



ARTICLE

Darwin's hug

Ideologies of gesture in the science of human exceptionalism

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This article reviews accounts of “hugging” across evolutionary paradigms to expose how understandings of gesture are shaped by scientific theorizations of the ways humans and animals differ. The divergent roles assigned to gesture in human communication by Vygotskian and Chomskyan researchers can be traced to research on human exceptionalism during key historical periods in the Soviet Union and United States. When Vygotsky introduced his sociocultural theory of cognitive development during the early Soviet period, human exceptionalism was tested through reproductive crossbreeding. When Chomsky hypothesized a language acquisition device for the human brain during the Civil Rights era, human exceptionalism was tested through interspecies communication. These scientific histories inspired critically different approaches to gestural meaning. Taking a fresh look at the great ape language debates of the 1970s, the article attributes the dismissal of ethnography in late twentieth-century human language study to a developing experimental protocol that required gesture's eviction.

Keywords: ethnography, experimental protocol, gesture, great ape language debates, human exceptionalism, interspecies communication

Introduction

The extraordinary Dr. Jane Goodall visited a small college town in the western United States as part of her 2015 world tour and gave an inspirational lecture to a sold-out crowd of 8700 admirers. She spoke to her life-long commitment to primatology and conservation, and in particular, to her work with the wild chimpanzees of Gombe National Park in Tanzania. While we recognize and salute the thoughtful critique that Donna Haraway (1989) developed in *Primate visions* regarding the rise of Dr. Goodall's celebrity status, particularly with respect to the colonialist implications of her image management by *National Geographic* and other corporate sponsors, we nevertheless write this article as unabashed fans of Dr. Goodall, perhaps not least because our animal-loving daughter is fully inspired by her, and this has made us stop and listen more closely.

Goodall began her 2015 lecture with a chimpanzee greeting that ignited the audience. News outlets explained that the crowd's enthusiasm was typical for this progressive community in the Rocky Mountain foothills, whose

residents live closely with wild animals and view humans who care for dogs as guardians rather than owners. Goodall explained that she had learned this greeting during her years of working with chimpanzees in the wild. She reminded the audience, in a gentle way, that her message was not always easily accepted as scholarly or scientific, mentioning her very real struggles within the constraints of academia: “I was able to stand up to the professors when I went to Cambridge, who told me I should have given the chimpanzees numbers. That was scientific, and I couldn't talk about personality, mind, or feeling because that was unique to us. But my dog had taught me as a child that was wrong.” She ended her lecture on what could be understood as a provocative note, explaining how her team had worked diligently over many years to bring wild chimpanzees facing danger in their natural habitats to an island where they could find peace. A video recording of one of these releases, played before the audience, shows a large chimpanzee named Wounda with her back to Goodall, on top of her now opened cage (Jane Goodall Institute 2014). As Wounda turns to Goodall in an act of recognition, she wraps her left hand



lightly around the back of Goodall's neck, and the two then embrace in what appears to be a seemingly unexpected, lengthy goodbye hug.¹

Given the audible emotional reaction of the audience, one would think that such communicative gestures between animals and humans are entirely uncontroversial. Many of us are deeply familiar with references across generations of popular culture—perhaps especially in American *Disney* and Japanese *Ghibli* films—that give prominence to the idea of interspecies communication, even if the entry of multispecies ethnography into cultural and linguistic anthropology is much more recent (for respective reviews, see Kirksey and Helmreich 2010; Kulick 2017). In cultural anthropology, attention to interspecies communication is closely tied to debates over the validity of the ontological turn, where proponents discuss human/animal perspectivism in indigenous societies as evidence for the incommensurability of multiple worlds (Holbraad, Pedersen, and Viveiros de Castro 2014; Viveiros de Castro 1998, 2004; cf. Kohn 2013) and critics see the fetishization of indigenous alterity as deeply problematic (Bessire and Bond 2014). A compatible cultural anthropology tradition builds on Donna Haraway's (2003) exposition of human-dog relations in *The companion species manifesto* to explore the mutual construction of sociality by humans and animals (Gordon 2010; Maurstad, Davis, and Cowles 2013). Linguistic anthropologists, for their part, have approached interspecies communication as an important new context for rethinking human sociality as well as the semiotic processes that sustain it (Lemon 2015; Smith 2012; Solomon 2015). This turn is facilitated by a renewed focus on the body as a central site for semiotic complexity in human interaction (Bucholtz and Hall 2016), opening analysis to parallel investigations of embodied semiosis among nonhuman animals (Cornips forthcoming; Pennycook 2018). Critical to all of these traditions is a focus on the role of the senses in sense-making—hence our attention in this article to the haptic gesture of the hug as a trope for teasing out the ways that disciplinary boundaries control the possibilities for gestural meaning.

Despite innovations in cultural and linguistic anthropology, an influential strain of research running through the fields of neuroscience, linguistics, psychology, and evolutionary biology would contest the media's description of Wounda's embrace as a gesture of "thanks" and

"love," as it was characterized in thousands of headlines after the hug video went viral (e.g., Gordon 2014). Although these fields are shifting with respect to the theorization of embodied meaning, their disciplinary pasts are in many ways constituted by the premise that Goodall forcefully rejects: nonhuman primates are incapable of complex intersubjective semiotic expression. Scholars working from this premise would likely argue that Goodall, as an interested researcher, has imposed her own humanity onto a series of bodily movements that merely approximate the human ritual of hugging. Field primatologists Catherine Hobaiter and Richard Byrne (2014: 1596) point out that even though scholarship on both captive and wild chimpanzee groups shows that gestures are used "in a flexible, goal-oriented, and intentional fashion," researchers rarely consider "what the intentional signals are used to achieve." Research on chimpanzee gesturing is undergoing rapid change, as seen in Hobaiter and Byrne's focus on gestural meaning as socially negotiated (see also Cartmill and Hobaiter 2019; Pika and Deschner 2019), yet a history of scholarship across diverse scientific fields has viewed the gestures of nonhuman primates as instinctual instead of intentional, functional instead of expressive, self-serving instead of intersubjective, and fixed instead of negotiated.

This article reviews accounts of "hugging" across evolutionary paradigms to expose how the interpretation of gestural meaning critically relies on the researcher's positioning within an ever-shifting boundary between human and animal. Put simply, academic understandings of gesture are shaped by scientific theorizations of the ways humans and animals differ. Our own definition of gesture is construed in broad terms in an attempt to see beyond the human-animal divide: gestures are socially negotiated bodily movements that convey interactional meaning, whether through visual, haptic, olfactory, kinesthetic, aural, or other perceptual modes, often in combination.² In previous work, we have illustrated how human gestural practices may embody ideological

1. The video can be viewed at the following link on the Jane Goodall Institute website: <https://www.youtube.com/watch?v=EsUP2dftN9w>.

2. Kendon's (2004: 15) influential definition of gesture in the field of gesture studies as "manifest deliberate expressiveness" is often interpreted as excluding movements exhibiting goal-oriented utilitarian behavior as well as movements reflective of emotional states (see also Kendon 2000). In such readings, the movement made to request a hug would be classified as a gesture but not the movement that realizes this request. While we see the critical importance of distinguishing between these different types of



perspectives in sociopolitical contexts (Goldstein, Hall, and Ingram 2020; Hall, Goldstein, and Ingram 2016). In this article, we argue that scientific understandings of gesture are themselves ideological. From our own positioning as ethnographers of language and social life, we note that much research on gesture in our cognate disciplines is devoid of the contextualization heralded by Clifford Geertz (1973), anthropology's central figure in the interpretive turn, and thus restricts gesture to a more limited set of movements and meanings than we consider here. Geertz argued that we can understand people different from ourselves only by recognizing that cultural meanings are socially negotiated, a point he illustrates through the now famous example of discerning a wink from a twitch. Yet in spite of this gestural metaphor, cultural anthropologists have rarely brought actual winks and twitches into their descriptions of social life, gifting gesture to disciplines less reliant on ethnographic methods (cf. M. Lempert 2019).³ Our discussion

interactional meaning, the ethnographic approach we advance in this article recognizes, as Kendon (2004: 15) also does, that whether a movement is intentional or not is "dependent entirely" on how the movement appears to others. Our definition of gesture therefore assumes that any gestural act will be afforded its unique communicability through a combination of factors that include species-specific abilities, the bodily articulators involved (e.g., hands, feet, eyebrows, lips, arms), the social context in which the act is produced, and the participants who negotiate the gesture's meaning. For additional perspectives on the relationship between gesture studies and anthropology, see Brookes and Le Guen's (2019) special issue in *Gesture*.

