

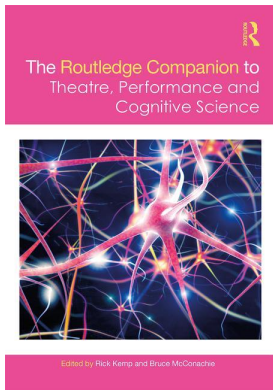
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# 10

## IMPROVISING COMMUNICATION IN PLEISTOCENE PERFORMANCES

*Bruce McConachie*

Invited to deliver a keynote address at the next conference of the Association for Cognitive Semiotics early in 2016, I embarked on a crash course in the evolution of human communication to prepare for my talk in mid-June. I had recently completed *Evolution, Cognition, and Performance* (2015), so had some notion of the vast territory I was entering. But my survey of the evolutionary dynamics of performance for that book had, I knew, left many questions unanswered, even unasked. What I soon discovered was a rich interdisciplinary conversation among anthropologists, biologists, linguists, psychologists, philosophers, sociologists and many others that, despite its many winding paths, was beginning to converge into a general consensus about the likely origins and evolution of human communication and language during the Pleistocene epoch, roughly 2.5 million years ago to about 11,000 BCE. Mostly missing from this general narrative, however, was what I found to be the importance of performance – specifically improvisation – as a necessary initiator of gestural and vocal communication among our *Homo erectus* ancestors around the middle years of the Pleistocene. While there was general interdisciplinary agreement about the significance of ritual for the evolution of communication among later hunter-gatherer bands, these scholars had overlooked the evidence for the kind of interpersonal trust that, still today, provides the necessary seedbed for improvisation among actors and musicians. The talk I presented in June at the conference about improv as a step toward language, plus the encouraging feedback I received there from my colleagues, is the basis for this short chapter.

The need for a new narrative to explain the evolution of language came about because of the gradual collapse of the old one. Following the success of *Language and Mind* in 1968, many linguists came to accept Noam Chomsky's claim that language was an internal, gene-centred human ability that did not depend upon social and cultural dynamics for its evolution. This consensus began to fall apart in the mid-1980s as a result of two developments. First, evolutionary biologists began to recognise that major changes can and have occurred in cognition and behaviour without alterations in genetic make-up; social innovations might actually precede and help to determine genetic changes. Second, evidence began piling up that our *Homo erectus* ancestors must have needed some kind of proto-languaging skills to accomplish what they did in terms of the use of tools, fire for cooking and other cooperative developments during the Pleistocene. Perhaps, then, the evolution of language might be traced over the course of a million years or so, rather than understanding it as the result of genetic change that came all of a sudden with the emergence of *Homo sapiens* around 300,000 years ago. One of the first scholars

to persuasively put together the new evidence from evolutionary biology and physical anthropology was Merlin Donald, whose 1991 *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition* argued that the second of his three stages, which he termed ‘mimetic culture,’ necessarily involved everyday performances of gestures, mime and imitation. Donald updated and expanded his understanding of this predecessor to language-based communication in 2001 with *A Mind So Rare: The Evolution of Human Consciousness*.

Since then, several scholars have adopted a version of Donald’s notion of mimesis to explain how and why hominin performances during the Pleistocene departed from the rudimentary communication skills that all primates exhibit. Although Donald did not elaborate on the details of mimetic communication, subsequent scholars have made it clear that the ability to imitate must have been an important skill in the emergence and evolution of early proto-human communication. But before a gesture or a sound would have been widely copied, the group of hominin hunter-gatherers that invented that particular visual-aural sign had to provisionally accept the signal as a carrier of meaning. I will argue that selected bands of *Homo erectus* improvised their way towards the sharing and understanding of communicative intentions and meanings that eventuated in performances of proto-languaging.

This mode of communication would not have occurred among our ancestors without the co-evolution of human intersubjectivity and the beginnings of social morality to support it. To set the stage for my remarks on improvisation, I will summarise some of the main points of linguist Jordan Zlatev’s synthesis of the relevant scholarship on these two necessary predecessors of symbolic language. Zlatev builds on Robert Boyd and Peter J. Richerson’s 2009 essay, ‘Culture and the Evolution of Human Cooperation,’ which extends their 2005 understanding of the co-evolution of human genetics and culture. Countering traditional notions of evolution, Richerson and Boyd discovered mechanisms and sketched suggestive narratives that demonstrated how evolution could operate on group as well as individual levels. Dependent on the interplay of genes and culture over time, co-evolution favoured groups of hominins that practiced social cooperation by rewarding them initially with survival and epigenetic changes that further enhanced their pro-social proclivities. Finally, note the two anthropologists, ‘Moral systems enforced by systems of sanctions and rewards increased the reproductive success of individuals who functioned well in such environments, and this in turn led to the evolution of other-regarding motives like empathy and social emotions like shame’ (Boyd and Richerson 2009, 3281–2). (See my Chapter 26 in Part IV of this book for a longer discussion of Boyd and Richerson’s understanding of co-evolution and its consequences.)

