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Introduction: Cultural Sociology and Cognitive Neuroscience

Jason Mast & Erik Ringmar

Recent developments in the field of cognitive neuroscience present opportunities, and pose challenges, which cultural sociologists cannot ignore. Thanks to the new neuroscience we suddenly know a lot more about how the brain works and thanks to new theories of cognition we have entirely different models regarding the operations of our minds. A new image is emerging of what it means to be a human being. Whether they like it or not, cultural sociologists will have to pay attention to these developments. Cultural sociology too, after all, studies what it means to be a human being. This special issue is our attempt to highlight both some of the opportunities and some of the challenges.

Cognitive neuroscience, properly speaking, is not one intellectual field but at least two. Neuroscientists study how the brain works whereas cognitive science studies mental processes such as perception, cognition, consciousness and memory. A neuroscientists asks questions regarding hardware, as it were, while cognitive theorists ask questions about software. The two fields come together to the extent that scholars acknowledge that the human being we see before us is a product of the interaction between hardware and software, between brains and minds. Exactly how this interaction works is a much debated topic and this is also where cognitive neuroscience branches off into a number of separate disciplines — psychology, philosophy, linguistics and physiology, among others. What still is missing from this mix is a sustained engagement with the social sciences. Social scientists have traditionally been dismissive of the neural and the cognitive, and cognitive neuroscientists, for their part, have until recently rarely looked for explanations outside of their labs. The result is a social science
with little knowledge of the neurocognitive revolution but also a cognitive neuroscience which has a far too restricted view of how cognitive and neurological processes work.

Other academic fields have paid more attention, and there is now a proliferation of subdisciplines which take “neuro” as their prefix. Consider, “neuro-lit-crit” which since the early 1990s has studied the relationship between cognitive processes and narrative forms, the historical evolution of literary genres and the poetics of cognition. Or theater scholars who rely on cognitive neuroscience in order to investigate the nature of representation and the relationship between actors and their audiences. There is also plenty of intellectual activity going on among “neuro-anthropologists,” “neuro-economists” and “neuro-historians.” “It is time for a new paradigm not only for understanding the French Revolution but also for humanistic studies more generally,” the historian Lynn Hunt suggests. “I urge a reconceptualization of individual experience based on perspectives derived from recent research in neuroscience.”

In order to make intellectual progress here we all need to leave our intellectual comfort zones. A first step is to revisit old prejudices. Consider the way social scientists habitually accuse natural scientists of “reductivism.” Cognitive neuroscience proceeds at too low a level of generality, they argue, but social facts are not physiological or psychological facts and society is not reducible to something else which is more basic. Reducing social facts to facts about brains is as foolish as reducing facts about brains to chemistry or to pure physics. Or consider the smugness of the practitioners of a verstehende Soziologie. Society, they claim, can only be understood once we understand the meanings that its members ascribe to it, but natural scientists see the world with scientific detachment and can for that reason never provide an account from a first person’s point of view. There is a felt, subjective, dimension to social life which the natural sciences, in their quest for objectivity, never can capture. Yet, we

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1 Hunt, “The Experience of Revolution,” 671, 672.
will suggest, these prejudices are outdated concerns which no longer apply, at least not to the most cutting-edge research. Cognitive neuroscience has changed.

The new cognitive neuroscience

The most obvious change concerns the various technological breakthroughs by means of which the black box of the brain has been pried open. With the help of technologies such as fMRI, functional Magnetic Resonance Imaging, and PET scans, Positron Emission Tomography, it is now possible to study the neurological system in far greater detail than ever previously.\(^3\) We can get images, in real time, of what the brain is doing — which synapses that fire, how various sections of the brain interact and in response to what stimuli; we can see what happens when we get angry, when we dream or when we make decisions. The implications for cultural sociology are obvious. For example, as Antonio Damasio, a neuroscientist at the University of Southern California, has shown, emotions turn out to be far more important for our cognitive activities than we previously realized.\(^4\) Damage to the emotional centers of the brain make it impossible for us to make rational decisions even if the rational centers themselves are left undamaged. We need to feel in order to think. If you are interested in processes of decision-making, and some cultural sociologists are, you had better pay attention and take notes.