3. We unfortunately do not have the space to discuss the important work in cultural anthropology that counters this generalization. A range of texts with implications for the view of gesture we advance in this article includes Covington-Ward (2015), Csordas (1990), Elyachar (2011), Mahmood (2005), and W. Lempert (2019). These texts draw from theoretical lineages regarding embodied practice inspired by Foucault (1979), Bourdieu (1984), Butler (1990), Goffman (1959), and others. Also relevant is the robust tradition in linguistic anthropology and related fields that has come to be called "embodied communication studies." Although work in this tradition often lacks the broader theorization of society associated with ethnographic methods in cultural anthropology, the ground of analysis is naturally occurring social interaction (for a review, see Kendon 2019). Ethnographic work in the humanities also centers gesture in ways relevant to our discussion; see especially Noland (2009) and Rodríguez (2014).

aims to tease out the influences of such disciplinary trajectories on the understanding of gesture by drawing on a form of epistemological critique associated with Science and Technology Studies (STS), a field that investigates historical parameters surrounding the production of scientific and technological knowledge and its effects on the human condition. This approach is brought into conversation with work in linguistic anthropology focused on the ways that linguistic scholarship, which is of course also embedded in particular historical time frames, has contributed to the ideological construction of linguistic difference across human societies (Irvine and Gal 2000). Our concern in this article, however, is with the ideological construction of communicative difference across animals and humans.

The discussion focuses on the different roles assigned to gesture by Vygotskian and Chomskyan researchers during two key historical periods: the early Soviet period in Russia (1920s–1930s) and the Civil Rights era in the United States (1950s–1970s). The understanding of gesture espoused in these theoretical paradigms is more broadly linked to the experimental research on human exceptionalism that arose during these periods. When Lev Vygotsky introduced his idea of culture as affecting cognitive development in early Soviet Russia, human exceptionalism was tested through scientific work focused on reproductive crossbreeding. When Noam Chomsky hypothesized a language acquisition device for the human brain during the US Civil Rights era, human exceptionalism was tested through scientific work focused on interspecies communication. As we outline in this article, these divergent scientific histories resulted in critically different understandings of gestural meaning in human communication—or rather, different ideologies of gesture. While the interactional focus of the Vygotskian model led to the integration of gesture in subsequent research, particularly in studies incorporating ethnography, the Chomskyan model led to its ejection through a process we identify as *gestural cleansing*, the erasure of bodily movements from experiments testing cognitive ability.

As ethnographers working across the traditions of medical anthropology and linguistic anthropology, we suggest that the comparative investigation of scientific research in different sociohistorical time frames lends important insight into the place of gesture in theorizing human distinctiveness as well as human communication. The first section of the article compares divergent US and Russian responses to Darwin's continuity thesis in the 1920s, focusing on the broader contexts that enabled the Scopes Monkey Trial in one case and the



imagining of a human-ape hybrid in the other. The second section turns to the scientific platforms of Vygotsky and Chomsky to illustrate how readings of continuity with respect to human language, along with the ideologies of gesture they inspire, are likewise influenced by the contexts in which they emerge. The third and final section revisits the Great Ape language studies of the 1970s to consider how experimental methods used to test Chomsky's understanding of human distinctiveness shaped the future of what "counts" as communicative in the language sciences. The question we ultimately pursue is this: Why do ethnographic approaches to interspecies communication enable more generous readings of the cognitive abilities of nonhuman primates than experimental methods? Given that the majority of animal communication studies cited in support of human exceptionalism took place at a time when scientific methods were limited by disciplinary insularity and rarely critiqued by scholars working within other paradigms, we believe it is imperative to approach this scholarship again from a more contemporary, ethnographically informed perspective.

Darwin's hug, the Scopes Trial, and the New Soviet Man

Our discussion begins with a classic description of a nonhuman hug, tucked away in Charles Darwin's *The expression of the emotions in man and animals* (1872). In his third major text on evolutionary theory, Darwin investigates embodied movements used by humans and animals to express emotion as evidence for his evolutionary thesis. Building on French neurologist Guillaume-Benjamin Duchenne's (1862) claims regarding the universal musculature of human facial expressions, Darwin narrates examples of animal and human gestures as parallel behaviors. In a characteristic passage, Darwin explains the human desire to "clasp in our arms those whom we tenderly love" by citing a zookeeper's story of a loving embrace between two chimpanzees:

With the lower animals we see the same principle of pleasure derived from contact in association with love. Dogs and cats manifestly take pleasure in rubbing against their masters and mistresses, and in being rubbed or patted by them. Many kinds of monkeys, as I am assured by the keepers in the Zoological Gardens, delight in fondling and being fondled by each other, and by persons to whom they are attached. Mr. Bartlett has described to me the behaviour of two chimpanzees, rather older animals than

those generally imported into this country, when they were first brought together. They sat opposite, touching each other with their much protruded lips; and the one put his hand on the shoulder of the other. They then mutually folded each other in their arms. Afterwards they stood up, each with one arm on the shoulder of the other, lifted up their heads, opened their mouths, and yelled with delight. (Darwin 1872: 215–16)

Later generations of scientists in Europe and North America would dismiss accounts like this as anthropomorphizing what is from their perspective instinct. Perhaps this explains why Darwin's book was characterized at the time of its publication as full of "amusing anecdote[s]" and thus "more attractive to general readers than any of [his] previous works" (Wallace 1873: 118). But this reaction is surely also related to Darwin's use of ethnography for establishing the thesis of cross-species continuity, precisely through the field observation of nonhuman bodily gestures and the affect they express. Scholars have argued that this early Darwinian work, together with the pedigree study of his cousin Francis Galton (1869) on the superior behaviors of the English upper class, provided critical grounding for the emergent field of behavioral genetics. Certainly, Darwin's use of comparative gestural data from the "savage races," such as the gesture of pouting formed through lip protrusion (Darwin 1872: 909–12), foreshadows racist theories advanced by eugenicists following Galton. For example, Darwin compares the "pouting" gesture across orangutans and chimpanzees, indigenous peoples in Australia, New Zealand, and North America, and finally "civilized Europeans," discussing differences in its frequency of use across these groups as a measure of "sulkiness." Yet Darwin's central concern is with the cross-species universality of emotional expression, not its distinctiveness across races or species: "The young and the old of widely different races, both with man and animals, express the same state of mind by the same movements" (Darwin 1872: 351).

In spite of Darwin's apparent focus on the universality of gestural expression, his ideas regarding natural selection and survival of the fittest were easily applied to explain social and linguistic difference in human worlds, leading to the racist theories that are represented by forms of Social Darwinism in the early twentieth century. Much has been said of the distinct turn taken by Darwin's continuity thesis in Germany prior to and after World War I, when intellectuals, eugenicists, and military leaders used it to justify racism and imperialism.



The racial metaphors that haunted Darwin-inspired “continuity thinking” rapidly inhabited all corners of Western thought, as notoriously seen in anthropology’s early twentieth-century categorizations of civilizations and languages as demonstrating various evolutionary stages of success. The slippage between Darwin’s ideas and Social Darwinism’s ideology continues to inform narratives of social hierarchy in the twenty-first century. In fact, we have never completely freed ourselves from this Darwinian dilemma, here understood as the interplay between the man, the science, and its popular uptake.

