Staging Nothing: Conceptual blending theory and the theatricalized substance of nothing in Shakespeare's *Hamlet*.[1]

Ham. Do you think I meant country matters?

Oph. I think nothing, my lord.

Ham. That's a fair thought to lie between a maids' legs.

Oph. What is, my lord?

Ham. Nothing. (3.2.115-19)[2]

In *Hamlet*, few things are as powerful as nothing. Nothing is seen by the watchman Barnardo at the start of the play.[3] Nothing lies between Ophelia's legs. Nothing makes the player king weep for Hecuba.[4] Nothing is the thing that makes up the king.[5] Nothing comes up thirty times in *Hamlet*.[6] The presence of nothing in the text calls attention to the absence that nothing is supposed to stand for. Cognitive linguistics challenges a stable definition of nothing, illuminating the things from which no things spring. In performance, *Hamlet*'s destabilization of nothing goes even further, pointing to the something that each particular nothing is. Staging nothing both sheds light on a major debate within cognitive science and calls attention to the traditional assumption of a suspension of disbelief.

In a 2001 issue of *SubStance*, a "Dialogue" took place between Ellen Spolsky on one side and John Tooby and Leda Cosmides on the other regarding the ways literature may be evolutionarily adaptable. While both sides agreed on the value of literature, and

used science to make an argument for it, the gulf between the two theories turned out to be fairly wide. Tooby and Cosmides follow a computational model of the brain derived from the work of Noam Chomsky and Steven Pinker; Spolsky argues with cognitive scientists such as Eleanore Rosch and George Lakoff for an embodied brain. The paradigm shift between seeing the brain as a computer, with input undergoing algorithmic processing, and viewing it more as an organism, shaping and being shaped by its environment, is beginning to have profound impact on various fields. Until the debate is settled, any application of cognitive science to the humanities should foreground the paradigm in which it operates. While chapter one rehearsed this debate more fully,[7] this chapter engages with the scientific work of Fauconnier, Turner, Lakoff, Ramachandran and Damasio to explore the persistent presence of nothing in *Hamlet*, suspension of disbelief, and the emotions evoked in the theater. Perhaps the process of applying the various theories can operate as a kind of natural selection, with "survival" being awarded to the one more fit to explain the aesthetic, emotional, and cognitive experiences that matter the most to us.

A fair thought

Birthed by thought, nothing is something made "so" by thinking: nothing does not exist; we have no material proof of it; we must therefore construct it. Conceptual blending theory[8] unpacks the seemingly stable idea of nothing and exposes it as a blend of multiple mental spaces, with an emergent structure capable of begetting a lineage of thoughts specific to the particular some-things blended into nothing. Fauconnier and Turner argue that this articulation of a gap is more than just a function of language; it is evidence of

how we construct blends by projecting information from two or more mental spaces into a blended space and then are able to use what was a nonthing as a thing:

> Inside the blend, this new element can be manipulated as an ordinary thing, and the usual routines of language for referring to things can be deployed. In the case of 'the missing chair,' the missing chair is a thing in the blend that, viewed from the outside, is a nonthing. It can be pointed to and takes up physical space. It inherits its physical characteristics of being a gap from the 'actual' input, in which there is not a chair in the corresponding position. We suggest it is no accident that expressions like 'nobody,' 'nothing,' and 'no luck' are ordinary noun phrases for picking out things in a space. That is why it is easy to get them in all the normal places in grammatical constructions: 'He was seen by no one,' 'I had no money,' 'No brains is your problem,' 'I expect no one to understand me,' 'He has a no-nonsense attitude.' (241)

Once we have created the blended space that is nothing, it can take on many of the characteristics of something, just as "missing chair" has many of the characteristics of "chair." This is its emergent structure; nothing takes on a powerful meaning by the selective projection of absence from the place of a particular substance. In discussing the case of "zero," Fauconnier and Turner refer to the invention of zero; though initially a place holder for the absence of number, it became a number in its own right and was used in the same mathematical functions of other numbers.[9] This is the same powerful nothing that the Chorus references at the start of *Henry V*, capable of standing in for a million in the right space: "since a crooked figure may / Attest in little place a million, / And let us,

ciphers to this great account, on your imaginary forces work" (Prologue, 15-17). A zero in one place may be a cipher, but it only takes six of them placed after a one to make a million.

