

The Cognitive Study of Art, Language, and Literature

Mark Turner

English, Maryland, College Park

Abstract The cognitive turn in the humanities is an aspect of a more general cognitive turn taking place in the contemporary study of human beings. Because it interacts with cognitive neuroscience, it can seem unfamiliar to students of the humanities, but in fact it draws much of its content, many of its central research questions, and many of its methods from traditions of the humanities as old as classical rhetoric. Its purpose in combining old and new, the humanities and the sciences, poetics and cognitive neurobiology is not to create an academic hybrid but instead to invent a practical, sustainable, intelligible, intellectually coherent paradigm for answering basic and recurring questions about the cognitive instruments of art, language, and literature.

A Basis in Greek Rhetoric

The cognitive study of art, language, and literature is concerned with patterns of thought and patterns of expression and the nature of their relationship. In this way it has a basis, intellectually and sometimes wittingly, in the work of Greek rhetoricians on patterns of thought and of expression. As Jeanne Fahnestock (1999) surveys in *Rhetorical Figures in Science*, these rhetoricians bequeathed to us foundational taxonomies, impressive analyses, and a lexicon of technical terms, like *schema*, *analogy*, and *anaphora*, along with a useful focus on the way in which patterns of meaning are paired with patterns of form.

Occasionally modern cognitive study merely reinvents one spoke or another of this classical rhetorical wheel, but modern cognitive rhetori-

cians—to give a single name to a loose affiliation of modern thinkers—have also developed lines of research quite unavailable to classical rhetoric. If Aristotle were alive today he would be studying this research and revising his work accordingly.

One area in which modern cognitive study has clearly far surpassed classical rhetorical theory is the study of language. It is true that classical rhetoricians achieved the idea of language as a relational network of form-meaning pairs and did impressive work within that conception, but research along these lines has been rapidly advanced under the methods of modern cognitive linguistics. (For a review of this continuity see Turner 1998.)

Another body of insight unavailable to classical rhetoricians is the theory of conceptual integration, colloquially known in cognitive science as *blending*, which Gilles Fauconnier and I have developed.¹ Roughly and intuitively, conceptual blending is the mental operation of combining two mental packets of meaning—two schematic frames of knowledge or two scenarios, for example—selectively and under constraints to create a third mental packet of meaning that has new, emergent meaning. When I asserted that if Aristotle were alive today he would revise his old work under the influence of modern cognitive study, we all activated two scenarios—modern cognitive rhetorical research on the one hand and Aristotle as he engaged in his own research on the other—and projected meanings from those scenarios to assemble a blended story that has new, emergent meaning: Aristotle, with his old intellectual powers and inquisitive cast of mind but alive in our time and newly apprised of recent discoveries, revises his work as a contribution to modern cognitive rhetoric. Obviously this new meaning cannot be found in either of the scenarios that contribute to the blend. On the one hand Aristotle is not in the scenario of modern cognitive study at all and so a fortiori in that input is not revising his ideas under influence from modern cognitive studies. On the other hand, in the scenario of the living historical Aristotle as he engaged in his own research, he is unaware of modern cognitive study and certainly uninfluenced by it. But in the blend we have a conception of Aristotle aware of modern studies and revising his ideas under their influence. This is a new conception, a construction of meaning that is emergent in the blend.

It is interesting to see how quickly inferences that are not given by the inputs can develop in a blend. My sentence about Aristotle Resurrected has been read by various people in various ways. Some read it as prompting

1. For an introduction to blending for students of art, language, and literature, see Turner 1996 and Turner and Fauconnier 1999. For a survey of current research on blending, see Turner 1999. For the technical details of the theory of blending, see Fauconnier and Turner 1998.

them to frame classical rhetoric not principally as a completed historical body of work to be annotated but instead as an ongoing program of research to be advanced by us. Some read it as prompting them to frame modern rhetoricians as the scientific successors of classical rhetoricians. Some read it as prompting them to frame classical rhetorical texts not as a canon of masterpieces but instead as a series of initial working papers in a research program. Some read it as prompting them to frame modern cognitive rhetoric not as an intellectual revolution in the study of art, language, and literature but instead as a natural extension of traditions we embrace. Anyone might contest any of these inferences on its own terms, but crucially I did not have to express any of them explicitly for readers to develop them. They arose naturally as various readers thought about the blend.

