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### Shakespeare and the mind

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## *Shakespeare and the Mind*

### **Abstract**

*What is the mind? Often nowadays the mind and the brain are presented as identical. Distributed cognition is one term for the idea that cognition is not merely brain-based, but instead is distributed across brain, body and world. Over the last 3 decades cognitive scientific and philosophical research has emerged, with overlapping and sometimes competing theories emphasising different aspects of the ways in which cognitive processes can be distributed. However, the notion that cognition is distributed is not new. Distributed cognition was the most prevalent way of thinking about the mind in the Renaissance, though expression of the paradigm is historically situated and culturally inflected. This essay outlines current notions of distributed cognition, the expression of these ideas in the Renaissance, and the exploration of them in Shakespeare's works. Furthermore, it considers a few of the ways in which insights into the distributed nature of cognition offer a new way of understanding what is happening when we read a book or see a play performed. Literature is the most wonderful of human cognitive resources, a mind tool, and though as with any tool its ends may not always be virtuous, the very means by which it operates, such as widening one's conceptual range and enabling more vivid insights into other minds, necessarily tend to the improvement of the partaker.*

### **Keywords**

*Shakespeare, Literary Distributed Cognition, Predictive Processing, Bistable Figure*

The opening to *Henry V*, calls on the audience to supplement the shortcomings of the players and the bare Elizabethan stage with their imaginations: 'Piece out our imperfections with your thoughts...For 'tis your thoughts that now must deck our kings' (1.1.23, 1.1.28).

The spectators are called on to actively extend their minds into the creation of the world-in-the-play. In the Globe (a name that deliberately evokes theatre, world and mind simultaneously) attention was particularly on language, gestures, action and incidental music; there was no scenery, just a few props and costumes, and the 'shared light' along with the proximity of the actors to the audience, reinforced the intimacy and strength of the feedback loop from stage to audience and audience to stage as they collaboratively brought forth the meaning of a play. This essay, will explore a range of examples from Shakespeare's works, that together help to piece out his notion of the mind, through examining its resonances with recent theories.

What is the mind? Often nowadays the mind and the brain are presented as identical. Distributed cognition is one term for the idea that cognition is not merely brain-based, but instead is distributed across brain, body and world. Over the last 3 decades cognitive scientific and philosophical research has emerged, with overlapping and sometimes competing theories emphasising different aspects of the ways in which cognitive processes can be distributed. Embodied cognition emphasises the cognitive roles of bodily perceptions, reflexes and responses. Enactivism emphasises the continuity of mind and life, defining cognition as 'sense-making', with organisms striving to maintain integrity while making use of environmental affordances. Embedded cognition makes the weak claim that external resources enable cognition, while the Extended Mind hypothesis argues that such resources themselves constitute cognition and emphasises the potential parity of non-biological and biological resources. In general, distributed cognitive theories expansively include as mental a wide array of processes, including: rational and abstract thought, imagination, emotions, and certain kinds

of somatic, social, technological or environmental processes. Distributed or 4E cognition (embodied, enacted, embedded, extended) provides new perspectives from which to explore the history of notions of the mind and to reconsider the nature of our experiences of literary works.

Shakespeare's depiction of the mind can occasionally seem to suggest that it is identical to the brain. For instance, in *The Tempest* Prospero complains 'My old brain is troubled,' and then continues 'A turn or two I'll walk/ To still my beating mind' (4.1.159). Yet, even here where a tautology is suggested between mind and brain a physiological response is proffered: putting the body in motion will still the brain. Meanwhile the verb 'beating' simultaneously evokes physiological beliefs that the brain beats like a heart, the waves and winds of the opening tempest, and the language's rhythm, in a way that suggests the intermingled nature of the physical, environmental and linguistic elements. This may seem just poetic license, however, alongside recent research on the mind, this essay will look at further examples that reveal that Shakespeare's works often show cognition to be distributed across brain, body and world. Moreover, distributed cognition is of significance not only to grasping Shakespeare's notions of the constraints and capacities of human minds, but also to more fully understanding what is going on when we become immersed in one of his works, as he himself makes evident in that opening quote. In turn, Shakespeare's works contribute to the evidence that distributed cognition is an abiding epistemological and ontological paradigm, which is historically situated and culturally inflected in relation to the broader cognitive niche in which it is expressed.