Shakespeare's language in this famous passage about the powerful "crooked figure" provides a useful introduction to the idea of emergent structure. The Chorus blends the idea of nothing, or zero, with the number of one million, written out as 1,000,000. To understand the figure, one must blend information regarding the placement of each number with the number itself: the one digit is in the million place and it is followed by zeros in the other places. The zeros here do not suggest nothing, but rather no amount of tens, for example. Reading the figure, we see it denoting size because of the number of places to the left of the decimal, not because of the numbers listed to the left of the decimal. The emergent structure in the blend of 1,000,000 is "one million" which can then be elaborated on; understood now not as a one and zeros but rather as a large number, "one million" evokes power, force, and size. Shakespeare's Chorus makes the zeros the "flat, unraised spirits" (actors) who dare to tell this epic tale of a famous English king. Blending them with the mental space of zero continues his debasement of their power until he reminds us of the "million" blend, which links "zero" in a new integration network, one in which zeros in the right place can make a million and therefore just might be able to do the "work" required on our imagination to tell this story.

Fauconnier and Turner define emergent structure as structure or meaning that does not come from any of the input spaces (digit "0" or two spaces to the left of a decimal, for example). Although mental spaces are evoked and blends generated "on the

fly," emergent meaning can become entrenched, remaining to shape future conceptions about power, space, and numbers, for example. Blending can "compress diffuse conceptual structure into intelligible and manipulable human-scale situations in a blended space"[10] and is often simple and easy to grasp, despite a seeming complexity to the network of blends required to yield the final blend. As Fauconnier explores in "Compression and Emergent Structure," the emergent structure that creates novel ideas, creative leaps, and powerful associations comes not from the blend itself but from the way it links up a network of spaces. In this way, the novel emergent structure found in Shakespeare's blend of powerful zeros comes from a reorganization or re-priming of the blended spaces evoked by the blend of a "million."

Emergent structure is a product of combination, of seeing two or more things at the same time as co-existing in a space in which they are not usually found together. The combination forces a retracing of the spaces necessarily evoked to understand the blend; emergent structure lies in the new and often radical connections found in the integration network. When antitheatricalist Phillip Stubbes worried that a man's clothes on a woman would "transnature" her into a man, he rails against a kind of blending that has, he fears, a tremendous power. As discussed in the previous chapter, the potential "transnaturing" power of ephemeral theater depends on the emergent structure of blends. Shakespeare's language in performance can illuminate the network of blends integrated to form assumptions, ideology, and belief and through the flash of recognition—"a million is made up of zeros", for example—challenges the audience to reimagine, to reblend. The emergent structure of Shakespeare's language—his zero that takes on extraordinary

power in the right place at the right time—is to destabilize, from the beginning of the play, our idea of who, or what, is nothing.

During the badinage before the Mousetrap, different shapes of nothing surface between Hamlet and Claudius and Hamlet and Ophelia. With Hamlet's typical word-play, Claudius's question about how Hamlet is doing becomes a question about how he is eating, and Hamlet responds that he is eating the nothing that he is being fed: "I eat the air, promise-crammed. You cannot feed capons so" (3.2.93). Claudius responds that he has "nothing with this answer, Hamlet. These words are not mine" (3.2.95), as if Hamlet's words, hurled at him, missed their target, and Claudius failed to catch them. Claudius declares the answer "nothing" since it is not something to him. Hamlet, out-blending Claudius, insists that the words, once spoken, defy proprietary control: "No, nor mine now" (3.2.97).[11] Hamlet gives shape and meaning back to the nothing of his words by locating them apart from the speaker or hearer, like the "missing chair" evoked in reference to absence. Similarly, Ophelia dodges Hamlet's question about "country matters" by echoing Claudius's retort to the petulant prince: "I think nothing, my lord" (3.2.116). Again, Hamlet manipulates "nothing" into something, calling Ophelia's nothing "a fair thought to lie between a maid's legs." In Hamlet's dextrous use of words, nothing is suddenly the genital space, and Ophelia's nothing must be viewed through the mental space of the penis' thingness. Compared to Hamlet's thing, Ophelia's is absent; but both are made mentally visible through Hamlet's language.[12]

What becomes of Ophelia's nothing when it is embodied onstage? Hamlet's language disrobes Ophelia by drawing the audience's attention toward what is or is not

between her legs. But disrobed, out of costume, Ophelia must be the actor portraying her, since Ophelia requires the loan of an actor's body to become corporeal. In Elizabethan England, the theatrical convention of the boy player adds another layer of the blending that occurs: the actor playing Ophelia did not have "nothing" between his legs. The theatrics of the language on the page call to a reader's mind the genitals of the characters; embodied onstage, the theatrics of the language call to mind the genitals of the actors. The eroticization of boys dressed as women, things masquerading as nothings, was one of the main concerns of antitheatricalists of the time.[13] Shakespeare breaks the illusion of Ophelia's sex because in performance it is more powerful that he/she is both. Shakespeare's "nothing" exposes a presence in a space designated as empty. This presence *in* absence is the emergent structure of *Hamlet*'s nothing. The performance of language onstage changes the dynamics of meaning through the networks of spaces evoked and blended in the process of understanding.