Two contrastive responses in the early twentieth century to the evolutionary theory proposed by Darwin serve as extreme examples of how societal ideologies may work to formulate scientific possibilities in any given time frame. The first of these responses is iconized in the Scopes Monkey Trial in the United States, the second in early reproductive genetics in Soviet Russia. In the 1920s, scientific research was still reckoning with the controversial residue of Darwin’s concept of evolution, although differently within different publics. When US citizens were rallying against the incorporation of Darwinian theory into public education for its suggestion that humans and apes were biological cousins, an elite group of Soviet scientists were conducting cross-species reproductive experiments to prove the theory’s most extreme premise: reproduction across humans and apes is possible.

In the United States, religious thinkers from previously separate conservative Christian traditions coalesced under the banner of fundamentalism to condemn evolution as antithetical to Christian civilization. These anti-evolutionist efforts led to one of the most famous trials in US history, the 1925 Scopes Trial (or Scopes Monkey Trial, as it is commonly known). The trial pitted secular science against fundamentalist Christianity in a way never seen before in the nation’s history. After eight days of heavily mediatized court proceedings, the jury quickly delivered a guilty verdict to John T. Scopes for teaching evolution to biology students at a Tennessee high school. Scopes was viewed as violating the Butler Act, a bill passed by the Tennessee General Assembly earlier in the same year making it illegal to “teach any theory that denies the story of the Divine Creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals.” Although the Tennessee Supreme Court overturned this verdict two years later on a technicality, many states nevertheless passed anti-evolution bills in the trial’s aftermath. In fact, the Butler Act remained on the books

for four decades until the US Supreme Court overturned a similar statute in the state of Arkansas in 1968 (*Epperson v. Arkansas* 393 US 97). The place of evolution in the US educational curriculum thus remained ambiguous for much of the twentieth century.

The emerging Soviet Union in this same time period evidenced a very different reception to Darwin’s ideas. In the mid-1920s, Dr. Ilya Ivanov, a respected Russian biologist specializing in reproductive physiology, received approval from the Soviet Academy of Sciences to design experiments to produce a new interbred cross-species between humans and chimpanzees (Etkind 2008; Rossiianov 2002). These experiments were reputed to have had ideological support from North American atheists as well as The Pasteur Institute in Paris, but their primary benefactors were Soviet scientists and antireligion activists. With support from these groups, Ivanov traveled to colonial French Guinea in 1926 to carry out a two-part crossbreeding experiment, the details of which were hidden in obscure government archives for six decades until their release in the 1990s. The first part of the study involved the impregnation of female chimpanzees with human sperm from men of African descent; the second part, although never completed, involved the deceptive impregnation of human females in the Congo with male chimpanzee sperm, a plan that local authorities apparently backed away from. Records reveal that Ivanov did in fact carry out the first part of the study but then lost support from the Soviet scientific community. Attitudes toward Ivanov’s controversial hybridization experiments had shifted under a changing political landscape, with the Soviet Academy of Sciences at one point expressing abhorrence at the idea (although Stalin was reportedly supportive of the project). In the end, for reasons not necessarily related to these experiments, Ivanov was exiled to the Kazakh Republic during the Stalinist purges as an “enemy of the state,” a fate shared by many formerly popular Soviet scientists (Pollock 2006). The now defunct primatological research center that Ivanov established in Sukhumi (formerly a region of the Soviet Union) was later responsible for raising Yerusha and Dryoma, the rhesus macaque monkeys who were sent into space in 1987.

Researchers have offered different perspectives on what may be suggested by this experimental history (Etkind 2008; Rossiianov 2002; Shishkin 2003), but it is clear that Ivanov’s work contributed to a branch of Soviet science that was invested in proving the evolutionary continuity between great apes and humans. Certainly, Ivanov could not have pursued these kinds of experiments had he not received initial support from the mainstream



of Soviet science. If he had been successful, his experiments would have supported Darwin's continuity thesis through a type of evidence that could not be ignored: a human-ape hybrid (cf. Barash 2018). Yet the experiments were animated by widely accepted ideas in the Soviet Union regarding racial hierarchy in both human and ape populations. Consider the following account of Ivanov's goals in a 1926 issue of *Time Magazine*: "to try breeding (artificially) orang-outangs with yellow, gorillas with black, and chimpanzees with white, humans" ("Ape-child?" 1926: 16). These same racist ideas made African populations easy targets of exploitation as experimental subjects, and in Ivanov's case, even enabled the apparent state approval of experiments involving the artificial insemination of unknowing African women. Yet as Russian historian of science Kirill Rossiianov (2002) reminds us, racist ideologies have been integral to the theories of groups orienting to discontinuity as well as continuity. The US-based Ku Klux Klan is a case in point: although its early twentieth-century instantiation rejected evolutionary theory as anti-Christian, it nevertheless embraced hierarchical models of race that prioritized (white) purity and condemned hybridity. It seems that the racist ideologies associated with Social Darwinism were so prevalent during this period that even theories based on discontinuity could not escape them.

Several factors may explain the Soviet interest in this ghoulish form of reproductive experimentation. Countless historians have discussed scientific experiments like this one as motivated by a pervasive Soviet sense of inferiority, especially in the realm of genetic science (Goldstein and Stawkowski 2015). It is also worth noting that even though the Soviets advanced an internal colonialism that exploited indigenous peoples in non-Russian regions (a practice that will become relevant to our discussion of Vygotsky's model in the next section), they had very little experience with external colonialism and the ethical debates arising from it. Perhaps most critically, Ivanov's experiment synced perfectly, if perversely, with the Soviet quest for what became known as the "New Soviet Man." Initially created by the Communist Party as a utopian ideology that promised to unite diverse cultural, ethnic, and linguistic groups from across the Soviet Union, the New Soviet Man later morphed into the healthy and muscular, learned and selfless, respectful man of the collective who would be empty of petty nationalisms and embrace a new Soviet identity (Starks 2008). Ivanov's reproductive experiments in hybridity had a certain utopian quality in common with these ideals: they too promised to unite diverse groups as-

sociated with perceived racial difference into a superhuman of sorts, although this time from across the human-animal divide.

Vygotskian continuity, Chomskyan creationism

The previous section offered two contrastive examples from the early twentieth century to illustrate how reactions to Darwin's continuity thesis had profound repercussions on scientific thought—one with respect to the teaching of science in the United States, the other with respect to the communities of science that developed in the Soviet Union. The current section builds on this argument by illustrating how the historical contexts in which these reactions take place also matter to scientific understandings of gesture. We again hone in on two contrastive examples from the United States and the Soviet Union, this time involving prominent social scientists whose theorizations of language espouse different orientations to the continuity thesis. While Vygotsky, writing in the Soviet Union at the same time as Ivanov, advanced a continuous view of human evolution consistent with the New Soviet Man ideologies discussed above, Chomsky, writing in the era of US Civil Rights movements, advanced a view of human evolution that, while not motivated by fundamentalist Christianity, depended on a strict cognitive separation between human and non-human primates. As we suggest below, both theories were sociopolitical in design, offering visions of evolution that responded to the humanitarian concerns of their time. But these visions also led to divergent understandings of the role played by gesture in human communication systems, with Chomskyan fields like linguistics, in contrast to neighboring fields influenced by Vygotsky, even erasing the body from intellectual purview.

