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An Evolutionary Perspective on Live and Mediated Popular Performance

*Deploying philosopher Mark Johnson's idea that all cognitive operations in Homo Sapiens must be continuous with those of other higher mammals, this article takes issue with those theorists who posit an ontological difference between live and mediated performance. Rather, just as all human performances emerged out of animal play, so did mediated performances emerge from live ones (including live popular entertainments). Filmic and electronic media, however, do require actors and spectators to make a few cognitive adjustments, the most notable of which is the unconscious application of our Hypersensitive Agency Detective Device (HADD) to translate the images and sounds on film and radio, for example, into a fully embodied live performer with agency. Given the ontological similarities and the historical distinctions among the many kinds of live and mediated performances in human history, the article suggests that the theories of McLuhan and Ong, updated to take account of the new cognitive sciences, may help us to write empirically responsible performance history. It concludes with three implications of this evolutionary perspective for the study of popular entertainment. Bruce McConachie is Professor of Theatre Arts, University of Pittsburgh, USA. His latest book is *Engaging Audiences: a cognitive approach to spectating in the theatre* (2008).*

In my December 2007 essay for *Theatre Journal*, “Falsifiable Theories for Theatre and Performance Studies,” I suggested that the ongoing debates about live and mediated performances might be resolved by applying some scientific theory and methodology to the problem. Toward the end of the essay, I argued:

... [I]t ought to be possible to set up experiments that can provide empirical information about the similarities and differences between the experiences of spectators when they watch “live” and “mediatized” performances. Such experiments would necessarily rest on common definitions of key terms and rely on provisional neuroscientific, linguistic, and psychological theories

about spectator attention, simulation, memory, emotion, conceptual blending, and meaning-making. Experimental procedures might range from postperformance interviews to brain scanning. . . . Even before we can conduct such experiments, however, it makes more sense to base our provisional ideas about spectatorship, when possible, on relevant theories that are falsifiable, rather than on unfalsifiable psychoanalytic and poststructuralist beliefs.¹

The present article continues this discussion, turning to falsifiable theories to distinguish among live and mediated performances.

First, I must admit that the experiments I was hoping to inspire have not occurred; we are no closer to discovering similarities and differences between, say, theatrical and filmic viewing than we were three years ago. There are probably many reasons for this, ranging from the continuing animus toward science in our field to the difficulties of setting up such experiments. (Trying to put together a CAT scan or fMRI device that could accommodate everything that a spectator experiences when watching a live trapeze act with others at a circus, for example, is likely to continue to defy the best scientific imaginations.) I can point to a suggestive parallel in another area of research, however. Given the public concern about the influence of mass media on children, it is not surprising that psychologists have done some work on the differences among live and televised modes of learning. Current research suggests that young children learn much better from teachers who can interact with them than they do from televised images of the same instructors teaching the same lessons.² While these experiments are likely to be relevant in a general sense to the live vs. mediated debate, their findings cannot easily be extrapolated to theatre and film viewing; teaching young children in live or mediated instructional settings is a long way from entertaining adults in play or movie houses. Further, it is not clear from the experiments themselves whether the differences detected reflect differences in the degree or in the kind of cognitive and emotional interactions in the two learning situations.

While my present essay cannot offer direct empirical evidence about the controversy, I will take the first, pre-experimental steps mentioned in my 2007 article. I hope to advance the discussion about live and mediated performances by noting the relevant theories in the scientific literature and connecting them with other ideas that will likely constitute the context for subsequent investigations. The reasoning behind this approach is straightforward: We need to understand what we already know or can likely predict about interactions among actors and spectators in various media before we can use this knowledge as the basis for future hypotheses and experiments. This is not to propose a positivist epistemology concerning scientific knowledge; I will not be gathering hard Facts to prove unalterable Truths. As I explained in the *TJ* article, all science – even the assertion that the earth revolves around the sun – rests upon theories that may later be proved false.³

Working outward from what we can know with a fair amount of certainty toward ideas that logically extend this knowledge, I will propose that there are differences between live and mediated performances, but not ontological ones, as many theorists have argued. The logic of evolution itself suggests that there is no need to invent new ontological categories to explain human phenomena that are continuous with all of human development and history. With one exception (which I will discuss), the mental operations that *Homo sapiens* deploys to make sense of live performances are also used to understand mediated ones. As I will point out, human minds reached their present cognitive capabilities about 50,000 years ago; our major cognitive operations for experiencing the world – performances included – have not changed since then. While there are important historical differences among live and mediated modes of communication, they share a common evolutionary and cognitive foundation. This commonality, in turn, has important implications for the study of popular entertainment.

For evidence, I will draw on the full range of the cognitive sciences as well as evolutionary psychology. I recognize that understanding my summaries of this kind of evidence will be difficult for most theatre and performance scholars; despite the relevance of many areas of cognitive science to much of our field, our discipline has been slow to take advantage of the cognitive turn in the humanities. I will do what I can to offer straightforward explanations and examples, but a full elaboration of the scientific background would take a book.⁴ But there is no getting around the need for some science; the only way to offer an evolutionary perspective on performance is through evolutionary and cognitive evidence.

Because I am exploring performances that range from 50,000 years ago to yesterday, I will draw on many kinds of entertainments for evidence. While popular entertainments will constitute many of my examples, the essay must investigate performance as a whole, from religious rituals to sports events, for instance, as well as music hall turns and circus clown acts. Nonetheless, “popular entertainment,” broadly conceived, will provide important points of comparison for my argument. As an example, imagine a juggling act in which the performer is handling four sticks of wood, keeping three aloft at any one moment. Now place that juggler in front of a tribal campfire 50,000 years ago, in a Chinese court about 1,000 years ago, on a European theatrical stage in front of an elite audience about 200 years ago, in an Australian circus ring about 100 years ago surrounded by cheering workers and families, on the Ed Sullivan television show watched by millions of U.S. citizens 50 years ago, and on a computer screen for MySpace.com, looked at yesterday by thousands around the world. With this example in mind, the question motivating this essay is a simple one: How can we talk about the changes in the performer-spectator relationship of this juggling act over these 50,000 years? Was there an ontological change in the shift from live to mediated or were there minor historical changes, but no foundational ones, over time? Put differently, were these changes in kind or in degree?

