

Chapter 6

Symbols and How We Came to Be Human



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Abstract A longstanding belief commonly mentioned in support of human exceptionalism is that our species is distinct from others in using symbols (a word I use here, as it is in the social sciences, to describe anything with a socially shared meaning that isn't obvious). Countering the assumption that symbols are a distinct category that's unique to humans, I propose that they be properly recognized as operating in concert with an impressive number and diversity of less widely meaningful, or outright meaningless, social markers. This chapter critiques the views on symbolism in our species often expressed by sociologists, psychologists, anthropologists, archaeologists, and biologists. I consider how symbolism could have evolved from behaviors of non-human animals, some of which live in societies bound together by more superficial "markers" of identity that do not convey any more profound significance. Such markers, considered broadly, can be essential in holding societies together.

6.1 Introduction

People signal their identities in countless ways (Moffett 2013). We wear a ring to pronounce our commitment to marry, buy a Porsche to show off our wealth, don a chef's hat to let others know the job we do, and give credence to our patriotism as Americans when we stand proud before Lady Liberty. We go out of our way to imbue many such signals with a special symbolic weight through the kind of deliberate labeling that humans turn into an art.

Though "symbol" has come to be applied in other ways, for example, in computer science and psychoanalysis, I will use the word here, as social scientists and laypeople generally express it, to refer to anything with nonobvious meanings, and indeed with the usual requirement of multiple time-honored meanings, established by social convention through deliberate learning from others. A shamrock is at once a plant in the genus *Trifolium*, a means for predicting the weather, a good luck sign, a tool

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Saint Patrick used to teach the pagans about the Holy Trinity, and a symbol of the Irish and Ireland.

Much of the social sciences dwells on symbols and what they represent. For sociologists and many anthropologists, we structure our societies around a labyrinth of symbols that inform and guide our interactions: a bit of paper has worth as money, and a baptism cleanses us of sins (Blumer 1986). But while *Homo sapiens* truly is the symbolic animal, this does not mean symbols are all-encompassing. Symbols are not consistently meaningful or consequential. As I will show, they should be regarded as part of a far more extensive system of human signals and cues that indicate our commonalities with other species.

6.2 “Marking” Our Affiliations

A clue to how we came to be a symbolic species can be found in the fact that, while people transmit information with symbols, we also have ways of broadcasting our identities that are not intrinsically symbolic. Of course, we rely on signs that don’t qualify as symbols. Some are icons that resemble their referents, like street signs with a crossed-out sketch of a person indicating *no pedestrians*. Other representations are understood through cultural conditioning without being explicitly taught: a bubble on a cartoon character’s nostril, which a Westerner might associate with a runny nose, expresses sleepiness in Japan, something the comics researcher Neil Cohn believes the children there generally deduce on their own (Cohn 2013). Less talked about, however, are numerous traits that “mark” who we are yet lack any ordinary meanings that we can call to mind.

We may not be cognizant of these qualities in daily life, even when the differences are in plain sight. University of Georgetown psychologist Abigail Marsh determined that Americans can spot a fellow citizen with great success from subtle, subliminally acquired traits whose presence usually never reaches their conscious attention, including how he or she walks, waves a hand, or expresses feelings like irritation (despite the universality of human emotions, different societies display them in distinct ways). Tellingly, few people have the faintest notion they have this knack—or that they behave in this manner themselves (Ekman et al. 1987; Marsh et al. 2007, 2003).

Another category of largely subconscious signposts concerns the social standing of others, registered from how they dress to their posture and voice, mostly from cues that people are unlikely to put a finger on, let alone ascribe intricate cultural meanings to (Oh et al. 2020; Krämer et al. 2008).

Symbols are a subset of what I call markers, many of which are cues like a walking gait that carry little or no customary meaning. Some of these attributes go undetected until, perhaps, we are confronted by behaviors that run counter to our accepted practices; we don’t observe what is unique about our cuisine until we are startled by the smell of exotic foods; or we realize the nature of our relation to time

only when we visit a place where the populace is more punctual than we are or, conversely, likes to show up late (Hall 1959).