Working within the implications of Boyd and Richerson’s framework, Zlatev examined some of the leading scholarship on the evolution of human intersubjectivity, morality and language to find key points of convergence that would allow him to sketch the probable causal relations among these evolutionary elements. Specifically, Zlatev found significant commonalities regarding the evolution of human sociality in the work of anthropologist Robin Dunbar, evolutionary psychologist Michael Tomasello and sociobiologist Sarah Hrdy. These included insights about vocal grooming and gossip from Dunbar, shared intentionality and pro-social motivations from Tomasello and cooperative child rearing (i.e., alloparenting) from Hrdy. Zlatev discovered that all of these elements depend, implicitly or explicitly, upon Boyd and Richerson’s evolutionary models for multi-level selection. ‘The co-evolutionary scenario of intersubjectivity, morality, and language that we are led to,’ concludes Zlatev, ‘is, in brief, that intersubjectivity (in an alloparenting context) spearheaded the way, followed by morality and language which evolved co-temporally, in spirals of increasing complexity’ (Zlatev 2014, 265).

Because it likely provided the initial contextual basis for improvising proto-languages, hominin alloparenting will provide a necessary preface to my discussion of improvisation. In

her *Mothers and Others* (2009), Hrdy uses neuroscience, primatology, archaeology and social and developmental psychology to conclude that ‘there emerged in Africa a line of apes that began to be interested in the mental and subjective lives – the thoughts and feelings – of others, interested in understanding them. These apes were markedly different from the common ancestors they shared with chimpanzees, and in this respect they were already emotionally human’ (Hrdy 2009, 31). Why the capabilities for shared intentionality, sympathy and empathy emerged among one line of apes and not others had to do with alloparenting, group co-operation among the hominin adults and older children of the same band – primarily women and older girls – for the care and provisioning of infants and the young. As Hrdy explains, ‘Both before birth and especially afterward, the mother needed help from others; and, even more importantly, her infant would need to monitor and assess the intentions of both his mother and these others and to attract their attentions and elicit their assistance in ways no ape had ever needed to do before’ (31). Indeed, other ape mothers hold fast to their infants, entrusting them to no one else out of fear for their lives. Among Pleistocene hominins, however, ‘it took a village’ – as it does today for our species – to raise the children.

Hrdy draws on a variety of research to demonstrate the evolutionary and psychological advantages of alloparenting. Studies from several countries, for example, show that ‘infants nurtured by multiple caretakers grow up not only feeling secure but with better developed and more enhanced capacities to view the world from multiple perspectives’ (Hrdy 2009, 132). In terms of hormonal rewards, it is now clear that female alloparents derive many of the same benefits, including dopamine and oxytocin, that biological mothers gain from cuddling and caring for infants. Evidently, co-evolutionary dynamics gradually favoured hominin cultures engaged in alloparenting. New archaeological evidence about hominin residence patterns during the Pleistocene suggests, as well, that *Homo erectus* bands continued to reward grandmothers for their useful skills, probably for child care and food gathering. Compared to hypothetical babies raised by mothers alone, alloparented ape babies, says Hrdy, ‘would [have been] more aware of distinctions between self and others, better able to read the mental states of conspecifics, and capable of integrating information about their own intentions and those of others’ (139).

These are some of the same intersubjective attributes that facilitate good improvisation. While caring for infants and toddlers, the older children and adults of the hominin band would have encountered many situations in which they had to think quickly while gauging the intentions of the child under their care. If more than two alloparents were working together, both would have found that each needed to validate and support the choices of the other caregiver or risk upsetting the child. These and other situations would have tested and extended each alloparents’ ability to empathise with others in the band. Several of Hrdy’s explanations and examples in *Mothers and Others* have to do with empathy. Often defined as the ability to adopt the perspective of another person, empathy encourages good improvisors to set aside their own immediate desires, perceive what others in their improv group are thinking and feeling and then act on those perceptions in concert with them.

