

ECHO OBJECTS

The Cognitive Work of Images

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THE UNIVERSITY OF CHICAGO PRESS Chicago & London

HOW PATTERNS MEET

From Representation to Mental Representation

*The retina has an analogous mesh organization [i.e., akin to the crystal-like organization of Purkinje cells in the cerebellar cortex]. So why not imagine that the cerebral cortex is also organized in cellular "crystals" piled up to form the various cortical layers allowing for the interconnection of neurons of different, superimposed crystals [to yield] a piled-up cellular crystal model.*¹ JEAN-PIERRE CHANGEUX

*I make things, but I need somebody else to see it with me. I look at an object on the table, and I have no empathy with it. I think, I am in a way senseless, but then you come into the room and the object starts to glow. I need you to know the world is there, which is why I am so obsessed with the structure of the world.*² OLAFUR ELIASSON

EMBLAZONING THE INTERFACE

The new brain-mind has been depersonalized and de-imaged. This long tradition of pictorial evacuation stretches back to the Enlightenment. In contrast, I want to restore a particular kind of echoic image to recent models of the mind, one that catches the outside world in the cellular crystals of the perceiver's cortex. To that end, I have been exploring compound genres whose meshlike styles challenge the viewer to fit them together, that is, genres where it is impossible to separate thought from object. Much like a Samuel Beckett dramaticule, these reticulated formats renounce narrative, description, scene, and conventional character.³ What they give us instead of the traditional forward motion of story and the surrounding explanatory context, is the graphic and direct confrontation with a lattice that tiles congruent and incongruent fragments of reality. It is precisely such nondiscursive arrangements, I argue, that make us "intimate" with the world.⁴ Further, this intense embedding of the viewer in raw, nonillusory experience lies beyond language and speech. Think of Beckett's silence-studded work. I argue, rather, that compression and the elimination of the incidental reveals the conflictive dynamics of the neural system (especially sensory integration) with itself and to which normally we have no access.

This blazon-type of extreme inlay work walks the line, as it were, at the *interface* between autonomy and variance. Heraldic coats-of-arms, decorating quartered shields and motley livery, challenge the brain with impediments. We gain insight

from confrontational formats like these how physical stimuli get galvanized into action and crystallized into thought. Gapped configurations more generally display the cognitive crafting of ideas from sensations.⁵ We have been looking, so far, at a range of compressive and encapsulating compositions that embody this laying down of facets of the self alongside facets of the world. Diagrammatic schema, hybrid emblems, the superimposed "multiple operative optical perception" of cave art command our notice. They rupture the closure of the organism, locked within its autonomous and recursive adjustments, thus bringing consciousness up to surface attention.⁶ By drawing our focus momentarily to details of the world and their intense presence for us, we are lifted out of a false plot or illusory flow.

Because conceptual binding is innately "checkered," artworks that systematically couple heterogeneous elements also open a "conduit allowing [us to see how] environmental magnitudes exert constant influence on behavior."⁷ Further, compound patterns, I believe, reveal how neuronal oscillations facilitate synaptic plasticity. That is, they make manifest something of the labor of spatial coherence: how transient rhythms function in the coordination of cross-domain mapping.⁸

The inlay, mesh, net, lattice, and grid: all pose the problem of fit. They require enactment. To perform, as Joseph Roach reminds us, means "to bring forth, to make manifest, to transmit," and, secretly, "to reinvent."⁹ Improvisational performance, specifically, makes one aware that self-definition occurs in the presence of other agents and things. This furnishing forth (*parfourner*) or executing of an involving action at a particular moment in time and space reminds me of those eighteenth-century accordion-pleated toy theaters that reconstitute player and audience alike. Stimulating the entire sensorium, these self-contained, yet serial, paper worlds allow us to witness the ongoing conversion of physical into conceptual and symbolic processes (fig. 65). Participatory games that parse experience, arranging and changing it, reveal how the apparent "stream of thought" flowing in the self-observing subject is actually "packaged" in fractions of seconds. As Walter Benjamin remarked about toys and rhythmic gestures in general: "imitation (we may conclude) is at home in the playing not in the plaything."¹⁰ They teach us that life is experienced in episodes.

Encyclopedic in iconography, these charming pastimes enabled the player to grasp every phase of social experience from mundane and repetitive farm work, like apple-picking, to extraordinary revolutionary happenings, like the Lisbon earthquake (fig. 66). Analogous to mantic or "sympathetic" practices, the most ordinary objects could become meaningful during reperformance. The contribution of measured handling to high-order comprehension is even more important, however, when the events are complex. By restaging the Lisbon earthquake, for example, the player was able to internalize the perceived gaps or incongruity between the regularity of the quotidian universe and the singularity of an immense catastrophe. The complex intellectual lesson to be physically ingested was not just about geology.

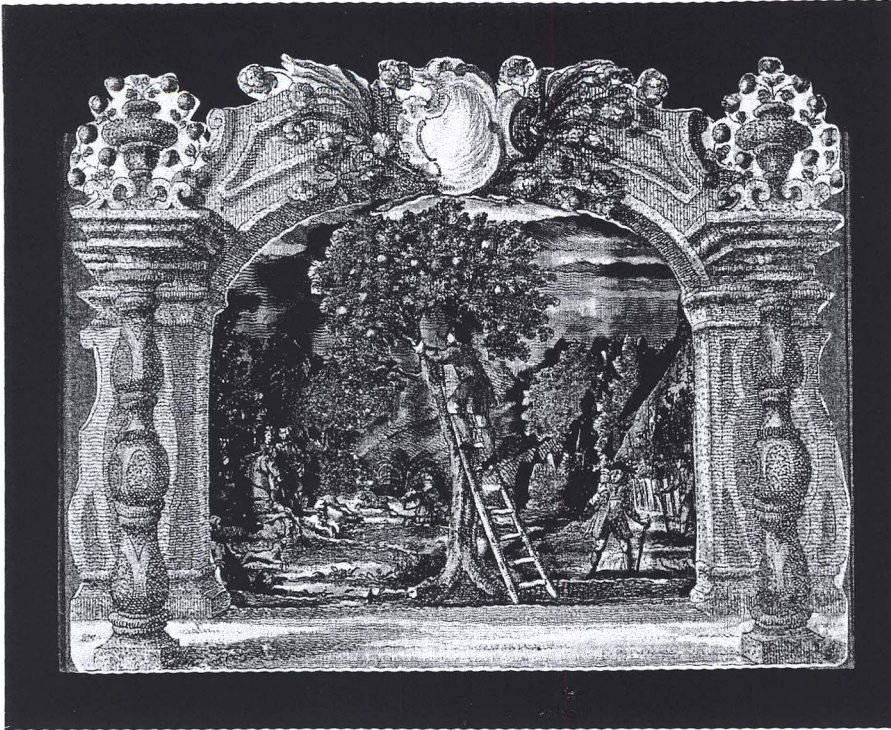


FIGURE 65
Martin Engelbrecht, *Fall*, from
the *Four Seasons*, Engelbrecht
Theater, c. 1730–50. Etching,
engraving, and watercolor
(5 × 8 in). Photo: Getty
Research Institute.

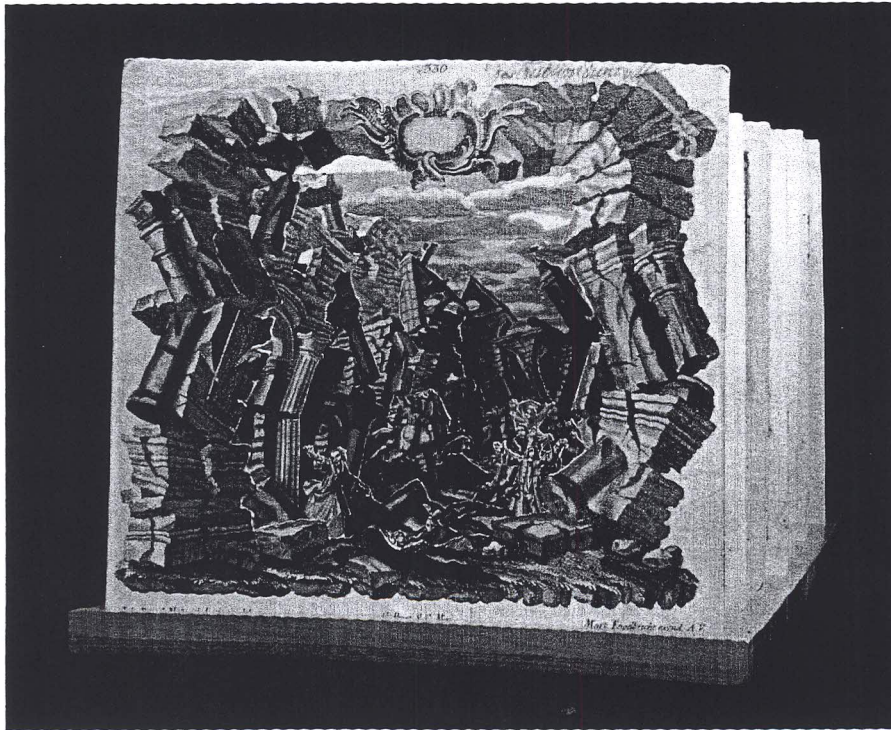


FIGURE 66
Martin Engelbrecht (and
Johann David Nesselthaler),
The Lisbon Earthquake, Engel-
brecht Theater, c. 1730–50.
Etching, engraving, and
watercolor (8 × 8 in). Photo:
Getty Research Institute.

The desolation left in the wake of this environmental cataclysm was matched by a no less fundamental epistemological upheaval destroying belief in a rational causality. It is difficult cognitive problems like this that the Engelbrecht theater instinctively addressed by showing how discontinuous and multilevel phenomena might be mentally integrated through physical means. In fact, they can only enter our awareness in sequences of momentary microstates. The ongoing crafting of subjectivity is the complement of how things are made to appear or come forth *for us*.

Consider how these toy theaters were actually manipulated by the user. In a simultaneously world-revealing and self-revealing ritual, the eyes coordinated and stabilized colorful patterns spread across a series of plates. The agile fingers sorted and re-sorted the prints, feeling their way to unity. This conceptual groping by touching, in turn, synaesthetically released the scent of rag paper intermingled with rising dust and the rustle of inserting and removing a painted set from the wooden runners of the frame. Performance thus dynamically "fit" the composing organism to the successive instants of editable and moving graphics.

This childlike, but far from childish, playacting stemming from a bygone era is a useful reminder of how mimetic "representation" has been largely supplanted by nonmimetic "mental representation" in the construction both of the cognitive and the object world. There is an unrecognized parallel between the various shatterings of the unitary self—differentially visible in everything from brain modularity studies to "embodied-embedded" cognitive science to artificial intelligence-oriented robotics—and the almost complete disappearance of any imagistic model of mental representation. Half a century ago, Merleau-Ponty tellingly remarked that "the word 'image' is in bad repute because we have thoughtlessly believed that a drawing was a tracing, a copy, a second thing, and that the mental image was such a drawing belonging among our private bric-a-brac."

But if in fact it is nothing of the kind, "then neither the drawing nor the painting belongs to the in-itself any more than the image does. They are the inside of the outside and the outside of the inside." Any painter, the phenomenologist continues, while he is painting, practices "a magical theory of vision. He is obliged to admit that objects before him pass into him . . . he paints, in any case, because he has seen, because the world has at least once emblazoned in him the ciphers of the visible. He must affirm, as one philosopher has said, that vision is a mirror or concentration of the universe or that, in another's words, the *idios kosmos* opens by virtue of vision upon a *koinos kosmos*; in short, that the same thing is both out there in the world and here at the heart of vision."¹¹

That is, a single phenomenon has the ability to be two things at once. The ciphers of the visible reveal the universe to be, in fact, a clash of forms and colors. But these qualitative prismatic sensations, in turn, "emblazon" the interior of the perceiver. The interface occurs where parity is achieved: the living system continuously reacting to changes within its structure consciously attends to the incoming

patterns to which it is attuned. The heraldic crest or *device* to which Merleau-Ponty gestures, was, as we remember, primarily an identification badge boldly announcing the presence and manifesting the identity of the wearer. Significantly, it is a type of visual experience that is also a form of action: flapping banners, defensive shields, crested helmets (see fig. 30).¹² Such striking hues and flamboyant signs embedded in cloth, caps, trousers, shoes, cloaks—in short, a wealth of signaling or informational materials that were always in motion—blazed forth the subject for all to see. Blazon as a doubling image—capturing the subject's immersion in and meshing with situated experience—is thus a powerful, direct mapping mechanism generating visceral motor responses. It is a kind of mirror system for how we immediately recognize and picture emotion-laden behavior of all kinds.

While no friend of an unoccluded picture model of vision, Jacques Lacan's theory of the gaze is predicated on "a picture, certainly, [being] in my eye [the retinal image]. But I am not in the picture." Nonetheless, he seems to refer obliquely to Merleau-Ponty's comparison of the mental image to a nonillusionistic courtly pennant exploding with bright, contrasting hues and flatly quartered into an aggressive geometry of stripes, circles, triangles, diamonds, and squares. Instead of the identity-grid decorating an escutcheon, Lacan speaks of a refractive, jewel-like light that opalescently "paints" a substantitive iridescence "in the depth of my eyes" and that does not require a screen for projection.¹³ Like Icelandic artist Olafur Eliasson's foiled reflecting pools, silvery cable webs, and open work crystal or mirror systems (see cover), the blazon has a structure that cuts through interior to exterior space, and vice versa.