I

Most theorists answering such questions have taken an ontological position; the shift from live to mediated performance involved a change in kind, they insist. Walter Benjamin, for example, (were he alive in 1960) would have asserted that the performance of the juggler and his spectators changed fundamentally when the act appeared on the Ed Sullivan Show, and viewers were separated from the “aura” of the performer. Benjamin’s “The Work of Art in the Age of Mechanical Reproduction” (1936) is often cited by those who believe that the magic of “presence” can only occur when live performers and spectators share the same space at the same time.⁵ Because Benjamin never defined “aura” in scientific terms, however, his assertions about it cannot be tested and validated or falsified. Basing her position on Lacanian assumptions, Peggy Phelan has also argued for an ontological distinction between live and mediated performance in her *Unmarked: The Politics of Performance* (1993). In fact, once performances participate in “the circulation of representations of representations” (as occurs with television broadcasting), they cease to be performances at all for Phelan.⁶ Our juggler, to follow that example, had stopped “performing,” in Phelan’s sense of the term, when he left the circus ring and moved in front of a camera. While Benjamin sidestepped a scientific discussion of his theory, Phelan drew on the pseudo-science of Lacanian psychoanalysis. As I and others have demonstrated, Freudian and Lacanian ideas are not falsifiable; scientists in psychology no longer use the major tenets of psychoanalysis to frame their theories.⁷

By contrast, Noel Carrol’s ontological distinction between live and mediated performances, specifically film, does rest upon good cognitive science. Drawing on ideas of mirror networks and empathy, Carrol asserts that live is different from mediated because people can distinguish intentional acts from material motion. Recent neuroscientific work on “mirror neurons” validates the reality and importance of intentionality for performance. Networks of such neurons in the frontal lobe of the brain, evident in many higher mammals as well as humans, respond to intentional motor action initiated by others. If an actor/character on stage in a murder melodrama grabs for a gun, the grabbing motion will be picked up by the mirror networks of those sitting in the auditorium; the spectators’ mirror networks will fire in the same way that they would have if each of them had done the grabbing. By contrast, if the actor/character on stage accidentally dropped the gun – an unintentional mistake – the mirror networks of audience members would not respond. Although the experimental work on mirror networks in humans is far from complete, many scientists agree that these groups of neurons are fundamental to human empathy. In order to put yourself in the shoes (and mind) of another person, whether on stage or elsewhere, you must be able to read that person’s intentions and emotions. Through mirror network processing of the muscles in another’s face and body, humans are able pick up significant information about the other’s emotions and intentions, information that unconsciously informs empathetic response. By approximating other’s intentions through our mirror networks, we can

fine tune our own responses and intentions toward them.⁸ All of this occurs unconsciously a hundred times a day, both in performance situations and elsewhere.

Mirror networks and empathy are important for Carrol because they form an essential part of live communication. When people are looking at objects that can have no intentions of their own, however, Carrol holds that genuine action is impossible. From his point of view, watching a film is the same as looking at an object; in the projection and viewing of a movie, there is mechanical repetition but no intentional communication between actors and spectators. This is narrowly true with regard to the actors' performances. Only the projectionist exerts any intentionality when it comes to showing filmic images on the screen; the performer's work is already "in the can." Our juggler in the previous example might even be seated in the audience, watching an edited version of his act before the camera, but exerting no intentionality with the audience while the film rolls. Carrol recognizes, of course, that there was a lot of human intentionality that went into the making of the film, but he draws his ontological distinction on the grounds that this past work is not present to the audience when they watch the film. Because film actors and spectators cannot interact with each other in the flesh during a film showing, live is fundamentally different from mediated performance.⁹

This is a well reasoned position, dependent on a foundational distinction between animate subjects and inanimate objects. Shakespeare relies on this ontological dualism when he wants to create utter separation and isolation. He has King Lear say of Cordelia at the end of the play, for example: "She's gone for ever / I know when one is dead and when one lives; / She's dead as earth."¹⁰ (5.3.260-62) But Carrol has taken one aspect of the production of mediated performance – an important one, to be sure – and built his case upon it. What about the other cognitive fundamentals of filmic, televised, radiophonic, and computer-based viewing and listening that may be closer to live performance? And what about human imagination, which seems to allow for and perhaps even to encourage the illusion that the actions and intentions of actors and characters in a film, though produced in the past and now frozen on celluloid, are immediately available to spectators for empathy in the present? Carrol emphasizes the "dead as earth" results of media production. Allowing for his animate/inanimate ontology, however, are there cognitive operations that effectively bypass this apparent problem? To get some perspective on this matter, and to resolve the problem of Carrol's attempt at an ontological distinction between mediated and live, we need to move to an evolutionary understanding of performance.

II

Where did live performance come from and why? And how is it that *Homo sapiens* has been able to adjust rather easily to so many modes of mediated performance since roughly the turn of the twentieth century? While there is no

broad agreement on the answers to these questions, a consensus is emerging among those biologists, evolutionary psychologists, cognitive philosophers, and literary critics who are exploring the species-level origins and ramifications of mammalian play, cognitive flexibility, and artistic expression among humans. In his *On the Origin of Stories: Evolution, Cognition, and Fiction* (2009), Brian Boyd provides an excellent synthesis of much of the current knowledge on these matters.¹¹ I will primarily follow his path into this thicket, with a few detours along the way to incorporate other relevant research. Although Boyd does not deal specifically with the live vs. mediated debates, his insights, garnered from several hundred scientific accounts and theories, set the stage for investigating this problem and Carroll's ontological take on it.