Lev Vygotsky (1896–1934), the Soviet psychologist who famously wrote against the work of Swiss psychologist Jean Piaget, viewed the development of higher cognitive processes as rooted in the social. For Vygotsky, cognition is complexly intertwined with culture-bound activities such as interactions with tools. His view of nature's continuity is deeply historicized: higher cognitive processes emerge when physical tools give way to psychological tools (including language and other sign systems) as groups enter culture. This view synced well with contemporaneous Soviet doctrine regarding the potential of modernizing the Russian peasantry through collectivized labor (even if forced), a process in motion at that time. In fact, Vygotsky prepared an expedition to Soviet



Central Asia that could be seen as testing this doctrine through the lens of mental reasoning (Gielen and Jeshmaridian 1999; see also Kozulin 2015). In the late 1920s and early 1930s, remote agricultural societies in Uzbekistan had experienced a rapid invasion of Soviet power, with some retaining traditional ways of life and others collectivizing into new agricultural and industrial farming conglomerates. Vygotsky's health prevented him from joining the field study that took place in 1931 and 1932, but his team found that the problem-solving capabilities of collectivized farmers participating in forms of production based on a more complex division of labor were superior to those of peasants still retaining a traditional way of life. Vygotsky and his collaborator Alexander Luria attributed the acquisition of abstract reasoning to multiple factors that included exposure to new technologies, formal education, and literacy, but their quasi-historical study nevertheless added a distinctively Stalinist twist to Darwin's continuity thesis. If Ivanov hypothesized the New Soviet Man in his human-ape hybrid, Vygotsky found him in the field as emerging from within collective labor and the physical and psychological tools it requires (Yasnitsky 2019).

Vygotsky's interest in gesture arose from his experimental work on the ways psychological tools facilitate the development of higher mental functions. For Vygotsky, "true" gestures are born from actions that are given meaning in interaction. One of his most cited examples in this regard (Vygotsky [1930–1934] 1978) describes the stages leading to a child's acquisition of the pointing gesture. Children begin by grasping for an object (gesture "in itself"), but when others in their surround interpret the grasp as socially meaningful and deliver the object, they begin to gesture towards others instead of the object (gesture "for others"). After a history of such interactions, children internalize the grabbing gesture as having a generalizable social meaning (gesture "for one-self"), and "what results is the form of pointing that we may call a true gesture" (Vygotsky [1934] 1978: 56). Readers familiar with developmental and comparative psychologist Michael Tomasello's (2008) work on the role played by shared intentionality in the evolution of human communication will recognize its roots in Vygotsky's description. For Tomasello, the pointing gesture is central to shared intentionality, eliciting a form of joint attention that is situated between the "individual intentionality" displayed by apes and the "collective intentionality" that undergirds culture.

Vygotsky never worked directly with nonhuman primates, instead basing his claims on research conducted

by German psychologist Wolfgang Köhler (1925). Like Tomasello, Vygotsky saw the stages of cognitive development identified for humans as unfolding over the course of evolutionary history. In this sense, chimpanzee gestures such as "affective expressions" and "movements expressing social emotions" exemplified "a transitional form between grasping and pointing" (Vygotsky [1934] 1986: 72). This idea precisely undergirds Vygotsky's critique of Piaget, who saw desire as something that humans must overcome before realistic thinking can occur. For Vygotsky, gestural expressions of pleasure, need, and emotion, whether in apes or children, were a critical step toward objective language, even motivating thought itself. Vygotsky's conviction that animals have "embryonic thought and language of the same type as man's" ([1934] 1986: 91) thus had serious consequences for the analysis of gesture in communication, requiring its deep integration. Both Vygotsky and Tomasello, separated by intellectual time and space, came to see animal and human gesture as existing on a continuum that exhibited a great range of problem-solving and communicative abilities. In Vygotsky's version of continuity, the difference between human and nonhuman primates lies in the human ability to interrelate these functions so that intelligence becomes verbal and communication becomes intelligent.

Every introductory student of linguistics and psychology learns about the work of Noam Chomsky (born in 1928), the US linguist who posited that what differentiates humans from animals, including their closest primate relatives, is that humans have an innate capacity to acquire and produce language. His first book, *Syntactic structures* (Chomsky 1957), is hailed as creating modern linguistics by reconstituting the field as part of psychology and human biology instead of the humanities and more socially oriented disciplines like anthropology. Certainly, the influence of his work on the discipline of linguistics cannot be overestimated. With respect to the study of gesture, Chomsky's construal of the study of language as cognitive instead of behavioral sidelined social and interactional research for decades to come (and arguably still does). Chomsky is not an evolutionary biologist, but his proposal of a "language acquisition device" in the human brain (Chomsky 1965) caught the attention of scholars in diverse evolutionary fields. The proposal is theoretical, attributing the shared human mastery of a "universal grammar" to an instinctive mental capacity that has no precursor in evolutionary history. Chomsky's thesis, particularly its suggestion that humans have acquired a unique capacity for language, is



thus deeply compatible with perspectives opposing Darwin's continuity thesis. That is, by advancing the idea that humans alone are structurally wired for language production, Chomsky draws a sharp line between human and animal communication systems.

The understanding of evolution as discontinuous in the area of language was aberrant in the North American social sciences of the 1960s, as seen in research stretching from biological anthropology to comparative psychology. Chomsky postulated a severe break between animal and human that rested on the emergence of a language organ as a single genetic mutation (Chomsky 1982), even though the chance that something as functionally and semiotically complex as human language could arise from a "lucky macro-mutation" (or even a set of lucky macro-mutations) is exceedingly small (Mameli 2007: 23, citing Pinker and Bloom 1990; Pinker 1994; and Dennett 1995). Indeed, Chomsky's thesis is so discontinuous that cognitive philosopher Daniel Dennett (1995) has characterized him as a "crypto-creationist," while linguists Steven Pinker and Ray Jackendoff (2005) have implied the close alignment between his ideas regarding the "perfection" of human language and the tenets of intelligent design. Nevertheless, Chomsky's peculiar form of human exceptionalism remains a guiding assumption today within most branches of linguistics. This has not been the case in linguistic anthropology, where Chomsky's asocial view of language became the target of foundational critiques by scholars of ethnography of speaking (Hymes 1972) and language socialization (Ochs and Schieffelin 1984). Nevertheless, the authors of a prominent handbook on linguistic anthropology still list "what distinguishes humankind from other species" as the first of the field's two overarching research questions (Enfield, Kockelman, and Sidnell 2014).

By focusing on the cognitive uniqueness of humankind instead of its diversity, linguistics secured its escape from the four-field relativism of anthropology. While early twentieth-century anthropology interrogated dividing lines between different sorts of humans and their languages—civilized and primitive, colonizer and colonized, European and non-European, black and white, male and female—Chomskyan linguistics interrogated the dividing line between human and animal, proposing the universality and superiority of human cognition. It is not coincidental that Chomsky's ideas were forged within the Civil Rights era, when the dangers of relativist research were brought to light by racist appropriations of scholarship focused on linguistic and

cultural difference. After all, the racial hierarchies that informed early anthropological work on non-European populations are just one example of an entire global framing of race that positioned African populations as innately inferior both intellectually and culturally. Chomsky's approach, which escaped these connections by emphasizing the cognitive equality of all the world's human speakers, was easily taken up as ethically superior. This sentiment was recently captured by linguist and Haitian creolist Michel DeGraff (2019) in a tribute to Chomsky on his ninetieth birthday: "The beauty of Noam's Universal Grammar is that, once it's adequately understood, it leaves no room for interpreting typological variation on a biased, hierarchized scale. The 'Universal' in UG, unlike the racist pseudo-universalism of the Enlightenment, encompasses *all* of humanity without postulating, or searching for, 'grades of man.'" Ironically, although Chomsky's theory worked well to level the human playing field, it created new problems on the animal-human playing field, authorizing sentiments regarding the inferiority of animals and bringing an end to scientific excitement surrounding the promise of interspecies communication—the magical essence of the great ape language research programs.

