hurt, and they make plans for the future. They tell lies, they know what age they are, and they have gender identities: One communicator writes of a session in which she understood that a young horse "was disappointed with the fact that he was a colt and not a filly" (Gurney 2001, p. 91).

Communicators vary on the extent to which they address the question of whether they think that all those qualities are specific to some species or are shared by all living creatures. Some mention that humans can communicate with "all beings—four-legged, two-legged, winged, or finned" (Gurney 2001, pp. 43–44), but then they only discuss conversations with pets such as rabbits, cats, dogs, and horses. Other communicators write about talking to rodents, armadillos, parakeets, and finches (Adams 2000, pp. 48, 71, 82). Still others describe exhilarating conversations with wasps, flies, scorpions, and fleas (Horsley 2010, pp. 30–32; Smith 2008, pp. 31, 100–2, 154–63; Williams 2003, p. 222).

In addition to their understanding of the nature of animals, the second crucial difference between scholars and animal communicators is the latters' theory of language. Animal communicators regard the kind of language that interests linguists and psychologists as only a tiny band on a vastly broader spectrum of communication. Language encompasses images, smells, emotions, sensations, and feelings—phenomena that cannot necessarily be put into words. In line with their idea that our communicative capacities shrink rather than expand as we develop linguistic competence, animal communicators explain that as children, we had awareness without having language, just as animals do. This primal awareness, though, eventually became eclipsed by grammar, which "separates us from our connection to our whole selves, our intuitive selves, our receptive, feeling selves" (Gurney 2001, p. 7).

This view of language is individualistic, asocial, and—it seems relatively easy to argue—quintessentially American, in its "positive thinking" guise (Ehrenreich 2010). It understands language to be not primarily a means of establishing social bonds or relations, but instead a means of better apprehending one's genuine inner self. Indeed, animals, if one believes animal communicators, are better sources of inspirational wisdom than are Hallmark greeting cards and fortune cookies combined. "Live a happy life. Make it happy. Don't always rely on others to make it happy for you. Be proud. Be proud of who you are," black-and-white tabby cat Milka tells her guardian through a communicator (Horsley 2014, p. 194). Alfie, a deceased rabbit, sends this advice for his person, from Heaven: "You pay too much attention to what others think. Trust your own feelings more and act on these. That is what will bring you happiness" (Horsley 2014, pp. 200–1).

This view of language encourages a particular understanding of communication. Because language, for animal communicators, is concerned primarily with inner feelings and states, and because those feelings and states cannot be reduced to linguistic signs, it follows that effective communication consists largely of images and sensory perceptions. Furthermore, because this communication is conveyed telepathically rather than verbally, physical distance is not thought to impede communication between humans and animals. On the contrary, animal communicators maintain that distance actually improves communication, since the communicators will not be tempted to take any account of the animal's body language or vocalizations. These details are considered distracting and potentially misleading because communicators say that humans may

project their own desires and interpretations onto the animals' movements. Therefore, animal communicators agree that it is easier to communicate with unknown animals than one's own pets.

Given this framework for understanding language and communication, it should come as no surprise to learn that animal communicators regularly speak not only with living animals, but also with ones who have "gone spirit." According to all animal communicators, just as physical distance is no hindrance to successful communication, neither is spiritual or celestial distance.

In addition to animal communicators, another writer who claims that humans and animals share a psychic connection is biochemist Rupert Sheldrake, who for many years worked at Cambridge University, where he was Director of Studies in biochemistry and cell biology. Sheldrake argues that science cannot explain observable phenomena such as the social coordination of insects such as bees, ants, and termites, the lightening-fast movement of flocks of birds and schools of fish, and the topic that interests him most: dogs who know when their owners are coming home. Sheldrake believes that all these currently unexplained phenomena can be accounted for by positing a connective force that he calls "morphic fields." These are "invisible emotional connections" created through social interaction. Morphic fields link living beings with one another, and they "permit a range of telepathic influences to pass from animal to animal within a social group, or from person to person, or from person to companion animal" (Sheldrake 2011, pp. 25–26).

Sheldrake's claims about morphic fields are dismissed by scientists, who do not mince words. The senior editor of *Nature* reviewed Sheldrake's first book, in which he proposed the idea of morphic fields, with the assessment that "[t]his infuriating tract is the best candidate for burning there has been for many years" (Maddox 1981, p. 245). Animal communicators ignore such owlish kerfuffle, however, and they enthusiastically cite Sheldrake as proof that their claims about telepathic communication with animals have scientific backing. His books are also cited as authoritative proof by people who write inspiring memoirs about their relationships with animals (e.g., O'Brien 2009, Foster 2016).