Despite the growing wave of exciting work in literary studies to incorporate research from the sciences into examinations of literature, so far there has been very little work done within theatre or performance studies to use the cognitive sciences to put pressure on our understanding of plays in performance.[14] From understanding that the man onstage reciting "to be or not to be" is simultaneously an actor, a character, and a historical figure, to feeling moved by Hamlet's death but not moved to jump onstage, theatrical blends illuminate some of the same cognitive illusions used in our daily life. Onstage everything is a hybrid: part representation, part the thing itself. When Shakespeare writes "Who's there," it is fiction; when the actor says it onstage, it is

partially fiction and partially a real question asked by a real man in a real situation. He is neither completely one nor the other, and this both/and status gives him a particular power. Coleridge introduced the idea of a "willing suspension of disbelief" to explain the power that unreal events and people can have evoking real emotions; theater theory, performance analysis, and reviews rely on this metaphor to discuss the phenomenology of theater. Suspension of disbelief has become the predominate narrative of theater theory and yet it is untenable given current cognitive linguistic theory and research in emotion.

Our belief in belief

In *Great Reckonings in Little Rooms*, Bert States argues that "The presentational basis of theater rests upon a double pretense: the play pretends that we don't exist (the fourth wall convention) and we pretend that the play does (the willing suspension of disbelief)" (206). This formulation sees theater as rising out of denial; it emerges from nothing. To suspend disbelief creates disbelief as a presence that haunts our reception of theatre; the logic goes that in order to enjoy fiction we must hold in abeyance the knowledge that it is not true. This allows us to feel in reaction to what is happening onstage, but not to act based on what is happening on stage. Suspension of disbelief remains a defining feature of how we speak of being "carried away" or "transported" by a successful narrative.

Considering how central this idea of suspension of disbelief is to our understanding of fiction, particularly theater, it is astonishing how little interrogation it has received. Most scholarly pressure placed on "suspension of disbelief" relies on an assumption that thinking and feeling are separate mechanisms and that engagement with fiction is a special state, requiring a special interruption of normally functioning mental

assays capable of determining truth value. The argument of Tooby and Cosmides depends on just such a separation between fiction and non-fiction: "Most especially, fiction when communicated is not intended to be understood as true—as literally describing real events in the world accurately" (12). As Spolsky points out, however, plenty of people mis-apply fiction to reality:

> One can think not only of King Lear and his daughters, but of the conflict faced by a young man who needs (according to one of his cultural stories) to drink beer of an evening, even though, according to another story, he needs to drive his date safely home. If only there were an evolved mechanism that would inform the fellow that the first story is a local, cultural fiction, and the second a matter of fact. […] the evidence is that humans *do* confuse the two [fictional worlds and real worlds] frequently, subject, as they are, to powerful stories and their powerful interpreters. (187)

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. Spolsky does not pursue within her article the implications of this statement, but it seems to have significant bearing on an understanding of suspension of disbelief. The conceptual blending theory of cognitive linguistics challenges our belief in suspension of disbelief and makes way for a new

understanding of the nothing that makes the player king weep for Hecuba and makes the play the thing to catch the conscience of the king.

Two theoretical interrogations of suspension of disbelief are Eva Schaper's complication of our definition and Norman Holland's work applying neuroscience to the phenomenon, though neither work sufficiently challenges the assumptions on which the concept is based. Schaper investigates the relationship between suspension of disbelief and emotions, suggesting that without the first, "we could not avoid the puzzle resulting from being moved by what we do not believe ever really happened or ever existed" (31). She cannot discount the experience of emotions in response to a fictional world, but is similarly troubled by the assumption that either what we are reacting to is illusory or how we react is illusory: "Suspension of disbelief, whatever it may amount to in detail, gains plausibility only if we assume that there is a requirement that being genuinely moved presupposes holding beliefs about the object of such emotions, and the notion of suspension of disbelief meets that requirement" (34). She begins to dismantle suspension of disbelief, arguing that belief may be more nuanced than "suspension" suggests. She nonetheless does not question the assumption that in order to feel something we have to believe the stimulus that causes the emotion actually exists.

It is not necessary to believe that Horatio literally held Hamlet in the chambers of his heart—miniaturized, presumably—in order to be moved by Horatio's reaction to Hamlet's dying plea,[15] just as it is not necessary to believe that Hamlet or Horatio actually exists. When our best friend reports that she has "reached a dead-end" in her career or that her end is near, we do not need to believe that her life is literally a path or that time is

literally located in space to understand—and react emotionally to—her concern that she is not progressing or that she does not have much time left to live. If it is not necessary to understand the sentence literally in order to understand it emotionally, than why insist that disbelief is suspended when something is spoken onstage? Why are we so committed to the belief that we believe?