According to Boyd – and many others would agree – our impulse to craft performances and to engage with the performances of others comes from our evolutionary heritage of play. What are the typical attributes of play, as scholars have come to understand them? Because the scientific research on animal play far outweighs the research focused solely on human play, most scholars begin with characteristics that are widely shared among all playing animals, including *Homo sapiens*. According to Robert Fagen, one of the celebrated researchers in the field:

Play occurs in only a small minority of the Earth's million or more species. Animal play is easy to recognize. Specific movement qualities and signal patterns characterize the familiar play behavior of cats, dogs, and human children as well as the play of other animals. Mammals and birds, and perhaps a few fishes and reptiles, are the only kinds of animals known to play.¹²

Fagen's categories of animal play include brief repetitive acts by rodents, running and jumping performed singly by some mammals and birds, the sparring and wrestling of primates and carnivores, and more complex forms of social play, in which animals use objects or features of the landscape to play proto-human versions of hide-and-seek, tug-of-war, and follow-the-leader.

All of these examples point up several continuities between animal play and the play of *Homo sapiens*. Although other playing animals cannot approach the cognitive complexities of *Hamlet* or baseball, they, like us, recognize play as a distinct event with its own "rules." Among other things, this means that members of the same species understand that a playful exchange need not arouse a fight or flight response. Second, from Fagen's descriptions of these activities and from numerous experiments performed on playing animals, it is clear that these animals, especially the young of the species, will seek out opportunities to play. At some level, these mammals and birds "intend" to play. Rather than simply responding automatically to external stimuli, they will take up play spontaneously. Finally, animals "enjoy" their mutual play. Scientists know this because they have tracked chemical changes associated with joyful emotions in the brains of mammals during and after play.

Consequently, play is self-reinforcing. As the foundation of all performance (and, consequently, all performance-based modes of popular entertainment), the activity of play already entails notions of intentionality, enjoyment, and event.

With this kind of evidence in hand, many scientists have concluded that play is an evolutionary adaptation. That is, play is a species-wide behaviour in some mammals, birds, and others that functions in ways that ultimately helped and continues to facilitate those species' ability to reproduce and survive. Boyd summarizes the logic and evidence that lead to this conclusion:

Play evolved through the advantages of flexibility; the amount of play in a species correlates with its flexibility of action. Behaviors like escape and pursuit, attack and defense, and social give-and-take can make life-or-death differences. Creatures with more motivation to practice such behaviors in situations of low urgency can fare better at moments of high urgency. Animals that play repeatedly and exuberantly refine skills, extend repertoires, and sharpen sensitivities. Play therefore has evolved to be highly self-rewarding. Because it is compulsive, animals engage in it again and again, incrementally altering muscle tone and neural wiring, strengthening and increasing speed in synaptic pathways, improving their capacity and performance.¹³

What has worked evolutionarily for rats, dogs, and elephants has also worked for us. It is likely that our hominid ancestors have been playing for over six million years, the estimated time when our eventual species parted ways genetically from our near relations, the proto-chimpanzees.

Since then, judging from the increasing size of hominid skulls and other clues, our ancestors survived as much by their wits as by their physical acumen and reproductive ability. According to Boyd, playing allowed proto-humans to flourish because it increased their cognitive flexibility, especially their ability to recognize, repeat, and refine patterns. Boyd defines pattern broadly as any discernible arrangement of order or form; a face, the night sky, and a narrative have patterns when perceived by humans. He particularly emphasizes the cognitive patterns – patterns of sound, design, words, and/or action – embedded in artistic creation and reception. Such patterns constitute his view of art as “a kind of cognitive *play*, the set of activities designed to engage human *attention* through their own appeal to our preference for inferentially rich and therefore *patterned* information” (italics in the original).¹⁴ It is evident from Boyd's examples as well as his definition that he would include popular performances, from parades and sports events to musical comedies, under his umbrella of “art.” Like the other arts, performances helped evolving hominids to pattern their lives, coordinating curiosity, memory, attention and empathy in socially engaged and open-ended ways. Boyd is clear that “even if it diverts energy away from immediate survival or reproductive needs, [art] can improve cooperation within a group enough for the group to compete successfully

against others with less inclination to art.” He adds, “We should think in the first place not of art galleries or concert halls. . . , but of chants, drums, dance, body-markings, costumes, banners and the like.”¹⁵ The performances of our ancestors increased the survivability of our species.

Given its links to survival, performance and the other arts probably preceded religious rituals in our evolutionary past. There is good evidence to reverse the assumption of many theorists that art grew out of religion. Boyd notes that while the earliest sketchy evidence for religious practice dates from 90,000 years ago, ochre has been used for body decoration for at least 120,000 years and probably much longer. Hominids already habituated to dancing and singing for each other in all likelihood presumed that their gods would perceive and enjoy their performances in the same ways. Since religious belief plus artistic production amplifies social cohesion, those early tribes that worshipped and performed together also thrived together.

Several anthropologists attuned to the new insights of cognitive science have taken a fresh look at the likely evolutionary origins of religion. Stewart Guthrie, Jonathan Lanman, Justin Barrett, and Harvey Whitehouse emphasize the importance of the Hypersensitive Agency Detective Device (HADD) in the minds of hominids and later *Homo sapiens* as a primary reason for our species’ creation and worship of gods.¹⁶ Many psychological experiments have demonstrated that people often claim that they have detected animate agency in images, natural events, and accidents where none really exists. People believe they can see the face of a deity in the embers of a fire, for example, or are able to perceive the workings of the gods in a thunderstorm. In these instances, they have projected their own notion of agency into a situation they cannot explain to enable them to understand it as the will of some almighty power.