As described above, one way in which cognition is argued to be distributed is through its being embodied. In 1980, George Lakoff and Mark Johnson's *Metaphors We Live By* made the claim that even everyday language is metaphorical and grounded in physical experience. For

instance, that the description of a person as ‘warm’ is positive relates to our physiological preference for this temperature range. Our evolutionary and developmental characteristics inform our conceptual schema. Initially cognitive linguistic theories tended to be overly universalising and homogenising, in such a way that they clashed with the relativistic extremism of postmodernism. But more attention is now being given to the differences that may arise from diverse physical, linguistic and sociocultural variations. For example, Daniel Casasanto’s research reveals that right-handed people unknowingly tend to draw animals given a positive valence, such as kittens, on the right side of a page, and those which have a negative valence, such as spiders on the left, and vice versa for left-handers: valence attribution reflects physiological characteristics and are projected onto the surrounding spatial domain. Put an oven glove on the right hand of the right-hander, temporarily making their left hand dominate, and their moral preference swiftly switches to the left. Thus, the specific body we are in influences our attribution of positive or negative valence, with such attributions highly susceptible to ongoing bodily changes. Such experiments in the fields of cognitive linguistics and psycholinguistics are fleshing out the ways in which even seemingly abstract concepts, such as the attribution of value and moral nature, are influenced by a complex combination of both general and specific physical, linguistic and sociocultural factors.

In literary studies from around the 1990s, first wave cognitive literary scholars began adopting early cognitive linguistics models, along with evolutionary psychological models, which similarly define human nature in terms of universal characteristics. Although such methods remained peripheral there are various examples to be found in Shakespeare studies (see Carroll 2010 for an overview). These clashed with the widespread postmodern and social constructivist trends in literary and cultural studies (notably, in new historicism, cultural materialism, feminism, queer and globalisation studies) that present physical bodies and the material world

as merely sociocultural constructs. Second wave cognitive literary approaches are a more diverse field, offering a wider range of empirical and theoretical approaches, with many implicitly or explicitly adopting some form of distributed cognitive approach. Distributed cognition allows for both continuity and difference across persons and periods: there are human cognitive constraints and capacities that are shared across persons, but there are also considerable variations that result from our physiological variations and our diverse natural and sociocultural niches. Distributed cognition suggests a perspective, that can incorporate the insights, while yet interrogating the extremes of the oppositional paradigms of universalism or relativism, through taking account of bodily, environmental, sociocultural and technological resources *as together* constraining and enabling human cognitive capacities.

Just as the body effects language, language effects the body in constitutive ways. If we take the mirror neuron system, for example, it is activated not only when we observe the action of another, or when we observe basic emotions, such as fear, but also when we just hear or read kinesic language, so that we mentally simulate that which is enacted or described (Rizzolatti & Sinigaglia 2008; Bolens 2008). Bodies are caught up in words. Shakespeare embeds directions to the actors in the text, since there is not a substantial framework of stage directions (Stern 2009), which further provides hearers or readers with richly detailed mental imagery that can trigger sensorimotor simulations. For example, at the climax of Henry V's famous battle cry to his soldiers he describes: 'I see you stand like greyhounds in the slips,/ Straining upon the start.' (3.1) Harry describes *and* models an ideal pre-battle stance for his soldiers, provides instructions for the players, and mental imagery for the audience to supplement what they see on stage, or the reader what they read on the page. The rich language of literary texts itself often has us straining after its meaning, as it sends up an array of associations, with this striving itself laying down new cognitive pathways and connections. Philip Davis (2007) has carried

out neuroscientific experiments on functional shift which are plentiful in Renaissance literary works and especially so in Shakespeare, for example, with nouns turned verbs as in ‘[He] godded me’ (*Cor* 5.3.11). These experiments show that innovative language extends processing duration. Of additional note is that such word-class shifts often choose a substitute which adds to the sensory and kinesic qualities of the depiction, as in ‘a hand that kings/ Have lipped’ (*AC* 2.5.28-29), which evokes a sensorimotor image and a visceral sound of the pucker and smack of kiss on hand. In these cases, literary language leads to lengthier timescales in terms of inferential procedures and duration of effects, as readers or spectators update their hypotheses of the words’ associative range with an invigorated, deepened and widened conceptual grasp.

Notably though, the intensity of the simulation is dependent on our own prior cognitive repertoire (Calvo-Merino et al 2005). Experiences in a theatre or of a book, like our subjective experiences of the world, are made up of a rich mix of sharing and differences (Anderson 2015b). The audience’s and troupe’s collective dynamic emerges from the amalgam of the specific characteristics of each spectator and actor, along with the play script, the on-stage and theatre setting and the wider historical and cultural environment: all these kinds of phenomena interactively operate and bring forth the meaning of play, a book, the world. The limits on our cognitive fusions with others’ perspectives, need not be seen as negative but is a valuable capacity, which enables the persistence of diversity of perspectives that enriches the human species and our collective cognitive capacity.