Another celebrated example concerns the discovery of so called “mirror neurons.” In the 1990s a team of researchers at the University of Parma, Italy, led by Giacomo Rizzolatti, discovered neural activity in the brains of macaque monkeys who were observing other monkeys carrying out various tasks. Curiously, the neurons fired both in the areas of the brain responsible for visual perception and, concurrently, in the parts of the brain that are activated when the monkey themselves act. The reactions in the monkeys' brain, furthermore, took place only in relation to intentional activities, not random events. These results have since been confirmed in humans and for other kinds of sensory stimuli.\(^5\) Our brains, in short, are not only observing what others do but they mimic what they perceive, and it all happens pre-consciously, as a result of automatic neural

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\(^3\) Rose and Abi-Rached, *Neuro*, 53–81; Frith, *Making up the Mind*, 7–17.

\(^4\) Damasio, *Descartes' Error*, 165–222.

\(^5\) Keysers, The Empathic Brain, 37–52.
processes. It is through neural mirroring, neuroscientists have concluded, that we come to understand others and ascribe intentions to them; this is how to explain empathy, sociability, human solidarity, as well as their opposites.\(^6\) Again, the challenges for sociology are obvious.

Meanwhile cognitive theorists have focused mainly on theoretical developments, but the consequences for the field have been at least as revolutionary. Taken together these developments have often been summarized as “4E” — a matter, that is, of seeing cognition as “embodied,” “enacted,” “embedded” and “extended.”\(^7\) Take embodiment. Mind, brain and body are all of one kind, cognitive theorists argue, and the time-honored Cartesian distinction between \textit{res cogitans} and \textit{res extensa} is therefore not tenable. We are not ghosts controlling our bodies the way we might control a machine. Instead, the mind is embrained, as it were, and the brain is firmly integrated into a mind-body compound which is where all cognitive processes take place.\(^8\) As a result we can no longer think of cognitive activities as taking place only within the skull. Most obviously, cognitive processes are dependent on sensory impressions, yet this is not a matter of stimuli that are “received” by the body and “processed” by the brain but instead a question of an integrated system of experience, cognition, perception and evaluation.

Consider enactment next. Once we have come to see the mind as embodied, the next logical step is to consider the way the mind-body compound interacts with its environment. Bodies are necessarily situated, that is; they exist in situations which have certain characteristics, including an atmosphere or mood.\(^9\) Only studying the body is consequently not enough; we also have to understand how the mind-body compound acts in the environment in which it finds itself. This is a question of enactment.\(^10\) More than anything, we understand things by manipulating them and we understand space by moving around in it. Without enactment there can be no cognition. All cognition is situated. Sometimes we think with our hands; we think with our bodies; hopping, skipping and jumping are cognitive activities as much as expressive. How big a parking spot looks

\(^6\) Gallese, Eagle, and Migone, “Intentional Attunement,” 132.
\(^7\) Kiverstein and Clark, “Introduction,” 1–7; Thompson, “Mindfulness and Embodied Cognition.”
\(^10\) Varela, Thompson, and Rosch, The Embodied Mind; Noë, Action in Perception.
depends on the size of the vehicle we are driving; how steep a hill looks depends on the weight of the backpack we carry.\textsuperscript{11}

Once we have come to this point, it is easy to see the mind as embedded in the physical and social environment with which the mind-body compound constantly is interacting. The embodied mind is extended right out into the world and is not stopped by the boundary created by the skin. There is for example no obvious difference between the way one person uses her brain to look up a certain fact and another person who uses her smart-phone.\textsuperscript{12} In both cases, we have constant and immediate access, and if there is a functional equivalence between these ways of retrieving information, there would seem to be no reason not to treat them as the same. But something analogous can surely be said regarding social institutions of a more traditional kind. Social institutions too are an extension of our minds. The legal system is an obvious candidate, but so are educational institutions, a free press, religion and social rituals, or the existence of a system of writing or of mathematics.\textsuperscript{13} All these institutions, and many others besides, extend our minds and connect them with others. An extended mind is a social mind and our cognitive ability is thereby turned into a social institution.

In addition, and potentially most exciting of all, some cognitive neuroscientists have started thinking about ways in which to incorporate a subjective, first person’s, point of view into their analyses. If it indeed is the case that mind, brain and body all are of one kind, then the first- and the third-person perspective must ultimately be compatible. This at least is the claim of the emerging discipline of “neurophenomenology” — an objective science concerned with how we subjectively experience the world.\textsuperscript{14} “Starting from a recognition of the transcendental and hence ineliminable status of experience,” as the philosopher Evan Thompson puts it, “the aim would be to search for morphodynamical principles that can both integrate the orders of matter, life and mind, and account for the originality of each order.”\textsuperscript{15}