Evolution primed our species to be especially hypersensitive about invisible agents that might do them harm. Better to interpret that rustling behind the bush as a lurking tiger about to pounce than to ignore the signs of possible agency! On those few occasions when such interpretations were correct, the hunter-gatherer might survive. Furthermore, the cost of false positives in such situations was relatively trivial. Guthrie, Lanman, Barrett, and Whitehouse presume that a belief in unseen higher powers often operated in the same ways in our past and continues to shape religious belief today. Better to believe, like the rest of the tribe, that the gods might curse your hunting or blight your crops than to risk offending unseen but always lurking animate powers. Better still to try to propitiate such deities, even if the rituals that your tribe had formulated were seldom effective. HADD, initially an evolutionary adaptation that sensitized our ancestors to the possibility of dangerous agency, led to the secondary cognitive effect of helping them to invent and perpetuate religion.

This is not to say that HADD is the only cognitive mechanism behind religious

belief and ritual. There is no single module in our brains that facilitates religion. Like most complex, social-psychological systems, including performance, religion depends upon a number of neurological as well as cultural operations to flourish. This essay is not the place to elaborate all of the mental systems and cultural institutions that had to be in place before *Homo sapiens* could create, refine, and enjoy performances. Nonetheless, a summary of these evolutionary developments will be helpful to remind ourselves that live performance, though apparently quite simple when compared to its mediated cousins, is actually an amazingly complex and flexible phenomenon in contrast to the play activities of other higher mammals.

Substantial evidence about the enlargement of the frontal lobes in the human brain and physical developments that facilitated articulate speech suggests that modern *Homo sapiens* stepped onto the evolutionary stage roughly 50,000 years ago. Human evolution did not stop at that time, but it appears that all of the major cognitive systems now in place for performance and similarly complex operations had developed by then. Of course it took substantial cultural and historical changes as well, before our direct ancestors could mount the kinds of performances that occurred in the ancient Athenian religious rituals, theatre festivals, and Olympic games. *Homo performans*, as we might also call our con-specifics, inherited much from her and his mammalian past that facilitated our species' ability and delight in performing.

Dolphins and chimps "perform" for each other in the midst of their play, but their interactions are very limited by comparison. In part, this is because their minds are restricted primarily to episodic memory (which allows for the recollection of specific events) rather than the combination of episodic and semantic memory (which facilitates the recall of several types of patterns, including language) in humans. Dolphins may have some limited semantic memory, but their performances at Sea World and similar venues cannot begin to approach our production and enjoyment of stand-up comedy, football matches, and theatrical farce in terms of their ambitious demands on our attention and the complexity of their patterned actions. Likewise, many higher animals have mirror networks that grant them a degree of empathy, but the human ability to understand the beliefs, desires, and intentions of others in our species is unsurpassed in the animal kingdom.¹⁷ Keen observers of wrestling matches and Shakespearean tragedy can watch the movements of role-players in both performances and anticipate where they are going next in their performances. Although we share the same primary emotions with many higher mammals, we can gain consciousness of our emotions and recognize them as feelings. While many spectators might prefer to let their sentimental emotions overtake them while listening to a romantic song in a musical comedy, they (unlike other animals) will know what feelings they are experiencing during the show.

Other attributes of *Homo sapiens* that facilitate performance are further removed from our evolutionary past. Our pattern-recognition systems allow us to

frame certain events as “performances” and to move in and out of those frames instantaneously. Consequently, along with our ancestors 50,000 years ago, we can engage with a dramatic fiction in a performance space in one moment and wonder what is wrong with a spectator who is coughing next to us in the next. Well before Brecht came along to tell us to do so, we were able to multi-task at performances,

easily jumping among frames of fiction, direct-address, and musical modes of performance. Related to this is conceptual blending, the cognitive operation identified by Gilles Fauconnier and Mark Turner, that (among its other successes) enables us to merge actors and characters together, a cognitive task necessary for spectators as well as performers.¹⁸ Blending creates the doubleness of all performance, the knowledge that the trapeze artist is both herself and a carefully crafted role that she is playing. Performers and spectators, reliant on unconscious blending, can unblend the doubleness inherent in performance just as easily, to take account of a missed entrance or a curtain call. While not all performances then or now involve narrative, many employ a sequence of actions that challenged contemporary and (probably) Cro-Magnon spectators to put together patterns of causal relationships that tell a story. Finally, there is vocal language, a late evolutionary addition that must have enabled the creation and rehearsal of many kinds of performances as well as their enactment and reception 50,000 years ago. In this regard, the cognitive interdependence of gesture and spoken language discussed by David McNeill probably facilitated the intelligibility of early theatrical story-telling on the African savannah.¹⁹ The structure of language does not provide the template for performance, as some structuralist and post-structuralist theorists have presumed; the evolutionary fundamentals of performance belong to play. But language certainly enhanced and extended role-playing and narrative possibilities.

This summary of the major cognitive advances in place around 50,000 years ago that enabled our ancestors’ performances, gives us a kind of baseline for all subsequent modes of performing. Obviously, we did not suddenly develop major new mental abilities in the twentieth century to facilitate our understanding of film and radio; evolution never works that fast. So one question that this summary poses is how did we use our evolved cognitive operations to accommodate the performance media that have proliferated since the twentieth century. We have already seen that HADD, initially a direct aid in survival, had the secondary effect of sparking religious belief and ritual. We can assume that our mental adjustments to the new media may also have drawn on cognitive operations not usually deployed for live performance to enable us to produce and understand mediated performances. But what were they? And, finally, what are the ontological ramifications, if any, of this shift from mostly live to predominantly mediated performances?