The combination of symbols and less overtly meaningful markers transforms our bodies into billboards pointing to who we are, from the styles of our hair to our footwear and toe rings and whether we shake our head or nod it (as Bulgarians habitually do) to say “no.”

Setting aside the way symbols work and where their power came from, it’s worth asking whether markers, broadly speaking, are exclusively human. Apparently, no. Animal signals such as the elephant’s excited trumpet can relate information about something other than themselves. A few of those signs are markers of identity; the humble ant, for one, differentiates its societies using the insectoid version of a national emblem, an aroma distributed across the colony membership. Learn and give off the correct odiferous sign, and each ant is golden, whether her colony is composed of ten individuals or ten million. Ants identify this colony scent when they reach adulthood and take it on themselves by grooming others (Tsutsui 2004). Social insect identities, distinguishing *us* from *them*, are marked by chemistry, plain and simple, an elementary yes/no reaction with no symbolic overtones added. A small minority of vertebrate animals similarly use a marker to set apart their societies, e.g., a scent in the naked mole rat and a sound in the sperm whale and certain birds (Moffett 2019a).

Of course, people are far more versatile in employing markers than ants. An ant’s “flag” usually changes little over her life, while her scent’s sole function is to designate membership. Our markers, on the other hand, whether profoundly significant symbols or unregistered in our awareness like our stride, can be modified over the years (think of the number of stars in an American flag) or serve other, at times, utilitarian functions (consider the rules about driving on the left or right side of the road); and some of them have nothing to do with distinguishing groups (a dove has become a universal symbol for “peace”).

What does our aptitude with such “marking” traits suggest about the origin of symbolism? The earliest markers didn’t need to designate anything obscure like good luck or connections to a deceased relative—they would simply have made our social categorizations unambiguous. Learning to control specific markers to communicate them deliberately, and incorporate symbolic qualities into them, could come about with time.

6.3 Making Sense of Our Actions

Even though our markers can be vastly more complex than the ant’s binding perfume, we need scant brainpower to recognize even the most Byzantine symbolic ones (Sterelny 2014). A dependable marker can potentially be given and understood by indefinite numbers of individuals with no additional cerebral demands and no obligation to sustain particular relationships (Moffett 2019b). Hence markers simplify life by making social interactions comfortably predictable. So long as unfamiliar persons

look and act acceptable, ignorance is bliss: it's by dint of their personal billboards that ants and people allow strangers to coexist in a society.

By comparison, chimpanzees, who don't use markers to sort out who their comrades are, can't readily handle unknown others and must know each animal in their community as an individual. Imagine feeling obliged to introduce yourself to every stranger you meet or perpetually be aware of them as a possible threat. The demands would overwhelm. This fact, and not just human smarts, explains why chimpanzees occur in communities of at most about 200 while New Yorkers swarm by each other each day with hardly a concern (though the pandemic has been keeping them a bit farther apart than normal) (Moffett 2020).

Regardless of whether markers have scores of symbolic meanings or none that we can articulate, it's simplicity itself to detect them—even on each other, attuned as we are to the billboard each of us carries, from skin tones to the cross pendants on our throats. Humans register the physical, cultural, and other traits of those around us without a thought. We categorize anything we come across, including people as group members, reflexively, our positive or negative reactions triggered in milliseconds of an encounter. This occurs before we can put any loaded labels on them such as “working class,” “faithful Christian,” or “American.” (Banaji and Greenwald 2013; Todorov 2017). The typical research subject is shown faces of different racial identities, but these automatic identifications, and responses, will hold as well for a simple abstract marker. So it is that Holocaust survivors needn't consider the symbolic implications of a swastika for the sight of one to engage the limbic system, setting off sensations of horror (Greenspan and Shanker 2009). National flags have grown so ubiquitous that on an average day we notice them barely more than the air we breathe, yet at some primal level we give them our attention. Yale psychologist Melissa Ferguson and colleagues found that a continual presence of American flags in the background intensifies people's sense of unity and nationalism (Butz 2009; Hassin et al. 2007).

