Wrinkles, Wormholes, and *Hamlet*

The Wooster Group's *Hamlet* as a Challenge to Periodicity

Amy Cook

Before "The Mousetrap," but after about 50 lines of director's notes to the players, Hamlet tells Horatio to observe the play through his observations of the King:

> There is a play tonight before the King.
> One scene of it comes near the circumstance
> Which I have told thee of my father's death.
> I prithee, when thou seest that act afoot,
> Even with the very comment of thy soul
> Observe my uncle. If his occulted guilt
> Do not itself unkennel in one speech,
> It is a damned ghost that we have seen,

Amy Cook is Assistant Professor at Indiana University, Bloomington. She specializes in the intersection of cognitive science and theories of performance, theatre history, and dramaturgy. Her research looks at how meaning is made onstage and in performance and how this meaning can scaffold concepts, evoke emotion, and alter the experience of embodiment. She is currently working on a book about conceptual blending theory and Shakespeare's mirror.

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And my imaginations are as foul
As Vulcan's stithy. Give him heedful note;
For I mine eyes will rivet to his face,
And after we will both our judgments join
In censure of his seeming. (Shakespeare 1982:3.2.75–87)

Hamlet assumes that the King will have a recognizable reaction to the performance of a scene that comes "near the circumstance" of an event he has experienced. If Claudius had not already performed the action to be imitated—Hamlet's logic seems to conclude—then he would not react to the player's actions. Hamlet needs both Claudius and Horatio to watch not just the scene, but also the scene and its reflection in the key spectator's actions. After all of Hamlet's attempts to get the players to "suit the action to the word," the imitation most vital to his plan is Claudius's embodied simulation of the player's "near" imitation of his fratricide. When the scene onstage is seen, Horatio (with Hamlet) will observe Claudius; for Hamlet, "The Mousetrap" is the performance event *and* its reception—trap and mouse together.[1]

Following Linda Charnes's (2006) provocative theoretical deployment of "wormholes" to escape the ideologically laden "periods" that so dominate Shakespeare scholarship—and theatre history—I will travel from the Wooster Group's production of *Hamlet* (2007) to a conception of "performance" from the early 1500s. Situated in this *Hamlet*, which resides at the intersection of live performance and videotaped memory, is a clear explication of current theories in cognitive science and the challenges to periodicity being made in literary and performance studies. I point to research on mirror neurons and evolutionary psychology not as a way to *explain* the production, but rather to argue that the production, in conjunction with the research in the sciences, stages new stories that help us understand ourselves differently.

Memory through the Doorway of Performance

Our meaning is human meaning—meaning grounded in our human bodies, in their humanly encountered environments. All of the meaning we can make and all of the values we hold grow out of our humanity-interacting-with-our-world. (Johnson 2007:283)

It is always tempting to map, to dissect, to locate. The magic of fMRI (functional Magnetic Resonance Imaging) tests is that they allow us to think that we can point to a cluster of color on a picture of the brain and say: "Here! Here's where 'apple' is! Or 'mom.'" FMRI scans have been invaluable in giving us a more complete and complicated picture of how the brain works and in forcing scientists to abandon old theories that are no longer viable in light of this new information. But just because these fMRI maps of the brain are more sophisticated, does not make them a replacement for the real thing. We use maps to compress a large and infinitely detailed physical environment into a scale most useful for driving, say, or tracking wildlife.[2] As Mark Johnson reminds us, maps are not actually there: "We do not experience the *maps*,

1. An earlier draft of this essay was presented to the Cognitive Studies Working Group, chaired by Rhonda Blair and John Lutterbie, at ASTR in November of 2008.

2. These conceptual compressions are perhaps most clearly visible in our linguistic expressions, as shown by Gilles Fauconnier and Mark Turner (2002). For an incorporation of their conceptual blending theory into theatre and literary studies, see Cook (2006; 2007).

Figure 1. (facing page) Scott Shepard in the Wooster Group's Hamlet, *directed by Elizabeth LeCompte. The Public Theater, New York City, 2007. Shepherd/Hamlet mirrors Burton/Hamlet behind him, without watching him, which makes it seem almost as if Burton/Hamlet is imitating him. Notice the precision of Shepherd's hands, even though in the video behind him it is unclear what exactly the fingers are doing. (Photo © Paula Court)*

but rather *through them* we experience a structured world full of patterns and qualities" (132). We do not experience maps, rather we experience what the maps make it possible to perceive.

In *Hamlet's Heirs*, Charnes argues that, *pace* Bruno Latour, we have never been Modern and we were never Early Modern either; "[T]he hegemony of historicism works by defining limits" that then inscribe the story that critics then "discover."[3] She points out the limits of this thinking by way of locating a space between "presentism" and "historicism":

> A literary history more true to human experience would surely require us to be full citizens in at least two realms of sensibility at once, without elevating one at the expense of the other. And that would necessitate our relationship to time and to periodicity. […] When historicists spend too much time with other historicists, they too forget that they "are only telling stories about stories." We have let the Modern Map become the ground underneath our feet; as a result, the ground looks much smaller (and the terrain much more uniform) than it really is. (2006:23–24)

In "Reading for the Wormholes: Micro-periods from the Future," Charnes aims to find a "transmissible methodology out of reading for temporal 'wormholes'" (2007). The wormholes I posit here that connect *Hamlet*, the Wooster Group, and cognitive science challenge conceptions of performance and stories about the self. In fact, given that the category I hope to challenge here is multidimensional (performance and *Hamlet* across time/space/media), perhaps a more useful idea is Madeleine L'Engle's "wrinkle in time" ([1962] 2007): a folded three-dimensional space where the past and future buckle and connect around a particular concept (McCarroll 2008).