III

As it turns out, the answer to the last question opens up the possibility of

addressing the previous ones. Cognitive philosopher Mark Johnson's understanding of the logic of continuity in naturalistic theory is the key to the ontological problem. Johnson borrows continuity theory from John Dewey, who based its assumptions on Darwinian evolution. Since all living things evolved from previously living things, there can be no ontological breaks in animal and human history, noted Dewey. As Johnson elaborates:

The principle of continuity entails that any explanation of the nature and workings of mind, even the most abstract conceptualization and reasoning, must have its roots in the embodied capacities of the organism for perception, feeling, object manipulation, and bodily movement. The continuity hypothesis, however, does not entail that there are no demarcations, differentiations, or distinctions within experience. Of course there are demarcations, and they are very real and important! The continuity hypothesis insists only that wherever and whenever we find actual working distinctions, they are explicable against the background of continuous processes. Furthermore, social and cultural forces are required to develop our cognitive capacities to their full potential, including language and symbolic reasoning. Infants do not speak or discover mathematical proofs at birth. Dewey's continuity thesis thus requires both evolutionary and developmental explanations.²⁰

For Johnson, evolutionary continuity is an important key to avoiding unnecessary ontological dualisms. Following continuity theory, we can expect that new ideas and practices emerged out of previous ones; differences of degree are much more likely than differences of kind. In terms of the live and mediated debate, it is clear that live performances emerged from our evolutionary past as playful mammals and that post-1900 mediated performances developed out of live ones. Consequently, we should expect no ontological breaks in this continuous process.

According to Johnson, continuity theory requires that conceptions of human cognition possess three major components. I have worked within these components in explaining what I take to be the cognitive foundations of live performance. First, "there must be an account of the connections between humans and others animals as regards the emergence and development of meaningful patterns of organism-environment interactions."²¹ I have satisfied this requirement chiefly through my discussion of play in animals and humans. Second, "there must be an account of how we can perform abstract thinking using our capacities for perception and motor response."²² As I have noted, the motor response inherent in our mirror systems can lead to abstract beliefs about other people. Beyond that, all of the theories I have relied upon for my summary of the remaining major systems of cognition that facilitate performance, work within embodied and interactive cognitive frameworks and help to generate abstract thinking. Finally, says Johnson, "Because judgments of value are essential to an organism's continued functioning, there must be an account of the central role of emotions and feelings in the constitution of an organism's

world and its knowledge of it.”²³ Although I have briefly noted the emotion-knowledge link, this insight is much more fully explained in my *Engaging Audiences*, where I developed a perspective that includes Johnson’s own understanding of embodied ethics. In sum, my discussion fulfills Johnson’s three conditions. The previous conclusion holds: if continuity theory is true for human performance, there can be no foundational, ontological differences between live and mediated performances. Both kinds of performances build upon the cognitive operations that make possible the complex experiences of modern *Homo sapiens*.

Assuming this is so, I should be able to explain the cognitive basis of all mediated performances with most of the same cognitive tools that I have used to account for live performance. And, if I must introduce a new cognitive operation not necessary for live performance, it must be an ability that was present in the minds of *Homo sapiens* 50,000 years ago. As it happens, this is not difficult to do. Justin Barrett, writing about the hypersensitive agency detection device in our heads, notes that HADD not only induces a belief in deities, but also “makes us non-reflectively believe . . . that light patterns on a television screen are people or animals with beliefs and desires.”²⁴ The cognitive operation is the same: viewers see and/or hear a phenomenon that appears to possess some independent agency and they project their notion of intentionality onto it. Before viewers imagined agency in the dots that represent performers on their TV, of course, they engaged with what they wanted to believe were the emotions and intentions of flickering shadows representing people on a silent film screen around 1900. And soon after that, HADD encouraged listeners to impute intentions and agency to voices coming out of a radio. In short, HADD made it easy for viewers and listeners to believe in the sights and sounds of performances emanating from early twentieth-century media.

After early film and radio, the rest (live television, video, game boys, websites, MySpace, etc.), as they say, was history – but not ontology. The mediated performance technologies of the last century and a half (which allows us to include the telephone) relied upon a cognitive operation more than 50,000 years old to connect spectators to the sights and/or voices of performers who, they could believe, possessed the same essential qualities of life as their counterparts in a live performance. Is belief in the agency of human images on celluloid and in subsequent communication technologies any more “real” than belief in the agency of a deity? There are solid cognitive reasons for asserting that the psychology of belief is real in both instances. Beyond that, one can point to obvious and very real traces of human intentionality in the human images on film, television, and computer screens. Some would also say that there are also real traces of God’s intentionality in the universe, but one does not have to believe the second proposition to find truth in the first. A cognitive device that initially facilitated our survival later served to induce two imaginative beliefs – in religion (for many) and in the agency of mediated performers in many popular entertainments after 1860 (for the masses).