\textsuperscript{11} Noë, Out of Our Heads, 79.
\textsuperscript{12} Clark and Chalmers, “The Extended Mind,” 7–19.
\textsuperscript{13} Gallagher, “The Socially Extended Mind,” 4–12.
\textsuperscript{14} Varela, “Neurophenomenology,” 330–49.
\textsuperscript{15} Thompson, Mind in Life, 87.
This would be a neuroscience which is capable of seeing the world from the inside, as it were. Just what the *verstehende* sociologists thought was impossible.\(^{16}\)

**The cultural turn in cognitive neuroscience**

Another way to understand what is going on here is to say that the cognitive neurosciences, following their separate routes, have moved closer and closer to the social sciences. Cognitive neuroscience, it has gradually dawned on an increasing number of its practitioners, must consider the role of social factors. It is not enough to study the brain but we must study how the mind-body compound is situated in society. And crucially, as the scientists have realized, this is necessary *not* in order to understand society better, although there is nothing wrong with that, but in order to better understand the neurological and cognitive functions themselves. The new cognitive neuroscience cannot do without the social sciences. Or, to be more precise, the new cognitive neuroscience cannot do without cultural sociology.

The need for a social dimension to the investigation is vividly demonstrated by the plasticity of the neurological system.\(^{17}\) It has of course long been recognized that the brain changes in the course of a person’s life, but up to now change has largely been seen as a matter of either a development or a regression. The brain develops as a child grows, and it deteriorates in various ways as a person gets older, yet the traditional view was that the brain basically is unchanged between childhood and senility. Thanks to fMRIs and PET scans we now know that this is not the case. Instead everything we do and everything we experience leave a trace in a neural structure of the brain which is easily molded, yet at the same time also resistant to change.\(^{18}\) The brain is constantly rewired in response to social inputs. As a result, the brain does not only have a physiological but also a social history in the life of each person and in the life of mankind as a whole. Attention all sociologists: it is not only, and perhaps not

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16 Damasio, *Looking for Spinoza*.
primarily, the content of our minds that is a social construction but large parts of the neurological hardware itself. The physiological structure of the brain is a social construct.

Leslie Brothers was one of the first neuroscientists to spell out the implications of this realization. “[T]he network of meanings we call culture,” as she put it, “forms the living content of the mind, so that the mind is communal in its very nature.” It follows that a brain never can be properly understood in isolation. Compare, for example, the importance which the neurological system gives to the recognition of faces. For social beings such as ourselves this is a matter of life and death: it is only by recognizing and reading faces that we can figure out what is on other people’s mind. Language is fundamental for creating a sense of self, and language happens in the brain, yet it is derived from society and it is in social interaction that it achieves its effects. It is not the brain that gives rise to personhood and a sense of self, but instead the interaction with others. No one has expressed this better, says Brothers, than George Herbert Mead, and it is to his writings she directs her fellow neuroscientists if they really want to understand their own subject matter. “[T]he mind-making organ of the brain operates within a social field.”

Antonio Damasio, a leading neuroscientist at the University of Southern California, has made much the same point in a string of best-selling books. The mind and the behavior of individual human beings are not shaped by neural circuitry alone, and even less by our genes. “To understand in a satisfactory manner the brain that fabricates human mind and human behavior, it is necessary to take into account its social and cultural context.”

Wolfgang Prinz, a neuroscientist in Leipzig, Germany, writes about the age-old topic of freedom of the will. For a scientists like him it is obvious that the world is fully physically determined and that whatever happens, and whatever people do, necessarily is the result of preceding, physical, causes. There is no sense in which human beings can consider themselves independent of this system of causality. Yet this still leaves us with the problem of what the

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19 Brothers, Friday’s Footprint, xii.
20 Brothers, 126.
21 Brothers, 101, 103.
22 Damasio, Descartes’ Error, 260.
notion of a “free will” might be. The answer, says Prinz, is that free will is a figment of the imagination. Or rather, it is just one more example of the role which the imagination plays in our construction of the social world. The social world is full of institutions – money, marriage, the nation, the state, or society itself – which exist only by virtue of our shared imagination and the actions that we embark on as a result. They are artifacts, imaginary beings, but for that reason no less real. Free will exists in exactly the same way.24 In order to understand ourselves, we must combine neuroscience with social constructivism.