Mary Crane folds backward linguistically, finding in the shifting definition of "perform" conceptual changes informative for contemporary readings of Shakespeare:

> "Perform" in this period had the primary meaning "to carry through to completion; to complete, finish, perfect." In this sense of the word, the relationship between "performance" and material reality is direct, not paradoxical. In a closely related sense, for example, the word could mean "to make, construct (a material object)," so that, in 1505, Gage's History of Suffolk could cite money "paid to Oliver Mason for…performing a dore [door]"—that is, literally constructing it and not impersonating it like the wall in *A Midsummer Night's Dream*. (2001:172)

Here is Victor Turner's transformative liminality made material and literal: this performance required no deception—where there was a doorway, there is now a door because Mason performed one. Crane argues that this sense of the verb continues up to the 17th century, as does this same sense of "to perform" in *The Tempest* when Prospero uses it to describe the tasks Ariel has done for him: "Bravely the figure of this harpy thou / Perform'd, my Ariel." Crane points out that Prospero means that Ariel "performed" the harpy in the same way he "performed" the tempest at the start of the play: "[H]e has brought it about" (2001:173). Shakespeare's character "performed" a storm in the same way Mason "performed" a door: presentation perfected the material object or event.

Crane finds the word "exercise"—used more frequently than "perform" in the "Documents of Control" collected by E.K. Chambers in *The Elizabethan Stage* (1923)—to be a more apt term for the theatrical event. This "exercise" is an almost physical force that puts actors through a certain practice that makes them sweat, while teaching them and developing in them new muscles: "Exercise" names "the movement or action through which the body learns. […I]t gestures toward a prediscursive kinesthetic form of learning that need not necessarily bear a representational, or ideological force" (in Crane 2001:179). Exercise is also used to describe the writer's practice; Crane quotes Ben Jonson's use of "exercise" in his *Discoveries* (1641): "For a

3. Linda Charnes cites Latour's *We Have Never Been Modern* (1993) in *Hamlet's Heirs* (2006:18–19).

man to write well, there are required three necessaries: to read the best authors, observe the best speakers, and much exercise of his own style" (2001:179). The "exercise" of stage plays, says Crane, churns out material change in the world from the collision of imitation and personal "style." Plays are "material practice, analogous to other 'real' endeavors such as studies, trades, or sports which involve the development of mental and bodily skills" (175). Exercise builds muscle as the body sheds sweat. If performance is exercise, what is excreted and what is built?

According to the OED, the verb form of "exercise" comes from the latin *exercere*, "to set in motion; to give play to (anger); to display (wisdom)." Here, exercise does not repeat a motion, an emotion, or wisdom: it frees it and gives it "play." To exercise a production of *Richard II*, for example, as the Earl of Essex paid the players to do the night before a planned rebellion, might put into motion the plot of the play, rather than represent it.[4] An exercise is never done: there is no first time or last time. There is no original and there is no perfection, only process. To pursue "exercise" as a new metaphor of performance is to challenge ideas about the relationship between material and immaterial. What I am interested in is what emerges in the effluvium of effort; it may not be locatable on a map, but you know when you have arrived.

At the edges of what has been thought of traditionally as mental phenomena (emotions, memory), cognitive scientists are rethinking the parameters of the mind in much the same way that I want to reimagine the parameters of performance.[5] Victor Turner understands performance as a bringing to completion wherein "something new is generated. The performance transforms itself" ([1969] 1995:156). While his formulation importantly acknowledges the generation of something new, it remains located in a seemingly abstract culture, rather than in the bodies (or in *and between* the bodies) of the spectators. For Peggy Phelan (1993) and Herbert Blau (1982), performance is the moment of action onstage that cannot be contained or maintained; it is disappearing and located at the vanishing point. Both Phelan and Blau are responding in part to the important claim by Richard Schechner that performance is "twice-behaved behavior" (1985), a definition that launched a discipline and a thousand theoretical ships.[6] Rebecca Schneider argues that Phelan's definition of performance as that which "becomes itself through disappearance" risks ignoring other ways of knowing, other ways of remaining; she argues for housing memory in the body, on the flesh that does remain and yet is not archivable, "remains, but remains differently" (2000:102).[7] Crane's resuscitation of "exercise" complements Schneider's concept of flesh memory. Schneider hopes to turn attention to the immateriality of that which remains in performance as a kind of flesh on bones, a body knowledge that is transmitted: "flesh memory might remain" (105). Yet memory—made flesh or not—is not

4. This argument has been well articulated by the antitheatricalists as well as by contemporary critics such as Louis Montrose (1996), Bryan Reynolds (2002), and others. My point is not to repeat the argument, but rather to notice how this word choice already frames the discussion.

5. For an anthology of work integrating cognitive science with theories of performance and cognition, see Bruce McConachie and F. Elizabeth Hart (2006). Rhonda Blair discusses the implications of cognitive science on acting theory and practice (2008). McConachie's recently published *Engaging Audiences* (2008) is also an important addition to this young field.

