

The human spark*

MARK TURNER

Mark Turner is professor of Cognitive Science at Case Western Reserve University, founding director of the Cognitive Science Network and co-director of Red Hen Lab. Turner is the author of several books, including **Reading Minds: the Study of English in the Age of Cognitive Science**, **The Literary Mind** and, more recently, **The Origin of Ideas: Blending, Creativity and the Human Spark**. Together with Gilles Fauconnier, Turner is one of the precursors of Conceptual Integration Theory (also known as Blending Theory), one of the most influential theories in Cognitive Linguistics and Cognitive Science in general. He has just won the Anneliese Maier Research Prize from the Alexander von Humboldt Foundation.¹ In this interview, Turner talks about the importance of blending as a foundational mechanism for human creativity, the relation between linguistics and the study of the human mind, and new methodologies and challenges for cognitive sciences.

Orgs. – Since the debate launched in 1959 by C. P. Snow on *The Two Cultures*, there have been numerous attempts to bridge the gap between science and the humanities in the pursuit of knowledge. In your 1994 book *Reading Minds: The Study of English in the Age of Cognitive Science* you made an

important contribution for this dialogue between humanities and science. Twenty years after that publication, do you see cognitive science as a bridge between the Two Cultures?

MT – Tastes differ, and in principle there is no harm if some people prefer artistic pursuits and others prefer technical pursuits. *De gustibus non disputandum est*. But there is a problem for science if those separate tastes become institutionalized as separate siloed disciplines, windowless monads, each of them trying to study the human mind as if it were a linear sum of independent topics: biology, history, evolution, physiology, linguistics, art, music, childhood development, and so on. Human beings are seamless complexes of biology, culture, history, and ontology. These days, the study of the human mind is much more plausible because it is much more integrated. The establishment of the field of cognitive science, serving as a hub discipline, advanced research wonderfully, by springing us from the morass of siloed disciplines and siloed methods.

Students in my cognitive science classes are surprised to hear that when I studied human neurobiology in the 1970s, my courses were run, with the exception of an extremely unusual informal seminar led by Professor Hans Bremermann, as if human beings did not think, imagine,

¹ See <http://markturner.org> for information.

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or construct meaning. My courses in the humanities and social sciences were run, pretty much, as if human beings did not have biology, bodies, or brains. Oddly, my courses in artificial intelligence and even mathematics did pay attention to questions of human creativity, art, and the human spark, but mostly regarded the evolution and biology underlying the human mind as too specific to serve as an important level of research for cognitive science: what mattered was formal computation; the brain was assumed to be just another formal computer, so we might more profitably, so went the logic, study formal computation. Luckily, although there are still a few siloed disciplinarians, for the most part researchers who study the human construction of meaning are broadly aware of the full range of human complexity, and the need to study it in an integrated way.

Orgs. – How do you view the relation between cognitive science and cognitive linguistics? In other words, what can we learn from the study of language about how our mind works, in contrast, say, with what we may derive from the study of other cultural products, such as art, music or mathematics?

MT – Cognitive science has admirably followed the maxim “catch as catch can”. It has been practical. Human beings present many remarkable distinctive behaviors, and any of them can in principle serve as a window on the mind, or, anyway, an indirect indication of the mind: counterfactual thinking, mathematical insight, scientific discovery, art, religion, ritual, advanced social cognition, music, advanced tool

use, gesture, graphics, and so on. But language has received concentrated study for at least 2500 years, and a great body of knowledge has been acquired that cognitive science can exploit. Indeed, the success of cognitive science in the area of language has been striking, and the challenge to cognitive science generally is whether we can bring our study of other distinctive human behaviors up to the level of insight achieved through cognitive linguistics. Cognitive linguists are, in a way, the luckiest of cognitive scientists: the data are everywhere and easy to gather, and almost any hypothesis can be checked very quickly by almost anyone against a vast database of out-of-sample data. Methodologically, it is the dream scenario for science. For other human behaviors, it can be extremely difficult to gather reliable data and extremely difficult to check hypotheses.

Orgs. – In this special issue of *Scripta* there is a large section devoted to metaphor. What is the place of Metaphor Theory after the work on Conceptual Integration and Blending Theory?