THE PSYCHOLOGICAL CONNECTION

Other kinds of more academically reputable literature also foreground how communication between humans and animals is facilitated because they share similar mental capabilities and perceptions. The first kind of literature that highlights such similarity is writing about autism.

Literature in this category is, itself, a spectrum. At one pole is work similar in tone and style to that produced by animal communicators. An example is Prince-Hughes's *Songs of the Gorilla Nation: My Journey Through Autism*, a memoir written by a high-functioning woman with Asperger's syndrome. *Songs* tells the story of how its author was helped to make sense of her neuro-atypical experiences in the world by communing with gorillas in the Seattle zoo. The theme that recurs throughout the book is how Prince-Hughes, as a person with autism, thinks/feels/responds to X in a particular way, and so do gorillas: "Gorillas, like autistic people, are misunderstood" (Prince-Hughes 2004, p. 3); "Time is different to the gorillas. It is about being together, not being apart. I am content to feel that kind of time . . . " (p. 12); "Like me, gorillas do not like to get wet and muddy" (p. 128). And so on.

In addition to memoirs like Prince-Hughes's (other examples are Gardner 2008, Isaacson 2009), there is a growing literature on what used to be known as "pet therapy" but which nowadays is called animal-assisted intervention (AAI) or animal-assisted therapy (AAT). This literature also discusses human–animal communication in terms of the benefits that such communication provides for people; benefits such as an overall sense of happiness, the ability to recover from serious illness and to cope with trauma and loss, and an increased willingness to engage in positive social interactions with others (Fine & Beck 2010; O'Haire 2013; Pavlides 2008; Serpell 1996, pp. 89–107).

Even though the literature on AAI is fundamentally about human–animal communication (since people benefit from interacting with animals and speaking to them), the details of the communication are usually not discussed. What interests researchers is the health outcomes of human–animal contact, not its dynamics, and what people actually say to the animals when they interact with them is not well researched. An exception is the work of anthropologist Olga Solomon. Solomon analyzes transcripts and detailed observations of interactions that children with autism have with therapy dogs. She also examines how the children talk to others about those interactions, thereby demonstrating how the kinds of health benefits claimed in the AAT literature actually manifest (Solomon 2010, 2012, 2015).

At the other end of the spectrum of the literature on human–animal communication by or about people with autism are Temple Grandin's books about animals. Grandin is one of the world's most prominent advocates for people with autism. She is equally well-known as an advocate for the humane treatment of animals despite, or rather (counterintuitively and seemingly uncontroversially), because her professional career was made designing what she herself calls "a really efficient slaughter plant" (Grandin & Johnson 2006, p. 307) for livestock animals. Grandin's concern to design such a plant, she writes, was to ensure that livestock on its way to be slaughtered would be treated humanely and with respect. Her ability to design such a plant—her capacity to understand what frightens and upsets animals and therefore to improve their circumstances and their milieu, she says—was because she is autistic.

The subtitle of Grandin's book *Animals in Translation* is "The Woman Who Thinks Like a Cow" (Grandin & Johnson 2006). A claim that Grandin repeats and elaborates in much of her writing is that "[a]utistic people are closer to animals than normal people are" (p. 57). What makes autistic people closer to animals, she says, is that the autistic brain processes the world in ways similar to how animal brains process the world. This similarity, she maintains, is evident from many things. For example, animals are visual thinkers who are highly aware of the details of what they see around them, and they react to those details; people with autism are detail-oriented visual thinkers, too. Animals do not have mixed emotions, says Grandin; they are not ambivalent or conflicted about what they like or dislike. People with autism are similar: "[A]n autistic person's feelings are direct and open, just like animal feelings. We don't hide our feelings, and we aren't ambivalent" (Grandin & Johnson 2006, p. 89).

What sets Grandin's work apart from the other literature that discusses the cognitive and psychological proximity of animals to people with autism is that in her books on animals, Grandin is more concerned with how people can help animals than how animals can help people.[4] She discusses how human–animal communication, in her case, allows her to speak for animals and advocate on their behalf. Autism, Grandin insists, puts "people like me in a perfect position to translate 'animal talk' into English. I can tell people why their animals are doing the things they do" (Grandin & Johnson 2006, pp. 6–7). The point of translating that "animal talk" into English is to compel humans to improve the conditions under which livestock animals live their currently generally intolerably wretched lives.