6. This notion is also, in part, the progenitor of my current theoretical questioning.

7. See also José Esteban Muñoz on performance studies and the document (1996). Muñoz questions the academy's privileging of the document and argues that it works to maintain the current hegemony in that documentation is always controlled by the powerful. For Muñoz, ephemera, on the other hand, "is linked to alternate modes of textuality and narrativity like memory and performance: it is all of those things that remain after a performance, a kind of evidence of what has transpired but certainly not the thing itself" (10). He hopes to reconfigure performance studies by focusing on the result of performance rather than the meaning of performance: "Performance studies, as a modality of inquiry, can surpass the play of interpretation and the limits of epistemology and open new ground by focusing on what acts and objects do in a social matrix rather than what they might possibly mean" (12). Muñoz's political goal would seem to benefit from a clear explanation of how one knows where performance has happened and how to identify the marks of what it did.

immaterial to begin with. Nonetheless, Schneider's "flesh memory" comes closer to a conception of performance as leaving a trace—exercise—since it allows for a neurological transaction, or neuroplay, between performance, spectator, or event. From Mason to Schneider,"performance" is dragged back and forth through the doorway between the material and the immaterial.

Schneider's specification of flesh memory hopes to privilege the body's intelligence, but to do so it must separate body intelligence from the *mind*'s intelligence. Any attempt to locate in the body what others have found in the mind simply recapitulates a separation made powerfully by René Descartes in the early 1700s. Like Hamlet trying to assess what can be known for sure in a world where one may smile and smile and be a villain, Descartes arrived at his famous "cogito ergo sum," the first postulate of his philosophy; it was something about which he felt he could not be fooled. As Descartes explains: "[T]his 'me,' that is to say, the soul by which I am what I am, is entirely distinct from body, and is even more easy to know than is the latter; and even if body were not, the soul would not cease to be what it is" (in Damasio [1994] 1998:249). This is the "error," the "abyssal separation between body and mind" (249), to which Antonio Damasio refers in his influential book, *Descartes' Error* ([1994] 1998). The separation between the mind and the body is not a bad way to explain the phenomenon of thinking, the qualia of mental life—and, in fact, has been so useful metaphorically that it has proved to be very difficult to eradicate (leading to "Cartesian Theatre," the "software/hardware" understanding of mind and brain, etc.).[8]

In his introduction to *The Foundations of Cognitive Science* (2001), João Branquinho points out that, as explored in the chapters of the book, "cognitive science" includes more than the information processing suggested by the term "cognition." It now includes cognition, conation (the ability to act on what is known), and affect. Branquinho does not see these various elements in conflict, since, "either the mental phenomena in question are in the end correctly describable as genuine instances of information-processing activity and turn out to be at bottom cognitive in nature; or an adequate redescription which should *inter alia* include a revision of the conception of the mind as a processor of information" (xvii). The work of neuroscientists like Damasio and Joseph LeDoux (1996) on emotion and memory not only upend a separation between mind and body—memory and flesh, thinking and feeling—it also shifts the focus from the opposing entities to the space between them. Memory does not reside in the mind *or* the body; same with emotions and even the *performance itself*. Rather, they *emerge* in the mental spaces of interaction, in the *between* of both mind and body.

Emotions, Aristotle argued, are the key ingredients in tragedy, since any dramatic narrative must contain events arousing pity and fear in order for the audience to experience catharsis. The scholarly debate on catharsis has been cacophonous, but few theatre theorists have asked what pity and fear are. They can be forgiven: until recently, even neuroscientists privileged "reason" over the seemingly messy study of emotions. When emotion was studied as part of the brain, it was seen as part of "the lower neural strata associated with ancestors whom no one worshiped" (Damasio 1999:39). The limbic system, the general term for the emotional centers, was thought to act alone, deep inside the brain, whereas the forebrain understands math and the "reptilian brain" registers fear. For Damasio, there is no "reason" without "emotion." He tells the story of Elliot, who lost the ability to perceive his emotions after a surgery to remove a tumor in his frontal lobe. Elliot knew what emotional reaction a certain stimuli used to generate,

8. The mind/body problem that follows has fostered shelves of philosophic and scientific books devoted to its understanding. To put it simply, the question is how a nonphysical thing like the mind can effect change in a physical thing like the body. Despite the efforts of fairly vocal and unanimous voices in the cognitive sciences to upend the Cartesian separation of body and mind, the opposition remains deeply embedded in Western humanities. For more on the body/mind problem, see Paul Churchland's *Matter and Consciousness* (1984), Daniel Dennett's *Consciousness Explained* (1991), or Patricia Churchland's *Neurophilosophy* (1989).

but he no longer felt this reaction, which drastically impaired his ability to reason and to plan and behave socially. Damasio's somatic marker hypothesis suggests that traces of an emotional experience remain, altering future perceptions regarding that experience. According to Damasio's understanding, emotion marks the body in perpetuity.