Aristotle Resurrected is a blended, counterfactual scenario. The tradition of treating counterfactual scenarios like this one as conceptions of possible worlds that differ minimally from our world is not helpful in analyzing this blend because questions about minimal changes necessary to create a world in which it is possible to resurrect Aristotle are beside the point. The reasoning in the blend and from the blend to the contributing scenarios has nothing to do with the fact that it is impossible in every way to resurrect Aristotle. Although we easily and for the most part unconsciously construct the blended scenario in which Aristotle is resurrected and although we reason within it quickly and easily, the construction of the blend is complicated. Building it calls for careful selective projection from each of the contributing scenarios. We do not, for example, bring Aristotle to life with the mental and biological weaknesses he had at death. We do not bring him to life as a newborn and insist that he learn to speak and think all over again, despite our certainty that this is the way all human beings must enter our world. In the blend Aristotle can talk with cognitive rhetoricians and read what they write, even though none of them speaks classical Greek and the historical Aristotle died before English came into existence.

Building the blend requires composition, completion, and elaboration. For example, we must compose Aristotle's interest in meaning and expression with modern research into meaning and expression and complete that scenario so that Aristotle becomes *aware* of the modern research. The blend must then also be elaborated: Aristotle begins to revise his own theories in response to these modern inquiries.

The power and complexity of blending in examples like this may make it seem as if blending is a kind of exotic intellectual circus trick that only a trained mind, fully alert and bent on feats of invention, can perform. On the contrary, for the most part blending is a routine, workaday process that escapes detection except on technical analysis. It is not reserved for special

purposes and is not costly, nor is it reserved for adults. In fact it is a mainstay of children's literature. For example, in Crockett Johnson's *Harold and the Purple Crayon* (1983 [1955]), written for three-year-olds, Harold uses his purple crayon to draw, and whatever he draws is real. His world is a blend of spatial reality and its representation. In the blend the representation is fused with what it represents. When Harold wants light to go for a walk, he draws the moon, and so he has moonlight. The moon stays with him as he moves. This blend has two inputs. One input has elements of the real spatial world as we experience it and perceive it. One of those elements is the moon. The other input to the blend has conventional knowledge about drawing. In the input with the real moon, the moon cannot be created by drawing, and it does not come into existence at someone's will. In the input with drawing, a drawn moon cannot emit moonlight or float along in the sky as the artist's companion. But in the blend there is a special blended moon with special emergent properties.

The mechanisms of blending that give us this special blended moon work generally throughout *Harold and the Purple Crayon*. When Harold wants to return home, he draws a window around the moon, positioning the moon where it would appear in his window if he were in his bedroom, and so he is automatically in fact in his bedroom and can go to sleep. Child Harold's blended world has new kinds of causality and event shape that are unavailable from either the domain of drawing or the domain of spatial living. The projection to this blend and the completion and elaboration of the blend are not algorithmic, not predictable from the inputs, but instead have considerable room for alternatives. For example, when one draws, one often makes practice sketches, erasures, and mistakes that do not count as part of the finished drawing. Which kinds of marks made with the purple crayon shall count as reality in the blend? The answer chosen by the author of the book is all of them. When Harold's hand, holding the purple crayon, shakes as he backs away from the terribly frightening dragon, the resulting mark is a purple line of wavy scallops: "Suddenly he realized what was happening. But by then Harold was over his head in an ocean" (Johnson 1983 [1955]).