Besides work on autism, a second kind of literature that examines human–animal communication in order to discuss similarities between human and animal minds is research in symbolic interactionism. Symbolic interactionism is a branch of sociology and social psychology that studies how qualities often imagined to be individual, such as "mind" and "selfhood," in fact are social achievements that emerge through communication with others. The nature of that communication, as the name "symbolic interactionism" suggests, has traditionally been held to be linguistic.

[4]Grandin also publishes work that is concerned more with how animals benefit humans, including herself (e.g., Grandin 2008, 2011).

Because animals do not use language, they are disqualified from access to the psychological and social processes that produce selfhood and mind. Only humans have these (Mead 1962).

Interactionist scholars who study human–animal communication do so to challenge such dogma. They are fond of quoting philosopher Mary Midgley's observation that "the attempt to make preprogramming account for everything [animals do] has only been made to look plausible by constant misdescription—by abstract, highly simplified accounts of what creatures do, which are repeatedly shown up as inadequate when anybody takes the trouble to observe them longer and more carefully" (Midgley 1988, p. 39). By observing animals longer and more carefully, researchers want to extend sociological understanding of how mind emerges as the outcome of social interaction, and they want to prove that animals have selfhood. They are also concerned to show that animals play important roles in securing the selfhood of many humans (Arluke & Sanders 1996).

One way to investigate such issues is to ask people who interact intimately with animals over extended periods of time—people like pet owners, for example—to talk about how they communicate with and understand their companion animals (Sanders 1990, 1993; Sanders & Arluke 1993). Other interactionist research is ethnographic, and it focuses on the animals themselves. It documents ethnographically how animals remember and make plans, how they take the perspective of others, and how they use those perspectives to make choices and achieve goals—in other words, how animals actively engage in symbolic interaction despite the fact that they do not have language (Arluke & Sanders 1996). Alger & Alger's ethnography of a cat shelter discusses at length how cats "are not passive recipients of human attention. They greet you and make demands based on successful past interactions. When we misinterpret them, they often correct us" (Alger & Alger 1999, p. 201; 2002). Drawing on fieldwork in an animal shelter and on her own autoethnographic notes of her interactions with her companion cats and dogs, Irvine (2004a,b) likewise argues that animals display agency (they perform self-willed action), affectivity (they have emotions such as contentedness, happiness, and grief, and they display those emotions through their behavior), coherence (they have a sense of their own particularity, demonstrated for example when they hide themselves), and history [they remember, "as anyone who has ever taken a dog or a cat to a veterinarian knows" (Irvine 2004a, p. 14)]. These features, Irvine (2004a) explains, add up to "an organizing, subjective perspective, or core self" (p. 17) that is both revealed and extended through interaction.

Although interactionist sociologists such as Irvine discuss animal subjectivity and animal minds, they stop short of proposing that animal minds have any discernible psychic structure. Obviously, however, it is a short step from claiming animals have minds to postulating what goes on in their minds and why. This is the step that, inevitably, has been taken by the growing scholarship on trauma in elephants.

Elephants are generally acknowledged to be extremely social and highly intelligent animals. They live in extended matriarchal kin groups of up to 100 individuals, they communicate with one another over long distances using infrasonic calls inaudible to human ears, they have been domesticated to serve as a means of transportation and labor for thousands of years throughout Asia, they can learn complex tricks and feats of dexterity, and they are one of the few animals that recognize their own reflections in mirrors (and that, consequently, are regarded by cognitive scientists as having a sense of self and a theory of mind).[5] Given their obvious sociality and intelligence, elephants likely suffer greatly when their social groups are decimated through mass

[5]Other animals who have been shown to possess this capability are all the great apes, bottle-nosed dolphins, orcas, magpies, and, it has recently emerged, unnervingly, some species of ants (Cammaerts & Cammaerts 2015).

culling, wars, starvation, hunting, illegal poaching, and habitat loss and through the abuse that they suffer in captivity, by being "broken" to perform in logging camps or circuses, or by being confined among small groups in tiny zoo enclosures and being transferred to other zoos, thereby severing social bonds they have managed to forge until then (Clubb et al. 2008, Jaynes 2009).