Mediated performance required a few other adjustments in our major

cognitive operations, but continuity with our evolutionary past and with the cognitive operations and conventions of live performance massively shaped newer modes of reception and production. Spectators/listeners in the early twentieth century were still relying on their unconscious ability to blend and unblend actors and characters, for instance. They could enjoy the doubleness of live performance – the knowledge that the actors were both themselves and their characters simultaneously – on film or radio, even as they recognized that the film image of the actor/character on the screen only presented the illusion of embodiedness and the female voice coming out of the radio had left her body back in the studio. Early radio and film stars in the U.S. who had received their start in vaudeville or music hall had to make adjustments in their acts, but many made the transition from live to mediated with little difficulty. Jack Benny, in fact, may have been funnier on the radio than he was in live performance and certainly Chaplin flourished in film when he was able to move beyond the limitations of the music hall stage. If HADD could induce believers to see God in a stone statue or hear the Almighty in a summer breeze, it could certainly help viewers and listeners to bypass the embodied and interactive shortcomings of early film and radio. It was never a matter of live theatre being somehow more “real” than mediated performance; both were and remain as real as the rest of human experience. Both simply required and continue to invite cognitive imagination, which we may define simply as the power of human cognition in all of its operations, to sustain their believability.²⁵

The rest of the cognitive processes that constitute live performance are easily transferred to the mediated kind. With its persistent close-ups of the human face, early film probably enhanced the viewer’s ability to remember key characters in comparison to live performance, but in most respects memory worked the same in both modes of performance. Radio soap operas, which required listeners to add flesh and movement to the voices of the actor/characters, probably improved their attention to audiophonic cues, but in other respects the cognitive dynamics of attention remained similar. In the move from live to filmic performance, spatial cognition could not be precisely duplicated, but spectators already trained in the visual logic of perspective painting and photography had no difficulty in seeing three dimensions on a two-dimensional screen. Empathy continued as before, leading listeners and viewers to engage their mirror networks, identify with certain actor/characters, and share in their intentions and emotions. Judging from the success of such mediated hits as *The Birth of a Nation* (1915) and *War of the Worlds* (1938), both early film and radio could induce as much emotional contagion as theatre riots had sparked in the past. Finally, writers and audiences immersed in the new media continued to construct the causal relationships that constituted narratives much as they had since the days of Aeschylus.²⁶ In most respects, old fashioned cognition made few adjustments to accommodate the new-fangled media.

I have focused my discussion primarily on the two dominant media for popular performance in the West before 1940 partly for convenience, but also because both “silent” film and “sightless” radio demanded that audiences give up

specific expectations that they and their ancestors had come to anticipate from live performance for centuries. To watch actors who could not communicate with speech and listen to performers suddenly bereft of bodies constituted a sudden and substantial break with live performance, arguably a much bigger change for audiences than any that occurred between 1940 and the present. Not surprisingly, major media theorists such as Benjamin, Heidegger, Baudrillard, and others turn to the 1900-1940 period, the “age of mechanical reproduction,” for evidence about ontological differences between live and mediated experiences. From the perspective of evolutionary continuity, however, which includes an understanding of the ongoing cognitive abilities that joined live to mediated performances, these theorists were mistaken.

Is there a better general theory of media in accord with evolution? Such a theory would also need to recognize the historical changes that new media have sparked, but without accounting for these changes in ontological terms. In the *Gutenberg Galaxy* (1962) and *Understanding Media* (1964), Marshall McLuhan articulated the notion that new media generally work by extending our natural senses in new and more powerful ways.²⁷ Thus, for example, a close-up on film increases our power of sight and the radio extends the natural capacities of our voices and ears. Walter Ong elaborated McLuhan’s ideas in a historical direction in *Orality and Literacy* (1982), which posits significant differences between cultures of primary orality, for example, and those later cultures that deployed writing or print.²⁸ McLuhan and Ong occasionally used the term “ontology” to distinguish among the modes of thinking that each dominant medium helped to shape in its historical era. But a closer look at their ideas shows that they were actually historians who assumed that that new media, though it might rearrange the importance of our species’ senses, did not change the basics of human cognition.

Both theorists were writing before cognitive studies began to take hold in communication theory, so it is not surprising that their ideas neither build upon notions of embodied cognition nor take into account Johnson’s continuity theory. Both assume, however, that new media rely foundationally upon our basic sensorial equipment. McLuhan and Ong, working within mostly behaviourist assumptions about the uniqueness and importance of each of our senses for receiving stimuli and communicating responses, did not try to open up the black box of the mind. Cognitive neuroscientists and psychologists now recognize that our perceptual and communicative senses are more “wired together” than did McLuhan and Ong. Nonetheless, if their notions of the human abilities to see, hear, touch, move, and speak are translated into contemporary cognitive terms, McLuhan and Ong have much to offer historians of live and mediated performances. Above all, they understood better than other theorists that there were no breaks in media history. New media are always built as improvements upon existing media, often preying on their content as parasites upon a host. At the start of this historical process and continuing throughout it, according to McLuhan and Ong, were the voices, eyes, and ears (and, I would add, the minds) of evolved *Homo sapiens*.

It is not difficult to trace the continuity of live and mediated performance when embodied and interactive cognition is added to McLuhan's and Ong's theory. I have been fortunate to work on a theatre history textbook that takes seriously McLuhan's and Ong's understanding of the dynamic interaction between major innovations in media and emerging contexts for historical change, in performance and in other areas of human experience. As discussed in our *Theatre History: An Introduction* (2010), live performance began in cultures of primary orality, when face-to-face speaking and gesturing dominated communication.²⁹ Performances before the advent of writing ranged widely, often including drumming, storytelling, singing, dancing, and chanting. Those living in cultures of primary orality might play the roles of shamans, bardic storytellers, fertility goddesses, and mythic warriors. With few institutional supports, all performers in such cultures were necessarily "amateurs," although some probably enjoyed elevated status within their tribes.