In their path-breaking, *The Embodied Mind: Cognitive Science and Human Experience*, Fransisco Varela, Even Thompson and Eleanor Rosch discuss, among other issues, how human beings perceive colors. Again we are dealing with an interaction between cultural and neurophysiological factors. Colors, they conclude “are not ‘out there’ independent of our perceptual and cognitive capacities,” but neither are they “‘in here’ independent of our surrounding biological and cultural world.”25 Colors are not objectively given, but experienced by a subject which is socially and culturally situated. As a result, although most human beings see colors in much the same way, there are variations: the Greeks had different way of perceiving colors and for the Tarahumara of northern Mexico, as well as traditionally for the Japanese, there is no difference between “green” and “blue.” The world and the perceiver specify each other, Varela, Thompson and Rosch conclude.26 Thompson returns to the topic in *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*, and once again he insists that culture “is woven into very fabric of each human mind from the beginning.”27 Thus, “the knowing and feeling subject is not the brain in the head, or even the brain plus the body, but the socially and culturally situated person, the enculturated human being.”28 Mark Johnson, a philosopher who has pioneered an embodied perspective on the mind, agrees. Understanding

26 Varela, Thompson, and Rosch, *The Embodied Mind*, 172.
28 Thompson, 411.
the mind means that you necessarily must understand the social context in which the mind operates. “[W]e are not born with minds fully formed and ready for thinking. Instead we acquire ‘minds’ through our coordinated sharing of meaning and our concomitant ability to engage in symbolic interaction.”29 Mind is an achievement, not a pre-given faculty.

“[Insert cultural theory here]”

The question for cultural sociologists is how they should relate to this cultural turn. It is of course flattering that all these proper scientists, working in the hard sciences, take such a passionate interest in our subject matter. This is certainly a most unexpected development. The only problem, to be blunt about it, is that few of them are very good at what they are trying to do. Their discussions of social and cultural factors give an amateurish impression, with overhasty conclusions based on flimsy evidence with next to no references to the existing sociological literature – barring references to a few classics.1 Much as they respect culture and society, they have little respect for cultural sociologists. Neurologists who never would let a cultural sociologist anywhere near an operating table, see no problem engaging in impromptu dissections of society. “Who needs a professional?”, they seem to be thinking. “We all have first-hand experiences of what cultures are like.”

In the least embarrassing cases the result is a discussion which is far too short. The cognitive neuroscientists in question merely wave in the direction of a body of literature with which they have no time to seriously engage. It is as though they attached a post-it note to a research assistant with the instruction to “insert cultural theory here.” Unfortunately, in many cases, the research assistant never got down to it. Consider Joseph LeDoux, a neuroscientist at NYU who has done groundbreaking research on the neural underpinnings of emotions. In an article on the role of the brain in creating a person’s sense of self, he reaches a very thoughtful conclusion regarding the interplay of physiology with social and cultural factors.30 It is not, he

29 Johnson, Meaning of the Body, 151.
says, that your personality is determined by your synapses; rather it is the other way around: “[s]ynapses are simply the brain’s way of receiving, storing, and retrieving our personalities, as determined by all the psychological, cultural, and other factors, including genetic ones.” Yet once he has reached this point, he simply stops. Although LeDoux concedes that synapses are determined  inter alia by cultural factors, he never tells us what those cultural factors are. Rather remarkably, as long as he fails to engage in an investigation of cultural and sociological factors, he cannot, by the logic of his own argument, tell us how synapses work.

In  The Embodied Mind, we said, Varela, Thompson and Rosch discuss our perception of colors and how cognition depends both on biological and cultural factors. Yet this raises the question of where exactly this knowledge is located. It is not in our minds, they conclude, but neither is it in culture or in society. Instead it is located in the interface between all three. “The knowledge does not preexist in any one place or form but is enacted in particular situations — when a folktale is told or a fish is named.” And yet, despite of the importance of this issue for their overall argument, “[w]e leave it to anthropology to explore this possibility.” Sixteen years later, in  Mind in Life, Thompson is still as coy. “I have sketched only the barest beginnings of a generative perspective on human experience,” he concedes. Thus “the knowing and feeling subject is not the brain in the head, or even the brain plus the body, but the socially and culturally situated person, the enculturated human being.” Yet despite the importance of culture to is overall argument, he has nothing more to say about it. This quote is the last sentence in the book. Mark Johnson, for all his brilliance, stops short in much the same fashion. “A fully adequate treatment of the social and cultural dimensions of thought,” he sheepishly admits, “would require substantially more evidence and analysis.”