Holland follows up his earlier use of psychoanalysis to explain suspension of disbelief with an application of neuroscience research.[16] He argues that when we stop paying attention to our bodies, our plans, etc. as we do in a theater or when reading a book, we cut off the connection between our emotions and our prefrontal cortex. We still feel the emotions, but they no longer go to the prefrontal cortex for reality testing and planning. The planning that is done in the prefrontal cortex requires that we "imagine a future and a past for an object, neither of which is true now… And as long as we do not plan to move while reading a book or watching a play or movie, we do not test the reality of what we are perceiving. Thus, we willingly suspend disbelief. The minute we do plan to move, we, as we say, break the spell" (4). His formulation explicitly expands suspension of disbelief, arguing that it is the same thing that occurs when we imagine hypotheticals or counterfactuals. To suggest that one state is a "spell" wherein we have willingly suspended disbelief is to underestimate the power and ubiquity of this particular state.

Holland's summation that "we can feel real emotions toward unreal fictions, because two different brain systems are at work" (6) continues what I see as a false dichotomy between real and unreal in emotions and situations. To argue that normal

situations which evoke emotions are reality tested is to presume that "reality" is important to emotions. When someone cries because she did not receive an expected call from her boyfriend, she, like the player king, is crying over nothing, since the lack of a call suggests nothing in and of itself. The fictional world wherein such a lapse hints at betrayal or lack of interest is not reality tested either. The pieces of information from fiction that we use to construct a non fictional account of the situation generating our emotions do not decrease or alter the emotions we experience.

This dichotomy is unnecessary in theories of embodied cognition, since the brain is seen as constantly composing narratives to function and make sense of its environment. Outside of the debate between embodied cognition and computational cognition, neuroscientist V.S. Ramachandran isolates an anomalous brain condition that, he argues, points to how the brain tells itself "the truth" in an undamaged state. Ramachandran reports on cases of anosognosia, wherein patients do not believe that they have suffered the injuries that they have—usually paralysis due to stroke or other cerebral damage impacting the right hemisphere of the brain. These patients concoct extraordinary stories to explain away the evidence of their paralysis or to avoid providing evidence. They will say that they lifted a tray with a paralyzed arm even though the doctor witnessed that the arm did not move, or they will deny a request to move the arm claiming that, rather than paralysis, their denial comes from preference. Ramachandran suggests that key to understanding this syndrome is its relationship to hemispheric differences between the right and left brain. The left hemisphere, he suggests, is responsible for creating a "'belief system,' a story that makes sense of the available evidence" (134), and the right

hemisphere collects potentially contradictory information and then periodically forces a revision of the script to fit the latest collected data. If the right hemisphere sustains damage, he argues, the left hemisphere need not revise its story because the right hemisphere is no longer recognizing contradictory data. Ramachandran's story of a hemispheric "devil's advocate" may seem spectacular, but his research on patients with anosognosia suggests that strict adherence to the idea that we feel real emotions only about what we believe to be real fails to explain the every day impact of "fictional" stories ("I'm fat" or "Cordelia must not love me") or the extraordinary impact of hemispheric damage.

While Ramachandran's theory explains a severe case of brain damage, Fauconnier and Turner's theory of "living in the blend" explains cognitive and linguistic leaps in articulation and comprehension which happen every day. Like Holland's elaboration of suspension of disbelief, living in the blend explains being "carried away" at the theater but unlike Holland, Fauconnier and Turner speak of *living* in the blend, with the assumption that both thinking and feeling are requisite for living. Similar to Erving Goffman's conception of the "operating fiction" (26) used to process and understand a given situation, Fauconnier and Turner's reformulation does not tie the process to fiction or belief. The use of fiction as the controlling agent, though, presupposes a factual set of terms with which the fiction deals. This is an assumption that "living in the blend" avoids because it relies on the conceptual process that constructs temporary matrices for understanding anything. The degree of truth is irrelevant to what makes a blend useful or emotionally evocative.