As well as being grounded in his physiological experience, Shakespeare’s understanding of the mind was inflected by the cultural belief system of his time. The mind was understood to be embodied and extended into the world on account of the soul, which was thought to be diffused throughout the body as God was throughout creation. Unlike some post-Cartesian versions it

had not been reduced to just the human rational soul, but encompassed the sensitive soul that was associated with the passions and instincts and was shared with animals, and the basic life force and drives of the vegetative soul that was shared with animals and plants. As with current enactivist theories, there is belief in a continuity between life and mind, with the more complex kinds of minds emerging in the more complex kind of life forms: ‘life and mind share a set of basic organisational principles, and the organisational properties distinctive of mind are an enriched version of those fundamental to life.’ (Thompson 2007: 128). In the Renaissance, the spirits, engendered of air and blood, were on a continuum with the most airy, animal spirits resident in the brain, with the brain thought to be pliable, impressionable and leaky like a sieve, while the vital were based in the heart and the natural in the liver. The spirits transported the faculties of the soul around the body, but could also flow with the air in and out from one porous body to another, so infecting other people with one’s states and emotions; royal physician, Helkiah Crooke describes bodies as: ‘Transpirable and Transfluxible’ (1615: 175). The cognitive faculties were understood to operate in relation to their embodiment and through dynamic interactions with their environment (Anderson 2015a; Floyd-Wilson and Sullivan 2007; Paster et al 2004). As with current enactivists, who have adopted J. J. Gibson’s term ‘affordances’ to describe the interactions that an environment offers (or affords) an animal, there was belief in ‘the complementarity of the animal and the environment’ (Gibson 1979: 127).

Another important theory that attempted to grasp, and encouraged belief in, distributed cognition was humoral embodiment. Dating back to ancient Greece and prevalent in the Renaissance, the belief was that the four humours defined a person’s physical and mental disposition, and were composed of the same four properties as the four elements of which the world was composed, with one’s humoral balance constantly altered through engagement in



the world. Jaques in *As You Like It* describes his own particular case of the fashionable humour melancholy:

‘it is a melancholy of mine own, compounded of many simples, extracted from many objects, and, indeed, the sundry contemplation of my travels, which, by often rumination, wraps me in a most humorous sadness’ (4.1.10-18).

Jaques claims for himself a melancholy distinctively composed from the combination of his embodiment, environment and prior experiences, which then in turn fashions his current phenomenological experience, mediating his self-knowledge and his knowledge of the world in a two-way feedback loop. Again, this resonates with enactivist notions that our bodies and the ways in which they can interact with the environment, produce the ways in which we perceive significance in the world. Our cognitive pathways, formed over our developmental and evolutionary histories, ignite experiences and our perception of objects, giving them salience. Together these properties (the humours, spirits, and faculties of the soul) were the mechanisms that Renaissance thinkers conceived as explaining humans’ connection to all levels of created life and as the reason they were poised and needed to dynamically engage with the world.

While enactivists argue that emotions are part of the cognitive processes through which we enact the world and bring its meaning into being (see in particular Colombetti), in a more constrained way the role of the emotions and the body in cognitive processes has been argued for by neuroscientist Antonio Damasio and his colleagues. The ‘somatic marker hypothesis’ is Damasio’s term for the link between the ventromedial prefrontal cortex and body states, through which emotional memories of sensed body states resurface to guide later actions. The

markers link ‘the facts that compose a given situation, and the emotion previously paired with it in an individual’s contingent experience’. The somatic markers may arise in the body, via a ‘body loop’, or just in the brain’s representation of it, which he calls an ‘*as if*’ body loop (1996: 1413-20; 1994: 184). Whilst Damasio’s ‘as if’ loop emulates body states, a variety of other ‘as if’ loops emulate body actions, visual imagery, and perception. Rick Grush explains that ‘the brain constructs neural circuits that act as predictive models’. These predictive models are then updated via virtual and actual feedback from the body and the environment and this modifies the current action and future predictions (2004: 377). Andy Clark points out that in addition to ‘head-bound emulatory strategies’, humans frequently employ the world around them (instead of a mental representation), or where this is unavailable, say in the case of designing a new building, employ a drawn plan as a surrogate model (2008: 152-6).

Since then, influential distributed cognitive theorists of all affiliations, have adopted the notion of predictive processing to explain the means whereby distributed cognition operates. Like notions of the soul, with its hierarchy of enmeshed cognitive levels, predictive processing describes a hierarchy of processing levels: prior evolutionary and developmental experiences create top-down hypotheses about the world which are cascaded through the system. As with Jaques, whose priors have been shaped by and then go on to shape much of what he perceives about the nature of the world. Priors are constantly being updated via incoming information, with errors in the hypotheses recalibrating the priors, though they can also be up or down weighted depending on estimates of their reliability. Nonetheless, whether predictive processing models can best explain all forms of mental instrumentality and intentionality remains open to question.