The new media of writing and print altered live performance in significant ways, but did not challenge the basic set up of live performers appearing before spectators at the same place and time. This situation continued in market places, at court, on stage, under circus tents, and in other venues, even as performances shifted to accommodate the more "civilized" cultures of writing and print. Over time, new technologies – changeable scenery, stage lighting, and better acoustics – extended the reach of live performance and with it the cognitive abilities of normal eyes, ears, voices, and minds. By 1900, live performance in the West had changed significantly from its origins in cultures of primary orality. Above all, the linear, visual, and materialist perceptions that came with cultures of print and photography had largely overwhelmed the acoustic and mythic sensibility that helped to structure oral cultures. Further, commercial and political pressures now regulated actor/character embodiments and performer-spectator interactions. Popular performance at 1900 remained live, but a *Homo sapiens* from 20,000 BCE in a time machine – although possessing basically the same senses and cognitive abilities as the typical westerner – would have been lost. Perhaps this early representative of our species would have recognized some of the same tricks in a circus juggling act that he had enjoyed at the campfire, but the pacing of the act, its competition with other circus performances going on at the same time, the juggler's interaction with the spectators, and the environment under the big top would have utterly mystified him. Most theorists who compare live to mediated performances ignore the fact that "live" is not a historically stable category; live acts have been changing at least since the invention of writing.

From McLuhan's and Ong's perspective, the new technologies for performance near the beginning of the twentieth century enhanced the power and range of some of our everyday senses, but at the price of downgrading others. As previously noted, early film and radio demanded sacrifices, but also extended visibility in impressive ways (in the case of film) and increased what our voices and ears could do (for radio). Subsequent media for performance after 1940 sought to restore those elements of primary orality that the early twentieth-century media

could not accommodate, while continuing both to globalize communication and to make it more intimate. McLuhan correctly predicted that spinoffs from these newer media would lead humankind toward the “global village” that we are now approaching in the twenty-first century.³⁰ Intimate, amateur performances are making a comeback, not only with “reality TV,” personal websites, and MySpace, but on cell phones. I-phone technology allows people to tell stories to others with accompanying pictures in near simultaneity halfway around the globe. McLuhan and Ong called this recuperation of predominately oral communication “secondary orality” because it reverses the dominance of writing and print in the West to reanimate some of the face-to-face effects of primary orality.

In his *Digital McLuhan: A Guide to the Information Millennium* (1999), Paul Levinson updated McLuhan’s ideas to relate them to Darwinian evolution. Like those evolutionary psychologists who understand culture as a necessary part of human evolution, Levinson assumed that historical peoples developed new media as a part of their desire to “extend our communications beyond the biological boundaries of naked seeing and hearing.”³¹ And like McLuhan, Levinson argued that recent technologies were an attempt to overcome the shortcomings of earlier media and to reconnect ourselves with the embodied and interactive possibilities of face-to-face, primary orality. (Writing in 1999 before the invention of the i-phone, Levinson believed that the computer could provide that primeval world of “music, myth, and total immersion” to people sitting in front of their monitors.³²) What interests me in Levinson’s book are not his predictions, however, but his commitment to evolutionary continuity. More so than McLuhan or Ong, he recognized that their theories emerged from an evolutionary perspective. As a species, noted Levinson, we are best adapted for the kind of primary orality that our ancestors practiced on the African plains. By contrast, our current conventions of live performance, inflected by the technologies of writing, print, and photography, are a pale reflection of those primal possibilities, even though they do allow for embodiment and some limited modes of interaction. Mediated performances may now promise more intimacy and immersion, even as they extend the range of performing far beyond the primitive campfire. So it may be that the adolescent girl on her i-phone, singing a recent hit song and simultaneously “sexing” her boy friend (who lives 100 miles away) is closer to the primary orality of our ancient ancestors than a contemporary live performance by a professional artist on a stage (or another venue for live acts) could ever be. Luckily, though, we can posit an evolutionary perspective without getting nostalgic for our evolutionary past.

IV

What are the implications of this perspective for the study of popular entertainment in the future? I’ll limit these to three major conclusions and keep my explanation brief because I assume that readers have already connected most of the dots that lead to them. First, because live and mediated forms of popular entertainment share massive foundational continuities, we must study both. The

experience of watching Anna Deveare Smith in a live performance will be different from watching her on videotape, but we should look for and expect to find differences that are matters of degree and not of ontological kind. Second, because the principle of continuity shapes history as well as evolution, we should anticipate that the history of popular entertainment will emerge out of prior forms of performance. These include not only elite and folk performances, but also performances in cultures of primary orality and even the animal play of our hominid ancestors. Part of the fun of a high wire act is watching the performer attempt to grab the wire with his or her feet in the same way that our proto-chimpanzee ancestors curled their feet to walk on a narrow tree branch. Third, in explaining the popularity of popular entertainments, we should understand the relevant historical evidence in the context of scientific knowledge about cognition and emotion as well as the other explanatory contexts – gender, urban, class, politics, race, etc. – that we have traditionally used as historians. It will be helpful to know something about the cognitive operations involved in producing and enjoying music, for example, when investigating Harry Lauder’s success in English music hall and, later, on radio and records. By the way, the scholarly literature connecting music to cognitive science, especially in the area of the psychology of human emotions, is already substantial.³³

¹ Bruce McConachie, “Falsifiable Theories for Theatre and Performance Studies,” *Theatre Journal*, 59:4 (December 2007), 577.

² See, for example, J. S. DeLoache and Nada Korac, “Video-based Learning by Very Young Children,” *Developmental Science*, 6:3 (2003), 245-46 and K.L. Schmitt and D.L. Anderson, “Television and Reality: Toddler’s Use of Visual Information from Video to Guide Behavior,” *Media Psychology*, 4 (2002), 51-76.

³ McConachie, “Falsifiable Theories,” 570-77.

⁴ Indeed, I have already written a book that covers much of this territory – *Engaging Audiences: A Cognitive Approach to Spectating in the Theatre* (2008)– and I would suggest that those wanting more details about such specifics can get many of them there.