These allusions to the direct sensory impact made by warring shields glittering in the sun or faceted gems sparkling inside a dark chamber point out how narrow, by contrast, the range of pictorial or artistic references standardly is within the neurosciences, cognitive science, and the new philosophy of mind. Throughout this book, I have underscored the importance of neuroscientific findings for research in the humanities. But I have also sought to demonstrate, in the weave of my arguments, the diverse workings of a gamut of images. Acknowledging their existence might add a real-life complexity to the artifices of neurophilosophy at home with such constructs as "zombies" or "qualia freaks."¹⁴ By drawing on the full spectrum of imaging, neuroaesthetics, too, might be encouraged to do more than just mine visual art for tricks (i.e., as evidence for involuntary feature-recognition and Popperian preselection).¹⁵ This reorientation would uncover a different inner ecology—one where variegated experience becomes personal for us, revealing how we catch ourselves in the intimate act of feeling and seeing.

Although their issues are not exactly the same as mine, I side with the "reconstructivists" who claim it is time for a fundamental shift in the orthodox philosophical foundations of cognitive science.¹⁶ In this section, I will begin by reviewing the key varieties of mental objects that are out there. I then take up the cognitive

aspects of the noncomputational "picture." This generative *com-position*—engaged in binding the fitting with the nonfitting—is biologically grounded in visual attention.¹⁷ The notion of mental representation is connected, I believe, to how we track and collect riddling appearances in space and time and interlock them into device-like objecthood. What is interesting about artful images, then, paraphrasing the Russian formalist Viktor Shklovsky, is their "removal of [objects] from the sphere of automatized perception."¹⁸

Representation, "representational genera," a "representative theory of perception and meaning," occupy center stage in philosophical and neurobiological discussions of unconscious and conscious awareness.¹⁹ But what, exactly, do these terms mean? When refracted through the glass of the neurosciences, humanists are troublingly reminded of how equivocal these concepts have become in their own fields. Conversely, when the same concepts are viewed from the perspective of the history of images, it is striking how the neurosciences are struggling to find "neutral," that is, unproblematic, replacements for the venerable and nuanced humanistic vocabulary of "representation," "symbol," "resemblance." Ray Jackendoff captures the tortuous nature of these exercises in definition when he refers to the latter as those "construals" that model a "cognitive structure" in the mind of the speaker (or viewer). Recognizing, however, that even the use of the word "mind" is fraught with epistemological and ontological dangers, he feels constrained to replace it by "f-mind," or "functional mind" as in the functional organization of a computer.²⁰

John Searle is unable to make sense of the notion since it requires resemblance between the form of representation and what is represented. Gerald Edelman sees representations arising as the result of conscious discriminations and classifications. This does not imply, however, that the "underlying neural states" are representations.²¹ Jean-Pierre Changeux prefers the term "mental objects" to "representations" and sees them as the "capacity" of our brain to produce parallelism and hierarchy (i.e., through the simultaneous analysis of signals coming from the physical and social environment, such as color, form, motion, analyzed by the visual pathways and subsequently integrated into a global synthesis).²²

Francis Crick and Christof Koch note the importance of representation to the description and analysis of yet another enigma: consciousness. What we are aware of at any moment is in no sense a simple matter. Citing face recognition as an example, they summarize this complex process of latent (stored), active, and multiple, interacting sensory representations as arising from "neurons in your brain whose firing, in some sense symbolizes that face" (fig. 67). But the total represented object (as evident, for example, in Jacques-André-Joseph Aved's portrait): the whiteness of the wig, the darkness of the iris, the chiseled nose, the contrasting parallel motions of the pursed lips and the deep under-eye circles of the hard-working secretary to Louis XV—not to mention the complex décor—is, in fact, distributed over many neurons.

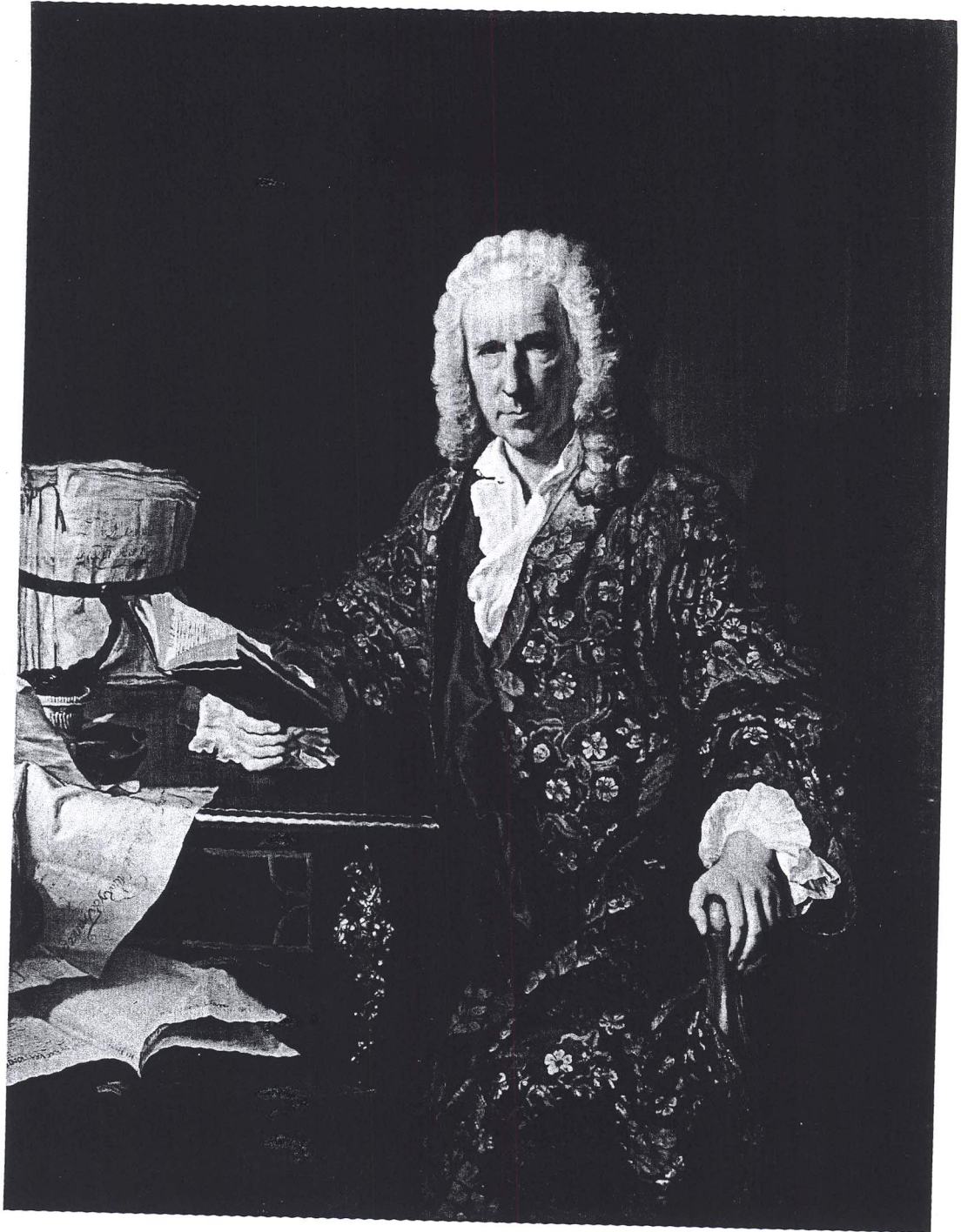


FIGURE 67
Jacques-André-Joseph Aved,
*Portrait of Marc de Villiers, Secré-
taire du Roi*, 1747. Oil on canvas
($57 \frac{3}{4} \times 45 \frac{1}{8}$ in; 146.5×114.5
cm). The J. Paul Getty Museum.

Expanding on these complications, Crick and Koch comment that “although the main function of the visual system is to perceive objects and events in the world around us, the information available to our eyes is not sufficient by itself to provide the brain with its unique interpretation of the visual world. The brain must use past experiences (either its own or that of our distant ancestors embedded in our genes) to help interpret the information coming to our eyes.”²³ For these neuroscientists, mental “representation” thus appears to be the diverse appearances of the same pattern of firing neurons as a visual image, or as a set of words and their related sounds, or even as a specific sensory modality, such as smell or touch.

A new existentialist like John Haugeland wants a philosophy of mind and science that recognizes the constitutive activity of understanding (or representation as the intentional “standing-in” for something else) as different from the mere pick-up of information. The generative linguist and revisionist Chomsky student Ray Jackendoff argues that most “computations” carried out by the brain rely on “conceptual structure” (an algebraic structure composed of discrete elements) as a “core type of mental representation used for thinking.”²⁴ Nevertheless these two distinct positions share the key assumption of an epistemological richness prior to linguistic structure. While Haugeland finds iconic (as opposed to logical and distributed) representations to be distinctive because they are “somehow” isomorphic with the contents for which the representation stands-in for,²⁵ Jackendoff seems to say that conscious thoughts are little more than words and images resounding in our heads. Rules are “not representations in the learner’s mind, they are just there.”²⁶

In brief, I want to get a clearer view of what such terms as visual awareness and mental representation mean within the leading, and often competing, neuroscientific communities. In what ways is the notion of a projected-upon or projected-into inner space (or “arena,” or “theater”) more than a metaphor? Does the brain-mind require some sort of mental form or “image” to create vivid viewer-centered “representations” requiring attention, not just the registration of the relevant neurons firing? Is the brain a material “support” for images as the world is a physical “support” for individuals?

In other words, instead of the typical view of what vision does, as Zenon Pylyshyn sums it up: “computing a representation of a scene that then becomes available to cognition so that we can draw inferences from it or decide what it is or what to do with it (and perhaps a somewhat different version of which may also become available for the immediate control of motor actions),” there is another important part to this story. Images are what they are. Whether they depict objects that exist or nonexistent monsters and hybrids (see fig. 31), they make them positively present, even if they are negative or self-contradictory entities.²⁷ While images can represent an actual situation—whether in vision or thought or language—as “falling under a certain concept,” they can also do something else. Additionally,

they can conjure up the fact that something is creatively in the making. Representations of such incomplete situations are not merely “preconceptual.”²⁸ Rather, performative images or inlaying patterns let you perceive, as well as feel, how concept and world are constructed together.

Recall that from Malebranche’s occasionalism to Hume’s empiricism, the dominant epistemological opinion moved away from conceiving ideas as proxy objects to making them identical to perceptions. This meant, generally speaking, that there was no third substance, whether Epicurean film or other numinous medium, intervening between perceiver and world. Eighteenth-century associationism is a good example of the collapse of this delicate tripartite faculty psychology since it diluted the self with its surroundings and suffused our surroundings with self. Thomas Lawrence, following in the footsteps of Gainsborough, brilliantly exhibits the reciprocity and directness of this psychophysiological motion whereby the textured traces of animal spirits in the brain intermingle with the vaporous corpuscularian matter of the physical environment. Benefiting from the shoulders-up pose (probably owing partially to the fact that the artist never mastered conventional anatomy),²⁹ the vivid likeness of *Lady Caroline Lamb* literally melts into air (fig. 68).

The nervous fluids of the outgoing mind, the river of personal identity concentrated in the extraordinarily luminous and thoughtful eyes, as well as the flowing substance of the natural world, all run together. John Sutton has argued that the fusive elements of associationism, notably formulated by David Hartley, are not structured syntactically in the manner of Jerry Fodor’s “language of thought.”³⁰ Rather, as the stunning immediacy of Lawrence’s portrait demonstrates—with its boundary-blurring, vibrating pigments—no part of this “distributed” system is ever inactive. Psychological information constantly oscillates between the organism and the ambient.

But to return to the historical makings of a representative theory of perception. As John Yolton explained, it has ideas making objects *present* to us. Drawing upon Late Scholastic sign theory, Locke’s term *idea*, for example, depends

FIGURE 68

Thomas Lawrence, *Lady Caroline Lamb*, 1805–28. Oil on canvas. © Bristol’s Museums, Galleries & Archives.



upon *representation* as that fundamental function of making present to our awareness objects as *formal signs* (not as things), regardless of their proximity in the environment.³¹ Recognition is responsible for self-consciousness as an act of self-possession or self-ownership in the midst of obtruding sense impressions. Representation is thus assimilative, it has the capacity to “join itself” to the episodic actions, patchwork thoughts and memories of other beings and things.³²

For Locke, as for Berkeley, “ideas, notions, phantasms” possessed an epistemic existence—as things perceived in that which perceives it. But their view challenges self-coherence, since the individual and his or her sense of interiority is constantly being ruined by an absorptive acquaintance that elides the distinction between consciousness and its prismatic objects. Thomas Reid, in advance of Kant, challenged what he called this “Ideal Theory”—positing that what is immediately before the mind is always some (resembling) impression. Instead, influentially, he proposed his own version of the Ideal Theory, claiming that ideas do not resemble any external object or quality.³³ For Reid, there exists what the Romantic systematizers would call a “grammar” of perception: a unifying a priori component, unlike fragmentary sense impressions, that precedes them and is always already implicit in our judgments.³⁴

Certainly, Reid and Kant’s argument of nonresemblance, while much refined, seems to rule the day. But I wish to reclaim the validity of Hume’s and Berkeley’s arguments for nonmediated access to ordinary objects as well as to their underlying prismatic faceting (updated as the blazon theory). I will return to these points when I discuss the continued pertinence of J. J. Gibson’s correspondence theory of affordances in the second section of this chapter. For now, I want to underscore that what makes something present to our consciousness is the fact of its having been enriched by attention. There is much significant research investigating object-recognition mechanisms. These are so important because our brains appear to be constructed such that they avidly seek out and attend to patterns to which they impart meaning.³⁵ In a crowded visual scene, we typically both focus our attention on behaviorally relevant stimuli but, equally typically, we must search through the distractions to locate the desired object based on such distinguishing features as shape and color. The critical quality of the light, often unmentioned in scientific experiments, enhances or detracts from the probability and the speed of finding what we are seeking.