Unfortunately not only sins of omission are committed. Occasionally the conclusions which the cognitive neuroscientists reach are superficial, misleading or simply wrong, and in several cases personal preferences masquerade as scientific facts. Bruce Wexler, a

31 LeDoux, 302–3.
32 Varela, Thompson, and Rosch, The Embodied Mind, 179.
33 Thompson, Mind in Life, 411.
neurophysiologist at Yale, writes about the interaction between society and the neurological system. Our brains are at their most plastic when we are young, he points out, and we are most ready to accept changes, but this is also when we have the least power over the circumstances of our lives. For an adult, it is basically the other way around. Our neurological system is more rigid, we are more set in our ways, but we are at the same time more likely to try to change the state of the world to fit with our preconceived notions. The result is often misunderstandings, frustration and conflict. “The neurobiological antagonism to difference, and the associated pressure to eliminate strange and foreign people with different ideologies, is yet another fundamental factor that can contribute to violent conflict.” So far so good, but Wexler goes on to explain much of human history by means of this simplistic model – the Inquisition, the Crusades, the political troubles of the Balkans, and the challenges of life in a multicultural society. Antonio Damasio too, sad to say, ends up spouting clichés. Making a distinction between societies that “seek pleasure” and those that “avoid pain,” he concludes that hedonistic societies cannot survive, and points to “some current social developments” as evidence. it is impossible to take him seriously.

Yet the most egregious example concerns the neurologists' discussion of racism. There is plenty of evidence that the brain makes sense of the world by means of categorizations and that the compulsion to categorize is innate. Newborn babies, only a few hours old, react to their mothers’ faces in a different fashion than they react to the faces of others, and we all react more favorably to people who look like us than we do to strangers. This is the evidence which some neurologists have seized on to conclude that racism is hardwired into our brains. And, by implication, what is hardwired is natural and what is natural we simply have to accept. Yet, as even a modest perusal of the relevant social science literature would have made clear, racism is neither innate nor inescapable. That the brain makes sense of the world by means of categories may be a natural fact,

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34 Wexler, Brain and Culture.
35 Wexler, 212.
36 Damasio, Descartes' Error, 267.
but what it categorizes and how, are social and cultural facts. We knew that already, and so, to their credit, did a number of neuroscientists.\textsuperscript{39}

**Challenges for cultural sociology**

Thus far the opportunities presented by the cultural turn among cognitive neuroscientists. It is not, as we might have expected, that neuroscience and cognitive theory are about to invade the social sciences and remold them in their image. Rather it is the cognitive neuroscientists who have to learn from social scientists. No more need for science envy, secretly held albeit publicly denied. On the contrary, cultural sociology is the wave of the future, the sharpest part of the cutting edge. Through a rather tortuous route the neuroscientists have made their way to our door without quite realizing who lives here and it has thus far not even occurred to them to knock. There must be something we can do to help these colleagues in distress. After all, while their research results are lamentable, their intentions are good. Perhaps we should open the door and let them in? Before we do this, however, we need to consider the challenges they pose. The neurocognitive revolution, we said, has changed the image of what it means to be a human being and obviously the social sciences — including cultural sociology — are unlikely to remain unaffected.

The most far-reaching challenge is surely the insistence that life in all its aspects, layers and dimensions is one and undivided and that the aspects, layers and dimensions all influence each other. As a result, no theoretical perspective or academic discipline can be more than a methodological device acceptable only for certain purposes.\textsuperscript{40} Most obviously, a Cartesian dichotomy between the mental and the material cannot be sustained. One implication for cultural sociology is that culture cannot be defined in terms of a separate system of meaning understood in analogy with a semiotic structure.\textsuperscript{4} The culture of a society is not a large dictionary which its members consult or which a cultural sociologist might consult on their

\textsuperscript{39} Wellman, "Unconscious Racism," 42–53.  
And it is no longer good enough to argue that “everything” is “culturally constructed” or that life is a matter of “interpretations all the way down.” At the bottom — well, all around us in fact — are neurological structures and cognitive processes which constitute, mold and limit what we take our lives and our selves to be. Accepting this fact is not optional but obligatory.

Consider the role of metaphor. Human beings make sense of the world from the day we are born and we do this by exploring the environment with the help of our bodies. In this way we end up with basic cognitive schemas which tell us how things work and these schemas we later use to make sense of ever-more elaborate notions. More is “up” since a pile increases as we put more blocks on it; a heart is “full of” emotion since we know what it means to pour a liquid “into” a vessel. Yet it is at the same time true that metaphors vary from one society to the next. In Thailand, “she walks like an elephant” is an expression of highest praise, and in Scotland “my love” can be compared to “a red, red, rose.” Neither metaphor makes much sense in societies not familiar with elephants or with roses. And yet metaphors are more than merely cultural constructions.

The most basic metaphors do not vary over time or from one society to the next. The reason is that metaphors are constructed from the ways in which our bodies interact with the world. Meanings are universal to the extent that human bodies, in their fundamental physiological constitution, all are alike and to the extent that we interact with the world in the same fashion.