Scholars who study wild elephants, and people who work in sanctuaries dedicated to rehabilitating abused, orphaned, and traumatized elephants, point out that many elephants these days display symptoms that, in humans, are associated with post-traumatic stress disorder (PTSD) (Bradshaw et al. 2005; Bradshaw 2009, p. 78). Although a diagnosis of PTSD in humans relies on language, many of the symptoms of the disorder are not primarily linguistic, and people who work with traumatized elephants cite evidence of nightmares, aggressiveness, depression, distress, avoidance patterns, and startle behavior, which they claim are clear signs that the elephants are traumatized.

Rehabilitative work with elephants, its proponents argue, has benefited by treating traumatized elephants with techniques pioneered for treating people diagnosed with PTSD, which facilitate a sense of safety, psychological agency, and self-empowerment. Of particular relevance to the topic of human–animal communication is the proponents' claim that the success of their work demonstrates that humans are not the only animals that have a psyche, and that "by recognizing a shared subjectivity, psychology ceases to be a solely human enterprise and animals enter the sphere of psychological concern" (Bradshaw & Watkins 2006, p. 13).

THE INTERACTIONAL CONNECTION

Some studies on human–animal communication look at it in order to illuminate communication more generally. What are the interactional dynamics of human–animal communication? How is it structured? What does it convey?

Dogs are of particular interest in this type of literature because dogs attend closely to people's postures, gestures, and facial expressions, and they have been shown to be more skilled even than chimpanzees at observing humans to extract information and solve problems. For example, experimenters hide food in one of several opaque containers and point to or gaze at the container that holds the food. Dogs (and human toddlers) follow the gestures to find the food, but chimpanzees do not. Observations like these have led evolutionary biologists to speculate that dogs, who were domesticated perhaps as long as 20,000 years ago, coevolved with humans and have acquired human-like social skills. Research has shown that horses also attend to human gaze and attentional state, as do goats (cats, the other domesticated animal that has been tested, couldn't be bothered; Hare & Tomasello 2005; Miklósi et al. 2003, 2005; Nawroth et al. 2016; for a summary of the most recent research, see Lakatos & Miklósi 2012).

Dogs also feature prominently in the literature on human–animal communication that highlights interaction because people talk a lot to their dogs (partly, of course, precisely because the animals are so responsive). A recurring theme here is the extent to which talk to pets resembles talk to infants. Hirsh-Pasek & Treiman (1982) discuss how talk to dogs, which they dubbed "doggerel," shares many features with the baby-talk register often called "motherese," which is characterized by short utterances, repetition, heavy use of present-tense verbs, high pitch, and use of tag questions. A significant difference though is that talk to dogs does not involve deixis or tutorial utterances, so no "This is a ball" or "What color is this?" to Fido. Psychologist Robert Mitchell's (2001) later and more thorough study agrees that talk to infants and talk to dogs share many features but that they differ in that "talk to young infants has a higher MLU; more phatics, questions, declaratives, and deictic utterances; and fewer exact repetitions and imperatives than talk to dogs (probably because speech has even less impact on an infant than on a dog)" (Mitchell 2001, pp. 201–2). Mitchell suggests that talk to pets and talk to infants are similar because the goal

in both cases is to control the behavior of an addressee who has limited attention and understanding and to do so in a manner that conveys affection and friendliness (Mitchell 2001, p. 204).

Talk to dogs does more than convey information and affection to them. It also conveys information to other humans and facilitates social relationships with them. Robins et al. (1991) is an ethnography of encounters between dog owners. These encounters are often initiated by one owner speaking to the other's dog, saying things like "You're so cute! What a good boy!" and petting the dog before addressing the dog's owner with questions like "What's his name?" and "How old is he?" This kind of interaction, the researchers note, serves as an ice-breaker. It establishes contact that may be developed into more extensive interactions or relationships. Tannen (2004) reaches similar conclusions in her study of how people talk to and through their pets (that is, they speak as though they are the pet, in a high-pitched baby talk register) to communicate to human family members. Tannen's analysis of naturally occurring conversations in two family homes exemplifies how "pets become resources by which speakers buffer criticism, effect frame shifts, deliver praise, teach values, mediate or avoid conflict, and both reflect and constitute the participants' family identities" (Tannen 2004, p. 401; see also Cain 1983; and research on "Pet-to-Vet" talk by Arluke & Sanders 1996, MacMartin et al. 2014, Roberts 2004).