The investigation of language as an innately human universal grammar sidelined the place of gesture in human interaction. On one level, it made sure that the stink of early research upholding gesture in "primitive societies" as evidence for evolutionary continuity would not be revived. But more broadly, it viewed gesture (and, in fact, social processes in general) as simply irrelevant to the mental processes in the brain that are the focus of the theory. Still today, a majority of linguistic departments in the United States consider gesture to be far outside the bounds of linguistic theorization, even as linguistic anthropologists and sociolinguists turn to the body as a central locus of the interactional production of meaning (Bucholtz and Hall 2016). As primate researchers Roger Fouts and Gabriel Waters (2001) argue in their critique of Chomskyan bias in research on chimpanzee uses of sign language, the Cartesian perspective forged by Chomsky had the effect of cordoning off language (whether signed or spoken) from other embodied communicative modalities, positioning language capacity as a thing of the (human) mind and gestural capacity as a thing of the (animal) body. This perspective likewise underpins the gesture-first hypothesis of language origins, which holds that symbolic uses of gesture preceded and enabled the development of human language (Hewes 1973). In the view of scholars of gesture such as Kendon



(2017), the gesture-first hypothesis—in contrast to the Vygotsky-inspired research we have just described—assumes an either/or relationship of gesture to speech that denies the ongoing evolutionary coinvolvement of these two modalities.

The great ape language studies: Ethnography meets gestural cleansing

In our third and final section, we take a fresh look at the US-based great ape language studies in the 1970s that were inspired by Chomsky's dividing line. This research has been extensively discussed in the literature as "proving" the thesis that only humans are capable of acquiring language. We note at the outset that the way *language* is used in these studies is synonymous with universal grammar and particularly its tenet of linguistic creativity, the capacity to generate an infinite number of grammatical sentences from a finite set of rules. Although Chomsky's theory does not enjoy the disciplinary hegemony that it once had, its residue is prominently seen in the field's continued distinction between "human language" and "animal communication," a terminological contrast that recalls the discontinuity that is at the heart of Chomsky's thesis. Our purpose for revisiting the great ape language studies is not to recast them as a success; certainly, the chimpanzees under investigation in these studies did not demonstrate the generative linguistic creativity that is definitional to Chomsky's mental grammar. Like all animal communication systems, human language has species-specific affordances that include not just its generative and recursive properties but also what linguists call displacement, the ability to communicate about things that are not immediately present, whether spatial or temporal.⁴

4. The species-specific affordances of animal communication systems are also foundational to Chomsky's critique of the great ape language experiments. However, his extreme view of human exceptionalism positions the very investigation of interspecies communication as misguided, irrational, and unscientific: "The absurdity of trying to teach apes language is even more obvious. Would it be of any interest to train grad students to more or less mimic apes? We would learn nothing about apes from the fact that grad students can be trained to more or less mimic them—try to get an NSF grant to study that—just as we learn nothing about humans from the fact that apes can be trained to mimic humans in some respects" (Chomsky, quoted in Cucchiari 2007). Chomsky's dis-

Rather, our purpose in this section is to question why experimental approaches to interspecies communication, as utilized in these great ape language studies, led to more accentuated discontinuous readings of animal and human communicative abilities than what is ordinarily seen in ethnographic approaches. Our answer lies in ethnography's greater attention to the role played by embodied expression in the interactional production of meaning, including complex gestural expression. Closely allied with Vygotsky's focus on the broader surround of interaction, ethnography explores meaning-making as a collaborative activity achieved through multiple modalities.

Like the human-ape hybridization studies initiated by Ivanov, the chimpanzee language studies in the United States were seeking answers to classic Darwinian ideas about continuity between animals and humans, although their focus was on linguistic instead of reproductive compatibility. The American great ape experiments did not involve human-ape hybridization, yet they similarly tested human-animal borders by socializing a baby chimp into a human family. However, by limiting language to mental grammar, these studies affirmed an all-or-nothing dividing line between human and animal linguistic capacity while setting aside other communicative abilities that readily cross that line. The famous chimpanzee protagonist Nim Chimpsky, playfully named after the man whose theories he tested, was seen as a failure in Chomsky's model of human language, but he could potentially be understood as a success in Vygotskian's model of human communication. After all, Nim became so adept at communicating his pleasures, needs, and emotions to his human family that his closest caretakers came to see him as one of their own children. The award-winning British documentary *Project Nim* (Marsh 2011) provides strong evidence of this sentiment, tracking Nim's relationships with his human family, researchers, and caretakers even after he was transferred to an experimental medical research facility and finally to an animal sanctuary, where he died of a heart attack at the relatively young age of twenty-six.

Embodied expression does not figure into Chomsky's definition of universal grammar, much less haptic gestures. It is thus somewhat ironic that the great ape language debates abruptly ended—at least from the perspective of many linguists and psychologists—with Herbert Terrace's (Terrace et al. 1979) explication in *Science*

missal of interspecies communication in this passage as "mimicry" exemplifies the erasure of the body's communicative potential that we address in this section.



of Nim's use of the lexical sign for "hug" (Singer 2011). Terrace, a Columbia University experimental psychologist, had allegedly set out to disprove Chomsky's dividing line by teaching sign language to a chimpanzee (Nim). Inspired by R. Allen Gardner and Beatrix T. Gardner's (1975) famous American Sign Language (ASL) studies with the chimpanzee Washoe, who demonstrated sophisticated communicative abilities but left the question of Chomskyan grammar unanswered, Nim would be raised like a human child by caretakers familiar with ASL and then later subjected to intensifying tests of language capacity. As diverse commentators have noted (e.g., Umiker-Sebeok and Sebeok 1981), the project was flawed in multiple respects, among them Nim's relatively late introduction as an infant to sign language, the affective issues caused by multiple and changing caregivers, the research team's inconsistent use of a pidgin sign language instead of ASL, the uninviting environment of windowless and sterile lab conditions to definitively test Nim's language competence, and the pedagogical focus on lexical repetition. Yet Terrace dismissed all of these concerns as irrelevant to Nim's potential for acquiring human language and instead declared the attempt a

failure, offering the now infamous example of Nim's production of the phrase "Me Hug Cat" (see Figure 1).

The three-word sequence "Me Hug Cat," interpreted by the onsite examiners as a grammatical three-lexeme request to hug the cat, was initially viewed as a spontaneously generated sentence that provided evidence of linguistic creativity. But in a later review of the still photos accompanying this utterance, as described in a 1979 coauthored article "Can an ape create a sentence?," Terrace identified what he believed to be the interactional use of prompting cues by the research assistant Susan Quinby (Terrace et al. 1979: 892). In the first frame, Quinby signs "you" while Nim signs "me"; in the second frame, Quinby signs "N" for "Nim" while Nim signs "hug"; in the third frame, Quinby signs "who?" while Nim signs "cat." This apparent call-and-response, despite Nim's introduction of the novel lexeme "hug" in the second frame, provoked Terrace to rethink Nim's bringing together of these three lexical items as prompted "by his teacher's immediately prior use of sign language" instead of constituting evidence for creative sentence structure. Describing his method as "discourse analysis," Terrace reviewed the project's limited set of