Take the case of Pehr Hilleström’s (1732–1816) painted narrative of the Industrial Revolution, the forging of anchors in the blackened smithy at Söderfors (fig. 69). Our lines of sight get entangled in the overlapping brawny bodies of the straining, half-clad workmen who are incongruously counterpointed to the stiff and isolating poses of the cloaked, upper-class visitors. Whether merged or discrete, these opposed groups are difficult to make out in the chiaroscuro gloom with its

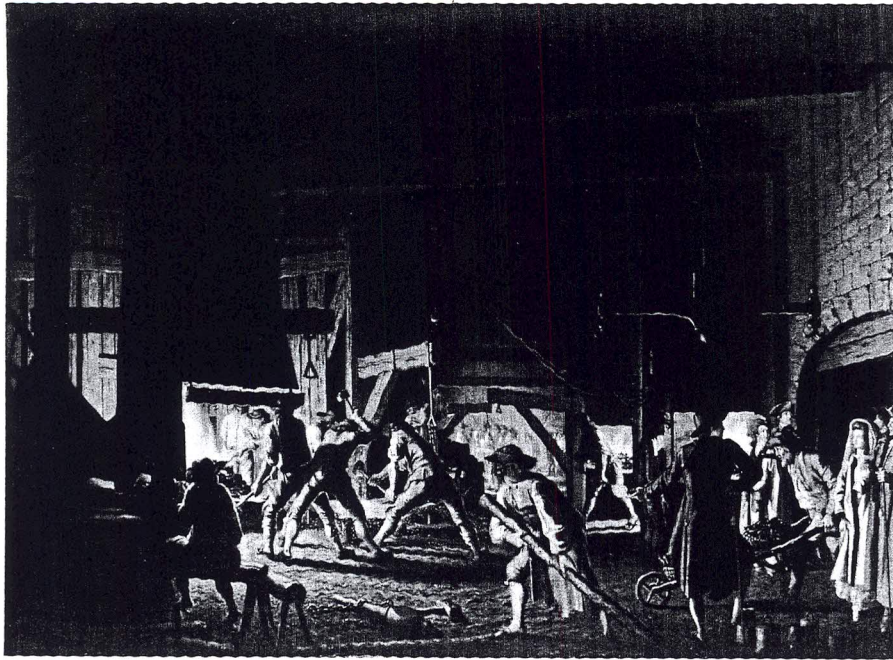


FIGURE 69
Pehr Hilleström d.Ä., *In the Anchor-Forge at Söderfors. The Smiths Hard at Work*, c. 1800. Oil on canvas (137 × 185 in). Photo: The National Museum of Fine Arts, Stockholm.

strong shadows and flaring fire. The elegant symmetry of the monumental, but dim, anchor—suspended specterlike above the factory tumult—is not immediately optically available. Rather, its contrastive, feature-selective and salient geometry seeps into our awareness only after our free gaze has explored the multiple chaotic stimuli competing for attention below. I am suggesting that the perceptual situation is more complicated than matching. In fact, not unlike life, we often do not know what we are looking for until the artist helps us find it. Another way of saying this, is that viewer of the painting does not locate the anchor as a token corresponding to some preexistent concept. Rather, the sensory experience of the anchor strangely comes after cognition, that is, after the transitory data and the fleeting qualia have already been ordered by the structure of perception.³⁶

It is now thought that object selection in visual search is mediated both by our scanning the scene sequentially (serial search) until the target is identified *and* by nonspatial attentional mechanisms. The latter are sensitive to features (parallel search) that bias visual processing in favor of neurons that represent the target's features simultaneously throughout the visual field.³⁷ The visual part of the neocortex responds amazingly rapidly to incoming signals. It categorizes them and then tries to find the combinations of active neurons able to represent, on the basis of remembered past experiences, the relevant objects in the visual field at any given moment.

Attention thus works like framing around and within a picture. An image implies a necessary boundary just as intellectual focus preserves the brain-mind from

total seepage into the streaming lifeworld. We discover the anchor, for example, only because it is ringed by the back-reflection of the chimney's flame. This primary edging is repeated in the secondary re-framing performed by the rectangular beams defining the back wall of the interior, further setting this object in relief from the surrounding darkness. Consequently, Hilleström shows how attaining the goal of a visual search can be knowingly deferred, prolonging the capture of the eye within material substance and deepening visual attention so that the cognitive system can examine additional properties.

As Zemon Pylyshyn has argued, it cannot just be the case that the visual system is only able to pick out things in a scene that satisfy its (pre-established) conceptual representation. John Hyman seems to be making a similar argument when he says that an object's color is not illusory but part of its appearance. That is, it is *really* part of how it looks. "Being red is not like being a token or a gift—where *being* and *being counted as* are roughly the same. . . . The invisible structure of matter causes us to see an object's color: its color does not have this effect on us itself."³⁸ Similarly, Hilleström's radiant nimbus anchor addresses, like an agent, the visual system directly. It therefore appears to fulfill the conditions of being a "demonstrative" inlay of information appealing to "something like a visual indexing mechanism which preconceptually picks out a small number of individuals."³⁹ But, as I remarked earlier, this blazon process can be performative and enactive, not just automatic and "preconceptual." As Novalis presciently argued, the sort of viewing that wittingly pieces together fragments is complexly driven by identification, desire, and observation.⁴⁰

The insufficiency of the "description view" of visual representation (the hypothesis that we pick out and refer to objects solely in terms of their categories or encoded properties) brings me to one of the most striking aspects of current representation theory. It is the killing of first-person perspective. The description view, considered later as the "narrative view," is the view from no one. Following Daniel Dennett, Thomas Clark insists we must "extirpate" any lingering notion that we "witness" experience.⁴¹ The philosopher Daniel Dennett has been mordant in his criticism of classical representationalists. He takes to task those thinkers who believe, in contradistinction to Descartes (like Locke or Hume), that perceptions involve resembling representations.⁴² He asserts that it is simply wrong to imply that the perceiver is aware of an inner picture on an inner screen. Further, if an image is to function as an element in perception at all, it will have to function as the material, not the end product.⁴³

Most recently, John Hyman has criticized the promiscuous use of the word "image," rightly underscoring the need to abandon the notion that we perceive our retinal images. A screen image is caused by light that has been focused by a lens and then reflected onto a surface. He observes, first, that a screen image can only reveal the appearance of an object if it is seen. And, second, he notes that the light

reflected by the retina does not cause the changes in the nervous system that, in fact, enable us to see.⁴⁴

One result of his draconian analysis is to deny that colors are relative to systems of concepts or to observers. While Romantics from Blake to Goethe and Humbert de Superville would support his antirelativist stance, they would not agree that this shuts out the shaping subject. Thinking never separates itself from its objects: they are penetrated by intuition and we are permeated by the sight of familiar and unfamiliar forms. As Friedrich Schlegel comments about the binding powers of intellect (ingenuity, wit): there is always the overriding "Imperative of Synthesis."⁴⁵ Further, Hyman does not tackle the moving observer's part, as Gibson did. Nor does he wrestle with the fact that the screen image the retina reflects actually contains the complex informational structure of the ambient light. Thus the viewer's vision depends on the affect-laden effect of this structured ambient light on the retinal cells.

Such "killing of the [first-person] observer" is nearly universal. This procedure takes various forms. The first person is polished off by Dennett's functionalist claim that all that is directly available to us is the content delivered by sensory representations, not the fact that the content is represented or styled by someone. Note the operative anonymity and implicit third-person model of self-assembly in this typical passage: "Mental content becomes conscious not by entering some special chamber in the brain, not by being transduced into some privileged and mysterious medium, but by winning the competitions against other mental contents for domination in the control of behavior, and hence for achieving long-lasting effects—or as we mistakenly say, 'entering into memory.'"⁴⁶

To be sure, there are numerous cognitive camps. But this emptying out and de-personalization of mental space runs pretty much through the lot. Think of neuro-anatomist Antonio Damasio's analysis of the key role of the homeostatic system in continually monitoring and updating an overall somatic situation. In lieu of a central consciousness, Semir Zeki proposes a superimpositional system of "micro-consciousnesses." Then there are the "illusionizing" hypotheses formulated by the contrastive phenomenologist Bernard Baars. In my opinion, an extreme version of this position is discernible in the hyperneurophenomenology of Thomas Metzinger. Both researchers posit an internal stage with no actor treading the boards. Instead we have special epiphenomenal tricks transparently cast into a "global workspace" from the magic lantern of ongoing neural functions.

Baars eloquently conjures up a theater with no one visibly present. "As the house lights begin to dim and the audience falls silent, a single spotlight pierces the descending darkness, until only one bright spot, shining on stage, remains visible. You know that the audience, actors, stagehands, and spotlight operators are there, working together under invisible direction and guided by an unknown script, to present the flow of visible events on stage. *As the houselights dim, only the focal contents of*

consciousness remain. *Everything else is in darkness.*"⁴⁷ The automaticity of these subliminal performances create the deceptive illusion that there is an actual performer of subjective experience.

For the almost negative-theological restatement of Baars's position, here is Thomas Metzinger. What goes on in his theater of the mind might be called "virtual reality immersion," and it is indistinguishable from our being-in-a-world. "A self-model (a mental self-representation) precisely emerges from drawing a self-world boundary. If this boundary is conflated with the boundary of the world-model, phenomenal properties like mineness, selfhood, and perspectivalness will disappear. However, . . . phenomenal events integrated into the self-model will, interestingly, at the same time be experienced as taking place *in a world* and *within my own self.*"⁴⁸

Each of these views embed psychology within resolutely monist and physicalist frameworks.⁴⁹ This decomposition of dualism—summed up in Patricia Churchland's description of the self as "a connected set of representational capacities that is a locus of control"⁵⁰—dovetails with the again almost universal agreement that mental images do not represent in the manner of pictures. Among current philosophers of mind, Jesse Prinz is one of the few to argue that we still need to take seriously the imagism of the British empiricists, and that that it is "less wrong than is often assumed."⁵¹ I agree with him that we need "a properly modern empiricist account" and will return, in the next section, to an examination of two central ways in which images carry or give form to thought—a venerable notion that stretches from Epicurus and Lucretius, to Locke, Hume, and Berkeley (see chapters 1–3). I too want to regard conception in perception.

I say thought is an image (since the different sensory modalities also generate "images") that incites us to re-perform (in the manner of mirror neurons) what we perceive. We can only know that we are having thought when we bring some specific event "inside," but do something with it outside. This action-oriented view of internalization and compression allows us to see (or feel, or hear, or smell) its correspondence to one or more of the otherwise invisible competitive processes going on inside our brain. Reorienting Andy Clark's insight concerning "re-representation," thought-as-image forms the embedded information in the brain that is being processed so that it can be re-represented.⁵²

Nominally, Colin McGinn belongs among the image defenders. But this phenomenologist is an ironic apologist, more reminiscent of those Romantic algebraicists Novalis and Friedrich Schlegel than the Thomistic Goethe. To be sure, he takes seriously the powerful attraction of the notion that a visual image is a mental picture. He argues that we literally see with our mind, that is, the mind is "centrally a device for imaging."⁵³ Like Prinz, he focuses on images (or the products of our [constructive] imagination) and percepts (that put us in touch with the outside world), but these are very different constructs. McGinn wants to draw a sharp distinction between two kinds of conscious visual experiences such that visual im-

ages arise from an experience-producing autonomous "faculty" in the brain. This "mind's eye" emerges from the "body's eye," that is, the cortical system so carefully scrutinized by Zeki and Ramachandran, which produces visual representations of external objects. Such images can be willed because, unlike percepts, when we deliberately form an image of something "it appears to be accompanied by some kind of frame which has a spatial character."⁵⁴ Space, therefore, is not inside the image, but appears to be the medium in which it is suspended and by which it is surrounded.

McGinn sketches a nonmimetic theory of the "active power" of the mind or the creative imagination. It is rather Coleridgean in its outlines⁵⁵—a system that itself is deeply indebted to the ontology of the late Neoplatonists and thus grounded in the long, but far from unproblematic, allegorical tradition of negative dialectics.⁵⁶ As I understand McGinn's alternative argument to the empiricist and analogical theory of perceptual acquaintance, no mental picture is actually invoked. Strangely, he ignores the research on hallucinations and entopic imagery. We do not see pictures in our head; there are no "special objects" distinct from the ordinary objects we perceive and think about. What images share, however, with certain kinds of pictures is the simultaneous representation of an ensemble of properties associated with different sense modalities.

Both pictures and mental representations are composites produced from that venerable combinatorial faculty, the imagination, which conceives as the Jena Romantics and German Idealists supposed it did: negatively and nonresemblingly, spinning that which is not so. The "mind's eye" / imagination is a sort of sophistic magus presiding over an illusory world of shifting light, color, and optical effects. His thesis is actually quite close to the position of Thomas Metzinger. Most likely, he would also agree with Wolf Singer who thinks that global oscillatory patterns "literally are our thoughts, perceptions, dreams." But McGinn's argument is far from clear. In fact, I find it as deeply equivocal as those of his Romantic precursors.