⁵ Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction (1936),” in *Video Culture: A Critical Investigation*, John Hanhardt, ed. (Layton, UT: Peregrine Smith Books, 1986), 27-52.

⁶ Peggy Phelan, *Unmarked: The Politics of Performance* (London and New York: Routledge, 1993), 146.

⁷ See Bruce McConachie, “Cognitive Studies and Epistemic Competence in Cultural History: Moving Beyond Freud and Lacan,” in *Performance and Cognition: Theatre Studies and the Cognitive Turn*, B. McConachie and L. Hart, eds. (London and New York: Routledge, 2006), 52-75, for my own and others’ understanding of Lacan’s scientific shortcomings.

Other theorists in the live vs. mediated debates take an ontological position without realizing they are doing so. In his *Liveness: Performance in a Mediatized Culture*, 2nd edn. (London and New York: Routledge, 2008), Philip Auslander assumes he is urging a historical point of view, but he backs into an ontology also at odds with the demands of falsifiability. He derives his key term, “liveness,” from Baudrillard, whose poststructuralism cannot be reconciled with the embodied realism implicit in much cognitive science. For a discussion of embodiment and poststructuralism, see George Lakoff and Mark Johnson, *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought* (New York: Basic Books, 1999), 463-67.

⁸ On empathy, see Evan Thompson, *Mind in Life: Biology, Phenomenology, and the Sciences of the Mind* (Cambridge, MA: Belknap Press, 2007), 382-411.

⁹ Noel Carroll, “Philosophy and Drama: Performance, Interpretation, and Intentionality,” in *Staging Philosophy: New Approaches to Theatre and Performance*, David Z. Saltz and David Krasner, eds. (Ann

Arbor, MI: University of Michigan Press, 2008), 119. Initially persuaded by Carrol's position, I endorsed it in *Engaging Audiences*, 57-58. I have since changed my mind.

¹⁰ William Shakespeare, *King Lear*, Alfred Harbage, ed. (New York: Penguin, 1970), 164.

¹¹ Brian Boyd, *On the Origin of Stories: Evolution, Cognition, and Fiction* (Cambridge, MA: Belknap Press, 2009), 80-125. Despite its recent publication, Boyd's book has already been widely and very favorably reviewed by leading literary critics, biologists, and others. See the website of Harvard University Press for reviews and excerpts from the book: <http://www.hup.harvard.edu/catalog/BOYORI>.

¹² R. Fagen, "Animal Play, Games of Angels: Biology and Brain," in *The Future of Play Theory*, A.D. Pellegrini, ed. (Albany: State University of New York Press, 1995), 24.

¹³ Boyd, *Evolution of Stories*, 14.

¹⁴ *Ibid*, 85.

¹⁵ *Ibid*, 106.

¹⁶ See Stewart Elliott Guthrie, "Anthropology and Anthropomorphism in Religion;" Jonathan A. Lanman, "How 'Natives' Don't Think: The Apotheosis of Overinterpretation;" Justin L. Barrett, "Gods;" and Harvey Whitehouse, "Towards an Integration of Ethnography, History, and the Cognitive Science of Religion," in *Religion, Anthropology, and Cognitive Science*, H. Whitehouse and James Laidlaw, eds. (Durham, NC: Carolina Academic Press, 2007), 37-62, 105-32, 179-207, 247-80.

¹⁷ In addition to Boyd, *Origin of Stories*, see Merlin Donald, *A Mind So Rare: The Evolution of Human Consciousness* (New York and London: W.W. Norton, 2001), 1-300.

¹⁸ Gilles Fauconnier and Mark Turner, *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities* (New York: Basic Books, 2002), 1-59, 249-269. See also my elaboration of blending for spectatorship in *Engaging Audiences*, 47-55.

¹⁹ See David McNeill, *Gesture and Thought* (Chicago and London: University of Chicago Press, 2005).

²⁰ Mark Johnson, *The Meaning of the Body: Aesthetics of Human Understanding* (Chicago and London: University of Chicago Press, 2007), 122-23.

²¹ *Ibid*, 123.

²² *Ibid*.

²³ *Ibid*.

²⁴ Barrett, "Gods," 189.

²⁵ In his *Image and Mind: Film, Philosophy, and Cognitive Science* (Cambridge: Cambridge University Press, 1995), Gregory Currie distinguishes between imagination and belief, but recognizes that they are necessarily intertwined. Although Currie is mostly interested in the differences between novel reading and film viewing, some of his arguments about nature and narrative with regard to live and filmic entertainment anticipate my own.

²⁶ David Bordwell, one of the chief advocates for a cognitive understanding of cinema, is particularly persuasive on film narrative. See his recent *Poetics of Cinema* (Oxon and New York: Routledge, 2008), 1-11, 85-133. From my point of view, all of Bordwell's major insights about filmic narrative can be transferred to stage narrative, with very few changes.

²⁷ Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962) and *Understanding Media: The Extensions of Man*, 2nd edn. (New York: Signet Books, 1964).

²⁸ Walter Ong, *Orality and Literacy: The Technologizing of the Word* (New York: Methuen, 1982).

²⁹ Phillip B. Zarrilli, et al, *Theatre Histories* (New York and London: Routledge, 2006), 16-21.

³⁰ See Marshall McLuhan and Bruce R. Powers, *The Global Village: Transformations in World Life and Media in the Twenty-first Century* (Oxford: Oxford University Press, 1989).

³¹ Paul Levinson, *Digital McLuhan: A Guide to the Information Millennium* (London: Routledge, 1999), 52.

³² *Ibid*, 45.

³³ For a recent summary of this work, see the essays in *Musical Communication*, D. Miell, R. MacDonald, and D.J. Hargreaves, eds. (Oxford: Oxford University Press, 2005).