Literary works also operate as surrogate models, contributing to our creation and revision of more complex and nuanced hypotheses about the world, by supplementing our experience while we remain in the comfortable safety of our armchair or theatre seat (Anderson 2015a). Literature, in all its multifarious forms, is the most highly developed cognitive affordance developed by humans. Ben Jonson describes the capacity of the poet to cognitively transform the reader or spectator into the form of the work in which he is immersed: ‘How he doth reign in men’s affections; how invade, and break in upon them; and makes their mind like the thing he writes’ (398). *Henry V’s* appeal to the audience to flesh out the dramatic spectacle does not seem strange since though it is not always made explicit, any literary work requires of readers and spectators an intertwining of their minds with the matter before them. Literature overcomes the relative paucity of much mental imagery through providing readers with detailed and rich and detailed instructions that help them to form more concrete and dynamic images (Scarry 1999). The mind of the reader brings the work forth and the work brings the mind of the reader forth. Literature and art provide surrogates for an aspect or aspects of the world, constituting our experience of the work though drawing on our specific perceptual, motor and mnemonic repertoire, recalibrating them through this engagement in a way that consequently recalibrates our experience of the world. There is remarkable iconicity across visually presented objects and the topography of neural activation in the visual cortex and there are also startling similarities in neural activation between visually presented objects and verbally prompted imagery (Kosslyn et al 2006; Reddy et al 2010). Yet there is a discrepancy between early brain regions activated by perception and mental imagery, except where mental imagery is sufficiently rich and detailed, as in these cases even early regions of activation are triggered as they would be by actual perception (Cui et al 2007). The capacity to experience vivid mental imagery itself varies between individuals, with a few people reporting that they experience

none, but it is an ability that can be enhanced through teaching methods and is linked to greater narrative comprehension (Denis 1982; Center et al 1999).

Notably, people with damage to the hippocampus, which is associated with episodic memory, not only suffer the loss of subjective memories and the capacity to predict future scenarios by reapplying past experiences, but also the capacity to visualise counterfactual scenarios, such as ‘imagine that you’re standing by a stream in a wood’, with the extent of damage to the hippocampus reflected in the paucity of the scene imagined: such scene construction, whether future or fictional, are dependent on autobiographical memories to flesh them out (Mullaly et al 2012a; Mullaly et al 2012b; Hassabis et al 2007). The grounding in prior memories of our capacity to imagine other worlds, both future and literary ones, indicates further means whereby literary works dynamically fuse with and transform our minds. Prior experiential associations are elicited and extended by the types of consciously-crafted imagery that distinguishes literary texts, though our immersive blending of real and fictional worlds. The use of some of the same cognitive mechanisms to perceive and act in the world and to imagine perceiving and acting in the world, suggests why literary works consciously-crafted, vivid and kinesic imagery provide especially catalytic scaffolding for perceptual flights into and beyond the usual constraints of our own imaginations.

Memory problems are explored in Andy Clark and David Chalmers seminal paper ‘The Extended Mind’. Clark and Chalmers suggest the hypothetical comparison of Inga using her biological memory and the memory-impaired Otto using his notebook in order to recall how to find the Metropolitan Museum of Modern Art. Clark and Chalmers argue that the role the retrieved information plays guiding beliefs and behaviour has ‘sufficient functional similarity’ to warrant treating both Inga’s biological memory and Otto’s notebook as cognitive processes

(1998). External resources need not be identical with internal ones: while a laptop or mobile device does not store or compute information in the same way as the brain, it can for that very reason be useful in supplementing neural capacities (Clark 1997: 222). Through differences, as well as similarities, representational, computational and mnemonic resources, can supplement biological ones. The cognitive anthropologist Ed Hutchins in his study of ship navigation, *Cognition in the Wild*, makes a similar case to Clark and Chalmers for cognitive systems as distributed through equipment, that incorporate within them aspects of necessary expertise, and through other social agents, as the navigation team operate collectively as a computational system.

Humans use and need of cognitive supplementation was explained in the Renaissance as arising from fallen humans' flaws and mutability. Montaigne describes that for lack of memory he makes one of paper (1021), while Francis Bacon advises that: 'Neither the bare hand nor the unaided intellect has much power; the work is done by tools and assistance, and the intellect needs them as much as the hand' (33). In the 'young man' sequence of Shakespeare's sonnets the benefits and downfalls of a biological versus a literary copy of the young man are weighed against each other from diverse perspectives, with fragmentary solutions overturned or undermined by persistent recalibrations in an individual sonnet or the elsewhere in the sequence. Describing perception, Alva Noë points out: 'We continuously move about and squint and adjust ourselves to...bring and maintain the world in focus' (2015: 9). While Clark declares that language is akin to learning a new perceptual modality (2001, 144-5). Language equips us with concepts, labels, and representational systems, enabling a soaring upwards from the concrete to the abstract. George Puttenham's *Art of Rhetoric* similarly describes rhetoric as spectacles for the mind (256): it is a prosthetic device that enhances and supplements the perceptual range of our mind's eye. Similarly, one way in which the sonnets extend our

cognitive capacity is by taking us through a fertile spectrum of variously overlapping and competing perspectives.