Communicative misunderstandings between humans and their pets are another topic that gets examined by scholars who focus on interactions and who publish books instructing people how to "speak dog" (Coren 2000) or who provide "a dictionary of horse language" [Blake 2007 (1975)]. Misunderstandings happen frequently; common examples include things like misreading a dog's posture as friendly when the dog is actually displaying dominance-related aggression, or punishing an animal hours after some undesirable behavior has occurred, in the belief that the animal will remember what it did. Miscommunication is a main focus of books and television programs that teach people how to live with their pets, such as Cesar Millan's "Dog Whisperer" series. Millan, who has made a lucrative career of, as he says, "rehabilitating dogs, but training people," maintains that the overwhelming majority of problems that people have with their dogs stems from them not understanding that their dogs are not people (Millan & Peltier 2006). "Dogs don't think like humans. Dog psychology isn't human psychology," he repeats over and over again in his book and on his television program. (Note, this remonstrance is the *opposite* of the views maintained by the people I discussed above who work with traumatized elephants.) To foster well-adjusted and happy dogs, humans need to learn to "'speak' their dog's language—the language of the pack" (p. 3). This language consists of what Millan calls "the truly universal, interspecies language . . . called energy" (p. 61). The training that he provides for humans consists of getting them to control the energy that they emit, to show the dog that humans are the leaders of the pack, and to insist that their dogs respond with "calm-submissive energy" (for two quite different assessments of Millan and his methods, compare Jackson-Schebetta 2009 and Pryor 2012).

The final topic that gets discussed in studies that focus on the interactional dimensions of human–animal communication is interspecies cooperation. A 2016 study that made headlines around the world was one conducted by a group of biologists who described what appears to be a unique kind of cooperation between wild animals and humans. They documented how in the Niassa Nature Reserve in northern Mozambique, a species of bird called a greater honeyguide cooperates with humans who want to locate wild bees' nests to harvest honey (Spottiswood et al. 2016).

THE ONTOLOGICAL CONNECTION

Human–animal communication also features prominently in writing by anthropologists who work mostly in the Amazon basin and who employ the concept of perspectivism in their analyses. Coined by the Brazilian anthropologist Viveiros de Castro (1998, 2004), perspectivism is the name given

to the perception, supposedly widespread among Amazon peoples, that animals and humans all see themselves as people and all share a single human culture. Perspectivism refers to the idea that actions that look different from different perspectives are, in fact, the same. So jaguars, for example, who, like other animals, see themselves as people, consider that they drink maize beer, just as humans do. But jaguar beer, from the perspective of humans, is blood. Jaguars see themselves as shooting prey with arrows; humans see these same actions as a large predator killing with its claws and teeth. Perspectivism is not the same as anthropomorphism because people recognize that, from the perspective of a jaguar, humans are not humans; they are peccaries liable to be shot as prey and eaten. Humans believe they can access the perspectives of other beings when they (that is, when humans) dream, take hallucinogens, or ingest tobacco. And likewise, animals like dogs are held to be able to access the perspectives of people when they are forcibly given hallucinogens.

In imagining a universal culture that is shared by both humans and animals, and experienced by them in the same way (even if their experiences look very different because of their different natures), perspectivism is the antithesis of the Aristotelian, Christian, and Cartesian absolute chasm-like separation of humans and animals. Such a profoundly different approach to human–animal existence obviously shapes human–animal communication in particular ways. A main difference is that perspectivism mandates an imaginative extension into animal worlds, which makes the practice of communicating with animals intelligible and vital. Just as humans speak, so do animals; it is just that from the perspective of humans, the languages that animals speak are heard as chirps, growls, hisses, hoots, snorts, and barks (from the perspective of animals, human speech sounds the same unintelligible way). However, because animals have language and because they possess knowledge that humans can benefit by accessing, communication with them is both possible and desirable.

Second, perspectivism shapes understanding of the modalities through which communication can occur. Animal language is a form of communication that can be grasped by humans. This is done mostly only in dreams or by shamans who have acquired the ability to enter the world of animals in the guise of an animal alter. However, because animals are understood to communicate with one another in languages that are like human languages, people can attempt to understand them even without hallucinogens: by paying close attention to their body language, their actions, and their vocalizations and by trying to translate their animal language into human language (an interpretive procedure not unfamiliar to anyone who has a pet). Humans can also communicate with animals by mimicking their bodily movements (Willerslev 2004).