Fauconnier and Turner discuss a severe case of depression studied in Berlin in the 1980s. Sufferers had purchased lottery tickets—for "fun," rather than with any real hope of winning—and then felt crippling depression when they lost. Their symptoms were like those who had lost loved ones or a house, and so it seemed to interpreters that, since purchasing the lottery tickets, the lottery hopefuls had been living in a fantasy of having won. When the reality of not winning destroyed their fantasy, it also took away what the fantasy had brought them: "The amazing thing is that the fantasy world seems to have had profound effects on the psychological reality of the real world, given that the patients had no delusions about the odds of winning, and said so clearly" (231). The woman who sent the note to Burbage after his performance of *Richard III* asking that he "come to her" by the name of Richard, was hoping to continue to live in the blend.[17] When Pavlov's dogs salivated as a result of the bell, they were living in the blend that the bell represented the food it preceded. Women and girls who fight to catch the bride's bouquet have blended the bouquet with a husband, living in the blend that to catch one is to procure the other. The limits of these blends differ; while it would not be uncommon for the bridesmaid to feel happy at the captured flowers, it would be cause for concern if she began sending out invitations with only the ritual flowers as fiancé. Fauconnier and Turner's formulation of "living in the blend" does not restrict itself to fiction but allows room for the extensive and powerful experience—both linguistically, conceptually, and emotionally—of what has fallen under the misleading and restrictive category of "suspension of disbelief."

To live "in" the blend suggests that one is contained within the blend and unable

to see or experience the blend, or the network of spaces that generate the blend, from any distance. To live in the blend that Burbage is Shakespeare's Richard III, might work well for sexual fantasy, but will not provide dramaturgical insight, performance analysis, or historical perspective. Blends can seduce with their compressed drama; the insight they provide can stun with its simplicity. The danger, it seems to me, of living in the blend, is that being blinded to the network of meanings, associations, assumptions, and spaces outside of--yet pivotal to--the blend is anti-intellectual and conceptually vulnerable.[18] Yet it is the emotional vulnerability, what Holland suggest is our ability to feel "real emotions toward unreal fictions" (6), that suspension of disbelief is called upon to explain. If "living in the blend" does obscure analysis of input spaces and linkages, then it reifies the same troublesome binary between thinking and feeling. To investigate a position both in and out of the blend, a position where emotions need not be separate from analysis, I turn to Hamlet's curiosity about the player's passion and current scientific research on emotions.

Drowning the stage

Ham. Is it not monstrous that this player here,
But in a fiction, in a dream of passion,
Could force his soul so to his own conceit
That from her working all his visage wann'd,
Tears in his eyes, distraction in's aspect,
A broken voice, and his whole function suiting
With forms to his conceit? and all for nothing!

For Hecuba!

What's Hecuba to him, or he to her,

That he should weep for her? (2.2.545-54)

Hamlet's concern that the player weeps for Hecuba while he, with "the motive and the cue for passion," does nothing suggests an interesting relationship between emotions and fiction. Hamlet sees his own reality as more likely to prompt real feelings (and, he assumes, actions) and he is outraged that he is not drowning the stage with tears. Hamlet rages about being dull and "unpregnant of my cause"[19] and Shakespeare crams the speech with extra syllables and interrupted lines, contradicting Hamlet's claim that he is "muddy-mettled" and says "nothing":

Who calls me villain, breaks my pate across,

Plucks off my beard and blows it in my face,

Tweaks me by the nose, gives me the lie i' th' throat

As deep as to the lungs—who does me this?

Ha! (2.2.567-71)

The first three lines above begin with a spondaic and then trochaic feet, shifting the usual rhythm of the iambic foot which stresses the second syllable to a rhythm that stresses the first syllable. The third line interrupts the iambic rhythm further, shoving extra unstressed syllables into the line with a troche in the first, third, and fourth foot. While "Ha!" can also be printed on the following line, either option forces the actor into the emotion of the moment, either giving him (or her) a gap or pause of nine syllables before continuing with "'swounds" or creating a spondaic first foot with "Ha! 'swounds" and then ending

on a feminine ending with "be." Hamlet's soliloquy expresses and exposes his own emotions; finding himself moved by the player's performance of emotions, he transforms the "nothing" of his response into a plan. The fiction of the theater, he decides, is the way to capture the truth of the King's guilt. Emotion, like the "direction" best discovered through "indirection," is best assayed through the performance of emotion.

The performance of emotion is not necessarily the same thing as emotion. The player king performs emotions in reaction to a story of a woman's emotions in reaction to her dead husband. While he clearly shows the biological effluvia of emotions--he cries, turns pale, etc.--we do not know whether he *feels* the emotions he shows. Similarly, while Shakespeare expresses Hamlet's emotions in verse and the actor performs Hamlet's emotions in performance, the audience of *Hamlet* does not know whether or not the actor playing Hamlet actually feels the emotions he conveys. Elly Konijn studied empirically whether actors experience the emotions that they convey their characters to be feeling. She finds that the emotions experienced onstage have to do with the "situational meaning-structure of the performance situation, rather than by the emotions of the character" (65); i.e., onstage, actors feel the emotions associated with acting in front of an audience (challenge, nervousness, concentration, tension, etc.), regardless of what emotions the character is supposed to be feeling or the emotions the actor is performing. This is true, she finds, regardless of whether or not the actor considers him/herself to be "method" and mimetic in style, or presentational and detached. The emotions experienced by the actors related to the task at hand for them, not to the experience being had by their characters: "During a *performance*, however, the demands of the actual context of acting

– in front of an audience – will prevent the actor from losing himself in character-emotions" (78). The actor and character have different feelings, merged perhaps by an expression of feeling; the emotional goal of theater--the experience that suspension of disbelief is called upon to explain—is the ability of an audience member to have the same feelings as the character, midwifed through the performance of the actor. In order, then, to understand how this could possibly be the case, it is necessary to complicate our understanding of emotions.