MT – Metaphor theory is an important part of cognitive science and cognitive linguistics. Some blending networks involve metaphoric connections. The original blending theorists had worked on metaphor and studied Hellenic scholars of classical antiquity on metaphor, who understood metaphor as conceptual rather than merely linguistic, as I discuss in my article “Figure”.² One of the most active areas of blending research is on “generic integration templates,” and ²(http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1416433)

basic metaphors are such templates. Any specific example of a basic metaphor involves not only that generic integration template but also many more mappings and compressions that are not metaphoric. Most of the confusion over “metaphor” and “blending” derives from the fact that they are different words. But they are just words. It doesn’t matter for science what labels we use. What matters is the analysis of the processes involved. When we look at research into the processes involved, it is clear that “metaphor” research and “blending” research are compatible.

Orgs. – In your latest book, *The Origin of Ideas: Blending, Creativity and the Human Spark* – reviewed in this issue of *Scripta* – you claim that what is distinctive about humans is their ability to generate ever new ideas, and that blending is the cognitive mechanism that drives this spark. Two essential ideas, which you consider in chapters 3 and 4, are the idea of you and the idea of I. What is particular about the concept of intersubjectivity for human cognition?

MT – The entire field of cognitive science recognizes that human beings are exceptionally advanced at constructing concepts of other minds and indeed at constructing concepts of their own identity. How they manage to achieve these concepts is a major open question for science. No one knows how this happens. There are proposals, very sketchy even as they are admirable. I propose that these advanced ideas are possible only because of our ability for advanced blending, that these abilities are not stand-alone modular capacities,

but consequences, even perhaps by-products, of advanced blending. I think this is a powerful and specific hypothesis, but of course, it is only one entry into a field of inquiry that at the moment is highly nebulous, highly uncertain. It is important in cognitive science not to seek premature conclusion. The field of research into other minds and into personal identity is at the moment only embryonic, across the board.

Orgs. – Blending is pervasive in cognitively modern humans: it permeates both individual thought and social life, and it is the source and drive of human creativity. Are there limits to blending? Do cultures pose limitations for conceptual integration?

MT – Researchers into human exceptional capabilities routinely extol human powers, because it is important to recognize what human beings can do. But the ability for advanced construction of meaning comes with advanced mental suffering. The blending story is not a triumphal story. Human beings routinely use blending to put together simulations, hypotheticals, counterfactuals, and they accordingly suffer. If we were to anthropomorphize evolution, we would say that evolution does not care if we suffer—evolution discards the individual human mind along with the individual human body—as long as that suffering does not lessen our differential fitness. Cultures spend extraordinary resources—time, money, attention—to provide, as it were, therapy or scaffolding for the overcharged human minds that put together these difficult ideas. Human beings must deal, because of blending, with

levels of shame and guilt, running over vast expanses of time, space, causation, and agency, that other species simply do not confront. Sure, a mammal can be abused in its early age and carry the conditioning of that abuse. But a human being can brood on something he or she did not do ten years ago, and grieve at the difference it made. These constructions of meaning—of causal surgery and prediction—are amazing, and often very sorry. The story of blending may be a story of success for the species, depending on how one considers success, but it is a story of both better and worse for the happiness of the individual human being. A second response to this question would be that although we inevitably focus on the shocking creativity of human thought, it is still the case that, for the most part, human thought is deeply conservative. This conservatism is recognized in blending theory: blending can begin only with what the mind already knows, what the mind already recognizes. Accordingly, it can take centuries for a blend to settle into place. Consider the progress of mathematics. I can teach a talented 17-year-old in one summer mathematics that would have flabbergasted Archimedes, Gauss, Newton, and the 17-year-old will not find it particularly surprising. It can take incredible work for a blending network to achieve stability, but once it does, it is often very easily learned. A classic example is complex numbers. The originators of the idea suffered nightmares and doubts over the idea. The talented 17-year old has no trouble swallowing the idea of the square root of negative one. Any new blend has to compete with existing concepts, and routinely loses. The cognitive limits to

blending are severe, as we have discussed under the label “governing constraints,” and cultures impose their own limits on the acceptability of new ideas.

Orgs. – Blending is the motor of creative and innovative ideas. However, not all ideas are equally good. How does blending relate to value (e.g. aesthetic, social)?

MT – Not all ideas are equally good. Indeed, some of the most successful blends are evil or ugly, but that does not mean that they do not grip the mind. It is apparent that they often do, and even more, that ideas judged to be good at one time are judged to be bad at another time, often without any pattern of linear progress. There is no cosmic insurance policy that protects us against blends with terrible consequences, such as the dehumanization of human beings. It’s a constant struggle, and it brings suffering. I see no way out of that. The struggle and the suffering are in the nature of the cognitively modern human mind.

