Shakespearean Neuroplay

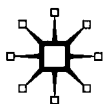Reinvigorating the Study of Dramatic Texts and Performance through Cognitive Science

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Contents

Illustrations

Figures

Photographs

Chapter 1

Who's There?

To be a spectator or a reader is to be an individual. To be a part of an audience is to be part of a whole. An audience is an organism that laughs, applauds, and comprehends as one. Not always, of course, but sometimes. Why does a spectator become part of an audience and how? Why did the spectators who did not seem to understand the dense Shakespearean poetry in act one suddenly lean forward together as one on the same line in act four? Why, since the horses were painted on the cave walls in Lascaux, has telling, enacting, and depicting stories had such power and importance in the lives of humans? Why do we return to Shakespeare even though there are plays with clearer language, better plots, and less arcane references? How does the complexity of the language enrich our experience?

Thus armed with a series of questions, I began looking for answers within cognitive science. In the last thirty years, a profoundly different view of how we compose and understand language has taken shape: the metaphor of the brain as computer has shifted to an embodied and creative brain. An application of the cognitive sciences to theater and performance studies, then, has much to offer our creative field. The answer to any and all of my questions should do two things: provide new tools for practitioners in the rehearsal room and open new doors of research and conversation within the academy. To understand a production of Shakespeare—or any embodied fictional world—requires an extraordinary cognitive and biological feat. Because the seemingly simple ability to watch, understand, appreciate, and be moved by a theatrical production involves elements of our biology, an investigation into these questions will encounter research in science.[1] While I believe that such interdisciplinary travels require rigor and caution, I do not believe that anyone is served by disciplinary

reverence. Scholars in the field of cognitive studies and performance have deployed many different scientific lenses to theater and performance and I will touch on many of them in this chapter. For our purposes here, however, I will focus my analysis on how cognitive linguistics operates to open up new horizons of research questions and answers. The conceptual metaphor theory of George Lakoff (and others) and the conceptual blending theory of Gilles Fauconnier (and others) suggested—demanded—a rereading of Shakespeare. Because any theory about language onstage must apply to the intellectual shibboleth that is *Hamlet*, I began my investigation with Hamlet's "purpose of playing." A cognitive linguistic analysis illuminates Shakespeare's textual theatrics and initiates a valuable academic interplay.

I will begin this interplay with an introduction to the cognitive linguistic theories I have found most applicable in addressing particular questions within Shakespeare and performance studies. I examine readings of Shakespeare that allude to some of the cognitive mechanisms this project addresses without the benefit of any cognitive research. Because this study is not the first to integrate the sciences into literature or theater, I conclude the chapter with an attempt to articulate the shifting state of the field as I see it in order to locate myself within it. Over the course of the book, I hope to provide the reader with a method of inquiry, rather than just the results of my inquiry.

This shift in the understanding of how we think, speak, and compose meaning creates the larger seismic shift away from the "objectivism" of the traditional view of thinking toward the "experiential realism"[2] of embodied, metaphoric thinking. Lakoff's work since 1987 has been an elaboration and entailment of the paradigm shift he articulates in the preface of *Women, Fire, and Dangerous Things*, and literary criticism is based, at least in part, on understanding the way that symbols correspond to things in the "real world" and how reading is about manipulating symbols and meaning. If this is not how we make meaning, then we have an obligation to reinvestigate our old assumptions and readings of classic texts. One of the important consequences of understanding that we create linguistic and conceptual categories—they are not objective reflections of what is "out there"—is seeing how categories can slip, expand, constrict, and change. One of the arguments of this book will be that theater is a way of staging and challenging categories and that therefore theater does, in a substantial way, make up our minds.

Stand and Unfold Yourself

> The traditional theory noticed only a few of the modes of metaphor; and limited its application of the term *metaphor* to a few of them only. And thereby it made metaphor seem to be a verbal matter, a shifting and displacement of words, whereas fundamentally it is a borrowing between and intercourse of *thoughts*, a transaction between contexts. *Thought* is metaphoric, and proceeds by comparison and the metaphors of language derive therefrom. (I.A. Richards, *The Philosophy of Rhetoric*, 94)