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 theater theorists have asked what "pity and fear" are. They can be forgiven since, 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 of the brain, was thought to act alone, deep in the brain. The forebrain understands math and the "reptilian brain" gets afraid.

In *Descartes' Error*, Damasio defines emotions as a "collection of changes in body state that are induced in myriad organs by nerve cell terminals, under the control of a dedicated brain system, which is responding to the content of thoughts relative to a particular entity or event" (139). Sensory input is sent directly to the thalamus which is responsible for shunting any potentially alarming information to the amygdala, the body's

alarm mechanism. Emotional stimulus is sent directly from the thalamus to the amygdala, which prepares a physical response, as well as being sent to the sensory cortex where the information is assessed. Once the sensory cortex has assessed the stimulus, it will send inhibitory or excitatory information to the hypothalamus, which is responsible for sending and receiving messages to and from the rest of the body. The messages involve neurotransmitters and hormones to alter the body state in reaction to the stimulus. These changes or emotional symptoms include sweaty palms, dry mouth, a change in heart rate, flushing or pallor, constriction of the stomach, and relaxation or tension of muscles. These responses occur in order to protect us, as, for example, a change in heart rate will be necessary if the organism needs to flee from the stimulus evoking this response. The hypothalamus monitors the effect of the physical changes on the body and communicates this to the cortex, which continues to assess the information and excite or inhibit the body's reaction via the hypothalamus. Emotion happens in the entire system.

A racing heart, however, could mean panic, rage, or love. Although there may be subtle differences between panic and love in the overall chemical changes in the body, Damasio argues that the primary difference lies in the assessment of the body state by the cerebral cortex. The assessment, which he calls the feeling, is defined as the experience of the emotion in the body juxtaposed to our images, memories, and knowledge of the experience and the stimuli that initiated it. The physical reaction of the body is not specific to a feeling; for the feeling to register to the person, the specific mix of bodily changes must be assessed in light of other information. The racing heart and constricted stomach is assessed as love because of the candlelight and the dilated eyes of the man

across the table. In another situation, the same experience feels like food poisoning. Whereas emotions generally can be perceived by a bystander, feelings are internal and private, mental states evoked by the physical reaction of emotions.

Humans do not need to experience something 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 and therefore the amygdala is alerted. The emotions could also be aroused by the mere expressions of the actors. 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.[20] Perceiving emotion in others can be enough to generate them in the spectator. One study exposed subjects to another person making an expression of disgust; when the expression registered intense disgust, the subjects' own brains registered disgust, exciting the same neurons in the brain that become active when disgusted.[21] There is a growing body of evidence that humans are not a closed system, 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 a similar biological response as actually experiencing the suffering being watched. The body loop is the system for circulating information through the body, both hormonal and electrical, to alter the state of the body under certain circumstances—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, such as in memory. Memory does not recall an exact replica of the person or event remembered, but rather an interpretation or version of the original (Damasio 1994, 100). This imitation of the memory is enough, however, to arouse the emotions associated with the original.

Theater depends upon the brain's ability to reconstruct the emotions associated with certain events. In its imitation of an action on stage, theater creates an imitation of an action in the brain which in turn creates emotion. A picture of mother evokes the emotions associated with mother. Just as Aristotle's tragedy is an imitation of an action, the memory it recalls is an imitation of the original event or stimulus which then evokes real emotions in response to the representation of an event. The fear and pity Aristotle associated with a reaction to tragedy onstage are mimetic just as pity and fear in the spectator rely on mimesis in reaction to "real" events. If every feeling is a mental story created to explain a biological reaction, or emotion, then the feeling evoked by Hecuba need not be any different than the feeling evoked by our mother.