Several cognitive scientists acknowledge that our mirror neuron systems (MNS) are the gateways to empathy. Shaun Gallagher, for instance, understands activation of the MNS as the first step towards the kinds of everyday social perceptions and interactions that constitute empathy. Gallagher disagrees with Vittorio Gallese, however, that mirror neuron interactions among two or more people are, by themselves, sufficient for empathy. Evan Thompson, too, notes that the sensorimotor coupling that occurs when this system mirrors the intended actions of another body in motion puts the first body in tune with that other person and can lead to the second stage of empathy, which Thompson calls ‘imaginary transposition’ (Thompson 2007, 395). As the name of this second empathetic process suggests, imaginary

transposition allows the empathiser to attempt to imaginatively place herself or himself into the mind and body of the other person in order to take that person's perspective. Most toddlers can accomplish the rudiments of imaginary transposition by the time they are nine months old. The ability to empathise with others is now recognised as an important and (mostly) hard-wired part of human social development.

It is no coincidence that Viola Spolin, the great American teacher of improvisational techniques, used what is conventionally called 'the mirror exercise' to warm up and sensitise beginning improvisers to the embodied feelings of other students in her classes. Still practiced today by many acting teachers who know nothing about the MNS, the exercise remains an important pedagogical element in most improv classes. Acting partners stand face-to-face about two arms' length from each other, and one initiates whole-body movements that the other – moving only the eyes and the relevant body parts – must follow. This physical extension of the MNS, of course, involves mimesis, the attempt to copy (in reverse) the movements of another, and this direct embodiment of Merlin Donald's insight can be extended to improvising with sounds and music as well. Doing these exercises encourages performers to trust the impulses sent by their mirror neurons and to let go of self-censoring fears that might prevent them from fully responding to the other in an improvisation. Some confirmation for the playful and freeing effects of improvisation comes from Clayton Drinko, a theatre historian and advocate of improvisation in psychotherapy. In his *Theatrical Improvisation, Consciousness, and Cognition* (2013), Drinko cites a scientific study focused on improvising jazz musicians. Using fMRI techniques, researchers at Johns Hopkins University scanned the brains of several musicians while they were playing and found that an area of the prefrontal cortex linked to planning and self-censoring actually slowed down during their improvisation. At the same time, another area of the cortex linked to self-expression and creativity 'increased in activity,' according to Drinko (Drinko 2013, 8).

There can be little doubt that evolution had already outfitted our Pleistocene ancestors with some type of MNS; mirror neurons were initially discovered in macaque monkeys and have been found in many other primates. Hrdy's copious evidence for alloparenting also implies that *Homo erectus* bands could also practice an early form of 'imaginary transposition,' the next stage in Thompson's four levels of empathy. This suggests that proto-languaging in the middle Pleistocene probably began among alloparents in bands large enough to require the coordination of infant care and child rearing among several people. Mothers would not have left their children in the care of others without knowing that they would be safe. Face-to-face communication through grunts and pointing could be effective for what we might call short-term babysitting, but if mom was off in the jungle or wandering the savannah in search of food, hominin alloparents had to know what to do, how to seek help and how to call mom back in the event of an emergency. Before the elaboration of symbolic language, iconic signs would have been useful for planning the future and communicating at a distance. Even before leaving their infants in another's care, however, mothers also had to know whom they could trust. Finding out from others in the *Homo erectus* band who did what with your kids while you were away would certainly have been a strong incentive for chatting up other women. So, in addition to making plans and calling to others at a distance, finding out about the past would also have been a motive for proto-languaging in the context of alloparenting.

How might improvisation have helped to accomplish these tasks? First, we must assume that alloparenting had at least begun to spread among many of the women and perhaps some of the men in a given band to establish the kind of trust that necessarily supports improvisation. Unless people believe that others will cooperate with them in establishing their own small world of meaningful sounds and gestures, improvisation cannot get off the ground. Next, what has been called the 'foundational rule' of improvisation must be in effect. In *Truth in*

*Comedy*, one of the best guides for improvising comic sketches, authors Charna Halpern, Del Close and Kim Johnson assert that ‘“Yes, &...” is the most important rule in improvisation’ (Halpern, Close and Johnson 1994, 46). According to the authors, Yes, &... ‘means that whenever two actors are on stage, they agree with each other to the Nth degree’ (46). In order to build their improvised situation together, performers make ‘offers’ about the reality of their given circumstances and the others in the group nearly always accept that offer, no matter how ridiculous or contradictory it might be. They say, in effect, ‘Yes, and [here’s something else to add to our reality].’ The ‘Yes, &...’ rule sustains the necessary web of trust and mutual support among the improvisers. Partners in an improv nearly always agree with the assertions of the other(s) as they construct a world together of specific characters in given situations.