Only when called on to explain ourselves afterward do we justify our conduct or emotions, often by spelling out what a marker imparts to us—in short, by crediting it with a symbolic value. Such research findings bring to mind views expressed by the 19th-century sociologist Vilfredo Pareto, who saw most behavior originating below the everyday awareness that we make sense of afterward via verbal accounts (Pareto 1935). Only at the stage of these rationalizations do we make full use of our cognitive powers, in part by dredging up the meanings we have been taught to associate with a particular situation, a predilection tracing back to when humans first tried to make sense of the attributes they held in common.

6.4 “Belonging” Isn't About Knowledge

I contend that our ancestors increasingly incorporated symbolic qualities into their markers and that we continue to build on such meanings to explain our shared behaviors. Actually, symbols are flimsy constructs since our rationalizations don't require

their meanings to be deeply and consistently embedded in our thinking. As pointed out for people's knee-jerk revulsion to a swastika, a symbol doesn't need to be profound, or for that matter to possess a conventional meaning, let alone layered meanings, for us to be sensitive to it, or to its absence. The marker on its own, even if we are blind to its specific connotations, can give us an intense emotional ride. Americans well up with pride while fumbling through "The Star-Spangled Banner" without recalling its words or having the foggiest notion of what it is to be span-gled. "It is likely that even people who are expert in the use of symbols—shamans, priests, or sorcerers—cannot state precisely what a particular symbol is all about," the anthropologist Mari Womack reminds us (Womack 2005, p. 51).

The less-than-obligatory importance of mutually understood meanings behind symbols is backed up by examples from my interest, which is in how societies hold together. Symbols like anthems are touchstones for patriotism. Yet to earn a passport, immigrants are taught more about the principles and emblems of the adopted country than native-born citizens, who are liable to think little about national symbols despite professing and insisting on devotion to them. No wonder most Americans would fail a U.S. naturalization test (Orgad 2011).

This reflects how in the normal course of life, we discern our compatriots less by their memory for facts than by their way of *being*: they act as expected, whether it's how they talk, gesture, or share social norms. We needn't burden our overloaded minds with the meanings behind every facet of our lives. Even if people agree about which markers excite their passions (Americans commemorating the 4th of July or honoring the U.S. Constitution), what message those cherished markers hold—if any—could well reside in the eye of each beholder. Such meaning could be based on his or her personal life experiences, rather than in what the general population makes of them, as a common symbol.

Even symbols with meanings that are widely recognized and well thought out evoke sentiments and memories specific to the different people and subgroups of people who value them. Thus, any commonalities the symbols suggest will mask a great deal of diversity, with those interpretations furthermore adapting over time to circumstances (Guibernau 1996). The pledge of allegiance represents something quite different to immigrant communities than anti-immigration activists, yet both revere this symbolic affirmation. While most symbols lodge in our collective memories long enough to give our lives a sense of stability, social cohesion can be imperiled when their meanings diverge so much that distinct social factions emerge within the same society. Consider the contrasting views about the statues of Confederate generals or even about donning a mask during the COVID-19 outbreak.

Once we acknowledge that ascribing standard meanings to symbols isn't the *raison d'être* of human life—that people do this poorly and yet still bond around all manner of social signals—the dawn of societies that allowed for the coexistence of strangers becomes easier to envision. After the long march of time tolerance of unfamiliar others with acceptable identities would come to undergird the burgeoning populations of modern nations.

To conclude that the meanings of the markers we call symbols are evoked after the fact, if even then, is not to claim that symbolism is insignificant. Most critically,

at some point in our lineage we developed language, a symbolic mode of communication par excellence. (Although even there, children figure out most words from context and exposure, without being explicitly taught their meaning, as the usual definition of a symbol requires (Bloom 2001; Gopnik et al. 1999)). Exactly when language arose is a mystery, given that both gestures and the spoken word leave no trace. But speech has come to dominate our inner thoughts and outer lives, enhancing our capacity to think in the abstract and our ability to share an idea with many others, given a similar-enough interpretation of words. With language, a word like “hawk” can apply to its subject in complex referential ways. I might convey an idea such as hawks can fly even when no hawk is present or bring up the specific hawk you saw yesterday.