Third, and perhaps most distinctly from the kinds of understandings of animals with which most people in the West are familiar, perspectivism vastly increases the stakes of communicating with animals. The boundary that separates humans and animals is thin, and it is permeable. This means that communication across that boundary is risky. Kohn (2013) describes how the Runa people of the Quichua-speaking group in which he works talk to their dogs. He writes that "talking to dogs is necessary but also dangerous; the Runa do not want to become dogs in the process" (p. 142). The reason for this anxiety, he explains, is that when people address dogs, they necessarily treat them as conscious subjects. But inviting them into the human realm in this way also entails a risk that the dogs will respond. The risk here is that "if dogs were to talk back, people would enter a canine subjectivity and therefore lose their privileged status as humans" (p. 143). They would, in other words, be drawn into an animal realm from which they might not be able to extract themselves, and they would be lost to the human world (one can confidently imagine that ape-language research that teaches chimpanzees to communicate in human language through signs or lexigrams would leave Runa people aghast).

To avoid this situation, precautions are taken: When a dog is directly and purposely addressed, it is tied down and its jaws are bound together. The dog is forced to ingest hallucinogenic drugs. This act turns the dog into a shaman, Runa people say, making it able to traverse the species boundary

and comprehend human speech. But precisely because the dog-shaman can now understand human speech, the person addressing the dog needs to speak to it using a specific kind of language. The language consists of imperatives formulated with third-person verbal inflections (so "It will not bite chickens" is addressed directly to the dog, instead of the usual "You will not bite chickens"; Kohn calls this special pragmatic language "canine imperatives"). Kohn explains that the purpose of these forms is to treat the animal as both a conscious, receptive, human addressee and, simultaneously, an animal object ("it"). Canine imperatives hold the dog at linguistic bay and thereby prevent the irruption of dog language into the human realm (the bound jaws also help), thus securing the human–animal boundary, even in its dissipation.

Examples like this are compelling illustrations of how people in some cultures conceive of and engage with animals in ways that are very different from, say, how middle-class Americans interact with their pets. But documenting cultural relativism in relation to the treatment of animals is not really Kohn's point; like Viveiros de Castro and other proponents of perspectivism, Kohn has much bigger fish to fry. He wants to use his analysis of Runa people's engagement with animals to "liberate our thinking" (Kohn 2013, p. 228). Kohn's point is to argue that the acknowledgment of nonhuman perspectives that guide Runa and other Amazonian people's interactions with animals "can tell us something. It can tell us about how that which lies 'beyond' the human also sustains us and makes us the beings we are and those we might become" (p. 221). Human–animal communication here becomes a conduit to rethinking fundamental conceptual, practical, and ethical issues, such as the nature and scope of representation and the capacity that humans have to empathetically engage with life "beyond the human."

The claims that Kohn and other Amazonianist anthropologists make about both perspectivism as an empirical reality and the significance of their own work to "liberate our thinking" are contested. Anthropologists not persuaded by Viveiros de Castro's generalizations criticize the abstractness of the perspectivist model and the insistence with which it flattens out cultural, linguistic, geographic, material, and historical differences between very different groups, creating, in effect, these anthropologists argue, an essentialized and familiar stereotype (not unlike the one promoted by animal communicators) of a timeless, noble, apolitical, completely-in-tune-with-nature Indian (Bessire & Bond 2014, Ramos 2012, Turner 2009, Weismantel 2015).

But a critique perhaps most relevant to the topic of this review is that the literature's claims of novelty are overblown. Anthropologists who write about perspectivism and ontology are far from the first scholars to suggest that attending to how people think about and engage with animals has transformative potential for how we understand and engage with the world. Already in the early 1990s, Ingold (1994, p. xxiv) argued that non-Western understandings of and engagement with animals teach us that "[a]s organism-persons and fellow participants in the life process, human beings and nonhuman animals are ontologically equivalent." Also since the early 1990s, scholars of rhetoric have debated philosopher George Kennedy's assertion that rhetoric (which, sounding like dog trainer Cesar Millan, Kennedy defines as "the exchange of intentional energy" that can occur between any living beings) "is manifest in all animal life and existed long before the evolution of human beings" (Kennedy 1992, p. 4; see, e.g., Davis 2011, Plec 2013). Ecofeminist scholarship has been making similar points for many years (e.g., Adams & Donovan 1995). That work (which, while it addresses epistemology and ontology, in sharp distinction to the anthropological work on ontology is fundamentally about politics) is not mentioned by proponents of the "ontological turn," in a further illustration of what literature scholar Susan Fraiman, writing about "posthuman" scholarship more generally, has acidly dubbed "pussy panic" (Fraiman 2012, p. 100).