There have, of course, been many valid objections to the view that we never conceive without an image. These objections often cite nonperceptible entities or hard-to-image properties (what in *Body Criticism* I called the great aesthetic problem of visibilizing the invisible). Abstraction also poses a major difficulty, but only if one conceives of it, as is usually done, as merely a subtraction from the perceptual specificity and particularity of experience. Recall that there is an entirely different tradition of abstraction. Emblems and "real" symbols (see chapter 2) are a sort of combinatorial "ready-made." To remind us of the fractured appearance of such intarsia, I offer the simple "bits and pieces" format of such popular art forms as jigsaw puzzle maps. As in game theory, the interactive system possesses a delimiting structure within which permutation can occur (fig. 70).

The player cannot absolutely control the terrain but must relate to it. In more elaborate versions of this mutable cartography, the mosaic of topographic features



FIGURE 70
Edward Wallis, *New Game of Wanderers in the Wilderness*, c. 1830. Game board. Hand-colored board consists of an outline map of South America (61 × 51 cm, folded to 18 × 14 cm). Photo: Department of Special Collections, Charles E. Young Library, UCLA.

is set into a single figure that wittily coalesces into a salient national type. But this strong or emphatic organic shape is simultaneously undone or broken up by peripheral incidents: for example, the geophysical features characteristic of the particular country that eat away at any formal self-containment (fig. 71). This double-edged process leads me to ask if recombinant maps, metamorphic toys, or combinatorial "recreations"—which encourage the user to rethink as she reperforms the labile composition (fig. 72)—are not instances of Prinz's conception in perception? Such mass-reproduced toys, like the myriorama, a game popular in the first half of the nineteenth century, used a series of twenty-four illustrated cards to form an overall view while each card remained completely interchangeable. In these game environments, the mental and the extramental world resemble one another. Both are composed of fractured intarsia, or a paratactic combinatoric of images, that get correlated in the act of playing.

In this spirit, Edelman speaks of reentry as helping an organism abstract and structure complex experiential changes. His complementary notion of a "remembered present" captures our continual composition, the ongoing integration of self with nonself.⁵⁷ Is there not a profound truth, then, to the long "myth" of pictures inside that corresponds to the correlational or inlaying work of neural binding, rhythmic oscillations, aligned cellular crystal models, and even symbiogenetic cellular ingestions? Specifically, the blazon is closer to the electrophysiological evidence supporting a packaging view of mentation (that is, brain activity as discrete, global, brief, temporal chunks) as opposed to the first-person continual "stream of thought" view. Such conspicuously patched, abruptly juxtapositive image-objects allow us to see the construction of an interface where the processes of sensing and acting meet up with the intricate formal structures of the visible world.

But it also acknowledges the importance of the affective *field*, not just point-to-point synaptic junctures. The emotional effect of the blazon is to cut through the divide between inner and outer reality so that sensations not only bleed into one another but feelings permeate different areas of the brain blurring modular mechanisms. Consider, for example, Joseph Mallord William Turner's corruscating late landscape paintings. Confronting the raw physicality of light and color in these

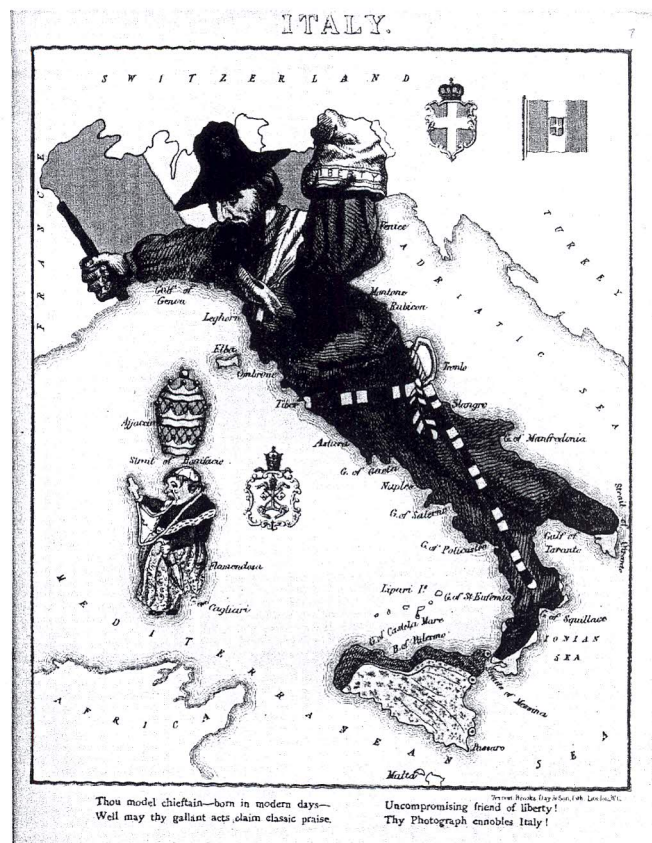


FIGURE 71
William Harvey, map of Italy
represented as Garibaldi,
from *Geographical Fun . . .*
(London, 1868). Engraving.
Photo: Department of Special
Collections, Charles E. Young
Research Library, UCLA.

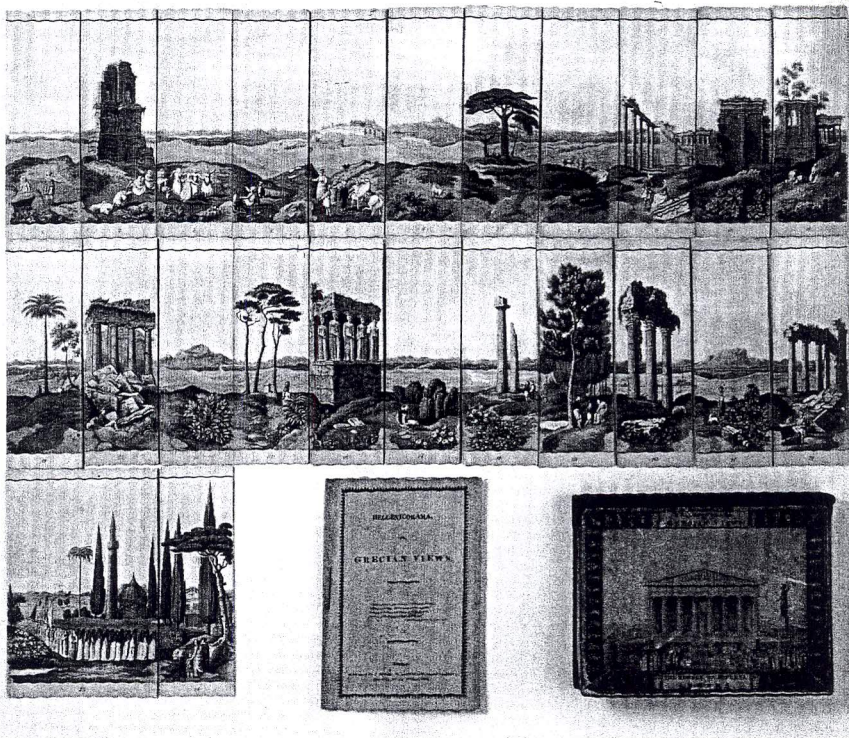


FIGURE 72
J. Burgis, *Hellenicorama or Grecian Views*, c. 1800–25.
Aquatint, etching, watercolor. Photo: Getty Research Institute, Special Collections.

pictures requires the beholder to expend a concomitant level of energy.⁵⁸ Mental images resemble Turner's radical acts of sensation: striking the beholder like a coat-of-arms with "atoms of thought and emotion."⁵⁹ But because these chromatic mist environments also disperse and coalesce, like our vision, they enact the coming and going of consciousness, how it lets us see and feel the moment in a single blow as the body moves through a space that it simultaneously crystallizes and clouds.

NARRATIVE VERSUS PATCHED MODES OF BEING

Galen Strawson recently argued that it is a great fallacy of our age to suppose that human beings typically experience their lives as a sustained narrative. This is to suppose that self-awareness is a kind of inner speech or running commentary. Moreover, he challenges the unitary assumption that when I am apprehending myself as an inner mental presence, this self-consciousness must necessarily carry with it the "feeling or belief that what is remembered happened to me, to that which I now apprehend myself to be when apprehending myself specifically as a self."⁶⁰

I agree with Strawson's observation that our inner life is not exhausted by the description of plotted flow or a teleology of past, present, and future. But Strawson does not adduce the neuroscience that supports the justness of this claim. My argu-

ment is that an important neuroscientific as well as phenomenological fact about consciousness gets lost when this *granular* inner sense of self gets subsumed under the blending structure of an "ongoing story" we silently tell ourselves. One of the key insights of contemporary cognitive science is precisely that mental faculties can be decomposed, not just into multicomponent information processing systems, but into two different kinds of nervous systems. The specialized cells of one operate in parallel, unconsciously, with some autonomy. But there is another nervous system that is serial, internally consistent at any given moment rather than distributed, and strongly associated with consciousness.

What the nonnarrative, nonmetaphoric genres we have so far considered (the "real" symbol of late antiquity, resurfacing in the fragment theories of the Jena Romantics, the inlaid emblem, and the patchy heraldic device) all share is their performativity. As in mantics, as opposed to hermeneutics, these sutured forms are operatives, efficacious like a charm or talisman. Further, such compounds demand an *inherently imagistic* activity of structuring that is, at once self-structuring. Such genres, I maintain, challenge the dominant paradigm of thought as unfurling self-talk.

Owen Flanagan, with his "expanded natural method," for example, makes the case for wanting to "corral consciousness by paying attention to how it seems (its phenomenology), and how it is realized (its neurobiology)."⁶¹ In his neurophilosophical account, as well as in literary "postclassical" approaches to the study of narrative and narratology, the focus similarly tends to be on a discursive psychology. It is true these new theories move away from a cognitivist approach to language—where texts are depictions of the external world or representations of our psychic lives. Nevertheless they still presuppose that "minds are always already grounded in discourse."

While the cultural norm today clearly seems to favor the supposition of long-term self-continuity—a diachronic view stretching back to Plato and forward to Graham Greene—history offers plenty of evidence for nonpathological, "episodic" literary types who do not habitually gather their lives into a coherent story. Michel de Montaigne, the third Earl of Shaftesbury, Novalis, Samuel Taylor Coleridge, Ford Madox Ford, and Samuel Beckett overtly pieced, or oblige us to piece, their isolated and discontinuous accounts together. Strawson's "episodic" authors possess an interruptive style that resembles more the "fretwork" imagism of Ezra Pound's poetry—tellingly modeled after enameling, damascening, or emblazoning pictorial strategies—than they do "what led to what" causative fiction.⁶² Further, this emergent style of self-presentation is ultimately modeled, not on texts, but on "patchy" artworks. Such paratactic visual compositions, favoring side-by-side connectivity, emphasize simultaneity and effortful co-construction.⁶³

Divisionist techniques are inherently juxtapositive. They atomistically inlay heterogeneous, and even antithetical, elements rather than blending them, thus placing

special pressure on the viewer to improvise their joining into a coherent scene. Just as a coalescent self-awareness must continuously emerge from tangles of neurons, the activity of pictorial piecing involves an ongoing relational system. If narrative turns the world into a plot, gapped configurations undercut automaticity, illusion, and the feeling that one is in the grips of remote control. They thus provide an insight into how we consciously struggle to make the weird details of the world hang together. Patching is a form of communicative action where two or more people and/or a variety of differentiated things must coordinate their agreement (fig. 73).

Such compressive mosaic work can operate at different micro- and macrolevels. It can move down in the cosmological and epistemological scale to the pointillism of Seurat and Pissarro, ratchet up to the fragmentary symbol and the composite emblem, or rise to the disconcerting montage of assemblagists-in-the-flesh such as Hannah Höch, and photographers of heteroclitic curiosities, such as Rosamond Purcell.⁶⁴ We see this performative process at its most monumental in the German Reichstag. In his restoration of the building, conducted between 1992 and 1999, Sir Norman Foster exposed the graffiti on the walls of the vast *Plenarsaal* (General Assembly) level of the Bundestag. These had been scratched on the exposed surfaces of the interior by the Soviet soldiers billeted there until the end of the war in April 1945. Before Foster's renovations, they had been covered over by various restorations (fig. 74).⁶⁵

The contemporary reinstatement of selective features and prior episodes to this still-evolving building does not just turn it into a museological object.⁶⁶ Rather, by conspicuously inlaying fragments of Germany's past with its present-day concerns, a new enactive kind of civic space emerges. As Walter Benjamin claimed in his aptly incomplete *Arcades Project* (begun in 1927 and preoccupying him for the rest of his life), history has a habit of decaying into crystallized shapes, not stories.⁶⁷ These shards, like the Soviet graffiti, are unmoored from any smooth or secure account. They show that vision, like history, is always in motion responding to the granularity of contingent stimuli and the particularity of changing circumstances.

In this sense attentive consciousness, too, is comprised less of "small spatial stories" or "creative blends" and more of a montage of eruptive graffiti and singular tesserae.⁶⁸ To be sure, there are as many variants of pictorial narrative as there are of literary narrative. Nonetheless, these permutations of the genre share the presupposition of continuity. As in the Venetian painter Palma Il Giovane's *Venus and Mars* (c. 1605–9), the two protagonists—despite their physical separation—cannot resist being telescoped into a larger, preexistent order. The actions of these gods necessarily go together and are projected or moved toward one another by the viewer who knows the story beforehand (fig. 75).

Rephrasing Santiago Ramón y Cajal's findings that memories involve strengthened neural connections, performance as the resonance between feeling, sensing, and doing would seem to aid long-term potentiation—one of the most widely studied types of neuronal plasticity occurring both in excitatory and inhibitory inter-



FIGURE 73
Camille Pissarro, *Mardi Gras on Boulevard Montmartre*, 1897. Oil on canvas (64.9 × 80.1 cm). Collection of Maurice Wertheim, Class of 1906. Courtesy of the Harvard University Art Museums.