Lakoff, a cognitive linguist from University of California, Berkeley, and Vittorio Gallese, a neuroscientist from Parma, Italy, have collaborated theoretically based on empirical data from their respective disciplines.[3] Despite the differences between the disciplines' methodologies and definitions of "evidence," they find enough common ground to connect cognitive linguistics and neuroscience in an investigation into the questions each are asking. Similarly, Seana Coulson and Cyma Van Petten recorded Event Related Potentials (ERPs) from people reading different sentences and found that the metaphoric sentences were read no more slowly than the more literal sentences, but called upon more parts of the brain.[4] This suggests that processing is more involved, not more time consuming, countering the assumption within developmental psychology that processing time equals difficulty. In other words, processing the metaphoric sentences required more of the brain to participate, but this increased firing did not increase the time spent to process the sentence. This study integrates empirical methodology from fields of neuroscience and psychology into questions of metaphor-comprehension previously considered not empirically verifiable and even "non-scientific." Theater audiences process extraordinarily complex information without getting lost. Indeed, perhaps the reason *Richard III* is performed more often than *Knight of the Burning Pestle* is because, not despite the fact that, the richness of Shakespeare's language requires more imagination and "work"; perhaps research on how we understand language, story, and performance could encourage those who wish to argue for fewer plays that have the ease of sitcoms and more plays with the complexity of Shakespeare.

I deploy the sciences not because it is more "objective" or true than previous theoretical movements in theater, but because the interests and findings within that field shed light on this field.[5] Cognitive science does not privilege thinking over feeling and does

not separate body from mind. This privileging of imagination, creativity, and the body is part of the reason I find the integration of cognitive science into my research so productive.

Cognitive science is the term that gets blanketed over various fields that look at the interaction between the mind, brain, body, language, and environment. It includes research from neurology, psychology, computer science, linguistics, and philosophy. Despite an effort to communicate and unify across the disciplines, there are major rifts within cognitive science stemming from different foundational assumptions as well as methodological differences. Of course the neurosciences are focused at the level of neurons while linguists are focusing on behavior, so a lack of communication between such areas might be unsurprising, but some rifts actually begin within the areas of study. For example, most current cognitive linguists (defined here as those who study language and, through language, cognition) define themselves against the history of generative grammar, which believes that there is a language area of the brain with an inherited grammar structure.[6] According to generative grammar, language is primarily a system of rules that creates "correct" sentence structure around an objective meaning. This works well for sentences like "the cat is on the mat" but breaks down when linguists begin looking at sentences like "the beach is safe" or "there's no there there." Sentences like these cannot be understood by computing the meaning of each word in terms of its location in the sentence, and then making adjustments for context. The beach is safe from what? The beach is safe for whom? How can "there" mean two different things in one sentence? These sentences require a different idea of meaning creation and categorization. In large part, this generative theory of language has been replaced by the cognitive linguistic theories applied here.

The paradigm shift between seeing the brain as a computer, with input undergoing algorithmic processing, and viewing it more as part of an organism, shaping and being shaped by its environment, is beginning to have a 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. Perhaps the process of applying both paradigms 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. My goal is not to enter into the debate about language and meaning in its own terms, but rather to present the theory of language and cognition that I have found most helpful in illuminating the plays of Shakespeare. The conceptual blending theory of Gilles

Fauconnier and Mark Turner has provided me with tools to pursue my interest in the formation of meaning in *Hamlet*. While a close attention to text is not new to Shakespeare scholarship, a different conception of how we compose meaning with that text opens up new connections or avenues of research.

In *Women, Fire, and Dangerous Things*, George Lakoff outlines the ways in which a new understanding of categories shapes how cognitive linguists think about the brain and language. The traditional view of categorization argues that we categorize things by virtue of common traits shared by the members; Lakoff traces the development of a new theory of categorization, based primarily on the work of Eleanor Rosch but informed by the work of Ludwig Wittgenstein, J. L. Austin, Paul Ekman, and others, that understands categories in terms of prototypes and basic-level categories. Rosch's experiments with the language of Dani (a New Guinea language) showed that although the Dani speakers did not have words for certain colors, they could see them and have a conceptual category for them; their language did not wholly determine their conceptual system. This is an important distinction in that it speaks to the discourse around language within the humanities: language can constrain thought without controlling it. In *Metaphors We Live By*, Lakoff and Johnson argue that metaphors define what can be viewed as truth, "In a culture where the myth of objectivism is very much alive and truth is always absolute truth, the people who get to impose their metaphors on the culture get to define what we consider to be true—absolutely and objectively true."[7] Nonetheless, we can see a new color without first having to have a name for it.