Humans do not need to experience something directly in order to have an emotional reaction to it. A spectator might experience fear when seeing Oedipus walk onstage with bleeding eyes or hearing the cry of pain from offstage; the stimulus resembles those patterns that require immediate physical response, thereby alerting the amygdala. The emotions could also be aroused merely by the actor's gestures and facial expressions. The amygdala is highly attuned to expressions of fear in others, with one part devoted to assessing facial expressions and one to tonal shifts in voice (Carter 1998:85). A spectator's perception of emotions in others can be enough to generate them in the spectator. When we see someone look disgusted, our brains register disgust, exciting the same neurons in the brain that become active when someone is actually disgusted.[9] Humans are not closed systems; we react emotionally to expressions of emotions in others. Damasio calls this the "as-if" body loop and argues that witnessing suffering in a loved one can evoke in us a biological response similar to the one we would have if we were actually experiencing the suffering we are watching. The body loop is the system for circulating information—both hormonal and electrical—through the body, in order to alter its state under certain circumstances, particularly those involving fear, arousal, etc. The cognitive representation of the body's state recognizes changes as if they are going on in the body, even if they are not. This is necessary, Damasio argues, because it facilitates simulation; it allows us to experience emotions separate from the stimulus that initiates them.[10]

Memory does not exist *in* the mind and is not a predominantly visual experience. It may feel as though remembering your tenth birthday is replaying a series of photographs, or pulling up, in the mind's theatre as it were, film footage of the birthday cake. Memory recall may seem like a reconstruction, but it is not. Damasio calls a memory an "interpretation, a newly reconstructed version of the original" ([1994] 1998:100). This imitation of the memory is enough, however, to arouse the emotions associated with the original. Damasio maintains the integrity of the idea of the original: remembering the original event can recall the emotions connected with it. LeDoux and colleagues have shown that memories are *not* repetitions of original stimuli or shadows of

9. At the Theatre and Cognitive Science Symposium at the University of Pittsburgh (2009), Naomi Rokotnitz presented an insightful exploration of the specific manipulation of such research in "Mirror Neurons and the Manipulation of Embodied Responses: Disgust in *The Libertine.*"

10. In *Emotional Contagion*, Elaine Hatfield, John T. Cacioppo, and Richard L. Rapson argue that emotions are best understood as a "package" of events or states that shape an emotional experience or behavior. They see emotions relationally, in that they can be caught and spread and are determined by stimulus from the outside or inside: "[A]n important consequence of emotional contagion is an attentional, emotional, and behavioral synchrony that has the same adaptive utility (and drawbacks) for social entities (dyads, groups) as has emotion for the individual" (1994:5). What this suggests is that we are not separate and contained individuals; we are porous and seeping. According to emotional contagion theory, we "synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently […] converge emotionally" (5). Based on the speed with which their studies show that this occurs, this is not a conscious attempt to reflect or match the feelings of another but rather an automatic mirroring. Written in 1994, this study predates the research on mirror neurons and complementary work by Lawrence Barsalou and J.J. Prinz (2000), Barsalou, Cynthia Breazeal, and Linda B. Smith (2007), Paula M. Niedenthal, et al. (2005), Lisa Feldman Barrett (2005), and others. For theories of emotion, see *Emotion and Consciousness* (Barrett, Niedenthal, and Winkielman 2005), which collects a series of papers relating to the appraisal theory of emotion, placing the focus of emotion on the assessment of the stimulus, since the stimuli has no inherent value outside of contextual meaning. According to the research collected herein, and not counter to Damasio's "as-if" body loop: "perceiving someone else's emotion, having an emotional response or feeling oneself, and using emotion knowledge in conceptual tasks are all fundamentally the same process" (22). Secondly, we embody the emotions of others and by imitating them we understand our own emotions. Finally, the emotions we are capable of feeling depend on the conceptual categories we have learned.

what once occurred recalled in perceptual flashes. Memories are unique perceptions each time they occur; they are not repetitions but performances, playing out a construction (1996:210–12).

Memory is a neurochemical performance; neurological patterns laid down years ago that combine the smell of burning sugar, the off-key singing of "Happy Birthday," and the orange of a friend's hair ribbon, become your tenth birthday. Moreover, research has shown (counter-intuitive to logical thinking, perhaps) that the more we fire the pattern associated with "tenth birthday," the less stable the memory of it becomes. In other words, memories shift and change over time; each time they are told, something new happens, gets added. (Actors are taught that, in making character choices, deciding that "this is the first time my character has talked about this" is a more emotionally rich choice since the memory has not been eroded by the—presumably—less emotional circumstances of its retelling.) LeDoux notes that memory is "a reconstruction of facts and experiences on the basis of the way they were stored, not as they actually occurred," (2002:96); further, he writes: "memories are constructions assembled at the time of retrieval, and the information stored is only one of the times used in its reconstruction (203). Therefore, what you are (cellularly, emotionally, physically) when recalling your tenth birthday will radically shift what gets performed in your memory of "tenth birthday." The birthday memory is that which emerges by exciting the neuron pattern or network. It is not here or there and it is not this or that: it is all and none.

As Rhonda Blair cogently lays out in *The Actor*, *Image*, *and Action: Acting and Cognitive Neuroscience*, the research on memory suggests similarly powerful implications for acting, since memories are found not to be objects pulled out of a file cabinet but rather a process that changes every time. When we remember, "we are not, in the purest terms, reliving anything; we are having a new experience in the moment, drawing on experiences of the past, shaped by our current condition and imagination" (2008:74). Importantly, cognitive science allows Blair to rethink acting theory, putting pressure on assumptions and methods that do not cohere with current research and adjusting the vocabulary or strategies to take advantage of what we know about how we remember, how we feel, and how we imagine. Research on memory as process forces us to rethink such basics as "emotional recall" since, as Blair puts it, "the science productively 'de-objectifies' our relationship to experience; a character is no longer an entity to be accurately embodied, but a process to be explored and lived" (76). Memory is a process, an exercise, a muscular interaction between an always never past and an impossibly shifting present.