FIGURE 74
Deutschen Bundestages, General Assembly with Graffiti. Courtesy of Deutschen Bundestages.

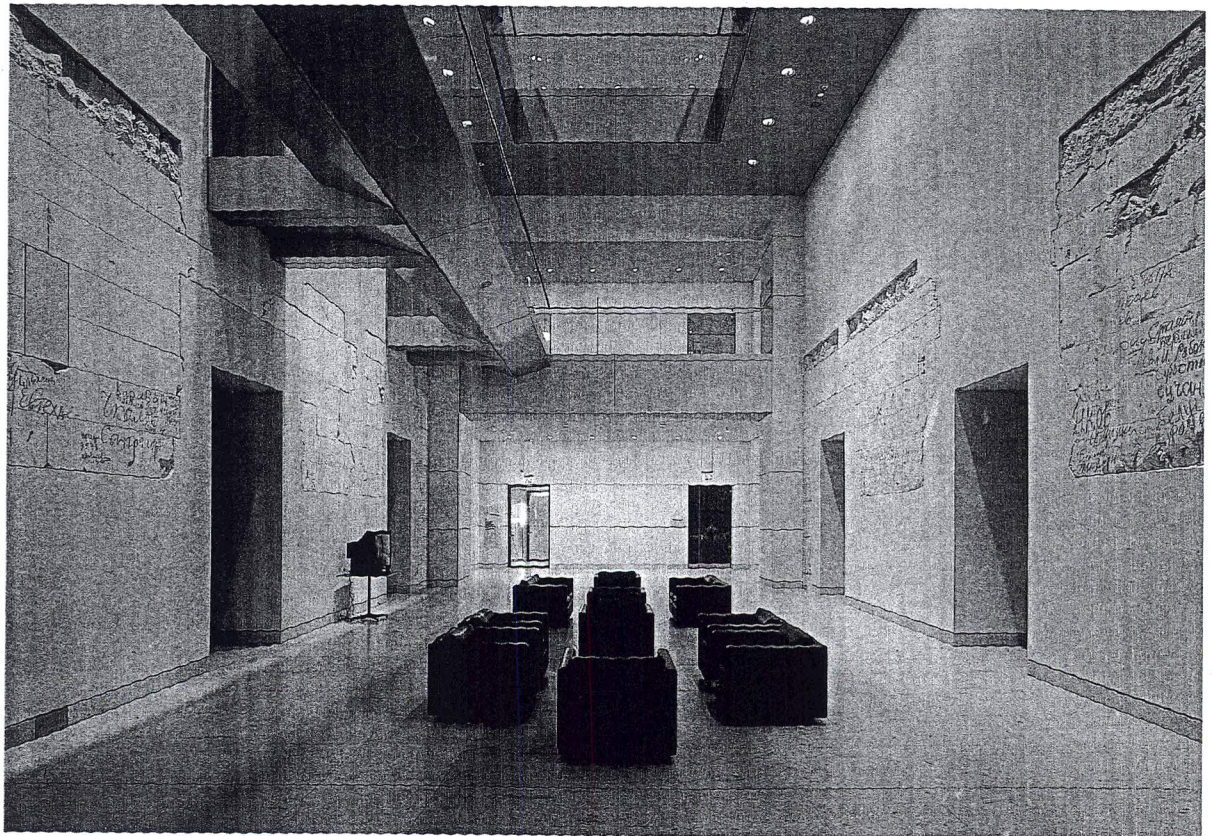




FIGURE 75
Palma il Giovane (Jacopo
Negretti), *Venus and Mars*,
c. 1605–9. Oil on canvas
(80 $\frac{7}{8}$ × 56 $\frac{1}{4}$ in; 200 × 110
cm). Photo: The J. Paul Getty
Museum.

neurons.⁶⁹ Self-shaping or defining techniques are dramaturgical because self-staging involves a public. Engaging one's surroundings thus stimulates a type of synaptic enhancement going on when new tasks are re-played while we are awake (and even when we are asleep).⁷⁰ Finally, this communication in the presence of others is also distributed, embedded in experience-intensifying traditions of magic, technical wizardry, and ritual. Such inventive whole-body practices give rise to an extraverbal understanding by constructing "living pictures" that extend beyond the borders of the self.

Because the delusory and autonomous "theater of the mind" paradigm is so prominent in recent neuroscientific discussions, I want to show that there are other possibilities for this mental "stage" beyond making brainwork appear deceptively continuous. The venerable "theatrical" genre of *tableaux vivants*, for example, is episodic not narrative. Like the Engelbrecht theater writ large, it is a type of performance requiring inlay work on the part of the beholder. We can still witness how this ancient mantic process actually worked in the famous Southern California Pageant of the Masters.

These riveting charades occur biannually at Laguna Beach and have been enacted for more than eighty years.⁷¹ The ceremonial presentation of glowing *tableaux vivants* under the velvety canopy of the night sky immediately plunges the modern viewer into the ancient realm of operative images. These potent, force-filled objects do something both in the mind and in the world. The re-creation of John Singer Sargent's *The Sketchers* (1914; 1999) is an example of performance, in director Richard Schechner's term, as "twice-behaved behavior," that is, always subject to revision.⁷²



But it is also restored behavior, giving people a new way of experiencing an age-old, ritual-based interactive method. Simultaneously a physical installation, a nexus of individual agents, and a direct image, this “livepainting” poses the paradox of a picture that is not a picture (fig. 76).

The pageant originated in a parade of volunteers costumed and cosmetically enhanced to look like famous artworks. This line of people succeeding themselves before the eyes of spectators has, over time, been transformed into combinatorial images that pass in review, helped by the addition of a stage, painted and sculpted sets, and music. Figures-in-the-round are the statuesque stand-ins for the initial depiction

FIGURE 76
Pageant of the Masters, John
Singer Sargent's *The Sketchers*
(1914), 1999. Tableau vivant.
Photo: The Festival of Arts,
Laguna Beach, California.



FIGURE 77
Pageant of the Masters, John
Singer Sargent's *The Sketchers*
(1914), 1999. Detail of tableau
vivant. Photo: The Festival of
Arts, Laguna Beach, California.

on a plane. The performers coming from our three-dimensional world, and despite all efforts to confine them to the flatland of the chromatic surface, noticeably belong to a mixed, co-created space (fig. 77). These tears in the fabric of seamless illusion are evident elsewhere as well. At least two things are always going on: the theatrical reproduction of the total scene and the smaller, revealing slippages between the willed reenactment of Sargent's bucolic landscape and the involuntary extemporaneity of the actors. Contemporary spectators thus discover (not just rediscover) the dynamism inherent in the original Impressionist artwork precisely by glimpsing, and participating in, the labor of its rethinking. Conversely, this animate mosaic receives its stabilizing "frame" from the memory of the a priori structure organizing the actual painted picture.

Unlike sequential narrative, what the performance or remediation of Sargent's metapainting of the activity of painting manifests is social cognition: the interplay of form and content in a particular experiential situation. It never lets the audience forget that pattern making occurs during every moment of an unfurling present and requires our collaboration. We thus have a blueprint for the ways in which self-consciousness is ritualized as an activity. It resembles performance-based art—shaping itself from moment to moment—just as a distributed array of optical features and motor properties are continuously compounded into a collective structure.

The distinctive components of performance—like embodied concepts—are the always-being-constituted images, supplemented by reentry from the environment. But this mobile relational process is preconditioned by the demands governing attention. We see an analogous use of the image as an attention-capture device in a late nineteenth-century pricked and back-lit *vue d'optique* showing Loie Fuller dancing in a cage of lions (fig. 78). Symmetry, a dominant central area of focus, motion, and pulses of light are all salient features to which our eyes are irresistibly drawn. The total aesthetic experience is thus conditioned by our past interests, our hard-wired neural mechanisms, and the vividness of the performance itself.

Certainly, keeping track of the shifting behavior of others in real time is an ancient survival strategy. Evolutionary biologists have shown that both humans and animals form social groups in which cooperation and reciprocity prevail—at least among many species—and this entails carefully watching, responding to, and remembering the faces and actions of others.⁷³ A more nuanced history of the origins of ethology is also now emerging, investigating the phenomenon of "imprinting" first studied by Konrad Lorenz in the 1930s to help explain the mechanisms that trigger instinctive responses in different species.⁷⁴

As I argued with regard to mirror neurons (see chapter 3), this does not necessarily entail falling into biological determinism. Rather, it is an opportunity to reconsider the bidirectional operations of imitation/attachment within a broad spectrum of performative genres old and new from the “valenced” emotions of caricature to the art and poetics of “naïve” improvisation.⁷⁵ Consider, for example, Byron’s vagabond *Don Juan*—one of the best-known literary cases of the risk-taking poet-hero able to adapt immediately to the most alien and challenging events.⁷⁶



FIGURE 78
Loie Fuller dancing, from
Ombres Chinoises Game, 1880.
Chromolithograph. Photo:
Getty Research Institute.

Romantic painting, similarly, seeks to overcome the divide between body and psyche through perilous gestures. Antoine-Jean Gros’s *The Pesthouse at Jaffa* (Salon of 1804) conjures up a Messianic-Napoleon impelled by the sight of suffering to heal open plague sores on the spot (fig. 79). Or think of the anxiety-producing give-and-take solicited by Goya’s aquatinted and etched diabolical print series, *Los Caprichos*. As in Max Ernst’s ominous frottaged/grattaged “decalcomania” of a century later, Goya’s agitated chemical process pushes and pulls resin and ink into sinister stains.⁷⁷ By soldering bistable percepts together—that is, blotchy shapes that uncannily look like one thing to the beholder one moment and quite another when the shadowy image either gets turned ninety degrees or the viewer physically rotates himself—



FIGURE 79
Antoine-Jean Gros, *The Pesthouse at Jaffa*, 1804. Oil on
canvas (532 × 720 cm).
Photo: Réunion des Musées
Nationaux / Art Resource, NY.

the artist demands that each print be separately reenacted. Conversely, there is a kind of material intelligence in these molten forms that mass and mutate, organizing our perception in the process of structuring themselves. Shapes grow and disperse like organisms before our eyes. We respond viscerally and cognitively to this individuated dynamism of coming and going (see fig. 33).⁷⁸

Identity as well is a kind of fitful self-performance, an impromptu way of physically and mentally composing oneself in public. This playing out is distinguished from the solitary Wordsworthian confluencing of scenes—edited and recollected from prior serial witnessing. But it also highlights the difficulties of standing alone, the cost of Romantic independence. Going against the cohesiveness of the group, whose positive or negative reactions one is perceiving in real time, is now thought to be registered in brain regions associated with emotional salience (in the right amygdala and right caudate nucleus).⁷⁹

Making one's own existence in the present—whether in a *tableau vivant*, the dialogical gestures of a Romantic improvisation, or in the liquid thought of paint—is the opposite of the usual narrative apparatus. Strawson might well have cited the virtual remix as the premiere contemporary example of the persistent obsession with sustained scene or story. Such hypernarrative reflects the synergistic coming together of hip hop, mass media, and artistic production. If one accepts continuity as a central feature, then remix compilations embody the taking to extreme of narrative to infinity. I mean the fantasized, digitized, resequenced blur that exists only to be remixed (fig. 80).

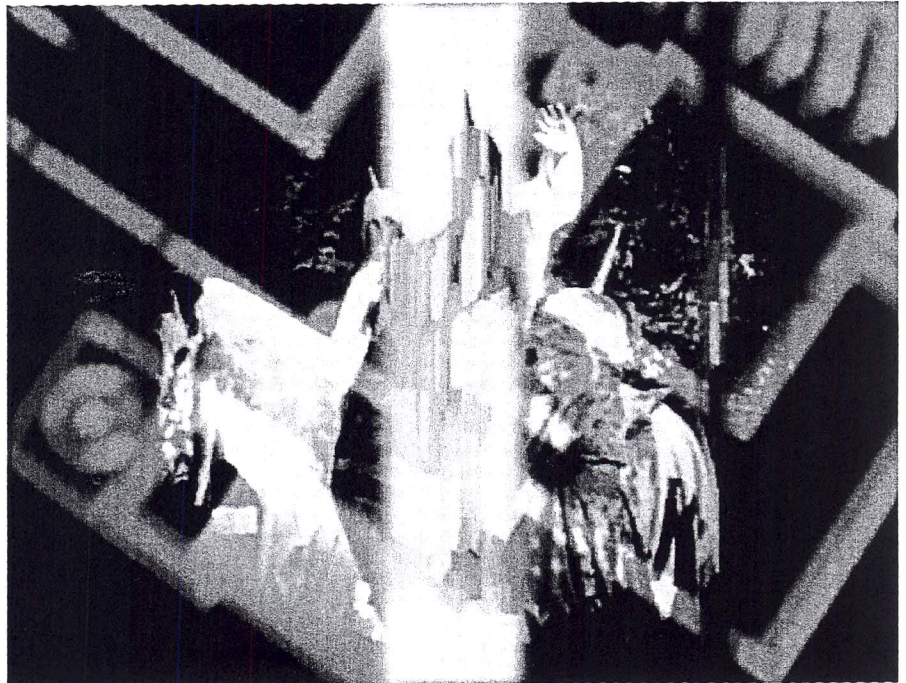


FIGURE 80
DJ Spooky (Paul D. Miller),
still image from DJ Spooky's
Rebirth of a Nation, 2006.
"Mashed" digital images.
Photo: Courtesy of Paul D.
Miller / DJ Spooky "That
Subliminal Kid."