This is thus the nature of the challenge: starting from a recognition of the emergent and hence ineliminable nature of society, the aim is to search for principles that can both integrate the orders of matter, culture and mind, and account for the originality of each order. Cultural sociology is essential for studying some of the aspects, layers and dimensions, but it is at the same time nothing but a methodological device which must be combined with other

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43 Lakoff and Johnson, *Metaphors We Live By*, 56–60.
methodological devices. It is not that the mental should be reduced to the material, or the material to the mental, but rather a question of how life is experienced by beings such as ourselves living together in societies such as ours. Experiences, a cultural neurophenomenologist would say, are both subjective and objective. The subject matter of cultural sociology is same time both imaginary and real.

Consider the concept of the self which social scientists routinely talk about as a “social construct.” It is obvious, they say, that our sense of self varies from one culture to the next. Yet cognitive neuroscience rejects this conclusion, not as incorrect perhaps but as hopelessly incomplete. The self, according to a neuroscientist, is instead built up through a set of inter-communicating layers.45 At the most basic layer we find a number of automatic processes that regulate various homeostatic states ― heart rate, oxygen-level, body temperature, endocrinal processes, and so on. Next we have the basic neurological and cognitive processes ― the “proto-self” ― that provide us with a sense of direction and a sense of being alive. On top of this layer there are more advanced processes resulting in the constitution of a “core consciousness,” a self which feels and desires and which knows that it feels and desires. Finally, there is the “autobiographical self” who appears in the stories we tell about ourselves to ourselves and to others. The autobiographical self is the narrated self which is created, recognized and confirmed through social interaction.46 It is really only this last, final, layer of the self which social scientists discuss and only this layer which could be said to be “culturally constructed.” But to only focus on the narrative self is a mistake since it is in constant interaction with all the other layers of the self.

Or consider theories of action. Social scientists have long discussed whether action is best explained in terms of “agents” or “structures,” yet for a cognitive neuroscientist this discussion is radically incomplete. For one thing, agents are never in control of their actions or themselves. On the contrary, much of the time our bodies are in charge and we act habitually,

45 Damasio, Self Comes to Mind, 213–20; Brothers, Friday’s Footprint, 5; Bloch, Anthropology and the Cognitive Challenge, 117–42.
46 Brothers, Friday’s Footprint, 126–41.
instinctively and automatically. And it is a good thing too since we never would be able to think through the actions required to even walk across the floor. Moreover, actions are always undertaken in response to an environment. Our bodies respond to a mood to which we seek to attune ourselves. As a result, that which a social scientist might call a “structure” is it too largely perceived by our bodies rather than by our minds. We synchronize our behavior automatically and imitate others without even realizing it. Thus people who move together will quite automatically come to coordinate their behavior with others, and coordinated bodies are more likely to share the same objects of attention, to identify with each other, and even to think alike. Whatever effects “capitalism” or a “patriarchal society” might have on us, they are first and foremost precognitive.

Take emotions. Social scientists are, again, wont to conclude that emotional reactions depend on cultural context, and there is also plenty of evidence that emotional reactions differ from one society, or historical period, to the next. And yet, all emotions have correlates in the neurological system, and they depend on the functions of centers in the brain such as the amygdala. Moreover, neurology does not differ between human beings. Indeed, we share much of it with other animals — which is why psychopharmacological substances can be tested on rats. And what, in the end, does all of this mean for our concept of culture? If culture is a matter of “meaning,” the definition must surely include embodied and precognitive meaning too, the kind of meaning that only emerges in situations, as mind-body compounds respond to a certain environment and a certain mood. There is meaning in experience, not just in thought. A new kind of cultural sociology can be founded on this basis.

47 Noë, Out of Our Heads, 97–128.
49 Zeldin, An Intimate History of Humanity; Plamper, The History of Emotions; Lutz, Crying.
This special issue

The themes outlined above feature prominently in the contributions to this special issue. The authors challenge conventional cultural sociological understandings of the constituent elements of the social actor; the wellsprings of social action; the boundaries between brains, bodies, emotions, experience, and structures arising from collective life; units and levels of analysis appropriate for producing cultural sociological explanations; and finally, the sources and nature of meaning.

As editors, it was not our intention for meaning to be the issue’s central animating concern. The theories and conceptual innovations outlined in these articles indicate to us a few things, however: Meaning will remain central to the cultural sociological project, debate over the nature of meaning will become more frequent and intense, and the resolutions to these exchanges will have far-reaching consequences for the field.