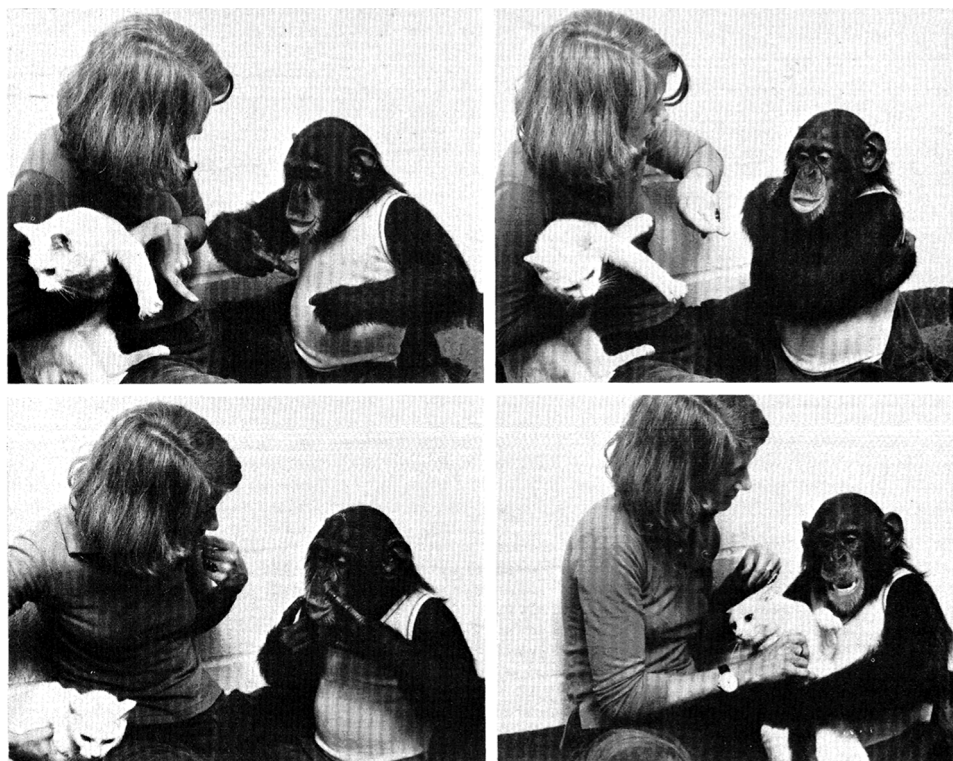


Fig. 1. Nim signing the linear combination, *me hug cat* to his teacher (Susan Quinby). (Photographed in classroom by H. S. Terrace.)

Figure 1: Nim Chimpsky signing "Me Hug Cat." From Terrace et al. 1979. Reprinted with permission from AAAS.



videos involving both teacher and student (after being alerted to the problem by a graduate student reviewer) and determined that the majority of Nim's two- and three-word utterances were scaffolded by invested researchers. In essence, Terrace suggests a discourse analytic method that eliminates from consideration any relationship of the researcher with the chimp. Subsequent scholars built on Terrace's critique to suggest that "non-linguistic" cues such as facial expressions, eye movements, and other embodied gestures inherent to human communication could also unduly influence chimp behavior (Umiker-Sebeok and Sebeok 1981).

How can we understand the meaning of Nim's use of the novel sign "hug" in this specific context? Studies of language-trained apes, both prior to and far beyond Project Nim, are replete with examples of apes using the sign "hug" to request affection, to show gratitude, to express grief over the death of infants, and even, as reported for the gorilla Koko in 2015, to express pleasure over the adoption of kittens. Given that hugs, embraces, and clutches are likewise used by wild apes as a calming gesture to ease social tension and maintain social groups, we wonder if Nim's use of the sign "hug" in Terrace's example might express a need for contact and warmth in the cold setting of the laboratory. If so, how might this desire have affected Nim's willingness to attend to linguistic testing exercises? In other words, as ethnographers, we would be hesitant to dismiss Nim's three-word sentence without knowing more about Nim's longitudinal affective relationship both to hugging and cats, as well as the laboratory itself.

This information is omitted from Terrace's damning account in *Science*, which was repackaged in a stream of influential publications. Although Terrace was unwavering about Nim's failure to produce language in the *Science* article, he acknowledges and describes the ethnographic complexity of Nim's relationship to the cat in his own popular book published the very same year, somewhat surprisingly called *Nim: A chimpanzee who learned sign language* (Terrace [1979] 1987). In this text, Terrace speaks of Nim's curiosity about the cat in the box, his eventual jealousy of the cat when Quinby is holding it, and his desire to feed the cat as he would his doll or puppet. Most stunningly, Terrace recognizes the fourth frame as Nim grinning with pleasure when he is finally able to hug the cat:

After Susan signed to Nim, *Cat in box*, Nim began to sign *cat*, *cat hug*, *cat me* at a furious rate. Finally Susan

opened the box and took out the cat. The sight of Susan holding the cat further intensified Nim's signing. Now he began to sign combinations such as *hug cat*, *me hug cat*, *me hug*, and *me cat*. When Susan finally allowed Nim to hug and play with the cat, he grinned broadly in an unmistakable smile. (Terrace [1979] 1987: 116)

It is hard not to wonder what exactly changed Terrace's mind in reviewing the Nim materials. The difference between what Terrace published in this best-selling book (Nim had language, Nim communicated with his researcher) and what he published for scientists (Nim had no language, Nim was cued by his researcher) is worthy of inquiry. Was Terrace afraid of losing his scientific credentials? Was the pressure from the science community surrounding these studies too great? Was Chomsky's view of language so powerful that Terrace didn't dare write against the tide? Was Terrace influenced by his peers, much like Nim was influenced by his trainer?

Terrace's critique partnered with a new generation of social experiments designed to erase the researcher's body altogether through testing procedures involving one-way glass, screen dividers, and facial masks, putting into play the process of gestural cleansing. Particularly noteworthy in this regard are the double-blind testing procedures developed by Gardner and Gardner (1980) when working with Washoe. As suggested by the rather complicated set-up depicted in Figure 2, the Gardners were concerned that "nonlinguistic" aspects of communication would unduly influence both the subject's linguistic performance and the experimenter's assessment of it. It was determined that trainers would transfer their historical understanding of how gestures such as lip-smacking and lip-protrusion were used in interaction to the laboratory situation, thus biasing the results (for a review, see Umiker-Sebeok and Sebeok 1980). The Gardner's double-blind procedure could not completely erase expressive gestures, particularly those involving vocalization, but this was the settled-upon procedure for testing Washoe's lexical production in ASL. After an object was projected onto the screen, blind observer O_1 would ask Washoe what she saw, write down Washoe's signed response onto a piece of paper, and then deposit it in the message slot. Experimenter E_1 would retrieve the response and check its accuracy with the second observer O_2 , who had viewed Washoe's performance through a one-way glass. The method thus assured that any previous interactional history between trainer and chimpanzee would influence neither production nor evaluation.



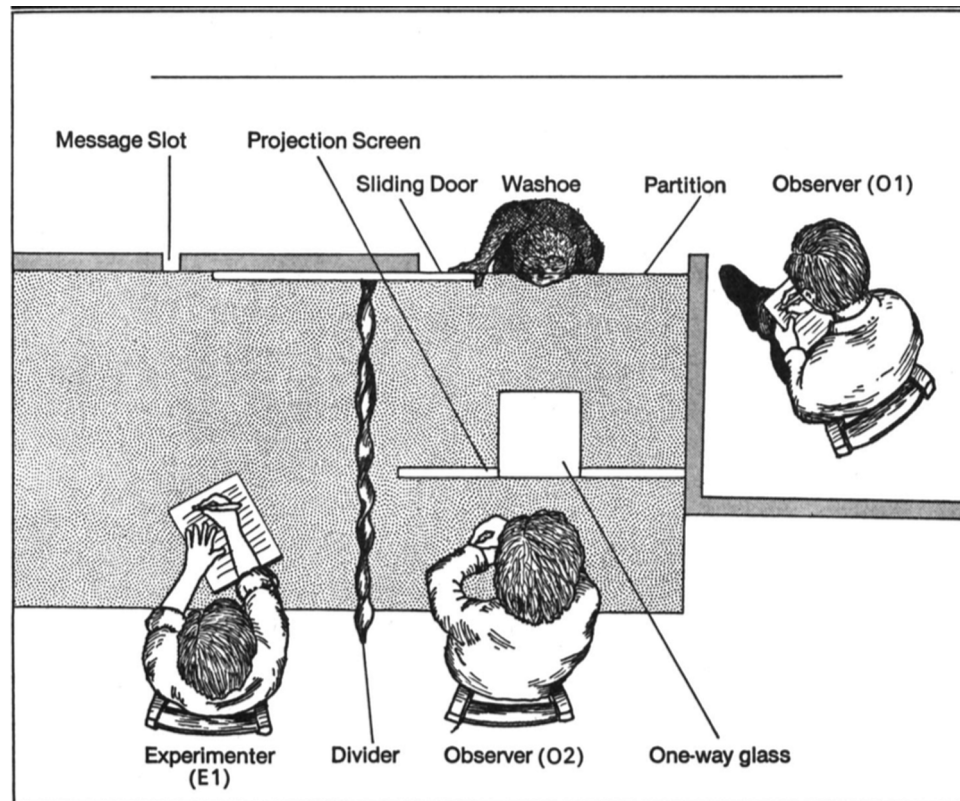


Figure 2: The Gardner's double-blind testing procedure administered to Washoe. From Umiker-Sebeok and Sebeok 1981. Reprinted with permission from *Anthropos*.