Through speech we exchange details about what we treasure; no wonder that the most adored aspects of our identities are the focus of everything from gossip to grand art. In fact, it’s from such communications that we largely distill the meanings associated with the markers around us, etching them more or less the same way as symbols in every person’s mind.

6.5 The Prehistory of Symbols—With a Warning

A commonplace assumption is that *Homo sapiens* has always wielded symbolic behavior, and perhaps earlier members of our family tree also did. It is no surprise then that carefully laid-out scratches on bone, eggshell pieces once likely strung into necklaces, and dyes that can be used to decorate human skin have been treated as evidence of early symbol-driven cultures[e.g., (Henshilwood and d’Errico 2011)]. Caution is in order, though. The hard truth is it might be impossible to ascertain at what juncture in the distant past people began to credit meanings to actions and things, and share the meanings amongst themselves as symbols. After all, we can embellish objects, wear jewelry, or paint ourselves just because such actions give us pleasure or furnish something we enjoy; colorful patterns go in and out of fashion on mass-produced goods merely because the novelty catches the eye for a time. Design elements like paisley endure the ages even though any meaning they were once endowed with is forgotten.

The trouble with analyzing the past is how easily we can assume the existence of symbolism. To wit, when children draw, they independently discover aesthetic geometric designs that can be surprisingly alike from child to child. Yet the similarities don’t signal anything about the children’s identities, let alone have an agreed-on meaning, as the Harvard psychologist Howard Gardner described in his 1980 book *Artful Scribbles* (Gardner 1980). And the meanings they do communicate, like mountains indicated by triangles, might not be arbitrary, as expected for a symbol, but rather show a figurative resemblance to what they stand for, and therefore denote something that a naïve viewer can guess. This applies as well to the intended impact of art. When asked to sketch a line to convey a feeling, adults from all over draw angles to express anger and curves to express positive emotions; uninformed others

looking at the drawings describe the same sensations (Winner 2019). In a world of thorns and jagged rock, equating sharpness with a threat makes sense. This brings to mind how people everywhere intuit a dreamed lion as a sign of strength without being taught to do so—and consequentially, from the sociologist’s point of view, it doesn’t constitute a symbol (even if a therapist devoted to Freud’s school of thought might say it is) (Stevens 1998).

Therefore, many recent human creations, let alone a prehistoric drawing of man or beast, didn’t necessarily serve to illustrate something else, that is, act as a symbol for its people, no matter how elegant, abstract, or fanciful that masterpiece might be (e.g., Iliopoulos 2016; Malafouris 2008; Wynn et al. 2009). While sketching it out, or viewing it, doubtless engaged people’s imaginations (Dutton 2009), a Paleolithic painting may simply represent a person; a human figure may have been given a bison head solely as a lark; red body paint could have been beloved for no reason other than that it was pretty. Indeed, Griffith University anthropologist Michelle Langley has proposed that much of what we think of as Paleolithic art may have been devised in play, perhaps for children (Langley 2018).

Discussions of symbolism in archaeology are seldom more than hunches that unearthed artifacts *might* have stood for something and, for all we know, are more of a measure of how symbol-obsessed we are today than an accurate appraisal of our predecessors. Such reports often point to records of living hunter-gatherers doing things like painting a tribal motif with red ochre crayons; or to a repetition of art over generations, or across widely spaced locations, implying at least an abiding aesthetic preference—or perhaps an outcome of what University of Sydney archaeologist Peter Hiscock calls the echo principle. Paleolithic people would rediscover older stenciled handprints or bison paintings, and in all likelihood replicate them much as a college student will copy a Monet. Never losing sight of their forefathers’ practical or aesthetic designs, humans kept returning to them, echoing the past (Hiscock 2007). Whether those recurrent designs originally symbolized something is beyond reckoning. Still, a commonsensical hypothesis would be that among the first artifacts to which people put symbolic meanings were objects their forebears had already delighted in for generations—among the items people brought into caves between 195,000 and 123,000 years ago were the sorts of pretty seashells we are still fond of collecting (Marean 2010).