The principle for connecting the purple sketches to elements of reality is, not surprisingly, image-schematic matching: if the sketch matches the iconic form of something, it is that thing. But it appears that this matching is constrained: a given purple sketch can be matched to exactly one reality. For example, once the wavy line is an ocean, Harold cannot transform the ocean into a cake by perceiving the wavy line as the icing on a cake. Yet in a differently conceived blend, in a different book, the character who does the

drawing might possess the power to recast reality by perceiving the sketch first one way and then another.

In Harold's blend all of physical space is a piece of paper on which to draw. What are the possibilities in the blend of blank paper/empty space? Can Harold move as he wishes through it? The answer chosen by the author is that, once something is drawn that gives Harold relative location, he is constrained by some of the physics of the real world. For example, once he draws the hull of a boat and part of the mast, he must climb the mast to draw the parts of the boat he could not reach from the ground. When he wants to find his house, he begins to draw a mountain he can climb to have a better view. He climbs the part he has drawn so he can draw more mountain to climb. But as he looks down over the other side of the mountain, he slips. Since he has been positioned with respect to the mountain, the blank space is now thin air, so he must be falling. He is obliged to draw a balloon to save himself from crashing.

Similar blends occur in other children's books, such as Margaret Wise Brown's *The Runaway Bunny* (1942), Elizabeth MacDonald's *John's Picture* (1991), and Antoine de Saint-Exupéry's *Le Petit Prince* (1943). Talking animals, an obvious blend, are routine in children's literature. Many children's songs present elaborate blends. My favorite is the French children's song "Il était une dame Tartine," in which a royal court and palace are all simultaneously foods. Part of the emergent structure in this song is the obligation of parents to provide their children with plenty of sugar so the "royal sugared palaces of happiness" can be maintained.

"This surgeon is a lumberjack" is a metaphoric blend, usually read as asserting that the surgeon is incompetent, even though *incompetence* belongs to the prototype of neither *surgeon* nor *lumberjack*. A blend popular in Washington, D.C., when the movie *Titanic* (1997) was playing and President Bill Clinton seemed to be surviving a new sexual scandal was, "If Clinton were the *Titanic*, the iceberg would sink." (This blend became popular again many months later when he survived impeachment for the same sexual scandal.) This blend is metaphoric but not principally a projection of what we know about the *Titanic* onto our understanding of Bill Clinton. What we know about the *Titanic* is that it sank, but in the blend the Clinton/*Titanic* survives and the iceberg/scandal/prosecution sinks, even though ice is less dense than water.

Blends occur throughout the high canon of literature. For example, Wallace Stevens's poem "The Snow Man" is a blend usually read as asking us to conceive of a combination of a snowman and a human being. The blended snowman has special powers of perception exactly because he is

not governed by the inescapable human disposition to impose preconceptions on what he sees. He is a

. . . listener, who listens in the snow,
And, nothing himself, beholds
Nothing that is not there and the nothing that is.

Readers of this poem cannot actually be a blended intentional snowman, but they can learn something by constructing the blend and by contemplating it.

Literary examples of blending are often the most striking and memorable. They are also often the most challenging to analyze. *The Dream of the Rood*, passages of which, carved on the Ruthwell Cross, date from at least the early eighth century A.D., is a spectacular example of blending. Among other virtues *The Dream of the Rood* shows how easy it is for a blend to have many contributing scenarios. In this work a sinner relates his dream, in which the Rood—the Holy Cross—appears to him and speaks to him of its experiences. This is a blend, a personification. We often feel when we look at a physical object that it “speaks” to us of its history; that is, what we know of its history is “expressed” by the object. This is a blend. *The Dream of the Rood* exploits that conventional blend to create an active and vivid blend in which the Cross actually does speak. But it goes beyond that conventional blend because the Cross tells the sinner about events the sinner has no knowledge of and could not infer merely by seeing the Cross. The sinner is projected into this blend as the addressee, placing the Cross and the sinner inside a rhetorical and dramatic frame. The reader becomes the audience of the sinner and the indirect audience of the Cross.