Lakoff goes to great lengths to explain and elaborate on the paradigm shift that is Rosch's categorization challenge to the traditional "objectivist" view of categories and language. Categories do not exist; nowhere in our brain is there a circle labeled "mammals," containing animals that give birth to live babies, nurse their young, have hair, have three middle ear bones, a neocortex, and are warm blooded. Categories have "cognitive reference points" and "prototypes," which *organize* the category, but do not *define* the category. The category "dog" is not an entity in the world the way "Fido" is. We may have a prototype for "mammal" or "marriage" that includes some animals or some relationships but not others. There are basic-level categories, such as "chair," superordinate categories like "furniture,"[8] and subordinate categories such as "Eames." While basic-level categories have prototypes (quick, think of a single chair), superordinate categories do not (quick, think of a single furniture). Because language exhibits

"prototype effects" (ways in which our understanding of a sentence is based on a concept of a prototype of a category referred to within the sentence), Lakoff argues that that is evidence that "linguistic categories have the same character as conceptual categories."[9] This is important because the thrust of his book (and the work of cognitive linguists in general) is based on the fact that through language we can see important elements of the mind/body/brain.

His argument is that we organize our experience through idealized cognitive models (ICMs), compact models of how certain things work when imported to understand a given sentence. For example, because we have an ICM for "seeing" we use this to understand "see," found in a variety of contexts. Within the ICM for seeing is the idea that if you see something you are aware of it and you see things as they are—two ideas that might not necessarily be true, yet are necessary to understand "see" in the sentence: "I see what you mean." Lakoff notes that some words have a cluster of models, with the appropriate model used depending on the context.[10] For example, "she mothered me" relies on the ICM of "mother" as the provider of nurture, not the genetic model, which understands mother as the genetic forbearer. When we speak of a "working mother" we are applying one of the models in the cluster (nurturance model), because we would not call a woman who gave birth to a child but put it up for adoption a "working mother" even though she is one in terms of the genetic model of "mother" and her employment.[11]

The phenomenon of cluster models of a word is unexplained by the classic understanding of categories wherein concepts have "necessary and sufficient conditions."[12] In this view, categories have rules for inclusion; if a word fits all the rules, it belongs in the category. Defenders of the classic, or "objectivist," view see concepts as internal representations of external reality, and cognitive processes as algorithmic.[13] The sentence "the cat is on the mat" is constructed of a noun phrase, a verb, and an object; and its meaning can be computed by assessing the meaning of the parts in conjunction with the syntactic relationship among the parts. What the classic view fails to account for is the way, as Lakoff argues, "the meaning of the whole is often motivated by the meaning of the parts, but not predictable from them."[14] If the meaning of "working mother" were constructed literally, it would lose its efficient ability to specify the *type* of mother and the *type* of work, a meaning motivated by the cluster models accessed to understand the phrase, not by reference to a long list of definitions of "mother." If categories are defined by prototype effects and ICMs, then thinking is primarily metaphoric, creative, and

literary, rather than simply capable of such leaps given education, time, and talent.

To test a hypothesis requires a performance of a particular script, a set of assumptions, a cast of characters. In *Making Truth: Metaphor in Science,* Theodore Brown argues that scientific thought is inseparable from the metaphors used to model and talk about the science. He talks about models as metaphors and how they are a mapping of information from a verbal expression of an idea to a 3D representation of that idea. The model is then used in conducting future experiments, motivating thought experiments, and envisioning future elaborations. If atoms are depicted as orbiting balls, it may be difficult to discover that they can be waves. Metaphor theory helps to see that the similarities *exposed* through metaphor can also be similarities *created* by metaphor. Brown gives the example of protein folding:

> Under appropriate conditions most proteins that are active in biological systems coil up and rearrange lengths of the chains so as to assume a characteristic shape. This process was called "folding" because an analogy was seen between the change the protein undergoes and the folding of objects in the macroscopic everyday world, such as napkins or card table chairs....As a metaphorical expression it invites us to probe the cross-domain mapping between the literal, everyday act of folding and the changes that occur in a protein as it undergoes the transition we call folding. Thus, the act of naming the process "folding" *creates* similarities.[15]

Language itself can be a tool to imagine, learn, and probe. As Lakoff pointed out, "Since we understand the world not only in terms of individual things but also in terms of categories of things, we tend to attribute a real existence to those categories."[16] Whether discussing science, theater, politics, or the weather, the language we use should be probed for its entailments. I believe that we have only just begun to understand its ramifications in other fields.