Few have disputed that certain relics held well-established meanings to their makers. Burial of the deceased, which began at least 100,000 years ago in *Homo sapiens* and was done by Neanderthals, too, suggests a mourning process now richly symbolic (Zilhão et al. 2016). Yet around the globe, depending on the person and the situation, human corpses can be disposed of for reasons other than as a mortuary ritual: feeling disgust around rotting flesh for one. Objects carefully interred with the dead are another matter. Ochre, found near some ancient remains, might have meant something to the living. Less open to question are the clothes of two children buried near Moscow 30 millennia ago, adorned with thousands of ivory beads that must have taken years, and great motivating force, to produce—evidence of the spiritual significance of their death, their high social rank or both (Trinkaus et al. 2014).

But even a clue of someone's importance needn't be associated with a widespread symbolic meaning.

All this is to say that because the meanings of symbols are by definition not obvious to the eye, ascribing symbolic importance to artifacts from the remote past can be wishful thinking, despite the bold assertions that have often been made about archeological findings.

6.6 The Origins of Markers and, Eventually, Symbols

Nowadays people are inspired by so many symbols with common meanings accrued over centuries that it's a struggle to imagine some proto-human population with no idea-laden symbols at all. Acknowledging that the construal of prehistoric artifacts as symbols will always be a debatable business, we must nevertheless ask how people first came to have markers, let alone deeply appreciated symbolic ones?

Underlying the evolution of our first social markers may have been an urge to match others. Our predecessors would have excelled at learning from each other, an ability in reach of some animals; consider the novel song that swept across Canadian populations of white throated sparrows over the last 20 years (Otter et al. 2020). This talent can generate cultures, that is, the sum total of socially transmitted information, including such traditions as exist in meerkat clans that prefer to sleep late or chimpanzees that pick rocks versus sticks to open tasty nuts (Whiten and Schaik 2007).

While languages enable us to combine symbols in complex ways, symbols, or at least their rudimentary antecedents, could have materialized prior to speech, as is intimated by what some monkeys accomplish. Certain species give different vocalizations to warn of danger, depending, in the case of vervets, on whether the threat is a snake, a hawk, or a leopard. The primates respond to the calls as if they had seen the predator themselves, for instance, strategically descending to earth should they be in a tree or hiding in a bush if they are on the ground after hearing an eagle alarm. Moreover, while the calls vary little from troop to troop, the vervets learn from their fellow troop members which snake, bird of prey, and predatory mammal species the sounds apply to locally, and prefer to cry out when their friends or family happen to be in earshot (Cheney and Seyfarth 2008).

Monkey vocalizations are of restricted utility: a vervet can't describe a hawk seen yesterday or point out that hawks fly, as we can with language. That's because no matter how smart the animal, a signal like a hawk call given on its own isn't likely to convey such details. Whatever's going on in the monkey mind, lacking a method for combining words, as people do, to the nth degree, with language, it can just express what's happening in the here and now (contrast that to a person shaking her head when uttering the word hawk to say no hawk is around). More generally, rather than an utterance symbolizing something, vervets may be responding to the sounds of a troopmate as a matter of simple association: they learn to connect a particular cry to a snake being present much the same way they connect lightning with thunder. In

fact, in the view of University of California anthropologist Terrence Deacon, nothing should be designated a symbol that exists in isolation. He argues that symbols must exist in combination with other symbols as part of a system (Deacon 1997).

There's evidence that various animals have some capacity to use symbols even in this restrictive sense. In her years of studying parrots, ethologist Irene Pepperberg has shown that tame birds can put together words they memorized, providing insights into their comprehension of what's being communicated (Pepperberg and Call 2017). And one monkey species is known to do this in nature, with sequences of calls that both point out a predator and indicate how much of a hazard it represents at the moment (Arnold and Zuberbühler 2006).

As for chimpanzees, while I've already mentioned these apes don't pick out comrades based on any sort of identifying marker, that isn't to say they lack anything we can think of as symbolic. As it happens, the behaviors they master by observing one another connote distinct things in different communities. A chimpanzee's vocal cords generate only a limited array of sounds; it makes sense for this species to rely heavily on arbitrary actions or gestures, often after the communicator makes sure the desired individual or group is watching (Pollick and Waal 2007; Bard et al. 2017; Pika and Fröhlich 2019).