The Cross is also blended with Christ, for not only is the Cross stained with blood on the right side, it bleeds on the right side. The Cross reports how it was taken by foes from the forest and forced into shape for an evil design. It suffered like Christ and was wounded with the same nails; Cross and Christ are both mocked. The Christ-like suffering of the Cross confers upon it immortality and the ability to heal sinners: the Cross says that those who wear the Cross need not be afraid, that the kingdom of heaven can be sought through the Cross.

The Cross is also blended with the sinner who relates the dream, thus creating a blend of identification. The sinner is stained with sins, wounded with wrongdoings, downcast. The Cross, too, once felt sinful: it had been the slayer of Christ. But it was redeemed, as the sinner can be redeemed.

Perhaps most interestingly, the Cross is blended also with a thane, and Christ is blended with the lord served by that thane. Christ, in this story, is a strong, young hero, bold in the sight of the crowd, who hastens to the Cross,

stouthearted. He strips off his clothing and climbs the Cross. The Cross describes itself as having done its duty to serve the Lord's will, even though it was afraid, even though it was tempted to fail the lord. As Peter Richardson (in press) has argued, the purpose of this blend is to give a model of what a good thane is and does. The author blends Cross and thane so the Cross can count as a thane. The Cross represents its actions as perfect and praiseworthy service to a lord, and this evaluation, combined with the holy status of the Cross and its evident prestige (all that gold, all those adoring angels), makes it, in the blend, not just a thane but a paragon among thanes. As a result it provides a model for those who would be thanes. The poem therefore has as one aspect of its persuasion what Richardson calls "Making Thanes." This is a complicated blend in which the history of the Cross as a physical object is blended with the frame of a thane's life, making the Cross the counterpart of the thane and Christ the counterpart of the thane's lord. The result is a particular emergent biography in the blend of an exceptionally honored and successful thane-Cross, all with the purpose of projecting back to the contributing story of *thane* a divinely approved model of how a thane should act.

Blending is exactly the kind of mental operation that would have been interesting to classical rhetoricians, but so far I have found only a single short paragraph in which a classical rhetorician even implicitly recognizes the mental operation of blending. Predictably it occurs in book three of Aristotle's *Rhetoric* (chapter 3 [1406b]): "The address of Gorgias to the swallow, when she had let her droppings fall on him as she flew overhead, is in the best tragic manner. He said, 'Nay, shame, O Philomela.' Considering her as a bird, you could not call her act shameful; considering her as a girl, you could; and so it was a good gibe to address her as what she was once and not as what she is." The shameful act exists only in the blend: the act is impossible for the girl and the shame is impossible for the sparrow. It is not quite clear that Aristotle recognizes the existence of this blend, or recognizes the emergent meaning in *shameful act*, or recognizes that the emergent meaning exists only in the blend. He sees the blend moreover as an exotic and rare achievement and makes no theoretical contribution to the study of blending. Evidently insight into blending was simply unavailable to classical rhetoricians.²

2. A basic mental operation like blending could not entirely escape detection. Literary critics, art historians, psychologists, rhetoricians, linguists, and other scholars have here and there noticed and analyzed individual blends. There are also theoretical discussions that lean in the direction of recognizing blending as a basic mental operation. The most extended is Arthur Koestler's work *The Act of Creation* (1964), which presents Carl Duncker's blend "The Buddhist Monk." Fauconnier and Turner (1998) in turn use "The Buddhist Monk" as their main heu-

This oversight is quite remarkable to me, given my view that the central capacity of cognitively modern human beings (where *modern* here stretches back perhaps fifty thousand years) is their advanced ability for conceptual integration. During the Upper Paleolithic Age human beings began a startling progress from insignificance to predominance on the planet. Anatomically modern human beings had already evolved perhaps 150 thousand years earlier, but something changed during the Upper Paleolithic Age. Human beings acquired a great ability to innovate and to establish culture to foster innovation. They acquired a human imagination with its ability to create new concepts and new mental patterns. There were several dramatic results: art, science, religion, culture, refined tool use, and language.