Shakespeare's 'Sonnet 77' anticipates Clark and Chalmers later hypothetical example of Otto and Inga. The narrator instructs the beloved young man to supplement his biological memory by using a book:

Look what thy memory cannot contain  
Commit to these waste blanks, and thou shalt find  
Those children nursed, delivered from thy brain,  
To take a new acquaintance of thy mind.  
These offices so oft as thou wilt look  
Shall profit thee and much enrich thy book. (9-12)

This depiction of the book is linked to the Renaissance notion of the mind as impregnable like a mother's womb. At issue is not only the self-creation, the textual autopoiesis, offered by the book, which develop the young man's conceptions into full grown children, but its complementary stability, in contrast to the limited and leaky biological memory: 'Look what thy memory cannot contain' (9). The close relationship between being physically and mentally 'pregnant' or 'conceiving' and then producing biological or cognitive offspring is again evident in *Troilus and Cressida*. Ulysses appeals to Nestor: 'I have a young/ Conception in my brain; be you my time/ To bring it to some shape' (*Tro.* 1.3.307-309). The idea of bringing the conception 'to some shape' echoes Renaissance language used to describe the transition of the foetus from matter to form (Gowing, 121). It also suggests a notion of social intercourse as operative in producing thoughts.

The capacity of other people to supplement our onboard cognitive capacities, Stephen Kosslyn describes as our ‘social prosthetic systems’ (SPSs). SPSs are other people whom we ‘rely on to extend our reasoning abilities and to help us regulate and constructively employ our emotions’. He explains that another person who becomes your SPS, ‘literally lends you part of their brain’, so that ‘other people’s brains come to serve as extensions of your own brain’ (2005; 2006). The prevalence of such notions in the Renaissance is evident in Shakespeare’s works. In *Henry VI Part 1*, for example, we find the Duke of Gloucester describing himself as having acted as a prosthetic to the king in his role as Lord Protector: ‘Ah! thus King Henry throws away his crutch,/ Before his legs be firm to bear his body.’ (3.1.1470-1) Or more explicitly in *Troilus and Cressida*, where Ulysses argues that self-knowledge and self-worth operate via an extended reflexivity:

That no man is the lord of anything,  
Though in him there be much consisting,  
Till he communicate his parts to others  
Nor doth he of himself know them for aught  
Till he behold them formed in th’ applause  
Where they’re extended – who, like an arch reverb’rate  
The voice again; or like a gate of steel  
Fronting the sun, receives and renders back  
His figure and his heat. (3.3.110-118)

The psychological inability of the self to apprehend its own qualities without a form of socially extended reflexivity is evoked through a depiction of the limits of physical perception, the face

and the eyes inability to see themselves other than through the process of reflection. Renaissance beliefs in our cognitive mutability require that inferences be made about the internal as well as the external world. Self-sufficiency is brought into question, but this apparent championing of social prosthetic systems is undermined by the context of manipulation within which this statement is framed: Ulysses is attempting to rouse Achilles to battle. In Shakespeare neither a first-person nor a third-person perspective is shown as inherently reliable.

Art, Noë argues, reveals the ways in which we are already being organised by structures in the world (2015). With fictional literature, the fact that it is an imagined situation and yet draws on real world cognitive processes means that we can passionately and intellectually engage, without the same danger that real world scenarios can present: with the suicidal Gloucester we experience a leap over a cliff without physical harm. Edgar, the conjuror of the cliff-face which threatens a linguistically created vertigo, in an aside to the audience explains: ‘Why I do trifle thus with his despair is done to cure it.’ (4.5.34). In this way, Shakespeare simultaneously exposes the literary techniques that enable the audience to piece out a bare stage with their thoughts and him to move them to fear and pity, and he indicates his own rationale in creating his tragedy. This Aristotelian cathartic intention significantly marks both the continuity and distinction between real-life and literary experience. The rationale of emotional release and sense-making, more abstracted forms of that which occurs in child play, may be extended to other genres of literature.

How may there be benefit if there is not also the possibility of harm through experiencing literature? In the Renaissance both anti- and pro-theatricalists’ claims rest on the ability of drama to morally capture the heart and mind of actors and spectators. Thomas White asserts



that ‘the cause of plagues is sinne, if you looke to it well: and the cause of sinne are playes: therefore the cause of plagues are playes’ (47). While Thomas Heywood describes how theatre ‘hath power to new mold the harts of the spectators and fashion them to the shape of any noble and notable attempt’ (sig. B4r). Either way, viewing theatrical spectacles is understood in terms of an activity that like Otto’s notebook alters beliefs and guides behaviour. The answer to my question is that while on the one hand literature is a mind tool, and so like any tool may be put to what are perceived as ethical or unethical ends, the means by which it operates remain necessarily beneficial to an extent, because it operates through dynamically recalibrating our cognitive processing, widening our conceptual array and giving us insights into the workings of other minds.