For instance, noisily tearing foliage with the teeth is given as an invitation for sex in one community, for play in another, and for aggression in a third. Meanwhile, in a community where ripping twigs denotes something else, willingness to play can be signaled by making nests on the ground. (Boesch and Valsiner 2012) More is going on than mere association. To get the message across, a nest-maker can repeat the act until its persistence pays off while adding a "play face," smile, or other signs of wanting to frolic, indicators of intentional communication (Andrews 2020; Waal et al. 2012).

In addition to using languages, what people do that no other primate does is take the step of connecting such cultural signs with their societies, in extreme cases rejecting those who act inappropriately, say by disrespecting the flag. A chimpanzee loudly chomping greenery for the "wrong" reason isn't attacked for this act since the apes don't perceive the behavior as indicative of belonging to their community (Gruber et al. 2015). Still, we can imagine that at least one highly variable chimpanzee call, the pant-hoot, could readily evolve to serve this purpose, if the members of each group were able to learn a particular pant hoot from one another to create community dialects (as was once thought likely, and still might be the case in some populations: Desai et al. 2021).

A signal to which our forebears responded in this way could have been the precursor of our symbols, for example, if they gave it as a greeting (Tsutsui 2004). Such a primal marker would represent a kind of password that we duplicated from one another, which at first needn't have been more meaningful than an ant's home scent. This protoword for *us* would have become interlinked over time with other group differences of the sort found in chimpanzees, as these started to be used a identity markers as well, thereby creating a prototype of the billboards that proclaim human affiliations. The evolution of this transformative attribute of human identification with groups likely initiated our symbolic existence.

6.7 The Human Relationship to Symbols

I have examined symbols from the perspective of a range of disciplines to conclude that much of the human universe is *not* mediated by symbols per se but rather by simpler, at times subconscious markers of the general sort found in some other species. Our initial markers would have served to reinforce categories of social significance to early humans, notably to the societies that those markers helped keep intact; from such markers would have emerged the first human symbols—indeed, entire systems of symbols.

What does all this intimate for people and their potent relationship with symbols? Tool making lost its privileged status as a defining trait for humans after other species, notably our chimpanzee relatives, were seen modifying objects to carry out such tasks as collecting termites with a stick or mopping water using crushed foliage as a sponge (Sanz et al. 2013). Self-awareness was believed to separate people from animals, too, but we have since learned that chimps, dolphins, and elephants recognize themselves in their mirrored reflections (Reiss et al. 2017). Symbol making similarly falls short as a trait elevating us above “the animals” (Heyes and Frith 2014; Grice 1989).¹

That said, humans undeniably take the employment of symbols to extremes. Much as our increasingly complicated tools have come to play a role in nearly all our activities and our self-awareness now influences every human relationship, our symbols have likewise grown in sophistication and importance, with languages ultimately bringing to bear vast numbers of interconnected symbols that relate to matters beyond the here and now. The payoffs for turning just about anything into a symbol were likely amplified as our comprehension of the state of mind of others improved, making it possible for us to wittingly express who we are in our interactions with individuals or groups (Tomasello 2014). An outcome of this collective mastery of meaning is it opened up higher levels of reasoning about our relationships to the world (Penn et al. 2008), and a reassuring sense that life is predictable and meaningful (Baumeister and Hippiel 2020).

Symbols, however, should be properly recognized as operating in concert with a striking diversity of less broadly meaningful, or outright meaningless, social markers (Tsutsui 2004). All told, these cultural guideposts constitute the intricate web that sociology rightly depicts as the core of the human way of life, contributing vastly to the richness of our experience.

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¹ A currently favored criterion for human distinctiveness is a grasp of each other’s mental states so refined we readily decipher the intentions and goals of our fellows and overtly express our intentions to them, such that we not only communicate what we wish but express our desire to convey that idea (e.g., Heyes and Frith 2014, Grice 1989).