Research into the mirror neuron system in humans begins to shed some light on the power of theater to initiate an emotional reaction in the audience in response to performed emotions onstage. While Damasio's work is based on functional magnetic resonance imaging (fMRI) scans of patients with various brain abnormalities or damage, electroencephalographic (EEG) and magnetoencephalographic (MEG) readings of normal human brains suggest a system of mirror neurons that react to specific actions in others. Rizzolatti and Craighero discuss findings that show that humans show an activation of the premotor cortex when watching someone perform an action on an object as well as

when watching someone perform a meaningless gesture.[22] Other studies have shown that activation of the mirror neuron system occurs when subjects witnessed actions forming the intended action. Both of these studies indicate that not only do humans have a similar mirror neuron system as discovered more directly in monkeys,[23] but that ours is actually more advanced and probably plays a large role in our ability to communicate with and imitate others. Research on mirror neurons is beginning to show that there is a system in the brain set up to facilitate learning, compassion, and connection between others.[24] Our traditional ideas about why we are moved by theater or the fictional (or truthful) stories of others must begin to take into consideration the work being done within the sciences.

Not nothing

> Ger. To whom do you speak this?
>
> Ham. Do you see nothing there?
>
> Ger. Nothing at all; yet all that is I see. (3.4.131-133)

Hamlet asks if Gertrude sees nothing and she confirms that she sees nothing; they are in agreement: Hamlet points to nothing and she sees it. Gertrude's insistence that "all that is I see" makes nothing part of all that is, something *Hamlet* insists on throughout. Onstage, of course, Hamlet is not pointing to nothing, he is pointing to the ghost, embodied by an actor—perhaps performed by Shakespeare in the original—which he calls nothing and which the audience definitely sees. Nothing is there, onstage, and has the power in its ghostly absence to provide the cue for passion and to motivate bloody thoughts. Using blending theory to see Shakepseare's poetry illuminates the network of mental spaces

primed and operating within his play. It allows us to find content previously obscured by the blends that construct seemingly "literal" meanings. Taking the language off of the page, any application of cognitive science in theater theory should recognize the powerful effect that the embodied actor has to alter and play with the meaning of language. As a character, Ophelia might have nothing between her legs, but onstage she has something very particular between her legs.

Further, cognitive linguistic theory complicates and challenges traditional theories of suspension of disbelief and clear distinctions between truth and fiction. When nothing takes the stage, the lines get blurred. To base our theory of fiction on a division between fact and fiction, something and nothing, is to reify binaries between literal and metaphoric, thinking and feeling, which current scientific research does not bear out. Many of the witnesses of the September 11th attacks on the World Trade Center began their description by saying "it was like a movie." The real thing had to be compared to a fictional world in order to be understood. We could argue that this means that suspension of disbelief is required for belief, but this explodes the term out of usefulness while acknowledging that belief is not necessary for belief. If my brain is wired to react to intended gestures in others, and my emotions can be triggered by events not happening to me directly, than watching Hamlet react to the player's story of Hecuba mirrors our reaction to Hamlet's determined seeing of nothing. It feels like it is there, so it must be there. The truth of the ghost or the thing—nonthing--between Ophelia's legs is all in the mind of the beholder. Theater teaches us to see and feel for nothing, and that is something.