The experience of recollection called "memory" might be more usefully employed (or exercised) within theatre studies if the boundaries of its categories were challenged. Memories do not exist *in* the brain, just as the mind does not exist *in* the brain. In *The Meaning of the Body: Aesthetics of Human Understanding*, Johnson insists on the centrality of the body to comprehension, cognition, and aesthetic experience. He does this not by resuscitating the body from years of intellectual disrespect, but by reframing meaning as something that does not exist without the body: "The key to my entire argument is that meaning is not just what is consciously entertained in acts of feeling and thought; instead, meaning reaches deep down into our corporeal encounter with our environment" (2007:25). What his research points to is a reworking of categories, changing our focus so that we look not at the body or the mind, but instead at the encounter with the environment, the transactional moment. As F. Elizabeth Hart has pointed out, while this may "seem to be yet another expression of Husserlian phenomenology, [...] cognitive science acknowledges that the body's boundaries with the world are porous and unstable and that embodiment is contingent upon both physical and cultural determinants" (1998:334). As Maurice Merleau-Ponty explored in *The Phenomenology of Perception* ([1962] 2002); Francisco Varela, Evan Thompson, and Eleanor Rosch show in *The Embodied Mind* (1991); and Andy Clarke extends in *Supersizing the Mind* (2008), the entire system does not stop at the edge of my flesh. Who we are—what we feel and what we remember—is perhaps then best seen as an embodied, embedded, and transactional performance.

The Wooster Group's *Hamlet*

Michael Feingold begins his *Village Voice* review of the Wooster Group's *Hamlet* with the line: "O Hamlet, thou turn'st mine eyes unto the VCR, and there I see such black and grainy tape as will not leave its tinct" (2007). Feingold refers to the 1964 film version of Richard Burton's production of *Hamlet*, a production that, according to the program, "was recorded from 17 camera angles, edited into a film, and screened for two days only at some 2000 cinemas across the country." A theatrical production could suddenly be seen by tens of thousands of people at the same time, rather than by the far smaller audience of a single Broadway house. Like Feingold, Robert Brustein also dismissed the work, finding that it was more interested in "technical gesticulations" (2008:5) than text: "In this production, LeCompte has left Elsinore for Media City, a technological complex that is located out of literature, out of culture, indeed out of history" (6). The intellectually astute criticisms of both Feingold and Brustein have spotted the game but missed the point: we are out of history and in a kind of wormhole that links us both to the past and to an ironically erasing videotaped recollection of a previous production.

Josh Abrams and Jennifer Parker-Starbuck, in a review for *PAJ*, find the production "breathtaking" and shift the terms of debate from what this *Hamlet* says about *Hamlet* to what it says about theatre and history:

> For them, the question is not merely why do *Hamlet* today, but how does theatre matter? How does theatre continue to exist and why? Through the interplay between them and the Burton/Gielgud film they pose theatre as the site wherein to capture not merely the conscience of the king, but the understanding of history, representation, and of life as well. (2007:97)

While those of us who try to teach theatre 101 to undergraduates realize that seeing a filmed version of *Hamlet* does not count as bringing "a live theatrical experience to thousands of viewers simultaneously through a new form called 'Theatrofilm' (made possible through the 'miracle of Electronovision')"—as the Wooster Group program articulates the goal of the 1964 project—the (arguably unrealized) point of the original Burton film project, it seems to me, is not the particular production of *Hamlet* that was filmed but the thousands of simultaneous *Hamlet*s screened and viewed by film audiences. Theatrofilm would be both and neither but would potentially illuminate what is rarely "center stage" among theatre or film critics: the exchange that occurs at the meeting point of audience and media, or audience and actors.

The Wooster Group's *Hamlet* was neither a new staging of the classic play nor a screening of the 1964 film. Rather, the production focused on the space in between the film and the play, the media and the live event, the self and the other. Scott Shepherd plays Hamlet, but more accurately he plays Burton/Hamlet; his performance aimed at imitating, as precisely as possible, the filmed archive of Burton's *Hamlet*. His imitation foregrounds the character/actor blend.[11] Always read through Burton, Hamlet loses his critically cherished "corrosive inwardness" and finally becomes a character requiring—like all others—an actor to embody him. Shepherd is not imitating Burton, though, as becomes clear the first time the film footage skips and Shepherd imitates the stutter of the archived Burton/Hamlet. The original is lost forever in this fun house of bodies ghosting bodies—archived, repeated, and ghosted again.

At first, the Wooster Group's imitation of the actors in the film seems to point out an evolution in acting styles; seen in the reflection created by the actors' imitation, Burton and others chew up the scenery, as if projecting to a large house rather than for the camera. Soon,

11. In *Engaging Audiences*, Bruce McConachie argues that the actor is always visible through the character onstage, such that, for example, "Hamlet" and "Shepherd" are compressed to create a third space that contains information from both inputs (2008:41–42). This use of "blend" comes from the conceptual blending theory of Fauconnier and Turner, cited above (2002).