The sites of contestation are fundamental ones. At stake are the field’s presuppositions concerning the how meaning is produced; where collective meanings “live,” or where they are stored (or even if meaning exists at a collective, extra-individual level!); how meaning circulates between people, and how it is transmitted to new generations; and how meaning is related to social action. The way a cultural sociologist answers these questions will have great impact on what she researchers, the methods she uses to access her sites and gather data, the means of analysis she applies to her data, and the types of explanation for which she aims.

Though we obscure some differences here, there are two approaches to meaning that predominate in the following pages. One is post-structural. It is the product of revisions of Durkheim’s late work on symbolic classification, the interventions of structural linguistics and its critics, and literary theory. Its more contemporary treatments owe a debt to Clifford Geertz, in his rejection of Talcott Parsons’s values theory, demonstrated how structuralism and hermeneutics could work in tandem. Meaning in this approach is collective in nature, and its origins as rooted in convention. It is a product of culture, which is theorized to be a more or less
structured universe of sign relations and symbol systems. Meaning is conceived of as having a strong capacity to shape or "constitute" interpretations, which in turn shape social actions, be they of a rational or non-rational variety.

The second approach discussed in these pages comes from the broad family of cognitive neuroscientific theorizing, and it is newer to the cultural sociological enterprise. In this approach, meaning is produced through biological bodies moving through physical, material environments, as well as in social institutions, fields, and other complex social arrangements. Meaning forms through experiences registered in the body and the emotions. If "the arbitrary nature of the sign" signifies the first approach, then the concept "embodied cognition" represents the second. If the latter prevails in future debates, then “out” would be Saussure, Derrida, and Geertz, and “in” would be George Lakoff and Mark Johnson.

The first approach draws the cultural sociologist’s attention structures such as discourse, narratives, binary codes, and symbols shape social processes. The second approach suggests that this universe of signs has little impact on social life, and is therefore of little interest in cultural sociological analysis. In its most absolutist iterations, it suggests that the system of sign relations do not exist. The second approach turns cultural sociologists’ awareness to bodies in action, and trains their attention on emotions, feelings, and understandings produced through experience.

Omar Lizardo and co-authors Brandon Sepulvado, Dustin Stoltz, and Marshall Taylor, contribute a clearly outlined, programmatic statement advocating for this second approach. Drawing on a wide variety of cognitive neuroscientific theories and research findings, they argue that cultural sociology must train its attention on an “infra-individual” unit of analysis, which is the level at which basic cognitive structures and neural processes shape actors' habits and choices as they navigate the social environment. Meaning, for these authors, is the product of cognitive neural mechanisms being activated during an actor’s movement and activity within the physical environment.
Erik Rignmar also argues for a shift from “culture as a text” to a formulation in which meaning is conceived as the product of embodied subjects interacting with their environments. While Rignmar shares many of Lizardo and co-authors’ tenets, he turns the researcher’s attention not toward the “infra-individual” level but instead toward issues of collective action and order. Building on the concept embodied cognition, and drawing on theater and performance theory (see Rhonda Blair, discussed below), Rignmar argues that the meanings of social life are produced through bodily movement and are felt rather than “read” by the mind. Similarities in people’s embodied experiences contribute to the production of similarities in meaning. Performance, as bodies in motion, helps explain collective order as the action facilitates the production of shared understandings and feelings of solidarity.

Karen Cerulo is a trailblazer in cognitive cultural sociology. Over a career marked by interdisciplinarity and prodigiousness, Cerulo has represented culture and meaning in both of the iterations outlined above. Less concerned with resolving theoretical tensions or displacing one paradigm with another, Cerulo argues that it is urgent that sociology engage with new developments in the cognitive neurosciences, not simply because her home discipline has much to gain from the interaction, but because sociology has much to contribute to shaping how the latter intervenes in questions of the social. Without dismissing collective cultural forms, she argues that cultural sociologists must better attend to how bodies create meanings through emotion-laden experiences, and that they can contribute mightily by researching the mechanisms (see Matt Norton, below) by and through which socio-cultural contexts “trigger, redirect, or impede the neural.”

In turning to the concept of “distributed cognition,” Matt Norton develops an approach for incorporating both of these theories of meaning into one model and in a non-contradictory way. Building on Edward Hutchin’s work, Norton defines cognition as the processes by which information gets translated into meaning in a functionally oriented system. Each of these concepts are important, and Norton explains in detail their meaning and how they work together to form a specific kind of explanatory framework. For our purposes, what is
fascinating about Norton’s article is that it conceives of neural cognition and collective systems of representation as distinct cognitive systems within a greater, and vastly diverse, network of cognitive systems. Norton explains that the framework he outlines is designed for examining project-specific processes and events. Meaning in distributed cognition is the product of interactions between each of the cognitive systems that get activated when social actors address a particular task or project.