It is not difficult to imagine the ‘Yes, &...’ rule helping to structure a Pleistocene proto-conversation. A mother has somehow asked a caregiver how her baby acted while she was away and the grandmother alloparent has to invent a sound and perhaps a gesture that might be translated as ‘the brat cried all day long.’ So she points to the child and gives a long, baby-like cry with a gesture of baby-like rage that tries to communicate what she means. Let’s represent this sound-gesture as ‘WAAAA^\*!’ The mother has enough empathetic skill to put herself in grandma’s place and figure out what she’s trying to say. But perhaps mama wants to know why her kid never stopped crying, so she repeats ‘WAAAA^\*!’ and adds a gesture to express her question. In effect, the mother has used the rule of ‘Yes, &...’ to affirm the meaning of ‘WAAAA^\*!’ and both participants in the improvisation can now continue to use that sign to carry on their proto-conversation. Maybe that is the only time the sign is used and it quickly fades from the memory of both adults. Or perhaps ‘WAAAA^\*!’ catches on among other women in the band to indicate babies that cry often. Over time, it gets modified, shortened and passed down to the next generation; it is now a sign that indicates cranky babies among most, perhaps all, alloparents in the band. Maybe that particular pantomime with sound carries that meaning for a thousand years. By that point, it is no longer an improvised invention; it has become an accepted, normative part of the band’s proto-language. Long term, the rule of ‘Yes, &...’ can lead to semantic conventionalisation.

The process of establishing semantic conventions is important, of course, because it moves the subjunctive proposition, ‘What if we allow “WAAAA^\*!” to stand in for all cranky babies’ from a ‘what if’ possibility into a declarative reality. In terms of co-evolution, what began as a playful improvisation could end up as a cultural fact. Beginning in a game of ‘Let’s pretend,’ ‘Yes &...’ can institutionalise norms of behaviour among groups of people over time if they allow the continuing improv to do so. In this way, as several anthropologists have affirmed, initially playful religious beliefs and informal economic trading can grow to become the Ten Commandments and the World Bank. I agree with anthropologists Emily Wyman and Jerome Lewis, who emphasise the importance of hominin play in the gradual emergence of language and other institutionalised forms of symbolic culture from hominin signals.

The extent to which hominin adults might have been able to extend childhood play into adulthood during the Pleistocene cannot be known with any certainty, of course. Today, we are the only species that allows for and even encourages ‘let’s pretend’ activities in adulthood, as evidenced by the proliferation of porno films, football games and Internet cat videos that crowd into what we sometimes call adult entertainment. Simply on the basis of our present fascination with subjunctive performances in multi-modal formats, it is likely that there would have been some evolutionary pressure on Pleistocene hominins to continue engaging in play activities after childhood. Also, as we know from social behaviour today, most adults enjoy playing with children, and *Homo erectus* alloparents would have had many opportunities and some incentives to do so. Playful contests among adults today, such as sports and games,

deliver dopamine rewards to losers as well as winners, a good reason to continue to play well past puberty. Did this genetic change begin during the Pleistocene? Probably. Improvising signals for communication is a type of play, of course, and if that activity proved enjoyable, our hominin adult ancestors may have had several incentives to continue it.

I have sketched a possible scenario for the invention and elaboration of proto-languaging based on hominin improvisation, but how credible is it? Conventional ideas about innovation usually emphasise the importance of pinpointing a need, gathering as much relevant information as possible, sifting through it for possible ways of fulfilling the need in question and then trying out various options, first as thought experiments and then as marketing ploys. In contrast, as Gunter Lösel emphasised in his chapter in Part I, improvisation is quick, messy and playful. It is probable that most of these hominin signs, invented on-the-fly, were not remembered past their first use. And for those that were, any band that continued to communicate with a few hundred gesture-sounds for more than five generations would likely have replaced many of them. These signs, however, were improvised neither for long-term use nor for proto-linguistic coherence. They were invented in a moment of communicative need, provided a roughly iconic equivalent of the object or action imitated and served their purpose well enough to effect some necessary communication in that situation. Put another way, it is difficult to conceive that the creation of these gesture-sign sounds could have been any more deliberative than hominin improvisation allowed. Assuming their level of communication was not much more than that of gorillas and chimps in the wild today, our Pleistocene ancestors had no tools for careful deliberation. But they had learnt alloparenting trust and empathy well enough to craft and share some gestural proto-languaging necessary for their caregiving, an evolutionary innovation that would eventually lead our ancestors to fully symbolic spoken language.

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