The defining story of our species—culturally, intellectually, and neurobiologically—is the story of how we developed the ability to forge conceptual integration networks out of strongly conflicting inputs, to create new meaning in the blend. I do not offer this as a story of triumph or joy. Blending carries grave pain, not for genes but for the emotional human minds that are routinely obliterated when human bodies die. A human mind lives in a dynamically shifting weave of many conceptual blends and through them forms its existence and its meaning, not always in a welcome or pleasant fashion. A child who died in the past is still mentally with us. The child never leaves, is always there to cast her shadow on the day, even though our days have changed radically since her death. In the blend, we can imagine her living and appropriately aged. We cringe or smile at our dead grandfather's reaction to our son's decisions, even though our actual grandfather never met our actual son. We often take our cues for action, feeling, or belief from these blends. We assemble blended futures and choose between them or assemble blended counterfactual presents and grieve over their counterfactuality. Poetry often takes its prompt and its truth from such blends, as when the speaker in William Butler Yeats's "Among School Children" blends the memory of a Ledaean woman with the perception of a schoolgirl:

I dream of a Ledaean body, bent
 Above a sinking fire, a tale that she
 Told of a harsh reproof, or trivial event
 That changed some childish day to tragedy—
 Told, and it seemed that our two natures blent
 Into a sphere from youthful sympathy,

ristic example of blending. But Koestler regards blending as exceptional and has no theory of its structural and dynamic operation. Except under charitable reading of a few of his passages, he appears to mistake it for composition of elements selected from the contributing scenarios.

Or else, to alter Plato's parable,
 Into the yolk and white of the one shell.
 And thinking of that fit of grief or rage
 I look upon one child or t'other there
 And wonder if she stood so at that age—
 For even daughters of the swan can share
 Something of every paddler's heritage—
 And had that colour upon cheek or hair,
 And thereupon my heart is driven wild:
 She stands before me as a living child.

"Who has twisted us like this?" [*Wer hat uns also umgedreht?*] asks Rainer Maria Rilke (1961 [1922]: 65).

. . . the shrewd animals
 notice that we're not very much at home
 in the world we've expounded.
 [und die findigen Tiere merken es schon,
 daß wir nicht sehr verläßlich zu Haus sind
 in der gedeuteten Welt.]
 (Rilke 1961 [1922]: 2)

No person, thing, idiosyncratic culture, or local event has twisted us like this, but instead our common phylogenetic development for a mental capacity that brings unprecedented power but no guarantee of pleasure—blending.

A Basis in Cognitive Neuroscience

I have said that the cognitive study of art, literature, and language has one foot in classical rhetoric. It has its other foot in cognitive neuroscience, the modern study of the brain and the mind. Cognitive neuroscience is less familiar to professors of literature than is classical rhetoric, but that might change. Alan Richardson (1998: 39) has described our present situation this way:

When the intellectual history of the late twentieth century is written, Anglo-phone literary theory and criticism will probably come in for a wry footnote or two. Scholars of the future age may well find amusement in the pretensions of one English professor after another to solve the riddles of human agency, subject formation, language acquisition, and consciousness, with little or no awareness of the spectacular developments in psychology, linguistics, philosophy of mind, and neuroscience that form the central story of Anglo-American intellectual life from the 1950s to the present. . . . The cognitive neurosciences have emerged as

[the] most exciting and rapidly developing interdisciplinary venture of our era. That this remains news to many working in literature departments has already become something of an embarrassment; it will steadily prove more so.