The gestural cleansing implemented during this historical period as necessary for good science perhaps explains why Terrace ignored the potential role of Nim's affective desire and the communicative qualities of that expression. Concerns in the behavioral sciences over "cueing" as producing bias in animal cognition research date back to at least the early 1900s, when scientific examiners dismissed the numerical calculating abilities of a performing horse in Berlin named Hans as prompted by microsignals in his questioners' faces (Samhita and Gross 2013). A few decades later, the German zoologist Otto Koehler (1941), whose research focused on numerical competence in different species of birds, became one of the first scientists to call for rigorous experimental video protocols that eliminated face-to-face contact. The double-blind protocols initiated by the Gardners are situated in this methodological history, designed to cleanse the data of interference from not just gestures but also ethnographic intimacy. Inside the Herbert Terrace Project Nim study was a rich trove of ethnographic material about Nim that could have helped us understand what was additionally happening in the *me hug cat* sequence. Instead, Terrace insisted that

trainers were primarily responsible for Nim's new language productions and condemned participant observation as a problem instead of strength. Yet it is precisely the messy interactional stuff of everyday life that can help us evaluate Nim's semiotic capabilities: Does Nim like hugs? Does he like cats? Does he like to hug cats? Was he always spending time repeating words back to trainers? Was he bored and hating the windowless room? Was he a "dumb chimp"?

Terrence closed the study after publishing his 1979 *Science* article, declaring Chomsky's version of human exceptionalism correct. The conclusion of this particular phase of the debate intensified the challenges to great ape ethnographers working with enculturated and captive apes. In order to assure skeptics that their data was clean, these scientists began to deemphasize the rich contextual, interactional, and gestural knowledge they had collected in favor of cataloguing behaviors, cross-checking observers, and creating unassailable laboratory experiments that often introduced new problems (Stebbins 1983). In a matter of years, Chomsky-inspired experimental research had successfully "outsourced" other paradigms of the moment (Goldstein and Hall 2015).



Researchers who at one point were known for their ethnographic talents were forced to don masks to prove that peculiar gestures from a well-known trainer were not tainting the study. Sue Savage-Rumbaugh (1999), for example, the famed ethnographer of chimpanzee communication, chose to wear a mask in many of her studies with the bonobo Kanzi, although she later came to rebel against this form of experimentalism.

From today's vantage point, when embodiment is becoming increasingly central to the analysis of social interaction, the great ape language studies tell a story of gestural cleansing, as scientists sought to eliminate any of the doubts associated with messy natural settings and instead to carefully control the methods of experimentation utilized (cf. Goldstein 2012). This process continues to guide research even on human populations, as seen in Joshua Reno's (2012) work among language learners on the autism spectrum who can communicate only with caretaker-assisted technologies. Reno finds that the setting for language learning in this case exhibits tensions between the language learner, the interlocutors, and the linguistic equipment in response to broader ideologies that prioritize the "naturally" speaking human. Even in this small corner of specialized education, practitioners exhibit constant experimental worry that their assistance will diminish the proof that communication is occurring. Likewise, the great ape ethnographers lost prestige if they did not prove that the animals they raised and cared for could perform universally well in all contexts, even in those attempting to eliminate the social.

But what has been lost in the drive to cleanse close-up ethnographic field research with great apes? Perhaps most obviously, we lose the fact that Nim was transformed by his time with humans and that his cognitive, linguistic, and gestural capacity expanded in unexpected directions. For instance, gesture scholar David McNeill, in an early review of Washoe's rule-like incorporation of a lip-smacking gesture to express appeasement, suggests that Washoe may have reorganized ASL according to her own native linguistic system: "Washoe did not encode propositional relationships through word combinations in ASL, although she expressed these in other ways, and she reconstituted the linguistic information she was given along lines completely different from those her handlers presumably had in mind" (1980: 160). A well-known sign that Nim made use of in the 1970s with his human family, immortalized by his appearance in a 1979 issue of *High Times* magazine, involves clasping two fingers and thumb together as if holding an imaginary marijuana joint. According to Bob Ingersoll, a grad-

uate student who cared for Nim after he was removed from his Columbia University-owned research estate and caged in the Oklahoma Institute for Primate Studies, Nim used this sign with him years later when initiating the request "stone smoke now" (Jenkins 2011). Medical workers at a second facility that held Nim in retirement noted that Nim produced signs that indicated an affective desire to hug and to play. Yet Nim's use of these signs was continually positioned as something irrelevant to language capacity. Rather than finding it extraordinary that Nim successfully communicated his desire to hug a cat in the laboratory or smoke marijuana with a friend, the scientific finding was that Nim had only a limited number of signs, that he performed these signs only with prompting from a researcher, and that he acted primarily with the goal of food in mind. In other words, the gesture ideologies of these researchers led them to read Nim's gestures in a way that dismissed his communicative capacities.

One of the most difficult aspects of entering the literature on nonhuman primate communication is the moving goal post of what constitutes the dividing line between ape and human. It is quite common for the authors in these studies to change their positions over time to acknowledge new data or even, as we saw with Terrace, to change their positions when addressing scientific as opposed to popular audiences. The line between human and ape is especially mobile in field research conducted with wild chimpanzees, where provocative new discoveries continue to invite reanalysis. Much work on gestural meaning by field researchers has been used in the service of answering David Premack and Guy Woodruff's (1978) early question: "Does the chimpanzee have a theory of mind?" Michael Tomasello and Josep Call (1997) have influentially answered this question in the negative, although they later redrew the dividing line not at a theory of mind, but rather at the use of a "perception-goal psychology as opposed to a human-like belief-desire psychology" (Call and Tomasello 2008). After the conclusion of the great ape language debates, biological anthropologists largely resisted the question of whether nonhuman primates have a human-like capacity for language, instead turning their attention to how they communicate in their natural settings, within the larger context of their social behavior (for an early example, see Seyfarth, Cheney, and Marler 1980). Yet this fieldwork is again being placed into a dividing line by scholars distinguishing ape gestures from human gestures as owing "more to biology than learning" (Byrne and Cochet 2017). Such views are facilitated by



professionalized systems of data collection and management, which turn nuanced ethnographic field observations into searchable data sets authored by multiple observers (for a recent example, see Weiss et al. 2017 on wild chimpanzee personality).

What remains consistent across the wild ape field literature is the methodological interest in categorizing gestures according to morphology and function, as this is seen to provide insight into the evolutionary origins of humanity. In this body of scholarship, hugging is primarily discussed as fulfilling dyadic functions of reconciliation, such as when chimpanzees hug after a fight to ease social tension. In fact, the use of tactile reconciliation after conflict has been documented in over twenty nonhuman primate species (Aureli and de Waal 2000, cited in Goodwin 2017). Yet even here, researchers remain concerned with the dividing line. In a review for the *American Review of Anthropology*, biological anthropologist Joan Silk (2002: 34) suggests that nonhuman primates engage in reconciliation behaviors “in an instrumental way to gain access to a valued resource” and not because they “value their relationships with their partners more highly,” as she implies is the case for humans. If there is anthropomorphization at work in our descriptions of nonhuman primate gestures, then it is also at work in our descriptions of human gestures. Researchers of language have only recently turned their attention to human intercorporeality (Meyer, Streeck, and Jordan 2017), precisely because of the disciplinary histories discussed in this article. Certainly, linguistic anthropologist Marjorie Harness Goodwin’s (2017) analysis of the many uses to which hugging can be put in human interaction—reconciliation, comforting, displaying sympathy, celebration, grooming, play—suggests that something more complex is taking place than the demonstration of relationship value. Yet Goodwin’s analysis also suggests continuity with the functions of hugging seen in nonhuman primates. In her view, haptic gestures “are foundational features of interaction, the embodied matrix within which it emerges, rather than something added on to language” (2017: 75). What if we were to revisit Nim’s failure with this in mind?