Theater scholar, Rhonda Blair, contributes a detailed examination of how developments in the cognitive neurosciences have influenced how she teaches her drama students. In a literal way, her research site is one in which the two approaches to meaning outlined here collide, and in both theory and practice. She argues that cognitive neuroscientific representations of cognition, which they conceptualize as embodied, embedded, extended, and enactive, describe both theories and the practice of acting remarkably well. Blair describes how actors work with their deliberative minds and through their bodies to develop understandings of the characters they play. They then act with their bodies on stage to project meanings to audience members, who register their understandings of the performances in both their bodies and minds, as well. Put another way, Blair gives a finely tuned accounting of when and how deliberative and embodied cognition play heightened roles in the production and experience of meaning.

Jan Slaby, a philosopher, contributes to the issue a critical dose of “critical neuroscience.” Slaby’s contribution is two-fold. “Mirror neurons” (see pages xxx above) is the concept that represents the finding that, in terms of neural activity, seeing another person express an emotion or act in a particular way is no different than feeling or acting that way oneself. Empathy is the capacity to identify, understand, and feel another’s subjective state. Mirror neurons appear to explain the capacity. Slaby forcefully argues that we need to be cautious about both what we extrapolate from this finding, and what kind of theories we construct upon it. Human subjectivity remains too complex, opaque, messy, and mysterious, he argues, and theorizing on such findings will not only obscure these facts, it will set in motion consequences of its own. To demonstrate this, Slaby situates the cognitive neurosciences’ latest movement
into social scientific domains historically, and cautions that contemporary representations of human capacities and conditions, such as those in the new and vibrant empathy literature, are not only cultural but political. Four decades ago the metaphor of the “selfish gene” prevailed, he observes, and yet in the early twenty-first century it “has given way to the empathic social brain without much protest or struggle.” The meanings and metaphors that govern understandings of subjectivity are not apolitical, he cautions. Control and mastery over such discourses bring power and resources.

In his contribution, Jason Mast adds an historical dimension to the issue. He examines how theories of meaning have shaped two cultural sociological research programs, those of Jeff Alexander and Ann Swidler, from the mid-1980s to the present. He shows how their presuppositions about the nature of meaning introduced into their theories residual categories that the authors tried to explain, in non-contradictory ways, in their subsequent works. Next, Mast details how the cognitive theory and empirical findings Paul DiMaggio introduced in the late 90s substantiated both of these cultural approaches but in a way that cast in stark relief the tensions between the two, as well as the weaknesses that inevitably get introduced in one-dimensional theorizing. Mast then turns to contemporary theorizing, which argues that cognitive neuroscientific research dictates that cultural sociology narrow its focus and train its attention on individual experience and embodiment. Mast argues that this theorizing replicates the tensions that animated the works of its predecessors. He turns to alternative cognitive neuroscientific sources and shows how – just as DiMaggio’s overview of the cognitive literature contained findings that buttressed both structural and pragmatic theories of meaningful action – contemporary brain research substantiates both as well. Mast concludes by arguing that cultural sociologists should pursue the goal of theoretical multidimensionality, which, though less sexy than one dimension theories, is better at producing cultural explanations.
Bibliography


Brothers, one of the few neuroscientists who clearly has read sociologists, points her readers to George Herbert Mead, Gustave le Bon, Rom Harré, Harold Garfinkel and Alfred Schutz. Brothers, Friday’s Footprint, 75, 84, 102, 106, 107.

In a more recent lecture, Thompson, "Mindfulness and Embodied Cognition", he provides a list of the kinds of works he has in mind, including ; Hutchins, Culture and Inference; Hutchins, Cognition in the Wild; Donald, Origins of the Modern Mind; Zarrilli, When the Body Becomes All Eyes.

Johnson, Meaning of the Body, 151; Another philosopher, Shaun Gallagher, reinvents the wheel by coming up with a list of suggestions for topics of concern for "critical theory." Gallagher, "The Socially Extended Mind," 4–12; We need to bridge the gap between the social science and the cognitive science perspectives, De Jaegher and Di Paolo suggest, ignoring, inter alia, the work of Gabriel Tarde. De Jaegher and Di Paolo, "Participatory Sense-Making," 491–92; Tarde, Les lois de l’imitation.

Geertz, "Art as a Cultural System," 94–120; Cf. Alexander, Smith, and Norton, Interpreting Clifford Geertz; Franks talks about the potential of the new brain sciences to put "curbs on the excesses of the linguistic turn." Franks, Neurosociology, 9, 86.