It is important to realize that having one foot in cognitive neuroscience does not mean uncritically adopting the ideas of cognitive neuroscientists for recycling within literary studies. On the contrary, trade goes both ways and there have been some interesting negotiations. For example, the theory of blending, interesting to cognitive neuroscientists because conceptual blending has been shown to operate throughout everyday thought, language, and action, arose almost entirely from the study of literary and inventive linguistic expressions.

Scholars of literature and art are highly attuned to the intricate workings of creativity, invention, language, visual representation, and the construction of meaning. They offer superb and illuminating examples that often make the intricacies of mental operation somewhat easier to see. They have well-trained intuitions about the intricacies of mental and linguistic phenomena, and they have ideas about meaning and form. These intricacies and these ideas have, for the most part, not yet penetrated cognitive neuroscience's field of vision. They are part of what scholars of literature and art have to offer cognitive neuroscience.

A Wider Notion of Human History

Cognitive neuroscience also has many things to offer. One is a wider conception of human history. Scholars of art and literature focus on cultural and sociological history as it operates over relatively brief temporal spans of decades or centuries. Cognitive neuroscience shares that interest but equally considers two other crucial aspects of human history. The first is phylogenetic history as it runs over thousands and millions of years. The second is ontogenetic history—the development of the individual mind and brain from conception to advanced age. Cultural, phylogenetic, and ontogenetic history are typically viewed in cognitive neuroscience as aspects of human history that do not operate independently.

Beyond phylogenetic, ontogenetic, and cultural history, cognitive study also wants to know what it is that makes history historical. Deploying theories of self-organizing systems and complex adaptive systems, cognitive study analyzes the way historical systems are path-dependent, nonfoundational, contingent, nonteleological, and nonnecessary. Historical systems exist side by side with other historical alternatives. Historical systems develop emergent structure, and they rely on accidents. (For example, our

being alive at all probably depends upon an accident sixty-five million years ago in which a meteor hit the sea off the coast of the Yucatán Peninsula, giving mammals a leg up in the competition with dinosaurs.)

There are many historical systems. They include all living terrestrial things over all time; a given gene pool; all conceptual systems in all individuals over all time; a conceptual system shared by a community and all the conceptual systems that are ancestors of that conceptual system; a conceptual system within a single individual and all the conceptual systems that were, in the individual, ancestors of the current conceptual system; human language, all of it, over all historical time; a human language shared by a linguistic community and all the diachronic linguistic structures that are ancestors of that language; a human language, in an individual, and all the linguistic systems that were, in the individual, ancestors of that current linguistic system; and an individual central nervous system during its ontogenetic development. Historical systems of this sort also include communities and cultures. One of the things cognitive study is most interested in examining is how various human historical systems interact. The three aspects of human history I have listed—the phylogenetic, the ontogenetic, and the cultural—are it seems only some of the inseparably interacting historical systems that go into constituting human existence and creativity.

The Future

Much of the excitement surrounding cognitive approaches to art, literature, and language comes from the prospect of commerce between the humanities and scientific fields like neuroscience, cognitive linguistics, paleoanthropology, and psychology. This prospect—invigorating to some, distasteful to others—is in any event consistently presented as new. In a way it must be new since these scientific fields are much newer than traditional fields like rhetoric. But in another way cognitive approaches to art, literature, and language are rooted in old traditions of the humanities that have always focused on questions of mind and language. Because of these strong traditions, the humanities can offer a superb ground upon which to unite cognitive and critical approaches in the pursuit of a better, more complete, and more varied set of instruments for inquiring into both the nature of human meaning and the details of literary and artistic products of cognition. On that note, I would like to thank the Modern Language Association (MLA) for helping this development by establishing the new Discussion Group on Cognitive Approaches to Literature, which was introduced at a forum at MLA 1999 in San Francisco and was officially launched at MLA 2000 in Chicago. The topic of the group for MLA 2001 in Washington, D.C., is

“Cognitive Approaches to the Literary Imagination.” I look forward to that panel and to the future of the broader intellectual enterprise.

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