We note Dutch primatologist and ethnologist Frans de Waal’s (1989) defense of anthropomorphization as a useful device when applied with caution: “The decision making underlying much of what these animals do strikes the human observer as very familiar. Provided that it is based on intimate knowledge and translated into testable hypotheses, anthropomorphism is a very useful first step toward understanding a psychology similar to and almost

as complex as ours.” It is perhaps not surprising that scholarship in the lineage of de Waal offers convincing evidence that chimpanzees are indeed able to understand the psychological states of others. Consider, for instance, Savage-Rumbaugh and McDonald’s (1988) longitudinal observations regarding the ways that chimp hugs can function as part of deception routines. They narrate the story of Austin, a human-reared chimpanzee who has a bullying playmate named Sherman. Yet Sherman, in spite of his bullying, is afraid of the dark, especially of the noises that occur outside the walls. When night falls, Austin sometimes leaves the room and makes strange sounds, then returns and looks to the door as if something is lurking outside. In response, Sherman immediately stops his bullying and runs to Austin for a comforting hug. For evolutionary psychologists like Jill Byrnit (2006), who cites this narrative in her own work, this is a clear demonstration of a theory of mind, at least for apes living in extended contacts with humans. Austin understands his roommate’s psychological perspective and strategically exploits this knowledge to reverse the dominance hierarchy—with a hug.

The communicative abilities of enculturated apes have been made uniquely visible through deeply ethnographic work. Greenfield and Savage-Rumbaugh (1993) have even detailed the diverse pragmatic functions that can be achieved through repetition, a strategy dismissed by Terrace in his review of Nim’s interactions as rote imitation. In this respect, it is worth recalling Vygotsky’s ([1934] 1986) assessment of the work of primatologist Robert Yerkes (1876–1956), who developed four experimental methods to teach chimpanzees language, all of which failed. Citing Köhler, Vygotsky characterizes Yerkes’s failure in the following way: “Not uncommonly, the fault lies with the experimenter. Köhler says that if earlier studies of chimpanzee intellect failed to show that it had any, this was not because the chimpanzee really has none but because of inadequate methods, ignorance of the limits of difficulty within which the chimpanzee intellect can manifest itself, ignorance of its dependence on a comprehensive visual situation. ‘The experimenter should recognize,’ quipped Köhler, ‘that every intelligence test is a test, not only of the creature examined, but also of the experimenter himself’” (Vygotsky [1934] 1986: 74–75, citing Köhler 1925: 275). This same idea is behind biological anthropology’s move to the field after the great ape language debates in order to study the communication systems of nonhuman primates on their own terms. We are here reminded of the 2015 lecture with which we opened this essay, in which Goodall describes



her rejection by other scientists when she refused to cede to frameworks unable to recognize that animals have “personality, mind, [and] feeling.” It is worth noting that Nadeshada Ladygina-Kohts (1889–1963), a Russian scientist who famously brought a chimpanzee named Joni into her home in 1913, did not appear to suffer the same rejection in this regard. Cofounder of the Darwin Museum in Moscow, Ladygina-Kohts’s ([1935] 2002) research assessing the cognitive abilities of chimpanzees was contemporaneous with Vygotsky’s ([1934] 1986) theorization of affective gestures as critical to higher mental functions.

Conclusions

In this article, we have considered the ways that ideologies of gesture have been produced through scientific traditions organized around the question of human exceptionalism. While Vygotsky’s work incorporated gesture as demonstrative of animal-human continuity, Chomsky’s discontinuous understanding of language as a uniquely human mental grammar erased gesture from purview. Ultimately, we have suggested that ethnography’s attention to the broader interactional context, enabled by its key method of participant observation, leads to a fuller picture of the communicative abilities of enculturated apes than seen in Chomsky-inspired experimental methods, which required language to be produced without attendant socialities.

The methodological power of “intimate knowledge” lies at the core of de Waal’s recent book *Mama’s last hug: Animal emotions and what they tell us about ourselves* (2019). The book revolves around the relationship between Dutch primatologist Jan van Hooff (de Waal’s mentor) and a dying chimpanzee at the Royal Burgers’ Zoo named Mama. Van Hooff, who had known Mama since 1972, returned to see her the week before her death. A video of their final farewell (van Hooff 2016), recorded on a cell phone and later broadcast on national television, stirred emotions in the Dutch public.⁵ When van Hooff joins Mama where she lies sick and has refused food and drink, she turns to him in recognition, grins widely, struggles to sit up, and then stretches out her arm to embrace him. De Waal, a seasoned primatologist, narrates this scene to bring the evolutionary story back to a place he can endure, one far away from the Chomskyan line that

divides humans from animals through an abstract notion of intellect. Chomsky never softened the either/or declarations he made in the 1970s, proclaiming in an interview thirty years later that Terrace’s finding regarding Nim’s language production was “exactly what any sane biologist would have assumed: zero” (Chomsky, quoted in Cucchiaro 2007). In this same interview, Chomsky declares multiple times that those who are sympathetic to this kind of work, among them the great ape ethnographer Savage-Rumbaugh, lack scientific credentials. “For whatever reason,” he concludes, “the study of human higher mental faculties is pervaded by a curious form of irrationality, foreign to the sciences.”

In lockstep with Chomsky’s familiar and somewhat gendered division of research into hard science (rational, experimental, linguistic) and soft science (irrational, ethnographic, gestural), de Waal does not shy away from declaring his own position to be quite rational, based on Darwin’s work on emotional expression quoted at the outset of this article. But for de Waal, as for Darwin, the continuity between animals and humans is as much emotional as it is rational. Although Chomsky would no doubt find de Waal’s description of Mama’s last hug anthropomorphizing, we instead want to call attention to the potential we see in work such as his for the recovery of gesture—its communicative capacity, its affective capabilities, its semiotic consequence—in anthropological and linguistic research. Our argument is not that the great ape language findings were wrong, but that something was lost in this all-out battle. We note that gesture is still sidelined even in our human ethnographic descriptions (Herzfeld 2009), as are a host of other “atmospheric attunements” that surround the intimacies of everyday knowledge (Stewart 2011). Much of our ethnographic work struggles to achieve the temporal depth so often disallowed by experimental methods, which leave us with flattened descriptions of social complexity. Yet, the banal celebration of language, especially speech, is everywhere with us.

The popularity of both Frans de Waal’s and Jane Goodall’s passionate descriptions of animal emotions suggests that we are in a different place in this extraordinary year of 2021. As a global pandemic has changed human sociality in profound ways over the last year, we feel compelled to reconsider what happened when the Chomskyan revolution drew the red line of distinction between animal and human. We have presented this closer look at scholarly interpretations of the hug in the hope of bringing back some of the lost humanistic elements of great ape research—elements that we

5. The video can be viewed at the following link on the van Hooff website: <https://www.youtube.com/watch?v=INa-oOAexno>.



believe emerge most clearly in the messiness of everyday interaction. The attraction of audiences worldwide to Goodall's unfettered chimpanzee greeting opens the possibility that in our rush to declare human exceptionalism, we have not diminished our ability to understand the gestural components of language that so many studies sought to erase. Perhaps now, as we face the pandemic with masked mouths and muffled speech, we may come to newly appreciate the complex role played by gesture in a shared human and animal world.

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