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References

- Andrews K (2020) *The animal mind: an introduction to the philosophy of animal cognition*, 2nd edn. Routledge, Oxford
- Arnold K, Zuberbühler K (2006) Semantic combinations in primate calls. *Nature* 441:303
- Banaji MR, Greenwald AG (2013) *Blindspot: hidden biases of good people*. Delacorte Press, New York
- Bard K, Maguire-Herring V, Tomonaga M, Matsuzawa T (2017) The gesture “touch”: does meaning-making develop in chimpanzees’ use of a very flexible gesture? *Animal Cog* 22:535–550
- Baumeister RF, von Hippel W (2020) Meaning and evolution: why nature selected humans minds to use meaning. *Evol Stud Imaginat Cult* 4:1–18
- Bloom P (2001) Précis of how children learn the meanings of words. *Behav Brain Sci* 24:1095–1103
- Blumer H (1986) *Symbolic interactionism: perspective and method*. University of California Press, Berkeley
- Boesch C (2012) From material to symbolic cultures: cultures in primates. In: Valsiner J (ed) *The Oxford handbook of culture and psychology*. Oxford University Press, Oxford, pp 677–694
- Butz DA (2009) National symbols as agents of psychological and social change. *Polit Psychol* 30:779–804
- Cheney DL, Seyfarth R (2008) *Baboon metaphysics: the evolution of a social mind*. University of Chicago Press, Chicago
- Cohn N (2013) *Visual language of comics: introduction to the structure and cognition of sequential images*. A&C Black, London
- de Waal FBM, Pollick AS (2012) Gesture as the most flexible modality of primate communication. In: Tallerman M, Gibson K (eds) *The Oxford handbook of language evolution*. Oxford University Press, Oxford, pp 82–95
- Desai NP, Fedurek P, Slocombe KE, Wilson ML (2021) Chimpanzee pant-hoots encode information about individual but not group differences. <https://www.biorxiv.org/content/10.1101/2021.03.09.434515v1>
- Deacon T (1997) *The symbolic species: the coevolution of language and the human brain*. Penguin Press, London
- Dutton D (2009) *The art instinct: beauty, pleasure, and human evolution*. Bloomsbury Press, London
- Ekman P et al (1987) Universals and cultural differences in the judgments of facial expressions of emotion. *J Personality Soc Psychol* 53:712–717
- Gardner H (1980) *Artful scribbles: the significance of children’s drawings*. Basic Books, New York
- Gopnik A, Meltzoff AN, Kuhl PK (1999) *Scientist in the crib: minds, brains, and how children learn*. W Morrow & Co, New York
- Greenspan SI, Shanker S (2009) *The first idea: how symbols, language, and intelligence evolved from our primate ancestors to modern humans*. Da Capo Press, Boston
- Grice P (1989) *Studies in the way of words*. Harvard University Press, Cambridge
- Gruber T, Zuberbühler K, Clément F, van Schaik C (2015) Apes have culture but may not know that they do. *Front Psychol* 6:91
- Guibernau M (1996) *Nationalisms*. Blackwell, Oxford
- Hall ET (1959) *The silent language*. Doubleday, New York
- Hassin RR, Ferguson MJ, Shidlovski D, Gross T (2007) Subliminal exposure to national flags affects political thought and behavior. *Proc Nat Acad Sci* 104:19,757–19,761
- Henshilwood CS, d’Errico F (eds) (2011) *Homo symbolicus: the dawn of language, imagination and spirituality*. John Benjamins Publishing, Amsterdam