Orgs. – With your recent project of the Red Hen Lab you have made a turn to research on big data. Have the humanities given up hermeneutics in the age of cognitive science in favor of digital accumulation and of the quantification of culture?

MT – Different research goals require different paths and activities, even when the research goals are complementary and mutually supporting. For example, a great deal of scholarly activity over millennia, but certainly since about 1930,

has consisted in providing “readings” of texts. Cognitive science usually does not have that goal, and, when it does not, it will be misunderstood if it is construed as if it did. For example, blending analysis is never an “interpretation”, a “reading”, or an “exegesis”. It is especially necessary to clarify for scholars in the humanities, whose formation typically conditions them to imagine automatically that a discussion of a piece of discourse or a text is offered as interpretation, a reading, along the lines of priestly illumination, that a blending analysis is never, even remotely, meant to stand in for the complexity of mental operations necessary or useful to make sense of that discourse. Rather, the blending analysis attempts to throw a spotlight on some small part of the mental operation involved in constructing meaning in response to the discourse or text. So much backstage cognition is involved in understanding a piece of discourse, a painting, or any other representation, that any attempt to give a full model of the construction of meaning would involve perhaps hundreds of mental spaces, and hundreds of connections, and hundreds of projections. Blending is highly constrained, but as a mental process, extraordinarily flexible. This is what makes cognitively modern human beings so creative in coming up with new ideas and new understandings. The last thing a thinker should do in an effort to analyze the blending involved in a construction of meaning is to sketch a diagram of mental spaces and connections and then try to fill it in. In this way, blending theory is trenchantly antithetical to the kind of semiotic analysis that produced the Greimasian semiotic square, an attempt to reduce vast ranges of meaning

to a little sketch. In particular, blending is in operation much more general than any performance of communication or representation. Some things are discourse or representation, but most things are not. Of course, an “interpretation” or a “reading” of a text may point out that the interpretation or reading depends upon forming a particular blend in response to the text. Accordingly, blending theory can supply tools to the hermeneut, and of course, “interpretations” are themselves data for the cognitive scientist, who rarely tries to present new readings, being interested in explaining how readings are possible, how they are constructed. The object of study for the cognitive scientist is not the representation or the discourse but rather what the human mind is doing, and how it does it, when engaged in representation or discourse.

The Distributed Red Hen Lab was established and designed to foster a quite different, if compatible, research program. Human beings learn and use and extend networks of form-meaning pairs, and they do so in a multimodal fashion. Communication involves language, gesture, speech, text, graphics, and so on. There are seven billion people alive today, and human beings have been performing these amazing acts of multimodal communication for at least 50,000 years. That is a great deal of data, but our actually archives of multimodal communication are very small and limited. The Distributed Little Red Hen Lab serves a program of studying and modeling how human beings perform multimodal communication, with particular emphasis on big data and computational and statistical methods for analyzing patterns in big data. We sometimes say that one of our goals is to assist in the study of the

human “multimodal constructicon”— what are the systems of form-meaning pairs that members of a communicative community know and use? How do these systems in multiple modalities interact? That is not a question of providing readings but instead of doing research on the mental operations of meaning construction and formal behavior that make communication possible to begin with. Red Hen is an open-ended program, and we invite researchers to propose potential collaborations. There is a page on the Red Hen Lab website titled “What kind of Red Hen are you?” for anyone interested in joining.

and biological activity. We need more and better methods and for prospective cognitive scientists to be trained in as many of them as possible.

Orgs. – What do you see as the next big challenges of cognitive science?

MT—The biggest challenge is institutional. Universities are conservative, and the sociology of the academy systematically pressures researchers back into narrow tribes, with a few approved questions and a few approved methods. The biggest challenge is to prevent the re-segregation of research, the attempt to partition the human mind into bite-size morsels suited to a disciplinary routine. There are no methods for reading minds directly. Every method for detecting human conceptualization is indirect and inferential. Accordingly, cognitive science should attempt to bring to bear as many methods as are suitable, and derive greater confidence as more and more of them point to the same conclusion, the same inferences. There is never a sure way to read another mind, and the researcher must always be open to the possibility that there are other constructions of meaning consistent with the subject’s behavior