Figure 2. Ari Fliakos and Kate Valk in the Wooster Group's Hamlet*, directed by Elizabeth LeCompte. The Public Theater, New York City, 2007. When Valk/Gertrude imitates Herlie/Gertrude's slightly exaggerated pose, the precision and commitment evidence a kind of empathy between the two women/characters—across time, media, and place. (Photo © Paula Court)*

the audience notices the live actors performing what Steven Leigh Morris of the *LA Weekly* called the "microballet of little bounces backward while walking or descending stairs, as though they too are figurines on an aging celluloid strip that occasionally slips a sprocket" (2008). Kate Valk, playing both Ophelia (via the performance by Linda Marsh) and Gertrude (via Eileen Herlie), is particularly stunning in this regard: she forges the performance at the seams of the technical interruptions to the model performance she imitates. Her Herlie/Gertrude *is* the jumps and skips, and this performance of technical interruption gains humanity through her embodiment of them. By the end of the production, the skips and jumps that interrupt the film performance come to constitute a meeting point between live actor and archived performance, creating a dislodging of self/character/actor. In the end, the imitation of the archived performance seems to project the actors—those filmed in 1964 and those performing in front of a live audience in 2007—out of their temporally situated bodies and toward the location where screen and stage meet, like brilliant puppeteers throwing their voices. The self is what hovers in between.

Feingold faults the Wooster Group for choosing the production of *Hamlet* that they did, saying that Burton's production was not "legendary" as the program asserts, and was actually not even worthy. Further, he goes on to complain that the Wooster Group did not point out the historical elements that Feingold would have found interesting:

> But the Woosters apparently aren't interested in theatrical tradition any more than they're interested in *Hamlet* the play and what it might mean for today's audience. They don't even explore the links that the Burton production extends: Backstage at it, ensemble

> member Gerome Ragni was busy dreaming up the work that would ultimately become *Hair*, also produced in the Public's first season—a connection you might think would be of interest to the people who found the subterranean ties between Flaubert's *St. Anthony* and Lenny Bruce. (2007)

The production was not an attempt to look backward historically at theatre or at a play. It was a *manifestation* of theatre's ability to constitute us by, in, through, and in between performances.

The *New York Times*'s Ben Brantley called the production an "aching tribute to the ephemerality of greatness in theater" and a "sometimes ravishing, often numbing homage to a fabled theatrical event" (2007). The review's focus on the disappearing act of theatre, of the performance the actors stand in front of, seems off the mark, however. Though the program aids this reading, comparing the production to "an archeologist inferring a temple from a collection of ruins," the production seems less interested in the architecture of the temple *qua* temple than in the spirit it once housed. Indeed, the final paragraph of the short "Program Note" suggests the more complicated reading I am arguing for: "Channeling the ghost of the legendary 1964 performance, we descend into a kind of madness, intentionally replacing our own spirit with the spirit of another" (Wooster Group 2007). This theatrically induced madness exhibits the kind of permeability of self—"spirit"—supported by recent research on mirror neurons.

This is not to argue that the Wooster Group has been impacted by or reflects scientific research in their work—indeed, one might point to their slightly misleading program notes as evidence—but that the performance nonetheless evidences current thinking across and between the sciences. The Wooster Group's *Hamlet* provides an artistic example of what the sciences are telling us about the self: that it is not as stable or individual as we initially thought. To make this argument, I first turn to a brief précis of research on mirror neurons, simulation theory, and embodied cognition, and then to the work of Leda Cosmides and John Tooby in evolutionary psychology (1992).

Insightful Mirrors and Mimesis

When we witness an actor pick up a phone and move it upward, it is the mirror neuron system (MNS) that tells us whether she does so in order to answer the phone or toss it in the air. When we witness an actor struggle to open a jar, it is the mirror neuron system that tells us the lid is on tight. While it is tremendously important to recognize that the degree of excitement generated by mirror neurons has not yet been matched by the level or amount of research output on the subject, I do think there is value in engaging with the science at this early stage. Though there is a danger in over-applying the idea of mirror neurons to theatre, I find at the heart of the Wooster Group's *Hamlet* and in the connections between the MNS and research on simulation an in-sightful mirror held up to our theatrical selves.[12]

Scientists are researching the potential chain of abilities that might stem from the mirror neuron system—action understanding, intention, emotional attunement, communication, joint action, and imitation. Action understanding, intention, emotional attunement, and communication are clearly pivotal in theatre, since without them there can be no fear, pity, conflict, dramatic irony, subtext, or even story. Joint action is the coordination of action across a group—such as lifting a boat into the water or rowing it—and might help to explain the pleasure spectators find in laughing, clapping, and standing together. Acting in synchrony with others, based on the interplay of social conventions and spontaneous feelings, unites spectator with spectator as it also co-fires mirror neurons. Again, the impact of this research is only beginning to be felt, and the further research questions it generates just being posited. While

12. For more details on the current findings on MNS and how the individual components may impact theatre theory, see my essay in *Theatre Journal* (2007) and Rhonda Blair's essay in this issue (2009).

there are many ways for theatre scholars to apply and also put pressure on scientific research into our MNS, imitation is a good place to start.

The notion of a "real" or "primary" act is central to the idea of imitation within theatre studies, and yet the MNS that facilitates this process undermines a difference between the two. Rather than focusing on an imitation that requires an originator and a replicator, the MNS suggests that in particular cells in the brain, the two are one. Ever since Aristotle defined drama as an imitation of an action, theatre scholars have attempted to explicate and elaborate; the formulation leaves out more than it includes, since it does not specify the action or what constitutes a successful imitation. I have understood Aristotle's definition as suggesting that what is onstage should seem "as if" the actions were really taking place; but clearly Oedipus does not *really* gouge out his eyes and the player king *really* might weep for Hecuba. So just who is imitating whom?