While the classic view acknowledges the way "dead metaphors" operate in language to color an idea, the opposition created between dead metaphors ("I see your point") and living metaphors ("sicklied o'er with the pale cast of thought") obscures the powerful life of "dead" metaphors and the ubiquity of "living" metaphors. The very metaphor used to understand metaphor tells a story of a metaphor that lives until it dies, at which point its metaphoric origins are no longer visible. This privileges "living" metaphors and obscures the impact of "dead" metaphors. A more complicated view of category and metaphor will shift our reading of *Hamlet.* Lakoff summarizes

the value of this conceptual shift as an ideological reformulation of what we are capable of seeing as "true" and "false":

> If we understand reason as being disembodied, then our bodies are only incidental to what we are. If we understand reason as mechanical—the sort of thing a computer can do—then we will devalue human intelligence as computers get more efficient. If we understand rationality as the capacity to mirror the world external to human beings, then we will devalue those aspects of the mind that can do infinitely more than that. If we understand reason as merely literal, we will devalue art.[17]

It is this reunderstanding, as applied to Shakespeare and theatrical performance, which is the subject of this book. Those of us whose life's work is the value and evaluation of art can benefit from the cognitive theories that place art in relationship to the body/mind[18] and its language.

Lakoff's work since the publication of *Women, Fire, and Dangerous Things* has been to articulate the ramifications (both linguistically,[19] cognitively,[20] and politically[21]) of understanding that: 1) categories are based on prototypes and not objectively assessed shared properties; 2) meaning is embodied; 3) metaphors exist in thought and language; 4) meaning is not literal or transcendental. Metaphor structures both language and thought, there is no literal meaning that receives primary attention, and all cognition and language is embodied.[22] In *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*, Lakoff and Johnson argue that the "very structure of reason itself comes from the details of our embodiment."[23] We project information about our experience in our bodies onto more abstract concepts in order to understand the more abstract in terms of the concrete and physical. Our experience crawling from one side of the room to the other in the first year of life shapes our conception of life as a journey with a beginning, middle, and end—and possible detours, rough patches, et cetera. When pouring water into a glass we notice that it goes up the more we pour so we use that to understand the stock market going up or the crime rate falling.[24]

Understanding that an increase in the value of a particular stock or the decreased occurrence of crime as movement along an up-down axis organizes that information according to a particular image schema. Lakoff defines image schema as "relatively simple structures that constantly recur in our everyday bodily experience: CONTAINERS, PATHS, LINKS, FORCES, BALANCE, and in various orientations and relations: UP-DOWN, FRONT-BACK, PART-WHOLE, CENTER-PERIPHERY,

etc."[25] According to Turner, they are the "skeletal patterns that recur in our sensory motor experience."[26] The container image schema is how we see our body as a container, "a schema consisting of a boundary distinguishing an interior from an exterior."[27] This is not to say that this is an inaccurate way of understanding the body—food does go in and then come out—but that it may not be the *only* way of conceiving of our body. Johnson provides a striking list of examples of the number of experiences we understand through using "in" and "out"; the parts of our world we understand as being containers:

> You wake *out* of a deep sleep and peer *out* from beneath the covers *into* your room. You gradually emerge *out* of your stupor, pull your self *out* from under the covers, climb *into* your robe, stretch *out* your limbs, and walk *in* a daze *out* of your bedroom and *into* the bathroom. You look *in* the mirror and see your face staring *out* at you.[28]

It might be difficult to think of one's room as something other than a container, but a mirror does not have an interior and an exterior and a boundary between them; the image schema of the mirror as a container structures—as well as reflects—our relationship with the object and the concept.

If our conceptual and linguistic categories and image schema are not based on transcendent qualities of the things themselves (e.g., "red" or CONTAINER), then, as Lakoff and Johnson argue "it means abandoning the correspondence theory of truth, the idea that truth lies in the relationship between words and the metaphysically and objectively real world external to any perceiver."[29] One of the consequences of understanding language and cognition as coming from an embodied experience of the world is that there is no transcendental truth that thinking and language attempt to capture and represent.

Lakoff insists that both thinking and speaking are metaphoric, such that information from one domain (source) gets mapped onto a second domain (target) to understand the target domain in terms of the source. In this view, it is not that we use metaphor to suggest meaning; metaphor is how we construct meaning. To conceive of intellection, we imagine it in terms of the visual system, wherein light comes in through the eyes and registers as information in the brain; if you want someone to understand your argument, you must get them to see your point (figure 1.1). Life can be understood as having detours and rough patches because we project an embodied experience of moving along a path onto an abstract concept like "life." Along a path linearity and smoothness equal ease, and progress equals