The near-ubiquitous grabbing of iconography from everywhere and, hence, nowhere—snatches of old-master paintings, photography, anime, movies, television, club videos, the street, fashion (the stunning success of Prada's retro re-fashionings)—and extending it indefinitely now engulfs us. Paul D. Miller (a.k.a. the charismatic DJ Spooky) celebrates these new techno-landscapes of globally connected existence through which images, text, and sound are processed and get redistributed. In *Rhythm Science*, he praises sampling—bits of data set adrift from their original contexts and meanings and smoothly reconfigured through electronic scanning. The forever ongoing negotiation of information that the raw technology of turntables, scratching, and video (VJ's) entail signals that we are on the threshold of "multiplex consciousness."⁸⁰

This is identity as repetitive, hypnotic, and referring to anything "that flamboyantly flashes and glitters."⁸¹ As artist Warren Neidich remarks, we have entered the era of "visual and cognitive ergonomics" where "objects, their relations, and the spaces they occupy, affect changes in the brain."⁸² Jamie Hewlett of Gorillaz, "the world's greatest live, pre-recorded, re-mixed, animated pop band," unintentionally highlights the narrative implications of this audiovisual sampling and filtering that interfaces with our deepest physiology. He points to more and more cultural groups that are "cross-pollinating," thereby auto-organizing themselves into a vast conceptual network.⁸³

Unlike twentieth-century cut-and-paste collage techniques—juxtaposing recognizable snippets of the world—or earlier divisionist intarsia from mosaics to caricature, the new electronic recombinant media are seamless and endless.⁸⁴ Such aggressive repurposings are not about creating physical and spatial adjacency among incongruent fragments. Rather, their intent is to procure morphed synchronization across complex multidimensional data. While knock-off sampling appears to be dealing in small-scale deconstruction, the remix, in William Gibson's words, actually "generates countless hours of creative product."⁸⁵

AMBIGUOUS STATES

We are thus living in paradoxical times when the remote or original unit of reference is being continuously blended into an equivocal, bootlegged or "mashed-up" hybrid. Given the hypermediation and anonymous communality of the remix, uncertainty rules. Can we know whose mind-at-work we are actually witnessing? Has the paradigm of the computational remix subtly warped our view of the self as being no different from the customized bit whose meaning derives from the automated link-up? Conversely, is self-awareness as well as a keen sense of the present just a momentary rupture in the ongoing processing between the frontal regions and the posterior perceptual brain, between the face-recognizing system and the amygdala and the hypothalamus, areas associated with the emotions?

There are some significant alternatives to this scenario. In contrast to extolling communication by bit transmission, “small worlds”—like podcasts and blogs—are laying the groundwork for individual programming. These devices (along with cell phones, Blackberries, iChat) miraculously achieve a nearness through remoteness. While not unambiguous, they still let you get a hold of the transmitting person as a particular nexus of far-flung distributed connections.⁸⁶ Paradoxically, and reminiscent of earlier projection technologies, the agent or object of the broadcast is shifted into the distance away from our immediate reality in order to be brought machinically close to the user. This simultaneous extension and collapse of range also recalls the dazzling rhetorical performances of the romantic *improvisatore*.⁸⁷ Such virtuoso flights of invention brought the creative act closer to the spectator while making the ordinary members of the audience acutely aware of the gulf stretching between themselves and the singular poetic mind at work.

The new kinds of improvisational content providers offer a different sort of mixture, then, from the amalgamations of pirated tracks, hot jams, diss songs, and street styles that have become promotional tools for commercial record labels trying to build a buzz.⁸⁸ Although still highly eclectic, they empty out the centralized and anonymous conglomerate of big-market media systems.⁸⁹ Such intimate “dynamic appliances” function by fitting or tailoring an impersonal technology to the biological capacities and cultural needs of the user, but *without* any sensation of gap unless the software fails.⁹⁰ With their moment-by-moment picturelike framing of the extemporizing subject, these content providers rescue our psychic life from dispersal in a stream of bits that is always disappearing, reappearing, disappearing.

Revisiting Strawson’s terminology, are we right to suppose that the “episodic” self must somehow be resistant to the automatic binding drive that connects the topographically distributed sensorial packets in our cognitive field into linked associations? Does this staccato interior life—unlike the molten progressions of narrative—just begin anywhere and stop anywhere without closure or summing up? Further, what does such selectionism tell us about the patterned ways in which the brain integrates different types of information? Significantly, PET and fMRI imaging experiments have demonstrated that connectivity problems—a lack of correlation between visual areas in the back of the brain and the inferior central cortex governing action planning and other coordinated activity—are central to autism. Characteristic of more high-functioning instances of this disorder is the easy memorization of discrete facts but difficulty in collecting particulars into a coherent concept. In short, this want of cross-cortical cooperation is not just a form of “the extreme male brain” (i.e., impaired empathizing and enhanced systematizing),⁹¹ but an *extreme* or “broken mirror” form of nonnarrative experience.⁹²

Many autistic abnormalities occur when a person focuses on details and is unable to integrate the clear-cut elements—whether facts, words, visual stills—into broader patterns of reasoning.⁹³ It is as if one sees the world pixilated or “parceled,”

in tune with the genetically determined operations of what Gerald Edelman calls the "primary repertoire."⁹⁴ This microbiological architecture of the brain relates to different functional capabilities (color, form, motion detection), each of which responds to a partial aspect of an object. These dispersed partial features only become selected and bound together into a whole during "reentry."⁹⁵ But binding remains a "problem" because of the absence of an explanation for the ordered integration of many and varied sensory elements into a subjective experience.⁹⁶ During this temporal process, neural mappings mysteriously become communicating components in a large network of synchronized electrical signals. The story of the self somehow emerges from this widely distributed pattern of signals. And it is from the resulting functionally coherent assemblies that the illusion of unfurling reality derives.

I want to mobilize and expand Strawson's insight that there are two, contrasting sorts of from-the-inside experience to head in a different direction. The distinction between recounting oneself as a developmental continuum and figuring oneself as an irreducible formal fact without apparent causal connections with what went before or what comes after the present moment historically characterizes two major types of artistic representation. I now want to make these procedures explicit. The "illusionistic" strategy tries to find or create continuous sequences in an otherwise unconnected manifold. This smoothing of the disjunctive aspects of sensory experience is one of the major reasons that the visual arts have long been accused of being merely clever "systems of imposture."⁹⁷ Certain kinds of images magically gather heterogeneous material into a seamless flow, thus confirming the bias that *all* images are, at their core, deceptive.

But there is another tradition. Sensory intarsia resist two major aesthetic impulses. They renounce, first, any attempt at euphonious harmonization. Second, attention-holding material inlays undercut the inflationary tendencies of the Burkean Sublime. The Sublime's upward-driving, transcendent dimensionality—never content to focus on the present or attend to the moment—is particularly evident in the Kantian and post-Kantian formulations of *das Erhabene*. Containing echoes of *Erhebung* and *Erbauung*, the German term doubly connotes being swiftly elevated above the common ground and being morally raised to the heights, that is, edified.⁹⁸ By its insistent verticality and ecstatic elision of antipodal realms, this phantasmic style of synthesis stands in strong contrast to Pound's correlational marquetry. The imagist poet memorably constructed the world as well as the work of art as fretwork, as autonomous checkered thing "thrown free of its creator."⁹⁹

Throughout the twentieth century, many artists commented on the autonomy of the artworks they made. They also reconceptualized the age-old aesthetic battle between the creation of intense optical effects versus a rigorous structural combinatorics. "Machine art" (fig. 81),¹⁰⁰ the long shadow cast by Russian Constructivism, the process aspects of Conceptualism, the field or ambient concerns of Minimalism, as well as systems and procedural art: all set in relief not only the smooth

processes of self-assembly but those of discontinuous emergence as well. Consider again Dan Flavin's phenomenological discovery of the dark corner, rarely used by other artists before him.¹⁰¹ Unlike Donald Judd—exulting in the objective rigidity of geometry as sustaining interest without illusionism all the while creating milled aluminum boxes that evaporated in an epiphany of light—Flavin openly embraced dissolving color.¹⁰² By dint of pressing a single eight-foot fixture into a cavernous angle, or leaning a fluorescent tube into the triangular penumbra, or crisscrossing a shadowy hollow with a chromatic grid, he revealed the otherwise inaccessible depths of the black background. Simultaneously, the dim foreground was made to disclose an unsuspected burst of cool white or a hothouse radiance of pink, blue, and yellow (fig. 82).

While Flavin's off-the-shelf, mass-produced fixtures are monuments of continuously emitting illumination, they are equally performative bars of discrete light. This ritualistic aspect of Minimalist work is also found in Smithson's "non-sites." His assemblages of dirt, sand, shells, or salt—piled up to support mirrors that multiplied and dematerialized the heaped materials—has tended to get overwritten by flowing, cinematic models. Andreas Kratky's *Software Cinema Project* is consistent with the remixing software age of DJ Spooky. These multiframe narratives demonstrate how cinema, human subjectivity, and the variable choices made by custom software combine to create films that run infinitely. Admittedly, this series never exactly repeats the same image sequence, screen layouts, or stories.¹⁰³ Yet visuals, sounds, and even the identities of characters are autoassembled from multiple databases allowing myriad media to "bleed through" real and on-screen spaces.

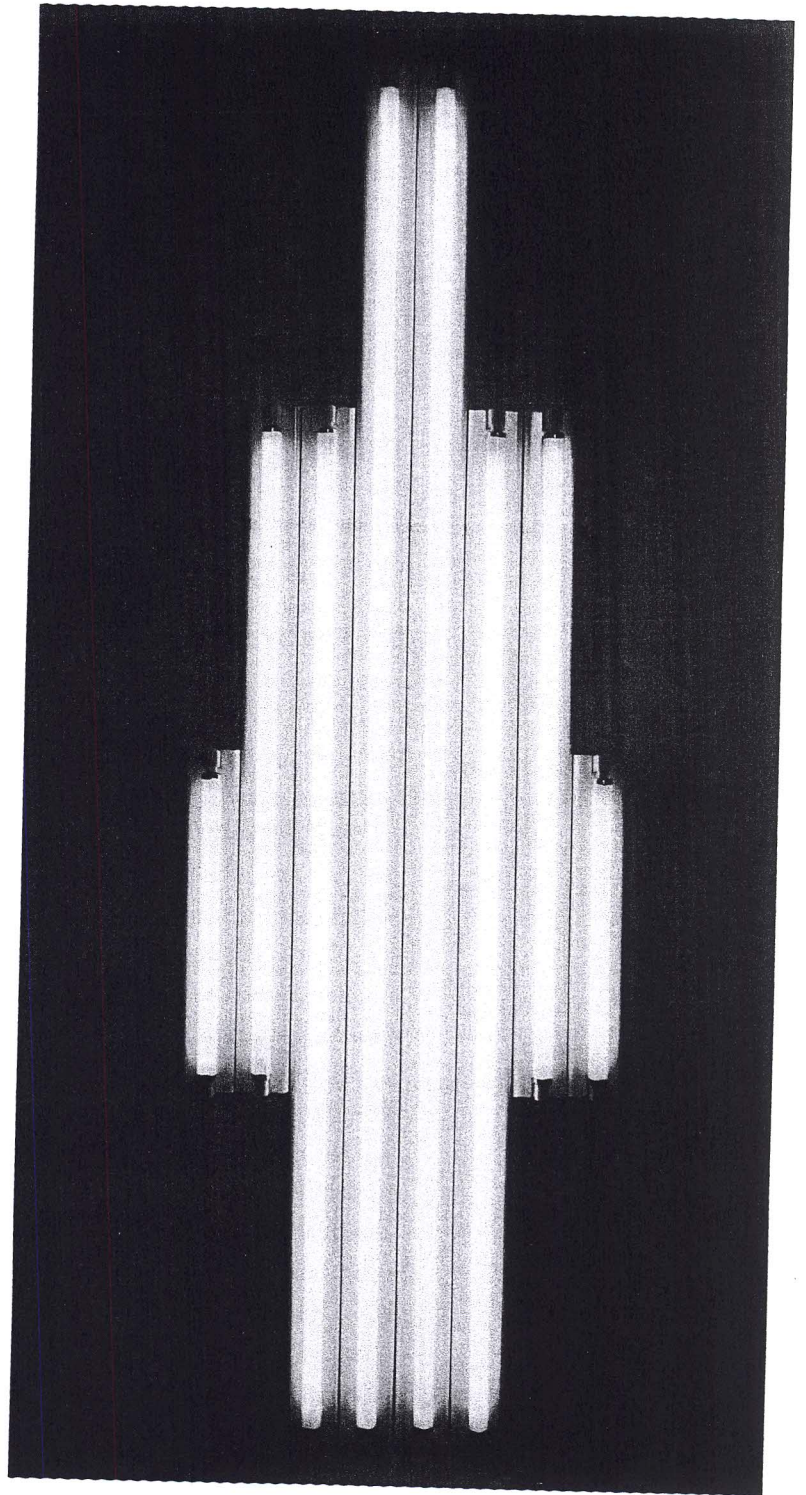
The artistic experiments of the 1960s and 1970s that explored the complex "situationism" of a specific environment and the subject within it form an important bridge to contemporary artwork that questions the hold of the consolidating cinematic model, paradoxically within the filmic medium itself. These hybrids instantiate what Alva Noë has termed the "enactive approach" to perception.¹⁰⁴ Hiraki Sawa's lyrical video *Dwelling* (2002) plays on the questionable assumption that what we call ordered or conscious thought necessarily has a beginning, middle, and an end. If this sequence is broken, then it is assumed that the thought no longer makes sense.¹⁰⁵ In important ways, he returns to early twentieth-century filmmaking and to Charles Pathé's *ciné-romans* where the dreamlike blend of a long tale is interrupted by an inlay of details (fig. 83a).¹⁰⁶

Sawa turns the truism of narrative causality on its head when he conjures up the spatial continuum of a domestic interior constantly undercut by the discontinuous landscape of touch. In this almost aquatic flow of still shots taken of different areas of his sparsely furnished London apartment, he addresses the fact that most tactile sensations reach us indirectly, through the eyes. Sawa uses toy airplanes as visual fingertips. Like a whisker paintbrush, they sweep over, slip or slide, and otherwise come up "against" a textured object time and again. Thus the information we



FIGURE 81
Fernand Léger, *Composition*
(definitive state), 1925. Oil on
canvas (130 × 97.4 cm). Solo-
mon R. Guggenheim Museum,
New York; © 2006 Artists
Rights Society (ARS), New
York / ADAGP, Paris.