In the theatre, characters might make us cry, laugh, gasp, or even jump out of our seats. David Saltz argues that audiences do not go to the theatre to see fiction, but that they go to see "a real event, to see real, flesh-and-blood actors perform real actions" (2006:203). Such real actions prompt a co-firing in the spectator's brain—imitation through the fourth wall. The sense of union generated through the shared symbolic play of theatre challenges the traditional understanding of theatrical mimesis. First, it shifts focus from the imitation of an action by an actor to the imitation of a performed action by the spectators watching the performance. Second, it privileges the coherence of the group created by imitation; put another way, if the distance between your act and my act is minimal, is "imitation" the right word to use for understanding it? Despite the seemingly endless currency of this term in theatre studies, it does not seem to mean what we think it means. Turning to research within the cognitive sciences on imitation illuminates and challenges a Western, theatrical understanding of imitation.

Developmentally, imitation is central to skill acquisition since it limits the need for trial and error; it also translates sensory information into action, coordinating between what we see and what we do. Imitation can begin immediately after birth and is therefore at least partially innate. Newborns mimic the facial expressions of their mothers as a form of communication and shared experience that is believed to correlate with speech development, emotional synchrony, the "cultural transmission of skills and knowledge"—which will lead to symbolic play—and acquiring mental state understanding (Knoblich and Jordan 2002:121). If areas of the infant's motor cortex resonate when he sees his mother stick out her tongue, the infant does not have to process the information visually and map it to his motor cortex in order to imitate the action. This kind of "response facilitation" occurs without the infant's understanding the action; yet the "communication" this inspires generates further learning, bonding, and evolutionarily valuable behavior.[13] The brain simulates action in order to understand action; it learns action by imitating action.

Vittorio Gallese (2006) argues that the MNS provides a direct way of experiencing what others are experiencing, of tuning in to what they are tuned into ("intentional attunement") and that this experience of union is key to social development: "By means of a shared functional state realized in two different bodies that nevertheless obey to [*sic*] same functional rules, the 'objectual other' becomes 'another self' " (20). Gallese posits a "we-centric" space to address the problem in social cognition of the separation between self and other that enables the social bootstrapping of cognitive and affective development, because it provides a powerful tool to detect and incorporate coherence, regularity, and predictability in the course of the interactions of the individual with the environment (16). This suggests that not only do we learn about others as we learn about ourselves, but that the two must be understood together. Self and other

13. Giacomo Rizzolatti, Laila Craighero, and Luciano Fadiga cite a fascinating alternate example of shore birds studied in the 1950s: when a bird detects a dangerous stimulus it begins to flap its wings, which leads the other birds to flap their wings in response. The action is contagious, rather than conscious (2002:52).

need not be connected through a mimetic act if they were never separated to begin with. Mirror neurons give me "an eye of you."[14]

Embodied simulation has a profound effect on the experience of emotions. In "Embodiment in the Acquisition and Use of Emotion Knowledge," scientists Paula M. Niedenthal, Lawrence W. Barsalou, François Ric, and Silvia Krauth-Gruber (2005) correlate imitation with emotional knowledge and experience. In experiments, most people will unconsciously mirror the emotional postures of another; when told to amplify the imitation response, subjects experience greater emotional embodiment (empathy) than subjects told to inhibit imitation. They point out that the pain-related neurons that are activated when a subject's hand is pricked are also activated when the tester's hand is pricked (26). Presumably, the subject's sensory cortex would inhibit a reaction, noting that this time it is not his/her hand that is in trouble, but nonetheless, the initial neural reaction is the same. While watching expressions of sadness, fMRI scans will reveal activation of the neurons that control the "pain" muscles of the subject's face. Subjects will imitate prosody when asked to recite emotional content. Niedenthal et al. argue that this imitation is not separable from perception: the "embodiment or simulation of others' emotions provides the meaning of the perceived event" (30). We imitate in order to feel, and we feel in order to know.

In theatre, actors perform actions required of their characters—they do not imitate this action, they perform it. Imitation requires a doer and an observer/imitator; without both, there cannot be imitation. The performance of the action might provide insight into what the playwright imagined the character's goal was, just as the MNS connects action performance with action understanding—but an actor can never actually imitate a character. Without an original act with which to compare it, spectators cannot understand a production of *Oedipus* as "imitating" anything. As generally conceived, "pretending" or "imitating" creates a circle of interest that omits the audience: the actor attempts to come as close as possible to the character's action. But verisimilitude presumes correctness and is less important theatrically than evoking an image for the audience as powerful as, say, eye-gouging. Actions might be altered for the stage —the script may call for the actor to gouge his eyes out, and instead he will do an action while breaking a blood pack, for example. This series of actions are meant to simulate the effect of eye-gouging in the *spectators*' brains.

A performance that activates imitation in an audience is likely to be (almost literally) moving. Mirror neurons themselves do not discriminate between an act performed and an act as witnessed. Since watching is—at least for some neurons—the same as doing, drama *inspires* the imitation of an action, rather than *being* the imitation of an action. In some scenes this imitation might take the form of understanding the goal of the action performed onstage—the broadly congruent mirror neurons alert the spectator to the fact that the character picks up the gun in order to fire the gun. In other scenes, such imitation might be the mental simulation required to understand the emotions expressed onstage. And in some scenes, the spectator will find that he or she is tensing muscles, crying, breathing differently, leaning forward, smiling, or turning away. It is the power and pervasiveness of *audience* imitation that is central to theatre. So perhaps the rehearsal of actions and feelings that this generates allows us to respond to current or future experiences *as if* we had experienced them before, even though only a few of our neurons *actually have* experienced this before.