Despite such criticisms, which can and should be leveled at the Amazonianists' work on perspectivism and ontology, however, accounts such as Kohn's are important because they insist that human–animal communication can be a privileged site to explore and refresh understandings of

human engagement with the nonhuman beings with whom we share our world. In fact, though, this general shift has occurred in research on human–animal communication since the decline of the ape-language era, and so in this regard Amazonianist scholars are followers or elements of a trend, not its progenitors.

THE ETHICAL CONNECTION

As I mentioned at the beginning of this review, the central difference between the way that human–animal communication was thought about in the heyday of ape-language research and how it is considered now is that, these days, almost no one expects animals to learn human language. On the contrary, it should be clear by now that the focus in much of the writing I have summarized has shifted to getting humans to pay attention to and to try to learn, as best they can, the language of animals. The purpose and goal of communicating with animals have also shifted, from discovering something about how cognition evolved and how it works, to engaging respectfully with nonhuman others, in order, as biologist Françoise Wemelsfelder puts it, "to open doors to a more successful and enriching sharing of worlds" (Wemelsfelder 2012, p. 223). This appeal to sharing and engagement—to ethics—reflects a general reorientation toward animals evident in scholarship across the humanities and social sciences (Weil 2012, Wolfe 2003a). Wemelsfelder's research is a good example of how research on human–animal communication has come to foreground ethics. The research concerns how we can make subjective experiences of animals, especially farm animals such as pigs, sheep, chickens, and goats, accessible to humans, in order to assess and improve the animals' welfare [her PhD thesis is titled *Animal Boredom: Towards an Empirical Approach on Animal Subjectivity* (Wemelsfelder 1987)]. Rejecting behaviorist theories and methodologies that ignore or deny animal subjectivity, Wemelsfelder (2012) has used what she refers to as "respectful, skillful communication" to develop a "sentience-friendly" welfare assessment protocol for farm animals (pp. 239, 229; Wemelsfelder et al. 2000). Similarly concerned with animal welfare, Smith (2003, 2005) discusses how having lived with 200 rescued rabbits over a 12-year period has led her to understand her interactions with them in terms of what she calls a "performance ethic"; this concept highlights how rabbit behavior is intentional and varied, that rabbits make choices, and that humans can understand much of what rabbits do if they engage with rabbit actions as "performances" ("open ended possibilities") rather than as a predetermined set of activities (Smith 2003, p. 194).

A touchstone in this shift to an ethical engagement with animals is the work of Haraway (2003, 2008), who explains that her concern is "to build attachment sites and tie sticky knots to bind intra-acting critters, including people, together in the kinds of response and regard that change the subject—and the object" (Haraway 2008, p. 287). The attention Haraway devotes to "response and regard" indicates that her writing about animals is fundamentally about human–animal communication. "To claim not to be able to communicate with and to know one another and other critters, however imperfectly," she insists, "is a denial of moral entanglements . . . for which we are responsible and in which we respond" (p. 226).

In important ways, Haraway's work on companion species interaction and responsibility builds on the work of Vicki Hearne, who died in 2001. Hearne, whose book *Adam's Task* first appeared in 1986, was an early, articulate, and philosophically astute advocate of engaging respectfully with animals on their own terms, in ways that take into account careful observations of their body language and other communicative signals. Although as Haraway notes in a seven-page eulogy to Hearne in her *Companion Species Manifesto*, Hearne never embraced what came to be known as positive training methods (which emphasize positive reinforcement rather than punishment), and she opposed animal rights discourse, she was a pioneer in arguing that behaviorist understandings

of animal consciousness are not only inadequate and false; they also amount to a denial of responsibility for our actions in relation to animals (Haraway 2003, pp. 48–54; see also Patton 2003 and Wolfe 2003a for similarly laudatorily critical readings of Hearne). Haraway, who devotes much of her writing on animals to exploring her relationship with her dogs and to training them to compete with her in agility competitions, takes from Hearne the conviction that training animals is about more than simple domination. She extends Hearne's insistence that the language of training establishes the grounds for a grammar of interspecies communication, and transformation. Training, Hearne (2007) writes, is "a wonderfully rich and subtle conversation" (p. 112) between animal and trainer. Training involves an acknowledgment that animals believe, mean, feel, and intend. By engaging with these beliefs, meanings, feelings, and intentions in structured ways, training produces something new in the world: training with an animal "results in ennoblement," Hearne maintains, "in the development of both the animal's *and the handler's* sense of responsibility and honesty" (Hearne 2007, p. 43, emphasis in original).