Hamlet’s direction to the players of *The Mousetrap*, describes the purpose of the play to be: ‘to hold as ’twere the mirror up to nature, to show virtue her own feature, scorn her own image, and the very age and body of the time his form and pressure.’ (3.2.14-22). The significant difference in Shakespeare’s use of the play-as-mirror-motif is its use here not as an objective prologue as was conventional, but in Hamlet’s instructions to the players for the play-within-the-play, which is written in part by the melancholic Hamlet. Hamlet practically applies Renaissance belief that a play provokes the passions, enables the mind to make imaginative leaps, and exposes the viewer to his own nature and moral bearing. On a metadramatic level, what Shakespeare shows is that this happens both despite and because of the subjective nature of its creator – for the conscience of the king is caught if not reformed by it.

The recurrence of mirror and book motifs to figure the mind partly reflects the fact that these were technologies that had recently undergone transformative improvements, where now a computer or mobile are often used as examples. Shakespeare’s general preference for the word

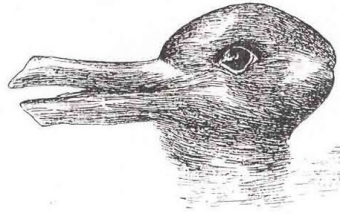
glass, both to refer to mirrors and transparent glass, allows for slippage between highlighting reflecting back and penetrating beyond. Mirrors, as Vivian Mizrahi describes, are perceptual media, which enable us to view perspectives that the naked eye cannot, and yet what is seen in the mirror remains linked to our position and movements in relation to the mirror (Forthcoming). Literature similarly remains linked to our shifting perspective points and yet allows us to view beyond our usual cognitive range, with each work, each author, each genre providing distinct forms of cognitive mediation.

The capacity to be both in the world-in-the play and in the theatre at the same time was also a feature of the Renaissance stage. *Midsummer Night's Dream* particularly revels in metadramatic references: remember the rude mechanicals, the amateur actors in the play, being parodied by professional actors in the world of the performance – the mechanicals, having just gathered together in the forest to rehearse, Quince announces: ‘This green plot shall be our stage, this hawthorn-brake our tiring house’ (3.1) So like the audience in *Henry V* his fellows on the stage are asked to simulate a world, with the comedy here being that rather than attempting to piece out the world of the play-within-the-play, as the actors and the audience attempt to constitute the world of *Henry V*, or here as the audience are attempting to constitute the world of *Midsummer Night's Dream*, the mechanicals instead expend their cognitive energies in attempting to imagine themselves as on a stage. The comedy is further added to as while gesturing to the imaginary green plot and hawthorn brake of the world-in-the-play, Quince would instead be gesturing to the real stage and tiring house of the world of the performance, such as that they are supposedly trying to imagine in the play-within-the-play. But rather than seeing these dizzy-making layers as distancing devices, as is often the way these are interpreted, perhaps what is suggested, is the blurred line between performance on the stage and performance in the world. Literature works through a combination of immersion

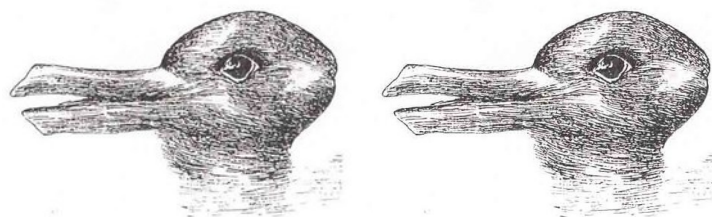
and distancing as in life itself we move between immersion in a task and a more reflective perspective. The situating of an audience in both a *Midsummer Night's Dream* and *Hamlet* watching a play-within-the-play being watched by an audience on the stage further creates a self-reflective dynamic for the audience whereby they may view and realise that they themselves are playing roles in the real globe. Alva Noe describes choreography as putting on display the fact that we are organised by dancing and storytelling that we are organised by the general human capacity to tell stories: art he argues operates by similar principles to philosophy (2015). As with philosophy, literature puts on display, and calls into question, the ways in which we are organised by language, stories and other sociocultural, physical and environmental practises.