What does it mean if the mimetic unit is understood as the action of the actor, as perceived and reflected by the audience, rather than the action of the actor as a reflection of some earlier or original action? This unit does not include a back-story. It does not include traditional assumptions of causality or character. The focus becomes what happens between performer

14. Realizing that Rosencrantz and Guildenstern are lying to him and have, in fact, been sent for in order to spy on him, in an aside, Hamlet tells the audience that he is onto their betrayal: "Nay then, I have an eye of you" (2.2.290).

and spectator: a neurological transaction, or neuroplay, that is both performed and received, staged and housed, you and me, at the same time.

Evolutionary Psychology

At the risk of mudding our disciplinary languages, I want to introduce Cosmides and Tooby, whose work in evolutionary psychology asks important questions that deserve engagement within theatre studies. As I argued in "Staging Nothing: *Hamlet* and Cognitive Science" (2006), I do not agree with elements of their theory about how the mind processes fiction and I do not share some of their foundational (disciplinary) assumptions, but their thinking on the role of fiction is useful in understanding why it is that the Wooster Group's *Hamlet* might manifest, rather than reflect, a shifting conception of the self. In "Cognitive Adaptations for Social Exchange," Cosmides and Tooby argue that the mind is a "set of adaptations, designed to solve the long-standing adaptive problems humans encountered as hunter-gatherers" (1992:163). Central among these problems are issues of social cognition. They see altruism as evolutionarily explainable since they define altruism as a social compact of reciprocity: "Reciprocal altruism is simply cooperation between two or more individuals for mutual benefit, and it is variously known in the literature as social exchange, cooperation, or reciprocation" (169). Given the importance of the social pact, humans needed a way to detect cheaters and this privileged a facility with fiction.

In a 2001 article, Tooby and Cosmides suggest that engagement with fiction builds adaptive minds by organizing the brain. Despite or through displaying that which is not true according to traditional semantics of truth-conditions, fiction teaches us to perceive or construct scenarios of viable and feasible experientiality: "The idea that art somehow embodies truth is an ancient and enduring belief, but the factuality of Shakespeare's War of the Roses is not the kind of truth intended. What kind of truth, if any, does art convey, and why, paradoxically, does this kind of truth need to be conveyed in a matrix of false propositions?" (2001:13). I am reminded of Polonius's justification of his attempted smear campaign against his son: "Your bait of falsehood takes this carp of truth; / And thus do we of wisdom and of reach, / With windlasses and with assays of bias, / By indirections find directions out" (2.1.63–66). Stories aim not at information or data but at what organizes or processes the data we receive. Tooby and Cosmides see this kind of aesthetic appreciation as falling within the organizational mode, in other words, its function is to increase the efficiency of the system: "The organizational mode of each adaptation is expected to have its own separate aesthetic component. Thus, these motivational guidance systems are vital components of developmental adaptations, designed to help construct adaptive brain circuitry, and to furnish it with the information, procedures, and representations it needs to behave adaptively when called upon to do so" (2001:16).[15] If the sum-total of what a playwright or director wants to convey could be listed in a program note, then I do not want to see the play. I need the play to organize or reorganize my thoughts and theories about my self and the world around me.

If a "dialogue" between the sciences and the humanities is to be fruitful for both, it is important for each side to see the limits, as well as the potential, of the theories and findings. The Wooster Group's *Hamlet* did not discuss a new theory of self based on the collision between a 2007 staging of *Hamlet* and a 1964 filmed *Hamlet*, it shaped it in the audience that found, at

15. For a brilliant retort to Tooby and Cosmides, see Ellen Spolsky (2001). According to Tooby and Cosmides, suspension of disbelief suggests that we have a way of bracketing our reception of fiction such that cognitive input during a fictional event is not confused with the truth. Spolsky argues that bits of information within stories are projected differently into different situations—with fictional information often being projected to nonfictional situations—which is how we can know that there is truth in *King Lear* without *King Lear* being true. For a discussion of their disagreement and my own argument against the idea of a "willing suspension of disbelief," see Cook (2006).

the end of the night's traffic on the stage, that the location of the identified character, the nodal points of the story, existed not in the particular interpretation of *Hamlet* that this company had in mind. Rather, the location of identification was the movement, the in-between of self and other that formed between the actors standing in front of us and the representations playing and skipping behind them. This production did not explain mirror neurons—or have anything to do with them directly—but appreciating the production reframed their workings by connecting me and the actor/character not where we have traditionally met, in some "internal" psychological story or motivations, but in the movements of the body—connecting, mirroring, countering—across time, space, and self.

Conclusion

Mark Johnson calls for an aesthetics of meaning-making that does not privilege science, as those who are afraid of our work integrating the sciences into the humanities fear it will. He points out that

> Art uses the very same syntactic, semantic, and pragmatic resources that underlie *all* meaning, but in art those resources are exploited in remarkable ways that give us a sense of the meaning of things that is typically not available in our day-to-day affairs. […] In art we seek intensification, harmonizing, and fulfillment of the possibilities for meaning and growth of meaning. (2007:261)

Again, it is not that the Wooster Group reflects the science, but that it may shape the science that comes next.

Theatre shows audiences a vision of a self in its play. Theatre can create "that within which passes show," which may be why Hamlet, and so many since him, have found in theatre's mirror a hidden inside and an internal sense of self. Theatre provides an illusion of depth in a network of stories and truths. Theatre constructs what it then reflects.

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