- Heyes CM, Frith CD (2014) The cultural evolution of mind reading. *Science* 344:1,243,091
- Hiscock P (2007) *Archaeology of ancient Australia*. Routledge, Oxford
- Iliopoulos A (2016) The material dimensions of signification: rethinking the nature and emergence of semiosis in the debate on human origins. *Quaternary Internat* 405:111–124
- Krämer N (2008) Nonverbal communication. In: Blascovich J, Hartel C (eds) *Human behavior in military contexts*. National Academies Press, Washington, DC, pp 150–188
- Langley MC (2018) Magdalenian children: projectile points, portable art and playthings. *Oxford J Archaeol* 37:3–24
- Malafouris L (2008) Beads for a plastic mind: the “Blind Man’s Stick” (BMS) hypothesis and the active nature of material culture. *Cambridge Archaeol J* 18:401–414
- Marean C (2010) When the sea saved humanity. *Sci Am* 303:54–61
- Marsh A, Elfenbein HA, Ambady N (2003) Nonverbal “accents” cultural differences in facial expressions of emotions. *Psychol Sci* 14:373–376
- Marsh A, Elfenbein HA, Ambady N (2007) Separated by a common language: nonverbal accents and cultural stereotypes about Americans and Australians. *J Cross-Cult Psychol* 38:284–301
- Moffett MW (2013) Human identity and the evolution of societies. *Hum Nat* 24:219–267
- Moffett MW (2019a) *The human swarm: how societies arise, thrive, and fall*. Basic Books, New York
- Moffett MW (2019b) The social secret that humans share with ants. *Wall Street J* 11–12 May 2019b, Review section, p 1
- Moffett MW (2020) Societies, identity and belonging. *Proc Am Philos Soc* 164:1–9
- Oh D, Shafir E, Todorov A (2020) Economic status cues from clothes affect perceived competence from faces. *Nature Human Behav*. <https://doi.org/10.1038/s41562-019-0782-4>
- Orgad L (2011) Creating new Americans: the essence of Americanism under the citizenship test. *Houston Law Rev* 47:1–46
- Otter KA, Mckenna A, LaZerte SE, Ramsay SM (2020) Continent-wide shifts in song dialects of white-throated sparrows. *Cur Biol* 30:1–5
- Pareto V (1935) *The mind and society*. Harcourt Brace, New York
- Penn DC, Holyoak KJ, Povinelli DJ (2008) Darwin’s mistake: explaining the discontinuity between human and non-human minds. *Behav Brain Sci* 31:109–178
- Pepperberg IM (2017) Symbolic communication in non-human animals. In: Call J (ed) *Handbook of comparative psychology*, vol 1. American Psychological Association Press, Washington, DC, pp 663–679
- Pika S, Fröhlich M (2019) Gestural acquisition in great apes: the social negotiation hypothesis. *Animal Cog* 22:551–565
- Pollick AS, de Waal FBM (2007) Ape gestures and language evolution. *Proc Nat Acad Sci* 104:8184–8189
- Reiss D, Morrison R (2017) Reflecting on mirror self-recognition. In: Call J (ed) *APA handbook of comparative psychology*, vol 2. American Psychological Association Press, Washington, DC, pp 745–764
- Sanz C, Call J, Boesch C (2013) *Tool use in animals: cognition and ecology*. Cambridge University Press, Cambridge
- Sterelny K (2014) A paleolithic reciprocation crisis: symbols, signals, and norms. *Biol Theory* 9:65–75
- Stevens A (1998) *Ariadne’s clue: a guide to the symbols of humankind*. Princeton University Press, Princeton
- Todorov A (2017) *Face value: the irresistible influence of first impressions*. Princeton University Press, Princeton
- Tomasello M (2014) *A natural history of human thinking*. Harvard University Press, Cambridge
- Trinkaus E et al (2014) *The people of Sungir*. Oxford University Press, Oxford
- Tsutsui ND (2004) Scents of self: the expression component of self/non-self recognition systems. *Ann Zool Fenn* 41:713–727

- Whiten A, van Schaik CP (2007) The evolution of animal “cultures” and social intelligence. *Phil Trans R Soc B* 362:603–620
- Winner E (2019) *How art works: a psychological exploration*. Oxford University Press, Oxford
- Womack M (2005) *Symbols and meaning: a concise introduction* Altamira Press, Lanham, MD
- Wynn T, Coolidge FL (2009) Implications of a strict standard for recognizing modern cognition in prehistory. In: de Beaune S, Coolidge FL, Wynn T (eds) *Cognitive archaeology and human evolution*. Cambridge University Press, Cambridge, pp 117–128
- Zilhão J (2016) Lower and middle palaeolithic mortuary behaviours and the origins of ritual burial. In: Renfrew C, Boyd MJ, Morley I (eds) *Death rituals, social order and the archaeology of immortality in the ancient world*. Cambridge University Press, Cambridge, pp 27–44

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