In *The Predictive Mind* Jakob Hohwy comments that 'a counterfactual hypothesis induces a prediction error causing us to change our relation to the world' (198). Counterfactual hypotheses imagine things that are not the case or that that have not happened, for example, as Henry V asks us to imagine that the stage encompasses 'the vasty fields of France' (1.1.12). More generally, literary works invite us to take the perspective of counterfactual hypotheses, so increasing our experiential range via the scaffolding they provide for imaginary play, thereby making our future hypotheses more complex and nuanced, and changing our relation to the fictive and to the real world. Merleau-Ponty describes how 'it is less the case that the sense of a literary work is built from the common meanings of the words than that the literary work contributes to modifying that common meaning' (2012:185). This revitalising of our mental panorama, which was discussed earlier, highlights literary representations' capacity to elicit a richness and range to the hypotheses whereby we orient ourselves in a literary work and in the world.

The closing section considers in more detail how a similarly recalibrative dynamic plays out in *Julius Caesar*, using the prop of a bistable figure here to illustrate the shifts that occur in perspective-taking in the play and in its audience. If you look at the following image what can you see?



You'll have seen either a duck or a rabbit, more likely a duck, and you can consciously switch what you perceive by fixating on a certain point – so if you fixate on the beak the duck appears whereas if you fixate on the other side the rabbit emerges. What happens if you look at a pair of them?



They seem to shift in tandem, you can see either two rabbits or two ducks. Now what happens if you are given a narrative about the situation? ‘The hungry duck is about to eat the frightened rabbit.’ Some of you should be able to stop the tandem alternation and see both a duck and a rabbit at the same time (Jensen and Mathewson 2011). Discussion of this experiment by Jensen

and Matthewson is taken up by Jacob Hohwy, who pioneered predictive coding models, but from an internalist stance on cognition. He explains that with bistable figures we can see that the narrative alters our top-down models and that these then infiltrate our perception of visual phenomena (2013: 129-31).

Julius Caesar, the duck-rabbit in this case, is initially presented as gloriously assassinated by the conspirators, as immediately after his on-stage murder they anticipate its later theatrical performance:

CASSIUS	How many ages hence Shall this our lofty scene be acted over In states unborn and accents yet unknown!
BRUTUS	How many times shall Caesar bleed in sport, That now on Pompey's basis lies along No worthier than the dust!
CASSIUS	So oft as that shall be, So often shall the knot of us be called The men that gave their country liberty. (3.1.111-18)

The characters shift into an external view of their actions that takes the position of and frames the audience's reaction, as we are seemingly sucked back in time to become witnesses to the aftermath of the original scene, such that their sense of triumph and liberation may infect the audience as it has the faction. Yet this is then juxtaposed with Antony's narrative, which directs attention instead to the bloody nature of the murder from which he predicts the future destructive sequence of events that will ensue:

O, pardon me, thou bleeding piece of earth,  
That I am meek and gentle with these butchers!  
...Over thy wounds now do I prophesy,  
(Which, like dumb mouths, do ope their ruby lips,  
To beg the voice and utterance of my tongue)  
A curse shall light upon the limbs of men;  
Domestic fury and fierce civil strife  
Shall cumber all the parts of Italy (3.1.259-64)

The shift in our fixation, through the directed narrative, causes a shift in our perception: the rapacious duck becomes a slaughtered bloody rabbit.

Later when presented with the duck/rabbit of Caesar's corpse the gathered citizens of Rome demand, 'We will be satisfied; let us be satisfied.' Yet they are soon placated by Brutus's account of the political need for Caesar's murder:

Not that I loved Caesar less, but that I loved Rome more. Had you rather Caesar were living and die all slaves, than that Caesar were dead, to live all free men? ...Who is here so base that would be a bondman? If any, speak; for him have I offended. Who is here so rude that would not be a Roman? If any, speak; for him have I offended. (3.221-32)

Brutus's spare and restrained rhetoric sets before them a vision of Rome, which appeals to abstract virtues and civic ideals. The citizens easily swayed mob mentality (Anderson 2015b

discusses the play's notions of the mind as socially extended at much more length) accordingly frames their moral perspective of characters and events in Brutus's terms:

<i>All</i>	Live, Brutus! live, live!
<i>First Citizen</i>	Bring him with triumph home unto his house.
<i>Second Citizen</i>	Give him a statue with his ancestors.
<i>Third Citizen</i>	Let him be Caesar.
<i>Fourth Citizen</i>	Caesar's better parts Shall be crowned in Brutus. (3.2.48-52)

Indeed, the citizens are so appeased that Brutus has to persuade them to stay and hear Antony's speech, by which they are then gradually roused into a greater uproar than before:

If you have tears, prepare to shed them now.  
You all do know this mantle: I remember  
The first time ever Caesar put it on;  
'Twas on a summer's evening, in his tent,  
That day he overcame the Nervii:  
Look, in this place ran Cassius' dagger through:  
See what a rent the envious Casca made:  
Through this the well-beloved Brutus stabbed; . . .  
For when the noble Caesar saw him stab,  
Ingratitude, more strong than traitor's arms,  
Quite vanquished him: then burst his mighty heart;  
And, in his mantle muffling up his face,