FIGURE 82
Dan Flavin, "Monument" for V.
Tatlin, 1969–70. Fluorescent
light fixture. © 2006 Board of
Trustees, the National Gallery
of Art, Washington, D.C.



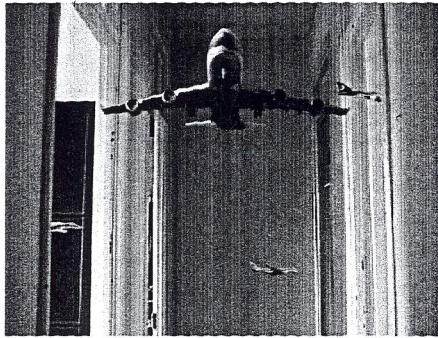
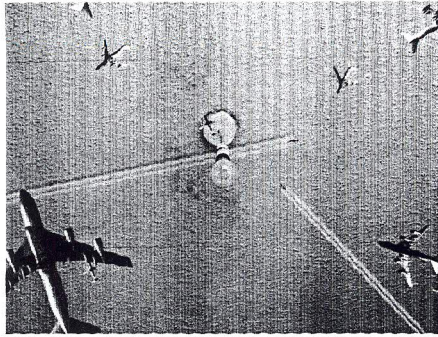


FIGURE 83A-B
Hiraki Sawa, stills from *Dwelling*, 2002. Digital video on DVD. Photo: Courtesy of James Cohan Gallery, New York, and Ota Fine Arts, Tokyo.

derive from touch about our surroundings seems less prone to deception.¹⁰⁷ The artist shows how by gliding or roving over ambient textures, we make sense of jumbled incoming data and transform them into a mental objective image. The video confronts the viewer with eerily uninhabited rooms suddenly enlivened by an aeronautical fleet. Toy planes silently launch themselves from a kitchen table or from a shorn rug, cruising through an airy hallway, settling on a rumpled bed, in a glazed bathtub, or upside down on a ceiling—as if propelled by some invisible force (fig. 83b).

As a result, the experiential stream gets ruptured, creating little pieces of infinity. Sawa demonstrates that the world only makes sense to the beholder through salient motion and haptic interaction, that is, when we build or shape a coherent composition from details we have personally collected and figured out. “One airplane on the floor inexplicably nudges into motion, gathers speed, lifts its nose, takes off while casting a convincing shadow, and angles through the air. You rationally know that this is all artifice, but you still perceive it as astonishing, indeed with a childlike sense of wonder and delight.”¹⁰⁸ Sawa’s work entralls in its doubleness: appear-

ing effortlessly self-generative—indeed, mysteriously performative like some amazing eighteenth-century automaton. But it also appears lapidary and resistant to illusion as the same objects make contact with qualitatively differentiated surfaces. The introduction of sensorimotor contingencies oblige us to focus and concentrate. One hallmark of attention is the allocation of neural resources in what is a perpetual push and pull of attractions. Orienting and selecting the movement of the eyes, as Sawa does with his unexpected breaks in routine, has the effect of bringing the stimulus to the center of the retina where the receptors are tightly packed and it can be best analyzed. This additionally refined image activates the inferior temporal cortex, where it is further scrutinized in relation to associations deriving from past experience. Its spatial characteristics, in turn, are analyzed in the posterior parietal cortex, and the outputs of the two cortices get sent to the executive networks of the frontal lobes generating top-down controlling signals.¹⁰⁹

Sawa’s video (as well as Flavin’s, Judd’s, or Smithson’s process pieces) exhibit something important about how we come to know through repetition (the unconscious internalization of repeated acts) and through accentuation (when something consciously becomes a discrete image or reality *for you*). With the example of these artists fresh in mind, I want to return to the problem of defining the nature of mental representation—less from the debates within neurophilosophy, as I did at the beginning, and more from the findings of the neurosciences. Nevertheless, these hypotheses mutually influence one another and are impossible to keep entirely separate.

The conundrum of relating what we see—variable surfaces directly visible to us together with their outline, orientation, color, texture, movement, which become collected into a sketchy representation that is additionally processed by the brain into a three-dimensional representation of which we are probably not visually aware—is closely tied to what Francis Crick and Christof Koch call “the overwhelming question in neurobiology today.” Finding the neural correlates of consciousness (NCC) involves “trying to put neuronal events into correspondence with mental events.”¹¹⁰ The two experimentalists go on to say that most neuroscientists—harking back to William James—think that *all* aspects of the mind, including awareness, are the result of material processes.¹¹¹

Central to Crick and Koch’s theory of mind (as well as to V. S. Ramachandran’s and Semir Zeki’s) is the conviction that the way reality looks to us depends on its encoding of discrete aspects of the world. In a sort of neural Platonism, what we see is determined by the prior nature of our internal mental representations, by our previous neuronal connections, and perceptions. Incoming stimuli must somehow couple with this constantly changing matter of the mind. From fleeting sensations of transient events in the environment, the brain—relying on personal and ancestral past experience—goes on to construct a viewer-centered representation. The autonomous and ephemeral memory image gets associatively and spontaneously linked to other mental objects and to data coming from the ambient mysteriously resulting in something we pay cognitive attention to. A major question arising from this correspondence theory is just how does any sustained or broader structure emerge from one hundred billion neurons? What is the underlying grammar connecting neural images created by neural linkages across different layers and regions of the brain? As Jean-Pierre Changeux reminds us, each of these rhythmically firing cells has on average about 10,000 discontinuous contacts. And the resulting “forest of synapses” yields as many possible combinations as the number of positively charged particles in the universe.¹¹²

Distributed cognition, on the contrary, does not explain mental representation as an intrinsic matching of lines, edges, contrast to the neurons sensitive to these primitives. But it, too, manages to kill the “first-person perspective” on experience, that is, the illusion that we witness it or see the world directly.¹¹³ The optic nerve was once thought of as a simple vehicle carrying raw sensory data to the brain. Now we know it shapes its information in transit. The brain, in fact, leaps out into the world through its light receptors and actively seizes photonic data.¹¹⁴ Therefore, mental objects (the physical state produced by the activation of large populations of neurons resulting in a coherent representation of the world inside our skull) is a consequence of the localized and delocalized analysis of signals coming from the physical and the social environment as well their internal organization into hierarchical levels of integration.

A locationally “wide computationalism” thus maintains that some of the sys-

tems that drive cognition, in fact, lie not only beyond sensory discrimination and integration but exceed the organismic boundary. Since the dynamical structures of the brain becomes affected by the reactions to what perturbs it, this mechanism is equally situated in nature and outside of the head.¹¹⁵ Recall that Antonio Damasio and Thomas Metzinger offer two interesting attempts to reconcile these contrasting internalist/externalist perspectives. The former outlines how affect challenges the closure of the organism; the latter virtualizes the world. For the pantheistic Damasio, the feeling of a coherent self is built from the autonomous, global representations of inner homeostatic functions. While unconsciously maintaining our inertial bodily integrity, the homeostatic system registers our emotional reactions to external events. This causes a disequilibrium that must be grappled with to maintain the stability of normal operations. This costly and conflictive confrontation with the invasion of sensations, Damasio maintains, monopolizes our resources and energy.¹¹⁶

Metzinger, on the other hand, belongs to the "*mens*-class of Idealism,"¹¹⁷ along with Berkeley and Leibniz, since he argues that material bodies do not exist as extramental realities but only as phenomena within the mind. He thinks of consciousness as the epiphenomenal by-product of an illusionizing projection and the human self-model as a "continuum of self-representational contents."¹¹⁸ Not unlike the latest views on schizophrenia—where normal perception, dream imagery, and hallucinations are mainly manifestations of the same internal creative process (located in the thalamocortical circuits), differing only with respect to the degree by which they are constrained by sensory input—Metzinger claims we constantly hallucinate the world.¹¹⁹ But these autonomously generated visions flowing outward must, at some point, collide with the sensory influx streaming inward.

Dissatisfaction with the strict encoding view of mental representation has also led cognitive psychologists such as Merlin Donald to argue that there is a "mind beyond itself." According to this view, a performative memory system incorporates aspects of the environment. Our epistemological apparatus is enactive since awareness comes about in the very activity of representation. Because individuals must perform the extraction and deployment of information, representing oneself as a subject involves an agent "enmeshed" in the world, someone with world-involving capabilities.¹²⁰

Bearing in mind again that brain scientists are far from unified in their view of neural operations, I nonetheless want to try and pin down a definition of the elusive concept of "mental representation," utilizing the aesthetic perspective I have been developing throughout. Like the narrative/nonnarrative dialectic, it addresses two fundamental functions of our visual system. To find a target object in the prismatic blur of any moving scene, such as a salient face in the vagueness of the crowd, the visual system turns the neural representation of each distinctive object on and off in serial fashion, testing each representation against a stored template. But it also pro-

cesses all the streaming objects in parallel.¹²¹ The visual system, confusingly, is biased in favor of those neurons that represent critical features of the target, until the target emerges from its camouflage in the background. As the dim recesses of the white-cube gallery emerge when Flavin's radiant light destroys the receding darkness, our neural machinery dissolves its recursive contours for an instant to expose real space.

If we keep Strawson's narrative / nonnarrative division in mind as well as my distinction between sustained illusion and gapped mosaic, we are really talking about object recognition mechanisms in the temporal cortex. In a crowded visual scene, we typically focus our attention serially on stimuli that are relevant to our behavior. The outcome of our directed eye movements is to enhance the attentional responses of visual cortex neurons to the discrete object in question and ignore surrounding distracting features. But this eventual, post-hunting, focus on the chunklike singularity presupposes that a person knows in advance the location of the relevant object surfacing from the swirling flux. Most of our waking lives, in contrast, are spent not in instant or smooth identification but in struggling visual search.

Parallel-processing gets at those attentional mechanisms sensitive to features laden with emotion, such as color and shape, that represent the mosaiclike target features in neurons distributed throughout the visual field. While neurons synchronizing their activity occur in both focused and free gaze activities, correlation and coherence of stimuli into a single mental representation is especially complex in the latter. Think of it. The features of the target are scattered throughout a visual field filled with distractions and prolonged through the time of the search. In both cases, spatial attention enhances synchrony. But, as art movements from Mannerism to Romanticism have shown, visual search tasks in which the object is complexly defined by the conjunction of different features are particularly difficult for the viewer. The motile "binding" involved in tying together conflicting stimuli does not flow easily. Further, resistance to variance draws our notice to an internal state of tension. Coping with divergent intentional behaviors and attending to internal or external disruptions to the automatic continuity of the biological system flaunts the perceptual and cognitive labor of integration.

The notion of binding as the kinetic *performance* of bundling stimuli together as well as the spatial activity of self-collection is reminiscent of J. J. Gibson's theory of affordances. His revolutionary ecological approach to a theory of visual perception considered "viewing" to be different from perceiving. Pertinent for our consideration of mental representation is Gibson's claim that viewing is involved in the visual control of locomotion, in seeing the world in perspective.¹²² That is, one's entire physical and mental behavior is based on "what one sees now from here."¹²³ Gibson was not a behaviorist, rather, like Kant, he argues for a simultaneous awareness of the environment and the self, but not an awareness of what is transpiring in the experiential stream itself. We can never pick up all the available information that

is out there. His technical concept of awareness thus refines current concepts about ways of perceiving because it improves our grasp of the referents of our ordinary concepts of consciousness. Nicholas Humphrey's recent argument that sensation is what matters, in fact, is quite Gibsonian.¹²⁴

Gibson's active approach to perception has been invoked recently by Alva Noë to argue that the role of representation in perceptual theory needs to be reconsidered.¹²⁵ It has also been mobilized to consider what thinking might be in the absence of language (nonhuman animals and infants). Jose Luis Bermudez extends the ecological approach to visual perception by developing the ethological notion that an affordance is basically a resource or support that the environment offers a particular creature. Consequently, the environment is not perceived in neutral terms but with an eye to the possibility for shelter or the availability of food. Bermudez emphasizes that such affordances "are directly perceived in the patterns of light in the optic flow"—although creatures are not constrained to become "attuned" (or to resonate with) the features of the environment.¹²⁶ Nonetheless, the "protothoughts" of nonlinguistic creatures like the thoughts of linguistic beings are integrated not just with immediate activity but with mediate or inferential activity.