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1 This paper is a version of the fourth chapter in my dissertation, "Reimagining Theater: Shakespeare's Globe and Cognitive Science's Brain." Though it should be clear standing alone, it does assume some familiarity with *Hamlet*, blending, embodied cognition, and some performance/theater theory.
2 All quotations from *Hamlet* are from The Arden Shakespeare, 1982.
3 Asked by Horatio if he has seen the ghost on his watch, Barnardo answers "I have seen nothing" (1.1.25).
4 In his soliloquy after the player has performed Aeneas' speech to Dido about Priam's slaughter and Hecuba's grief, Hamlet is stunned that the actor could exhibit the emotions for a fictional event. Though I will come to this later in the paper, here is the relevant passage: "Is it not monstrous that this player here, / But in a fiction, in a dream of passion, / Could force his soul so to his own conceit / That from her working all his visage wann'd, / Tears in his eyes, distraction in's aspect, / A broken voice, and his whole function suiting / With forms to his conceit? and all for nothing!" (2.2.545-51).
5 In his wordplay with Rosencrantz and Guildenstern about the location of Polonius's body, Hamlet quips "The body is with the King, but the King is not with the body. The King is a thing—" and when Guildenstern asks "A thing, my lord?" Hamlet responds "Of nothing" (4.3.26-28).
6 The relatively large presence of nothing in *Hamlet* has not received the critical attention that *King Lear*'s thirty-two mentions of nothing have. For an exciting examination of *King Lear* in light of debates circulating at the time of atomism and divisibility, see Crane 2004. Crane points out that around 1600, the Aristotelian notion that what is visible behaves similarly to what is not visible began to give way, through questions about condensation and evaporation, to theories of atomism that posited invisible forces. She compares this "intuitive physics" with the "basic image schemas" of George Lakoff and Mark Johnson, wherein our language system reflects concept of physics, such as a cause is a physical force.
7 Additionally, a longer discussion on this debate can be found in George Lakoff's *Women, Fire, and Dangerous Things* and John Searle's *The Mystery of Consciousness*.
8 For an explanation of conceptual blending theory, see Grady, Oakley, and Coulson or Fauconnier and Turner.
9 See Fauconnier and Turner, 244. For a brilliant book-length study on how cognitive linguistics illuminates the development of something as "literal" as mathematics, see Núñez and Lakoff. They argue that mathematical concepts are all products of the human mind and the language necessary to express them; they do not exist separately but are rather "seen" through shifts in perception.
10 Fauconnier (manuscript), 1.
11 According to Arden editor Harold Jenkins, Shakespeare may be referring here to a quote by Johnson: "A man's words, says the proverb, are his own no longer than he keeps them unspoken" (293).
12 In one of the only commentaries on this moment that I found, Thomas Pyles writes in *Modern Language Notes*, that Burbage might have made the "nothing" symbol with his thumb and forefinger to make sure that the audience got the joke, but, he insists, he would not have had to to for Shakespeare's audience to have understood. Pyles says that "Hamlet's *nothing* […] is unquestionably yonic symbolism, a shape-metaphor intended to call to mind the naught, or O, which is elsewhere in Shakespearean, if not in modern, 'bawdy' a symbol of pudendum muliebre" (322). For Pyles, nothing references the female genitals in other places in Shakespeare as well. He does not, however, point out the lack of actual vaginas on Shakespeare's stage. Jenkins suggests that, in addition to the "yonic symbolism," Hamlet's nothing here could be an allusion to her virginity, which is another blended space for a non-event. Hamlet also makes this joke about the nothing of virginity with the boy player, hoping that his voice not be "cracked i' the ring," suggesting the drop in value that occurs when a coin's exterior ring is cracked, or when a woman's cipher-ous O is penetrated.
13 For more on the antitheatricalist attention to cross-dressing, see Reynolds and Barish.
14 Some excellent applications of cognitive science in the literary studies include: Mary Thomas Crane, Donald Freeman, F. Elizabeth Hart. Mark Turner's *Reading Minds* called for a use of cognitive science to re-write the literary field. Some notable exceptions to the silence within the theatre field include Bruce McConachie's article on image schemas and theater history and his forthcoming book with Hart, *Pefromance and Cognition* (Routledge).
15 On his deathbed, Hamlet asks Horatio: "If thou didst ever hold me in thy heart, / Absent thee from felicity awhile, / And in this harsh world draw thy breath in pain / To tell my story" (5.2.351-54).
16 Psychoanalysis, he originally argued, sees suspension of disbelief as a "regression to the stage in infancy when, according to psychoanalytic theory, the child feels the boundaries between itself and mother as blurred, uncertain, and permeable" (2-3). In conclusion, however, he seems to move to use neuroscience to complement his earlier psychoanalytic reading, hoping, it seems, that the two may not be contradictory but that perhaps neuroscience may provide some empirical proof of psychoanalytic theories: "The willing suspension of disbelief takes us back to a time when our limbic systems had begun to function, infancy" (6).
17 See Sorlien, 10.
18 In fact, ironically, *Richard III* is all about the power of rhetoric to contain and persuade in politics. Richard sets up theatrical events wherein he plays the role as the wronged friend or retiring religious man and then manipulates those

around him from within this blend. Shakespeare's Richard seems to me the inventor of the soundbite, the simple blend that generates conceptually altered political reasoning. Lakoff explores the political power of language in *Don't Think of an Elephant*, though not in terms of "living in the blend." Coulson and Pascual (manuscript) outline the profound argumentative power of constructing blends that obscure some of the illogical projections within the network.

19 Being "unpregnant" is an interesting counterfactual blend like the "nothing" between Ophelia's legs. To be unpregnant is not just to be empty, but it is to be empty of a specific something. To think of Hamlet as being unpregnant exposes his inability to be pregnant in the first place, much the way Ophelia's nothing exposes the genitals of the actor playing her.

20 See Carter 85 and Phillip Auslander's discussion of "guitar face" in his book *All the Young Dudes: Performing Glam Rock* forthcoming from University of Michigan.

21 See Phillips.

22 Although I know of no specific study or evidence, this information seems to call into question another assumption of suspension of disbelief, cited by Tooby and Cosmides that "fictional worlds engage emotion systems while disengaging action systems" (8).

23 See Kohler et. al and Rizzolatti (2001).

24 For more on the impact of the mirror neuron system to an understanding of theater, see chapter five "Pulling ourselves together, or: seeing the wholes."