Hearne was an equestrian trainer, and links between responsibility, respect, and communication that ground both her own and Haraway's writing about animals are also articulated by a wide range of people who work with horses. Horses used to be trained by breaking them—punishing them, restraining them, beating them into submission. During the past 40 years, however, a new method, commonly known as natural horsemanship, based on communication rather than domination, has gained significant ground. Originating on American cattle ranches in the 1970s, and simultaneously yet independently in the work of horse owners such as Henry Blake in the United Kingdom [Blake 2007 (1975)], natural horsemanship emphasizes partnership and learning to understand the world from the horse's point of view. Miller & Lamb (2005) and Birke (2007) document a wide range of different methods that are used by practitioners of natural horsemanship. What links all the different methods is a focus on various levels of nonviolence, and on communication based on the body language that horses use to interact with one another and to establish leadership. Roberts, one of the most well-known practitioners, explains that his training system, which he calls "Join-Up" "is a consistent set of principles using the horse's own language" (Roberts 2002, p. 2). Parelli, who in the 1980s coined the term "natural horsemanship," likewise advises trainers that they "need to think like horses in order to understand and communicate with them" (Parelli 2014, p. 22).

CONCLUSION

Why is the literature on human–animal communication important? What is at stake? Across the range of perspectives and orientations I have outlined in this review, most people seem to agree that what is fundamentally at stake with this topic are four related issues. The first concerns a fuller appreciation of the capabilities of nonhuman animals. Pepperberg (2008), who studied Alex, the parrot, concludes that one of the most important lessons that Alex and other language-learning animals have taught us is that "clearly, animals know more than we think, and think a great deal more than we know" (p. 219). This sentiment, that animals are intentional, knowing, and feeling beings, who also are capable of communicating their intentions, knowledge, and feelings to one another—and to humans (if only we pay attention)—is a significant contribution of all the work on human–animal communication.

The second contribution of this literature, which necessarily follows from the first, is its challenge to what Pepperberg (2008, p. 218) tartly calls "the fortress of human uniqueness." Challenging the supposed uniqueness of human beings in relation to animals has been a long-standing preoccupation of ethological work such as that of Goodall (2010) and Smuts (1999, 2001), of ecofeminist scholarship (Donovan 1990, Donovan & Adams 2007), and, more recently, of social science research that uses actor–network theory (Kirksey 2014). But as realized long ago by ape-,

parrot-, and dolphin-language researchers, as demonstrated in research on cognitive ethology–inspired biologist Donald Griffin's work on animal thinking (Griffin 1978, 1984), and, belatedly, as philosophers writing in the wake of Derrida's examination of the human–animal divide have also come to appreciate, language and communication play a particularly crucial role in the challenge to human uniqueness because of the insistence with which Western philosophy and culture have posited language as the definitive answer to the question, "What's the difference between man and animal?"

The third contribution of the literature on human–animal communication concerns, unsurprisingly, communication and language. The study of human–animal communication expands what can count as language, beyond grammar and words. Paying attention to the details and specificities of how humans and animals communicate with one another invites us to explore forms of interaction that are neither based on nor reducible to human language. This broadening of the scope of what constitutes communication and language pries the issue, once and for all, out of the cold grip of the psychologists and linguists who consistently make sure that "people always end up better at language than animals" (Haraway 2008, p. 234) and for whom difference can only mean deficiency.

But this broadening of what counts as language also leads to the fourth contribution that the literature on human–animal communication is uniquely positioned to make. Communicating with animals "stretches to the limit," as philosopher Kari Weil (2012, p. 7) puts it, crucial questions of "how to understand and give voice to others or to experiences that seem impervious to our understanding; how to attend to difference without appropriating and distorting it; how to hear and acknowledge what it may not be possible to say." These questions, as Weil notes, are central to feminist and postcolonial studies; they are also important topics in disability studies (Kulick & Rydström 2015, Nussbaum 2006).

They are also, of course, some of the foundational justifications for the discipline of anthropology.

DISCLOSURE STATEMENT

The author is not aware of any affiliations, memberships, funding, or financial holdings that might be perceived as affecting the objectivity of this review.

ACKNOWLEDGMENTS

For literature tips, helpful conversations, help with obtaining or checking references, and/or comments on earlier drafts of this article, I am very grateful to Don Brenneis, Judith Irvine, Faye Ginsburg, Roy Richard Grinker, Carlos Londoño-Sulkin, Emily Martin, Bambi Schieffelin, Pär Segerdahl, Olga Solomon, Christopher Stroud, Jonas Tillberg, and Mary Weismantel.

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