Even at the base of Pompey's statua,  
Which all the while ran blood, great Caesar fell.  
O, what a fall was there, my countrymen!  
Then I, and you, and all of us fell down,  
Whilst bloody treason flourished over us. (3.2.167-74, 3.2.182-90)

Antony presents his tale as one that would move any who have a capacity for fellow-feeling. He sows pity and admiration in order to greater enrage, pointedly juxtaposing one of Caesar's martial triumphs with his stabbing by his supposed friends. He further amplifies their empathy, by depicting the fall as not of Caesar alone, but of them all jointly at the conspirators' hands, superimposing physical and figural meanings. This is a further reverberation of the staged assassination and the earlier replay that shifted our perspective. Antony places the crowd at the scene in the same way the audience in the theater were by Cassius's and Brutus's speech, taking it further, as here the onstage audience, the crowd, become the falling Caesar. Antony supplements the verbal with the visual, first fixing the audience's attention on the once glorious and now bloodied and pierced mantle, as representation of Caesar's public role, and then depicting in detail the stabbing of his body which one imagines from the flood of action verbs, that he also reenacts: ran though, stabbed, stab, burst; then in a later climax he horrifically reveals the still bleeding body itself. In Antony's narrative, the scene is figured forth through visceral and kinesic language that climaxes with the material bodying forth of the assassinated corpse; as theatre itself figures forth the meaning of the play both through the supplements of language and body. Antony evokes immediacy and bloodiness in a materially mediated way that appeals more forcefully to the motivations of the mob than Brutus's abstract ideal world:

*First Citizen*            O piteous spectacle!



*Second Citizen*        O noble Caesar!  
*Third Citizen*        O woeful day!  
*Fourth Citizen*       O traitors, villains!  
*First Citizen*        O most bloody sight!  
*Second Citizen*       We will be revenged.

*All*        Revenge! About! Seek! Burn! Fire! Kill! Slay! Let not a traitor live! (3.2.196-99)

As previously the offstage audience were swayed from a sense of triumph to pity, the citizens have been swayed from approval as to the necessity of the murder, conversely to pity for Caesar and so to rage at the faction which descends into a single-minded series of single words in an incantatory chant. As discussed earlier, vivid storytelling does not necessarily tend to an end that is good. However, on a metadramatic level, from the viewpoint of the audience or reader, we have been subjected to a moral lesson in human susceptibility. One's perspective is depicted as problematically shifting according to the narrative one is told. We witness a murder/assassination and then a series of reflections on it: initially by the self-justifying doers of the deed and by the outraged Antony, *and* then later this switch in perspective is replayed again refracted by the reactions of citizen audience onstage. This invites the theatre audience's critical self-reflexivity regarding their own cognitive susceptibility to narratively produced perceptions: how easily one may be caused to see a duck or a rabbit. Yet that the more powerful narrative is that which makes use of the more kinesic and visceral language, reflects the powerful role that embodiment plays in language and mediates the otherwise top-down role that narrative may seem to play in our immersive experiences.

Shakespeare here makes explicit what literary works more generally do. Literary works are both anchored in and provide a reflective and disruptive counterpoint to immersion in our

everyday world by immersing us in themselves, in the same way that we have seen that literary language is anchored in and yet provides a reflective and disruptive counterpoint to everyday language. Literature exploits, exposes and extends the capacity that language has to mediate our perceptions and cognitive range. My intention has been to demonstrate a few of the ways in which scientific and philosophical research on the nature of the mind can illuminate our understanding of what happens when we read or see Shakespeare performed and also to show that notions of the mind as distributed across brain, body and world are also evident in other periods because they reflect an abiding aspect of being human. The reapplication of this research to literary analysis as a means to illuminate how literary distributed cognition operates, is not an invitation for it to dominate literature, since one of literature's values, as I have shown, lies in its capacity to playfully exploit and creatively disrupt through its use of consciously-crafted narratives that imaginatively deploy language anchored in our embodied experiences in the world.

Through writing we can mark features of salience in the world and in ourselves, as through reading, we can shift our perception of salience and of the affordances the world offers. In writing this, I have myself experienced how the mind through being produced on the written page produces the mind which in turn produces the finished piece of writing. And in telling you about these ideas I hope you too may perhaps have a new perspective on Shakespeare and the Mind.

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## **BIOGRAPHICAL NOTE**

Miranda Anderson is a literary scholar at the University of Edinburgh. She initiated and is a research fellow on the AHRC-funded History of Distributed Cognition Project, which has four volumes forthcoming with Edinburgh University Press (2018). Her book *The Renaissance Extended Mind* (Palgrave Macmillan 2015) explores notions of the mind as extended across brain, body and world in the Renaissance and was supported by a Leverhulme Trust Fellowship.