I think Bermudez is hampered by his paradoxically linguistic model of nonlinguistic thought. Gibson's theory of affordances, I would argue, is a correspondence theory (it has the structure of a visual *symbol*, see chapter 2) predicated on a creature's *seeing* the relational possibilities for affective action and reaction—as mirror neuron research has shown we, in fact, do. That is, in contrast to many contemporary philosophers who are wrestling with Wittgensteinian "seeing-in" theories of depiction,¹²⁷ Gibson's recognition theory forges a sensuous link between the viewer and the three-dimensional, multilayered, spatiotemporal experience she enacts while moving through the ambient. This shared condition also underwrites empathy. Understanding as emotion-tracking is gaze-following: the simulative and performative coordination with agents embedded outside the perceiver.

Significantly, unlike almost everyone else considered so far (with the exception of Noë and Bermudez), Gibson believed that there is a *direct* perceiving of the affordances. The subject becomes conscious in having sensations: as we move through the ambient we feel that we perceive. His sophisticated realism thus gets rid of both the mind/matter distinction as well as the representation/object distinction. Vivid visual awareness of an ambient object and of our own desiring self-awareness is not just Koch and Crick's modular representation of an object distributed over many neurons nor Metzinger's dreaming at the world. It is what comes next: the psychosomatic performance of presentness, the configuring of a subjective psychical state in interaction with a qualitative stimulus by the observer. As I have suggested this takes two artistic/stylistic forms: a coherencing, narrative "filling in" or ignoring of the blind spots in the eye and the visual field, and the com-

peting focus on the hard edges and contours of an object that command foveal attention.

I have attempted to show how the search for a more general theory of consciousness has inflected the concept of mental objects and mental representation. For the neurophysiological question of cognitive coherence: how does our brain, for every object of perception, bind a large set of features to yield neural synchrony, is also the question of representational coherence. If aesthetic representation, since Aristotle, has been principally about defining ways to unify the manifold into a coherent image, then mental representation has become a more complex, elusive, nonmimetic act of construction in the hands of contemporary brain scientists and philosophers of mind. While tackling the problem of cognitive dynamics, I also challenged the "language of thought" hypothesis to put a more complex notion of image back on the table and at the interface of brain-mind with external reality.

For Aristotle, the aim (*telos*) of an artifact was to appear as a purposive, teleological unity, one in which all the parts appeared to be based on an underlying idea of a goal-directed whole. Unlike dead matter, he considered living organisms as well as works of art as organic wholes whose purpose existed as a form before the specific organism came into being. Mental representation, on the contrary, seems remote from this practical aesthetics. If connected at all, it is connected ambiguously to the real world of purposes, functions, and uses. Our conceptual apparatus currently operates in the disembodied no-man's land of formal symbolization, mathematical coefficients, chemical neurotransmitters, genetic codes, neurogenetic aberrations, and cyborg technologies, where our ability to sweep together the feeling of self-awareness with our experience of the otherness of the world variously breaks down.¹²⁸ Perhaps the intense research focus on mirror neurons will integrate the biology of subjectivity with the different beings and objects to which we attend and thus make neurocognitively and phenomenologically our own.

I want to conclude by raising a related problem. Finding ways to visualize blur, vagueness, ambiguity, equivocality, and uncertainty in all areas of scientific and cultural production are, I believe, among the central issues of our time. Instead of Hiraki Sawa's micromegalic airplanes, confounding us by disappearing through cracks in doorways or just barely avoiding collision in the "sky" of the living room, strange miracles and perplexing contradictions are everywhere in evidence today. The fact that we are both conscious subjects and biochemical events is only one, if major, example of a confusing doubleness. Recognizing the unclarity of unclear things infuses the techniques of A-Life (realized through evolutionary and adaptive computing) that are opening new creative vistas where old species borders and organic/inorganic divides no longer obtain. Computational entities are being trained to find a solution to problems that even the programmer may not know how to solve.¹²⁹ Or, thanks to nanotechnology, astrobiology, and microbiology, consider

how we have been made alert to the carbon self as merely one among many objects in a shared universe composed of everything from cellular microprocessors to bizarre two-meter tube worms, eyeless crabs, and green sulfur bacterial extremophiles thriving around caustic deep-sea hydrothermal vents.¹³⁰

Quantum mechanics, born at the close of the nineteenth century, has made us familiar if not exactly comfortable with the bizarre and counterintuitive actions of the tiny denizens of the submicroscopic realm. Not only does quantum theory undermine particulate objects by supposing them to be waves, it injects uncertainty into their positions and movements, so that as we gain knowledge about one property, we lose it about another.¹³¹ The quantum model has also made ambiguous that staple of our age: information. Whether we think of it as stored in images, books, on silicon, in quantum “qubits” inscribed on a cluster of atoms¹³²—these multiple platforms have only made us more intensely aware of data’s limits, instability, error-proneness, and, most tellingly, equivocality. Recall that the unifying *narrative* of uncertainty allows quantum objects, paradoxically, to have two mutually exclusive (and untestable) behaviors at the same time. The tempest gathering around string theory (with its opponents within the physics community maintaining it is merely an unprovable, seductive conjecture) is just the latest example of a conundrum with no clear experiment to solve the question.¹³³

This blurring elision has found its way up to the macrolevel. In the IT era of simulation, morphing, cloning, and remixing—where it is difficult to separate tools from flesh, the degrees of the artificial from the unmanipulated substrate—it is not surprising that narrative as an artificially unified account of singular actions and events has become the master topos in everything from art history to anthropology to law to literary studies.¹³⁴ Perhaps most indicative of this “mushy” melding of fields is the new hybrid academic program called “services science” dedicated to the “blend” of spotting innovations, new business markets, retailing ventures, enticing products, all coupled to management skills.¹³⁵ Whether or not this is a science is debatable. But even the established “hard” sciences have not remained immune from streamlining, automated analyses, and computerized “optimization” systems. This taking the edge off what formerly, rightly or wrongly, were believed to be clarities profoundly links neurobiology to reproductive, genetic, and synthetic biology. It also brings neurocognitive research closer to research in the humanities and social sciences. In all fields, many of the distinguishing qualities—the contextualizations—that formerly divided epistemic activities, abstract objects of various kinds, and technological artifacts, are gone. What is left is not so much contamination as the opportunity for mutual learning about double- or multiple-aspect entities. This means, I think, limiting the rhetoric and practice of engulfment.

Such a narrative model and method surfaces in strange places. We witness this flow that goes on and on in the relentless stream of brain imaging scans. These have unleashed a flood of “incidental” findings¹³⁶—unexpected observational bits

of potential clinical significance—that do not yet belong to an overall pathological account but that well might. In a different domain, consider the nebulosity of ever-expanding “personhood” in research regimes that accord “near personhood” to the embryo after fourteen days.¹³⁷ Or recall that one of the sore points in the cloning debates is that the procedure generates things that are “not really like you, but somehow belong to the same existential spectrum.”¹³⁸ The clone is a cloud of possibilities. This array does not seem to possess any “essence,” hovering instead among several potentials. Its biological ontology (a laboratory thing) bleeds into a political and legal ontology (a social thing).

Oddly, wherever we look in the life sciences the rhetoric of choice and the empowerment of the individual who knows best what is in his or her interest, that is, the rhetoric of individual autonomy, seems to bump up against the rhetoric of the eponymous “entity.”¹³⁹ Tinkering, multifunctionality, redundancy, and modularity not only characterize the notion of a genetic “toolkit” for animal development, it spills over into the never-ending neo-Darwinian production of novel forms, wherever they might lead or whatever they might be.¹⁴⁰ The new technical and scientific advances are as radically uncertain in their means and ends as the social and cultural processes in which this knowledge must be embedded, and yet they get strung together into the narrative that science is expanding personal choice.

The general term that Plato uses (in the *Cratylus*) to refer to representation in the arts is *mimesis*—the intentional making of an appearance (*phainomenon*, *phantasma*) that resembles something of a certain kind but is not something of that kind itself. His principal thought is that “the appearance is like the original object but less real.”¹⁴¹ That may well be. But, in our polymodal information age, one lesson of the episodic—with its crystalline detail, its distilling gesture, its precise coordination—is that the total phenomenal melt, by contrast, reduces the range and specificity of chromatic experience. Caving into an all-embracing blur prevents us from understanding how “the well fenced out real estate of the mind”¹⁴² can, in fact, be one with the events observed and how observing, in turn, does not necessarily entail being one with the events.

102. Oliver Grau has traced what he calls “virtual immersion spaces” back to antiquity. But he does not address the cognitive dimension of this work. See his *Virtual Art* (Cambridge, Mass. and London: MIT Press, 2003), p. 13.
103. Eva Schuermann, “Concept and Experience of Perception. Merleau-Ponty and James Turrell,” lecture delivered at the University of Chicago, November 11, 2005. Also see her *Erscheinen und Wahrnehmen* (Munich: Wilhelm Fink Verlag, 2000).
104. Craig Adcock, *James Turrell. The Art of Light and Space* (Berkeley, Los Angeles, Oxford: University of California Press, 1990), p. 6.
105. Baars, *In the Theater of Consciousness*, p. 133.
106. See the exhibition catalogue, *Ecstasy. In and About Altered States* (Los Angeles: Museum of Contemporary Art, 2005), which showcases the imaginative projects of, among others, Olafur Eliasson, Fred Tomaselli, Tom Friedman, Damien Hirst, Pierre Huyghe, Veronica Janssens, and Takashi Murakami.
107. Laura Kurgan, “Smart Maps,” lecture delivered at the Fieldworks Art/Geography Symposium, UCLA Center for Modern and Contemporary Studies at the Hammer Museum, May 5, 2005.
108. See the excellent exhibition at the Kunsthau Zurich, *The Expanded Eye*, presenting Op Art from the 1950s and linking it to a spectrum of twenty-first-century kinetic objects, film, and video installations. Bice Curiger, et. al., *The Expanded Eye* (Zurich: Hatje Cantz, 2006).
109. Cited in Saara Liinamaa, “Awaiting the Disaster. Olafur Eliasson’s *The Weather Project*,” *Public 29* (Summer 2004): 78.
110. On the importance of Friedrich to the Danish “heftige Malerei” of the 1980s (and beyond), see E. M. Bukdahl, *C. D. Friedrich’s Study Years at the Royal Danish Academy of Fine Arts and His Importance for the Painters of the Golden Age and of the Present Day* (Copenhagen: Det Kongelige Danske Kunstakademis Billedkunstskoler, 2005), p. 6.
111. Susan May, “Meteorologica,” in *Olafur Eliasson. The Weather Station*, exh. cat., ed. Susan May (London: Tate Publishing, 2003), p. 19.
112. Geert Lovinck, “Rethinking Media Aesthetics. An Interview with Norbert Bolz,” in *Uncanny Networks*, ed. Geert Lovink (Cambridge, Mass. and London: MIT Press, 2004), p. 21.
113. Slavoj Zizek, *The Parallax View* (Cambridge, Mass. and London: MIT Press, 2006), p. 162.
114. Will Wright, “Dream Machines,” *Wired* (April 2006): 111.

CHAPTER FIVE

1. Jean-Pierre Changeux, *Neuronal Man. The Biology of Mind* (Princeton: Princeton University Press, 1985), p. 63.
2. Cited in Cynthia Zarin, “Seeing Things. The Art of Olafur Eliasson,” *New Yorker* (November 13, 2006), p. 83.
3. Benjamin Kunkel, “Am I Am. Beckett’s Private Purgatories,” *New Yorker* (August 7–14, 2006): 84–89.

4. The concept of intimacy is John Haugeland's. See his "Mind Embodied and Embedded," in *Having Thought. Essays in the Metaphysics of Mind* (Cambridge, Mass.: Harvard University Press, 1998), p. 208.
5. Eric Wilson, *Emerson's Sublime Science* (London: MacMillan Press, 1999), p. 67.
6. Joseph Nechvatal, "Immersive Excess in the Apse of Lascaux," *Technoetic Arts* 3, no. 3 (2005): 182.
7. Andy Clark, "Reinventing Ourselves. The Plasticity of Embodiment, Sensing, and Mind," paper for *Tribute to Francisco Varela*, Sorbonne, Paris (delivered June 2004, forthcoming), p. 7.
8. Exactly how these oscillations influence each other and coordinate processing at the single-neuron and population levels is still unknown. See R. T. Canolty, E. Edwards, S. S. Dakakm, M. Soltani, S. S. Nagarajan, H. E. Kirsch, M. S. Berger, N. M. Barbaro, R. T. Knight, "High Gamma Power Is Phase-Locked to Theta Oscillations in Human Neocortex," *Science* 313 (September 15, 2006): 1627-28.
9. Joseph Roach, *Cities of the Dead. Circum-Atlantic Performance* (New York: Columbia University Press, 1996), p. xi.
10. Walter Benjamin, "Toys and Play. Marginal Notes on a Monumental Work," 1928 in *Walter Benjamin Selected Writings*, ed. Marcus Bullock and Michael W. Jennings and trans. Rodney Livingstone (Cambridge, Mass.: Belknap Press, 1996-2004), 2:116.
11. *The Merleau-Ponty Aesthetics Reader. Philosophy and Painting*, ed. Galen A. Johnson and Michael B. Smith (Evanston, Ill.: Northwestern University Press, 1993), pp. 127-28.
12. Herman Pleij, *Colors Demonic and Divine. Shades of Meaning in the Middle Ages and After*, trans. Diane Webb (New York: Columbia University Press, 2004), p. 26.
13. *The Seminar of Jacques Lacan*, book 10, *The Four Fundamental Concepts of Psychoanalysis*, ed. Jacques-Alain Miller and trans. Alan Sheridan (New York: W. W. Norton, 1990), p. 96.
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